North Water Treatment Plant Sedimentation Basins

Water Quality Report 2019

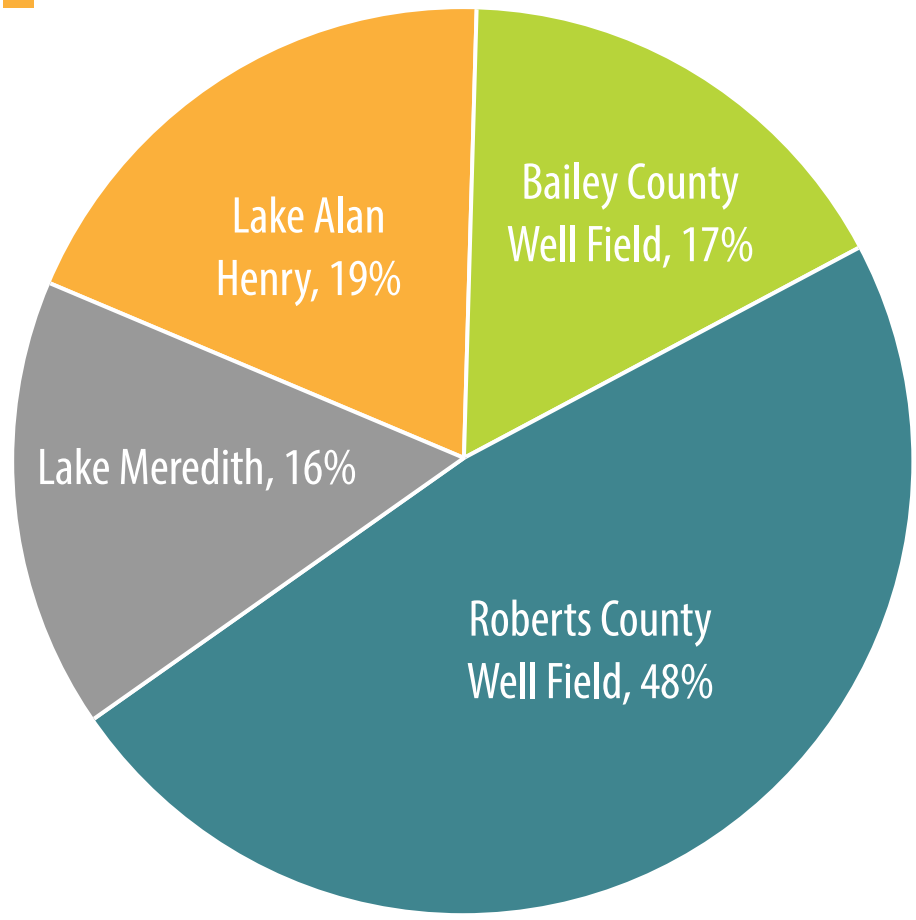
City of Lubbock TEXAS

South Water Treatment Plant

Diversifying 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.

Lake Alan Henry (LAH)
The City owns and operates LAH, a reservoir formed by Montford Dam on the Double Mountain Fork of the Brazos River. LAH is located approximately 65 miles southeast of Lubbock in Garza County, Texas. The City began using water from LAH in August 2012. LAH is 93% full as of April 2020. In 2019, Lubbock used approximately 2.31billion gallons of water from LAH.



Bailey County Well Field (BCWF)
The City has owned and operated the 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 2019, Lubbock used approximately 2.03 billion gallons of water from this well field.

Roberts County Well Field (RCWF)
Canadian River Municipal Water Authority (CRMWA) manages and operates RCWF in Roberts County, Texas. RCWF is located approximately 150 miles to the northeast of Lubbock. In 2019, Lubbock used approximately 5.76 billion gallons of water from this well field.

Lake Meredith (LM)
CRMWA manages and operates Lake Meredith, 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 42% full as of April 2020. In 2019, Lubbock used approximately 1.85 billion gallons of water from LM.


