WATER QUALITY REPORT

2020

City of Lubbock TEXAS

Delivering Safe, Clean Water

The Water Department is committed to delivering safe, clean water to its customers. Although the Department manages the city's water and wastewater systems, the top priority is to disinfect and treat the water that is distributed throughout the City. The Department's water treatment group includes 57 employees dedicated to producing water that meets or exceeds strict water quality standards set by the Texas Commission on Environmental Quality (TCEQ).

NORTH WATER TREATMENT PLANT
This plant was built in 1965 and treated 8.1 billion gallons of water in 2020 from Lake Meredith and the Roberts County Well Field through conventional treatment. The conventional treatment process uses sand, gravel, and coal filters to remove small particles.

SOUTH WATER TREATMENT PLANT
This plant was built in 2012 to treat water from Lake Alan Henry and deliver water to South Lubbock. It treated 2.7 billion gallons of water through membrane filters in 2020.

BAILEY COUNTY WELL FIELD
We pump water from the Ogallala aquifer and disinfect 2.5 billion gallons of water with chlorine near the well site. Then, the water is pumped to Lubbock and directly enters into the distribution system in Northwest Lubbock.

Water Treatment Process

TRANSPORTING SOURCE WATER
Water is transported from lakes and the Ogallala aquifer to the treatment plants.

DISINFECTION
Chlorine and ammonia are added to both ground and surface water to kill potentially harmful organisms before the water enters the treatment plant.

AERATION/COAGULATION
Raw surface water is aerated or mixed to release gases in the water. Coagulants are added to the water to cause particles to stick together when the water is gently mixed (known as flocculation), creating larger, heavier particles.

FLOCCULATION/SEDIMENTATION
When the surface water is gently mixed floc is created. These particles settle to the bottom of sedimentation tanks.

FILTRATION
Surface water filters consist of coal, sand, and gravel layers, or membrane used to remove smaller particles still remaining in the water.

SECONDARY DISINFECTION
Ammonia is added just before the treated ground or surface water leaves the plant to create chloramine. Chloramine maintains the disinfection in the distribution system.

DISTRIBUTION
Treated water is sent to Lubbock's homes and businesses for usage.

Important Health Information

Information about your drinking water

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 Environmental Protection Agency's (EPA) 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 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, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. 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 the system's business office.

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. 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.

Arsenic

While your drinking water meets EPA's standard for arsenic, it does 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.

Nitrate

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 for advice from your health care provider.

Special information for people with immune system deficiencies

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).

