

Annual Drinking Water Quality Report

TX1540001 City Of Brady Water System

This Annual Water Quality Report is for the period of January 1 to December 31, 2015. This report is intended to provide you with important information about your drinking water and the efforts made by the water system to provide safe drinking water.

If you would like the opportunity to participate in decisions that may affect the quality of our water, you may attend a regularly scheduled City Council meeting on the first and third Tuesday of each month. Check the City's website or call City Hall (325-597-2152) for the meeting place.

For more information regarding this report contact:

Name: Gary Jacobson, Superintendent of Water

Phone: 325-597-2244, extension 204

Este reporte incluye información importante sobre el agua para tomar. Para asistencia en español, favor de llamar al telefono (325) 597-2152.

Sources of Drinking Water

General background information

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 dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

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 EPAs Safe Drinking Water Hotline at (800) 426-4791.

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 gas stations, urban storm water 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, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. 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 the system's business office.

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).

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. We are responsible for providing high quality drinking water, but we 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>.

Specific information about the City of Brady water sources

The City of Brady Water System obtains its water solely from groundwater wells into the Hickory Aquifer, which is located in deep formations below Brady and the surrounding lands. We are not at this time obtaining any water from surface sources, such as lakes, creeks, or rivers. The City surface water plant was removed from service in 2013 because of the drought and will remain inactive until Brady Lake returns to and maintains a sufficient water level and afterwards for the time required to restore equipment and procedures and to obtain regulatory approval.

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 at our system, contact Gary Jacobson, Superintendent of Water, at 325-597-2244, extension 204.

Information about Maximum Contaminant Level (MCL) violations

Combined Radium -226 & Radium -228

The TCEQ has notified the City water system that the drinking water being supplied to customers had exceeded the Maximum Contaminant Level (MCL) for combined radium (-226 & -228). The U.S. Environmental Protection Agency (U.S. EPA) has established the MCL for COMBINED RADIUM (-226 & -228) at 5 pico curies per liter (pCi/L), based on a running annual average (RAA), and has determined that it is a health concern at levels above the MCL. The specific results of sampling for combined radium 226 and/or -228 are disclosed below in the Regulated Contaminants table.

This is not an emergency. However, some people who drink water-containing radium -226 and/or -228 in excess of the MCL over many years may have an increased risk of getting cancer. *You do not need to use an alternative water supply.* However, if you have health concerns, you may want to talk to your doctor to get more information about how this may affect you.

We are working to correct the problem: The City of Brady has engaged professional engineering services in which probable technical solutions have been derived to reduce radium in the drinking water. The City of Brady expects to return to compliance on or about the year 2020

Gross Alpha Excluding Radon And Uranium

The TCEQ has notified the City water system that the drinking water being supplied to customers had exceeded the Maximum Contaminant Level (MCL) for gross alpha excluding radon and uranium. The U.S. Environmental Protection Agency (U.S. EPA) has established the MCL for gross alpha excluding radon and uranium at 15 pico curies per liter (pCi/L) based on a running annual average (RAA), and has determined that it is a health concern at levels above the MCL. The specific results of sampling for gross alpha excluding radon and uranium are disclosed below in the Regulated Contaminants table.

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This is not an emergency. Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have increased risk of getting cancer. *You do not need an alternate water supply.* However, if you have health concerns, you may want to talk to your doctor to get more information about how this may affect you.

We are working to correct the problem: The City of Brady has engaged professional engineering services in which probable technical solutions have been derived to reduce gross alpha excluding radon and uranium in the drinking water. The City of Brady expects to return to compliance on or about the year 2020.

Information about Source Water Assessments

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.

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/>

Source Water Name	Type of Water	Report Status	Location
Well 2 - MAINT YARD	Ground Water	Active	900 W 1st St
Well 3 - OAK ST	Ground Water	Active	200 S Oak St
Well 4 - WHITE ST	Ground Water	Active	907 W White St
Well 5 - W CHINA ST	Ground Water	Active	411 W China St
Well 6 - GST (COLORADO ST / LAKE RD)	Ground Water	Active	398 Fife Rd
Well 7 - SOUTH AVE	Ground Water	Active	300 South Ave
Well 8 - GST (COLORADO ST / LAKE RD)	Ground Water	Active	398 Fife Rd

Disinfection

Disinfectant is necessary to control microbial contaminants and is required by law. The City of Brady uses chlorine gas (CL₂) as the primary disinfectant of the water. The City purchases chlorine gas from DPC Industries in Abilene.