Lake Alan Henry

Planning for the Future

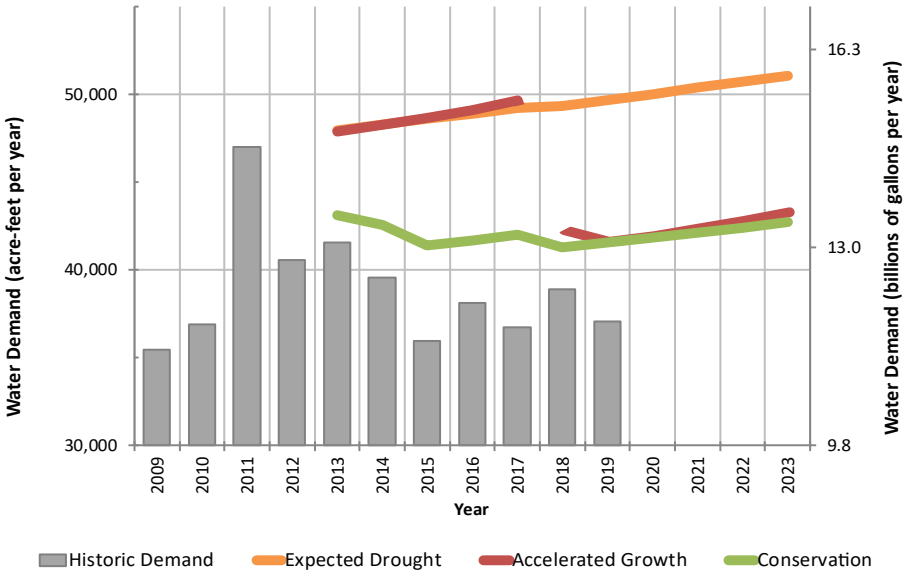
Lubbock's Water Utility is planning for Lubbock's future. The 2018 Strategic Water Supply Plan (SWSP) provides a road map to guide the development and implementation of cost-effective and sustainable water supplies over the next 100 years. The plan includes strategies to diversify the city's water supply portfolio and minimize the risk associated with variable climatic conditions while emphasizing conservation efforts to delay expensive water supply projects. The 2018 SWSP is available online at:

www.mylubbock.us/strategicwatersupplyplan

The 2018 SWSP estimated that Lubbock would use between 13.53 to 16.19 billion gallons of water in 2019 (see chart below). The city actually only used 12.07 billion gallons of water, which is less than the water conservation usage estimates. Thanks to you, we are stretching our water supplies and making every drop count.

This chart estimates three possible annual water usage scenarios (red, orange, and green lines) and compares them to Lubbock's actual water usage (grey bars) through 2019. The future water usage scenarios differ by population growth rate, drought conditions, and level of water conservation. Notice that in 2019 Lubbock used less water than was estimated under the conservation scenario (green line).

In 2018, our water usage scenario projections were modified.



Water Use Management Plan Update

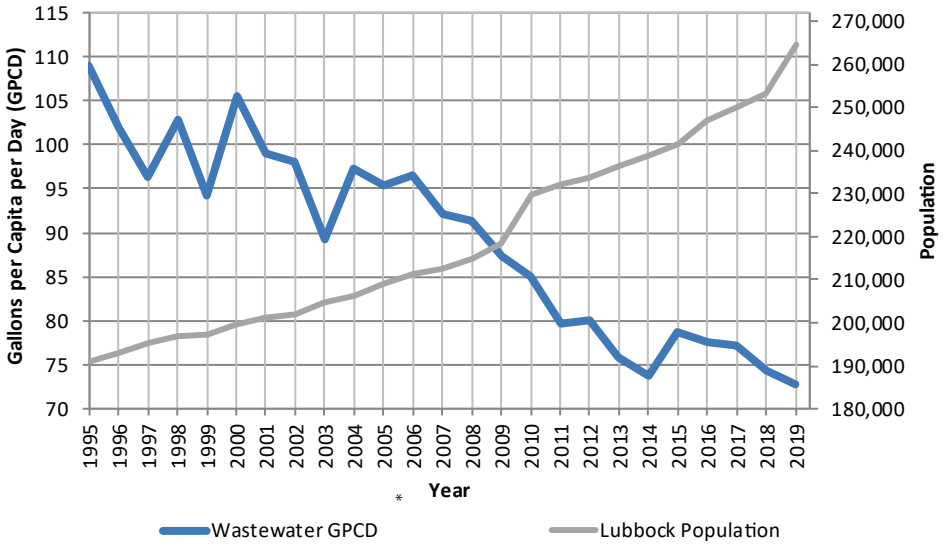
On April 23, 2019, the City adopted the latest version of the Water Use Management Plan, used to guide Lubbock's water utility planning for the coming years. The plan includes water conservation planning, drought, and emergency contingency plans, irrigation plans, and provides target goals for the utility. To achieve conservation goals, we plan to: maintain a rate structure that encourages conservation; reduce water loss within the City's distribution system; educate the public and provide useful water information and tools; and enforce irrigation/waste of water restrictions.