Drinking Water Analysis

CONTAMINANT	Year of Range	Average Level	Minimum Level	Maximum Level	MCL	MCLG	Unit of Measure	Contaminant Sources	Violation
SUBSTANCES REGULATED AT THE TREATMENT PLANT									
BETA/PHOTON EMITTERS	2017	6.2	4.3	8.1	50*	0	pCi/L	Decay of natural and man-made deposits	NO
ALPHA EMITTERS	2017	4.5	2	7	15	0	pCi/L	Erosion of natural deposits	NO
URANIUM	2017	4.2	3.5	4.9	30	0	ppb	Erosion of natural deposits	NO
ARSENIC	2020	1.9	1.8	2	10	0	ppb	Erosion of natural deposits; runoff from orchards	NO
BARIUM	2020	0.16	0.12	0.19	2	2	ppb	Erosion of natural deposits	NO
CHROMIUM	2020	2.7	1.7	3.7	100	100	ppb	Erosion of natural deposits	NO
CYANIDE	2020	121.4	77.3	187	200	200	ppb	Discharge from steel/metal, plastic, and fertilizer factories	NO
FLUORIDE	2020	1.01	0.655	1.36	4	4	ppm	Erosion of natural deposits	NO
NITRATE	2020	0.871	0.134	1.41	10	10	ppm	Fertilizer runoff, septic tank leachate, sewage, erosion	NO
TURBIDITY	2020	0.032	0.02	0.06	***% < 0.3 (TT)	0	NTU	Soil runoff	NO
TOTAL ORGANIC CARBON	2020	1.38	0.92	1.68	TT	TT	ppm	Naturally present in environment	NO
CHLORAMINES	2020	3.76	3.48	3.68	MRDLG=4.0	MRDLG=4.0	ppm	Disinfectant used to control microbes	NO
CHLORITE	2020	0.285	0.023	0.47	1	0.8	ppm	By- product of drinking water disinfection	NO
REGULATED IN THE DISTRIBUTION SYSTEM									
TOTAL TRIHALOMETHANES	2020	14.2	6.16	26.8 ^	80	N/A	ppb	By- product of drinking water chlorination	NO
HALOACETIC ACIDS (5)	2020	8.57	3.9	15 ^	60	N/A	ppb	By- product of drinking water chlorination	NO
****Total Coliform*	2020	0	0	0	5% of monthly samples are positive	0	****P/A	Naturally present in environment	NO
REGULATED AT THE CUSTOMER'S TAP									
LEAD (90th percentile)	2019	N/A	0	41	15 AL	0	ppb	Natural deposit erosion; plumbing system corrosion	NO
	Out of 103 samples collected, 99 were below 14 ppb, 100 were below the Action Level(AL) of 15ppb, and 3 exceeded the AL at 20,31, and 41 ppb.								
COPPER (90th percentile)	2019	0.087	0.013	0.16	1.3 AL	0	ppm	Natural deposit erosion; plumbing system corrosion	NO
	Out of the 100 sites collected, all were below the action level (AL) or 1.3 ppm.								
ADDITIONAL MONITORING									
ALUMINUM	2020	0.098	0.026	0.17	0.05-0.2^^	N/A	ppm	Water Treatment Chemical	N/A
CHLORIDE	2020	193.1	16.2	286	300 ^^	N/A	ppm	Naturally occurring	N/A
SULFATE	2020	101	121	151	300 ^^	N/A	ppm	Naturally occurring	N/A
TOTAL DISSOLVED SOLIDS	2020	649	359	800	1000^^	N/A	ppm	Naturally occurring	N/A
AMMONIA	2020	0.142	0.096	0.192	Not Regulated	N/A	ppm	Water Treatment Chemical	N/A
CALCIUM	2020	43.5	39.0	51.3	Not Regulated	N/A	ppm	Naturally occurring	N/A
MAGNESIUM	2020	30.9	28.6	33.2	Not Regulated	N/A	ppm	Naturally occurring	N/A
POTASSIUM	2020	7.42	6.93	7.66	Not Regulated	N/A	ppm	Naturally occurring	N/A
SODIUM	2020	216	188	261	Not Regulated	N/A	ppm	Naturally occurring	N/A
HARDNESS	2020	240	215	264	Not Regulated	N/A	ppm	Naturally occurring	N/A
CONDUCTANCE	2020	1188	575	1530	Not Regulated	N/A	µmho/cm	Naturally occurring	N/A
TOTAL ALKALINITY	2020	191	176	226	Not Regulated	N/A	ppm	Naturally occurring	N/A

The state allows us to monitor for some substances less than once per year because the concentrations of these substances do not change frequently. Some of our data, though representative, are more than one year old.

*The MCL for beta/photon emitters is 4 mrem/year. The USEPA considers 50 pCi/L to be the level of concern for beta/photon emitters.
**Running Annual Average
^Highest Locational Running Annual Average
^^Secondary Constituent Levels set by the Texas Commission of Environmental Quality.
***Note: 100% of plant turbidity meets the <0.3 NTU MCL
****Results reported as (Presence/Absence). Presence is defined as total coliforms found (positive). Absence is defined as no total coliforms found (negative).

For More Information

Texas Drinking Water Watch: http://www.tceq.state.tx.us/DWW

Safe Drinking Water Hotline: (800) 426-4791

City of Lubbock Water Treatment Lab: (806) 775-2614

Abbreviations & Definitions

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 (Avg)- Regulatory compliance with some MCLs are based on running annual average of 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 risk to health. MCLGs allow for a margin of safety.