The presence of chlorine residual in drinking water indicates that a sufficient amount of chlorine was added initially to the water to inactivate the bacteria and some viruses and that the water is protected from recontamination during storage.

The Maximum Residual Disinfectant Level (MRDL) is the highest level of disinfectant allowed in drinking water. The MRDL for chlorine gas is 4 ppm. The Maximum Residual Disinfectant Level Goal (MRDLG) is the level of disinfectant below which there is no known or expected health risk. MRDLGs do not reflect the benefits of disinfectant to control microbial contaminants. The MRDLG for chlorine gas is 4 ppm. Both the MRDL and MRDLG are based on monthly averages. Occasionally exceeding 4 ppm chlorine residual is not a violation.

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The City currently has an informal practice of measuring chlorine residuals at more locations and more frequently than required by law. The levels of chlorine residual measured in the City water during 2015 may be summarized as follows:

Average level for the year: 1.15 ppm

Minimum level detected on any sample: 0.20 ppm

Maximum level detected on any sample: 4.30 ppm

Water Quality Test Results

Definitions

The following tables contain certain abbreviations, scientific terms, and measures, some of which may require explanation.

Term	Definition
Avg	Regulatory compliance with some MCLs are based on running annual average of monthly samples.
Maximum Contaminant Level or 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 or 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 residual disinfectant level or MRDL	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.
Maximum residual disinfectant level goal or 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.
MFL	million fibers per liter (a measure of asbestos)
na	not applicable.
NTU	nephelometric turbidity units (a measure of turbidity)
pCi/L	picocuries per liter (a measure of radioactivity)
ppb	micrograms per liter or parts per billion - or one ounce in 7,350,000 gallons of water.
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 picograms per liter (pg/L)
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.
Action Level	The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

2015 Regulated Contaminants Detected

Lead and Copper

Lead and Copper	Date Sampled	MCLG	Action Level (AL)	90th Percentile	# Sites Over AL	Units	Violation	Likely Source of Contamination
Copper	2015	1.3	1.3	0.62	0	ppm	None	Erosion of natural deposits; Leaching from wood preservatives; Corrosion of household plumbing systems.
Lead	2015	0	15	2.88	0	ppb	None	Corrosion of household plumbing systems; Erosion of natural deposits.

Regulated Contaminants

Disinfectants and Disinfection By-Products	Collection Date	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Units	Violation?	Likely Source of Contamination
Haloacetic Acids (HAA5)*	2015	2	0 - 3.3	No goal for the total	60	ppb	None	By-product of drinking water disinfection.
Total Trihalomethanes (TTHM)	2015	8	0 - 8.4	No goal for the total	80	ppb	None	By-product of drinking water disinfection.
Inorganic Contaminants	Collection Date	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Units	Violation?	Likely Source of Contamination
Groundwater-only systems, including the City of Brady, are required to sample for the presence of certain inorganic contaminants every three years.								
Arsenic	10/21/2013	5.47	5.47 - 5.47	0	10	ppb	None	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes.
While your drinking water meets EPA standards for arsenic, it may contain low levels of arsenic. EPA's standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. EPA continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.								
Barium	06/26/2013	0.0371	0.0371 - 0.0371	2	2	ppm	None	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.
Chromium	06/26/2013	1.16	1.16 - 1.16	100	100	ppb	None	Discharge from steel and pulp mills; Erosion of natural deposits.