Water Loss

The City's 2019 water loss audit submitted to the Texas Water Development Board, indicates that our system lost an estimated 1,231,904,607 gallons of water out of the 12,665,789,000 gallons that were delivered. This loss represents 10.43% of our total water usage, which is near our goal of 10% or less water loss. If you have any questions about the water loss audit, please call (806) 775-3513.

Conserving One Drop at a Time

The city is very proactive in educating and encouraging the public about ways to conserve our water supplies. Conservation and a diversified water portfolio will help ensure that citizens of Lubbock will have water for decades to come.



Indoor Water Usage

As the City of Lubbock's economy continues to grow, industries are embracing conservation as part of their best management practices to reduce water usage.

Many homes and businesses today are equipped with high-efficiency toilets, sink aerators, and washing machines; these devices are reducing our indoor water usage substantially.

This trend can be seen in the chart to the left. Although, Lubbock's population is steadily increasing, our indoor water usage per person each day is decreasing.

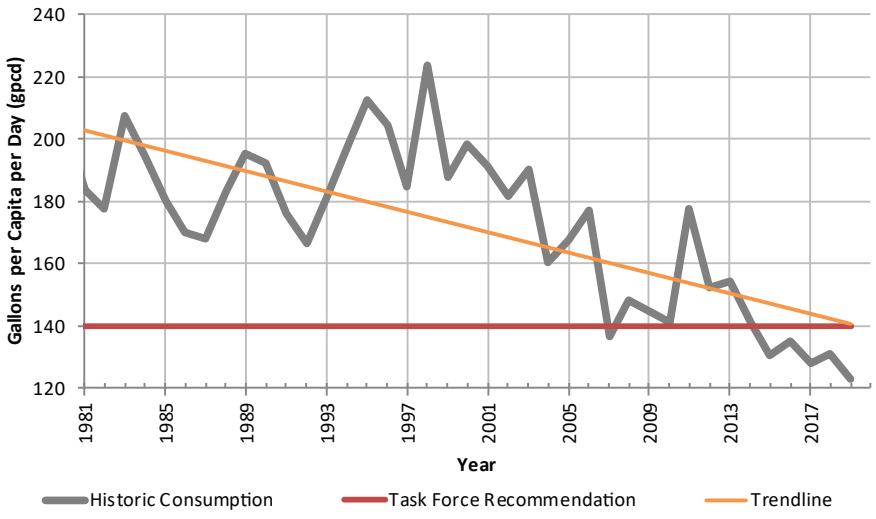
*Indoor water consumption is estimated from wastewater flowing into our treatment plants.

Outdoor Water Usage

City of Lubbock revised its Water Use Management Plan ordinance on January 12, 2017 to include year round water conservation measures on a continuous basis. As a result, the City is no longer in drought restrictions. However, our current ordinance includes restricting the number of days we irrigate each week.

Assigned irrigation days spreads out daily water usage and reduces Lubbock's peak day water usage. This enables the city to delay expensive new water supply projects.

Our irrigation schedule has reduced peak day usage by 32% over the past 20 years. Restricting irrigation usage has also contributed to a dramatic decline in Lubbock's overall water usage as depicted in the chart to the right.



Learn more about conservation at www.mylubbock.us/outreach

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 regulations set by the Texas Commission on Environmental Quality (TCEQ).