Maximum Residual Disinfectant Level (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 (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

mrem- Millirems per year, a measure of radiation absorbed by the body

na- Not applicable

NTU- Nephelometric Turbidity Units, a measurement of turbidity

pCi/L- Picocuries per Liter, a measurement of radioactivity

ppb- Parts per billion or micrograms per liter

ppm- Parts per million or milligrams per liter

ppq- Parts per quadrillion or picograms per liter

ppt- Parts per trillion or nanograms per liter

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

Turbidity- 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 system and disinfectants.

umho- micromhos/cm

Our Water Supply

Lubbock's water supply comes from diverse and resilient sources. Groundwater from the Ogallala Aquifer is supplied by Roberts County Well Field and Bailey County Well Field, which accounts for 65% of Lubbock's water usage. Surface water is supplied by Lake Alan Henry and Lake Meredith, which accounts for 35% of water usage.

15% Lake Meredith

Canadian River Municipal Water Authority (CRMWA) manages and operates Lake Meredith (LM), a reservoir formed by Sanford Dam on the Canadian River at Sanford, Texas. LM is approximately 160 miles north of Lubbock. CRMWA has supplied water from LM to Lubbock since the 1960s. LM is 36% full as of April 2021. In 2019, Lubbock used approximately 2.07 billion gallons of water from LM.

Bailey County Well Field 19%

The City has owned and operated the Bailey County Well Field (BCWF) since the 1950s. The City owns over 80,000 acres of water rights in BCWF. Currently, there are 175 active wells and the average well production capacity is 200 gallons per minute. BCWF is located approximately 75 miles northwest of Lubbock in Bailey and Lamb Counties. In 2020, Lubbock used approximately 2.51 billion gallons of water from this well field.

20% Lake Alan Henry

The City owns and operates Lake Alan Henry (LAH), a reservoir formed by Montford Dam on the Double Mountain Fork of the Brazos River. LAH is approximately 65 miles southeast of Lubbock in Garza County, Texas. The City began using water from LAH in August 2012. LAH is 86% full as of April 2021. In 2020, Lubbock used approximately 2.65 billion gallons of water from LAH.

Roberts County Well Field 46%

CRMWA manages and operates Roberts County Well Field (RCWF) in Roberts County, Texas. RCWF is located approximately 150 miles to the northeast of Lubbock. In 2020, Lubbock used approximately 6.01 billion gallons of water from this well field.

The Texas Commission on Environmental Quality 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 Consumer Confidence Report. For more information on source water assessments and protection efforts at our system contact Michael Lowe at (806) 775-2616.

Protecting Surface Water Supplies

High quality tap water starts with healthy lakes and aquifers. We strive to bring the citizens of Lubbock high-quality drinking water every day. Approximately 20% of the water brought to Lubbock homes is from Lake Alan Henry, and 15% is from Lake Meredith. Protecting drinking water sources and recreational lakes such as Buffalo Springs Lake, Ransom Canyon, and the Jim Bertram Lake System within the Lubbock area keeps our community clean and healthy.

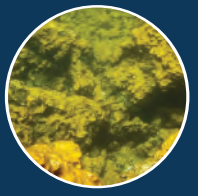
Stop the Spread of Invasive Species

Invasive species travel from lake to lake on your boat, trailer and gear. These invasive species harm native plants, fish, and animals and cost Texas taxpayers millions of dollars. Protect the lakes you love. Clean, drain and dry your boats and accessories before traveling from lake to lake. Keep boating, fishing, and swimming fun for everyone.

ZEBRA MUSSELS
Small, freshwater mussels that multiply rapidly and attach in clusters that damage water infrastructure.

GIANT SALVINIA
A highly invasive aquatic fern that doubles in size and acreage in less than a week, causing dense mats.

WATER HYACINTH
A non-rooted flowering aquatic plant that can cover a lake's surface and uses water at an alarmingly high rate.