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Fluoride	2015	0.9	0.69 - 0.9	4	4	ppm	None	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories.
Nitrate [measured as Nitrogen]	2015	0.05	0 - 0.05	10	10	ppm	None	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
Radioactive Contaminants	Collection Date	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Units	Violation?	Likely Source of Contamination
Beta/photon emitters	2015	66.9	16.2 – 66.9	0	50	pCi/L *	None	Decay of natural and man-made deposits.
*EPA considers 50 pCi/L to be the level of concern for beta particles.								
Combined Radium 226/228	2015	45	12 - 55.7	0	5	pCi/L	Violation	Erosion of natural deposits.
Gross alpha excluding radon and uranium	2015	40	17.6 - 45	0	15	pCi/L	Violation	Erosion of natural deposits
Volatile Organic Contaminants	Collection Date	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Units	Violation?	Likely Source of Contamination
Ethylbenzene	2015	0.7	0 - 0.7	700	700	ppb	None	Discharge from petroleum refineries.
Xylenes	2015	0.003	0 - 0.003	10	10	ppm	None	Discharge from petroleum factories; Discharge from chemical factories.
Turbidity	Limit (Treatment Technique)			Level Detected		Violation?	Likely Source of Contamination	
Highest single measurement	1 NTU			0 NTU		None	Soil runoff.	
Lowest monthly % meeting limit	0.3 NTU			100.00%		None	Soil runoff.	

Information Statement: Turbidity is a measurement of the cloudiness of the water caused by suspended particles. We monitor it because it is a good indicator of water quality and the effectiveness of our filtration

Total Organic Carbon

The percentage of Total Organic Carbon (TOC) removal was measured each month and the system met all TOC removal requirements set, unless a TOC violation is noted in the violations section.

Violations Table

Combined Radium 226/228			
Some people who drink water containing radium 226 or 228 in excess of the MCL over many years may have an increased risk of getting cancer.			
Violation Type	Violation Begin	Violation End	Violation Explanation
MCL, AVERAGE	01/01/2015	03/31/2015	Water samples showed that the amount of this contaminant in our drinking water was above its standard (called a maximum contaminant level and abbreviated MCL) for the period indicated.
MCL, AVERAGE	04/01/2015	06/30/2015	Water samples showed that the amount of this contaminant in our drinking water was above its standard (called a maximum contaminant level and abbreviated MCL) for the period indicated.
MCL, AVERAGE	07/01/2015	09/30/2015	Water samples showed that the amount of this contaminant in our drinking water was above its standard (called a maximum contaminant level and abbreviated MCL) for the period indicated.
MCL, AVERAGE	10/01/2015	12/31/2015	Water samples showed that the amount of this contaminant in our drinking water was above its standard (called a maximum contaminant level and abbreviated MCL) for the period indicated.

Gross alpha excluding radon and uranium			
Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.			
Violation Type	Violation Begin	Violation End	Violation Explanation
MCL, AVERAGE	01/01/2015	03/31/2015	Water samples showed that the amount of this contaminant in our drinking water was above its standard (called a maximum contaminant level and abbreviated MCL) for the period indicated.
MCL, AVERAGE	04/01/2015	06/30/2015	Water samples showed that the amount of this contaminant in our drinking water was above its standard (called a maximum contaminant level and abbreviated MCL) for the period indicated.
MCL, AVERAGE	07/01/2015	09/30/2015	Water samples showed that the amount of this contaminant in our drinking water was above its standard (called a maximum contaminant level and abbreviated MCL) for the period indicated.
MCL, AVERAGE	10/01/2015	12/31/2015	Water samples showed that the amount of this contaminant in our drinking water was above its standard (called a maximum contaminant level and abbreviated MCL) for the period indicated.

Public Water Systems Served by the City of Brady

The City serves two other public water systems: Lakeland Services (TCEQ Number TX1540007), and Richland SUD (TCEQ Number TX2060012).

Lakeland Services

Lakeland Services purchases substantially all of its water from the City of Brady. Lakeland Services has approximately 28 service connections and serves a population of approximately 58.

Richland SUD

For two decades or more, Richland SUD has had an agreement with the City of Brady to buy water from the City on an emergency basis. Richland SUD has not actually purchased water from the City for more than 15 years, and it appears unlikely that it will in the foreseeable future.