Water Treatment Process

Our water treatment group operates and maintains the Bailey County Well Field disinfection facilities, the South Water Treatment Plant that treats Lake Alan Henry water, and the North Water Treatment Plant that treats a blend of raw water from Lake Meredith and Roberts County Well Field water which is delivered by the Canadian River Municipal Water Authority. Once the water is treated, Water Staff controls and monitors the movement of the treated water throughout the City through a series of pumps stations, elevated storage tanks, and valves. Staff also checks chlorine residual throughout the distribution system routinely. All steps in the treatment process are essential to achieve our daily goal of producing high quality water that is safe for public consumption.

North Water Treatment Plant

This plant is a surface water treatment facility that uses a conventional treatment process consisting of disinfection, coagulation, flocculation, sedimentation, and filtration. All these steps are very important for the elimination of potential pathogens that can reside within particles found in raw water. These particles are referred to as turbidity.

Disinfection is accomplished with the combination of chlorine and ammonia to create a long-lasting chloramine disinfectant that will carry through the treatment process and to the far ends of the distribution system.

Aluminum sulfate is used for the binding of particles in the water to create larger particles that can be removed more easily during the coagulation, flocculation, and sedimentation process. This treatment process reduces the turbidity in the water.

The final step in the treatment process is filtration. The treated water flows through a combination of up to 20 filter chambers that contain various sand sizes and anthracite coal. The filtration process further reduces turbidity and, eliminates potential bacterial pathogens, and enhances the taste and smell of the treated water. After the water passes through the filtration process, it is pumped to a ground storage tank known as a clearwell. The treated water is pumped as needed into the distribution system to our customers.

South Water Treatment Plant

This plant is a surface water treatment facility that uses more advanced treatment processes that consists of coagulation, flocculation, and sedimentation. This is very important in order to start the elimination of potential pathogens that may exist in the raw surface water.

Microfiltration membrane is used to achieve a 99.99% removal of microscopic pathogens in the raw water including viruses and giardia. Microfiltration consists of multiple skids of vertical tube membrane shells that house thousands of hollow microfibers that trap impurities as the water passes through fibers.

The final step in this treatment process is disinfection of the filtered water with chlorine and ammonia to ensure a total removal or inactivation of microbiological bacterial organisms within the water. Chloramines carry a long-lasting disinfectant throughout the distribution system. The treated water is pumped to a ground storage tank and conveyed into the City's water distribution system.