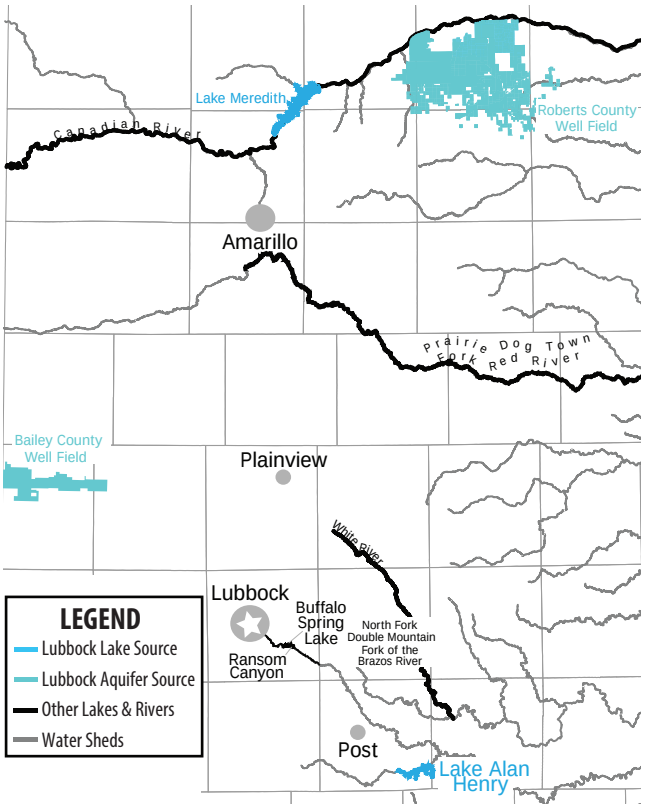


TOXIC GOLDEN ALGAE
A single-celled organism that lives in water. When it blooms, this alga can produce toxins that cause fish kills.

QUAGGA MUSSELS
Small, freshwater mussels that clog water intake structures, docks, buoys, and boat hulls in clusters.

HYDRILLA
A freshwater, rooted plant that can form monospecific stands, causing dense mats at lake surfaces.

LEARN MORE AT: www.mylubbock.us/lubbocklakes



Lake Turn Over

Lakes like Lake Meredith and Lake Alan Henry occasionally go through the process of lake turnover. Lake turnover is the seasonal movement of water in a lake, turning over from top to bottom.

During the fall, the warm surface water begins to cool. As the water cools, it becomes denser, causing it to sink. This dense water forces the water on the bottom of the lake to rise, causing turnover. The opposite happens in the spring, causing lakes to turn over every fall and spring.

Often odor, taste, and smell are affected by geosmins during lake turnover, causing water to have a slight earthy smell or taste. Although this may not be palatable, it is a completely safe and normal cycle all deep lakes experience.

Conserving & Securing Our Water

In the last 20 years, Lubbock has saved 73 billion gallons of water. We have accomplished this through our conservation rate structure, educational efforts, and water use ordinances such as our conservation plan and irrigation restrictions. These measures and our customer's efforts have reduced the demand on our current water supplies and delayed expensive new water supply projects saving our customer's money.

Our Water Supply Planning Goals

- Provide a road map to develop and implement cost-effective and sustainable water supplies over the next 100 years
- Diversify the City's water supply portfolio to minimize risk associated with variable climatic conditions
- Emphasize conservation efforts to delay expensive water supply projects

We reduced our water usage by 34%, saving 73 billion gallons of water since 2000. By helping create a water conservation culture in Lubbock, you have been instrumental in making this happen.

34% Reduction

73 Billion Gallons Saved

82 Gallons per person

Gallons per person per day is a great way to measure our conservation efforts. Even with a population that continues to grow each year, our residential customers are using only 82 gallons of water per person each day for all of their cleaning and consumption needs.

Securing Our Water System

The City of Lubbock takes security of our water system seriously. In 2020, we completed an updated risk and resiliency assessment and a water system emergency response plan. These documents assist us in ensuring that our water system is secure. The assessment included evaluation of risk and threats associated with chemical spills into water supplies, vulnerabilities between our water sources and your tap, cybersecurity, natural hazards, and terrorism acts. Based on this assessment, we will continue to implement strategies that reduce security risks.

Our emergency response plan covers situations such as water contamination, cyber-attacks, power outages, dam failures, droughts, terrorist threats, natural disasters, and chemical spills.

Water Loss

The City's 2020 water loss audit submitted to the Texas Water Development Board, indicates that our system lost an estimated 1.2 billion gallons of water out of the 13.3 billion gallons that were delivered. This loss represents 25 gallons per connection per day. If you have any questions about the water loss audit, please call (806) 775-3513.