Microfiltration Membranes

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

Water Quality Data

SUBSTANCE	MONITORING DATE	MCL	HIGHEST LEVEL DETECTED	MCLG	RANGE	SOURCES OF CONTAMINATION	VIOLATION
SUBSTANCES REGULATED AT THE TREATMENT PLANT							
BETA/PHOTON EMITTERS	2017	50 pCi/L*	8.1 pCi/L	0	4.3 - 8.1 pCi/L	Decay of natural and man-made deposits	NO
ALPHA EMITTERS	2017	15 pCi/L	7 pCi/L	0	2 - 7 pCi/L	Erosion of natural deposits	NO
URANIUM	2017	30 ppb	4.9 ppb	0	3.5 - 4.9 ppb	Erosion of natural deposits	NO
ARSENIC	2019	10 ppb	3.9 ppb	0	2.1 - 3.9 ppb	Erosion of natural deposits; runoff from orchards	NO
BARIUM	2019	2 ppm	0.19 ppm	2 ppm	0.096 - 0.19 ppm	Erosion of natural deposits	NO
CHROMIUM	2019	100 ppb	2.3 ppb	100 ppb	0 - 2.3 ppb	Erosion of natural deposits	NO
CYANIDE	2019	200 ppb	163 ppb	200 ppb	0 - 163 ppb	Discharge from steel/metal, plastic, and fertilizer factories	NO
FLUORIDE	2019	4 ppm	1.46 ppm	4 ppm	0.75 - 1.46 ppm	Erosion of natural deposits	NO
NITRATE	2019	10 ppm	1.13 ppm	10 ppm	0.098 - 1.13 ppm	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion	NO
TURBIDITY	2019	TT = 5 NTU TT = % of samples <0.3 NTU	0.17 100%	0	0.02 - 0.17 NTU	Soil runoff	NO
TOTAL ORGANIC CARBON	2019	TT	1.89 ppm	TT	1.02 - 1.89 ppm	Naturally present in environment	NO
CHLORAMINES	2019	MRDL=4.0 ppm	3.1 (highest monthly avg)	MRDLG=4.0 ppm	0.2 - 4.1 ppm	Disinfectant used to control microbes	NO
CHLORITE	2019	1 ppm	0.604 ppm	0.8 ppm	0 - 0.604 ppm	By-product of drinking water disinfection	NO
REGULATED IN THE DISTRIBUTION SYSTEM							
TOTAL TRIHALOMETHANES	2019	80 ppb	35.6 ppb^	N/A	1.01 - 39.4 ppb	By-product of drinking water chlorination	NO
HALOACETIC ACIDS (5)	2019	60 ppb	13.5 ppb^	N/A	1.1 - 14.1 ppb	By-product of drinking water chlorination	NO
E. COLI	2019	***	0	0	N/A	Naturally present in the environment	NO
REGULATED AT THE CUSTOMERS' TAP							
LEAD (90th percentile)	2019	15 ppb AL	3.1 ppb****	0 - 41 ppb		Erosion of natural deposits; corrosion of household plumbing systems	NO
	****Of 103 samples collected, 99 were below 14ppb, 100 were below the Action Level (AL) of 15ppb, and 3 exceeded the AL at 20, 31, and 41ppb						
COPPER (90th percentile)	2019	1.3 ppm AL	0.16 ppm*****	0.013 - 0.61 ppm		Erosion of natural deposits; corrosion of household plumbing systems	NO
	*****Out of 100 sites collected, all were below the Action Level (AL) of 1.3ppm						
ADDITIONAL MONITORING							
ALUMINUM	2019	0.05-0.2ppm^^	0.1 ppm	N/A	N/A	Water Treatment Chemical	
CHLORIDE	2019	300 ppm ^^	292 ppm	N/A	N/A	Naturally occurring	
SULFATE	2019	300 ppm ^^	147 ppm	N/A	N/A	Naturally occurring	
TOTAL DISSOLVED SOLIDS	2019	1000 ppm^^	863 ppm	N/A	N/A	Naturally occurring	
AMMONIA	2019	Not Regulated	0.681 ppm	N/A	N/A	Water Treatment Chemical	
CALCIUM	2019	Not Regulated	59.2 ppm	N/A	N/A	Naturally occurring	
MAGNESIUM	2019	Not Regulated	31.8 ppm	N/A	N/A	Naturally occurring	
POTASSIUM	2019	Not Regulated	6.7 ppm	N/A	N/A	Naturally occurring	
SODIUM	2019	Not Regulated	273 ppm	N/A	N/A	Naturally occurring	
HARDNESS	2019	Not Regulated	271 ppm	N/A	N/A	Naturally occurring	
CONDUCTANCE	2019	Not Regulated	1520 micromhos/cm	N/A	N/A	Naturally occurring	
TOTAL ALKALINITY	2019	Not Regulated	225 ppm	N/A	N/A	Naturally occurring	

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
***Routine and repeat samples are total coliform positive and either is E. coli-positive or system fails to take repeat samples following E. coli-positive routine sample or system fails to analyze total coliform positive repeat sample for E. coli.
^Highest Locational Running Annual Average
^^Secondary Constituent Levels set by the Texas Commission of Environmental Quality.

Data Table Information

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.

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.

Where to Find Additional Info

The Texas Commission on Environmental Quality publishes a Source Water Susceptibility Assessment for drinking water sources. 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 on our protection strategies. This source water assessment information is available on Texas Drinking Water Watch at http://www.tceq.state.tx.us/DWW/. For more information on source water assessments and protection efforts at our system, please contact us.

Water Quality Contact Information

Safe Drinking Water Hotline: (800) 426-4791

City of Lubbock Water Treatment Lab
(806) 775-2614
Weekdays: 7:30 a.m. to 4:30 p.m.

Water Quality Contact Information

Este reporte incluye informacion importante sobre el agua para tomar. Para asistencia en español, favor de llamar al telefono (806) 775-3596.

Water Quality Explanation

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).