Cryptosporidium

Cryptosporidium is a protozoan parasite that is common in surface waters. The oocyst is the transmission stage of the organism. Cryptosporidium is introduced into our source waters via wild animal populations. Although the organism is readily removed by the conventional treatment process utilized at the Canyon Road Water Treatment facility and advanced treatment processes at the Buckman Direct Diversion (BDD) Treatment facility, the oocyst is resistant to chemical disinfectants like chlorine. Therefore, the primary reason to test for cryptosporidium is to determine if additional treatment is required. Ingestion of cryptosporidium may cause cryptosporidiosis, an abdominal infection.

In April 2007 the City began a two-year study to determine the average Cryptosporidium concentration in source water entering the Canyon Road Water Treatment facility. The sampling portion of the study was completed in March of 2009. The study was part of the requirements contained in the 2006 USEPA Long-Term Enhanced Surface Water Treatment Rule. Cryptosporidium was detected in a single untreated sample in each of the following months: December of 2007, September 2008 and October 2008. The highest 12-month consecutive mean for this study was 0.018 oocysts/L. Since the concentration is <0.075 oocysts/L, no additional treatment at the Canyon Road Water Treatment Facility was necessary. The City began a second round of sampling, one sample a month, starting in October 2015 and completed in September 2017. No Cryptosporidium oocysts were detected during the second round of sampling during the October 2015 to September 2017 period, and consequently no additional treatment at the Canyon Road Water Treatment Facility is necessary.

As with Cryptosporidium oocysts, no Giardia Lamblia cysts have been detected in the October 2015 to September 2017 time period at the Canyon Road WTP.

Any new water system treating surface water such as BDD is required to monitor Cryptosporidium for 24 consecutive months. At the BDD the untreated raw Rio Grande water Cryptosporidium test results ranged from 0 to 0.4 oocysts/L. BDD began a second round of sampling, one sample a month, starting in October 2015 and ending September 2017. No Cryptosporidium oocysts were detected during the second round of sampling (October 2015 to September 2017, except July 2017 (0.1 oocysts/L), and consequently no additional treatment at the Buckman Regional Water Treatment Facility is necessary.

Voluntary Monitoring

In cooperation with Los Alamos National Laboratory (LANL) and the New Mexico Environment Department, the City currently monitors Buckman Wells 1, 6 and 8 for LANL derived contamination on a quarterly basis. Samples are analyzed for radionuclides, general inorganic chemicals, metals, high explosives and organics. This repeat sampling has occurred during the years 2001 – 2017 and has indicated that Laboratory-derived radionuclides are not present in the Buckman Wells 1, 2, 6 and 8. The results do indicate detectable levels of radionuclides associated with natural sources. These wells are part of the 13 wells that make-up the Buckman Wellfield. When these wells are used, water from these wells is delivered to the Buckman Tank prior to distribution into the system.

Source Water Assessment

The New Mexico Environment Department (NMED) completed a Source Water Assessment of the City's Water Utility, which includes the sources of supply for the SFCU, to determine source water protection areas and inventory contaminant sources. NMED concluded: " The Susceptibility Analysis of the City of Santa Fe water utility reveals that the utility is well maintained and operated, and drinking water sources are generally protected from potential contamination…" The susceptibility rank of the City's system, which includes the sources of supply for the SFCU, is moderately low. A copy of the assessment is available by contacting NMED at 1-877-654-8720.

Long-Term Supply Sustainability

The BDD, which includes the Buckman Regional Water Treatment Plant, was constructed and is operated under a cooperative agreement between the City, the County, Las Campanas Water and Sewer Cooperative, and the Club at Las Campanas. The BDD, which came on-line in 2011, has significantly improved the long-term sustainability of the area's water supply and increases the community's resilience under drought conditions. Using treated surface water as our primary supply reduces unsustainable groundwater pumping, which helps ensure groundwater will be available during times of drought.

Water Conservation Tips

The estimated average daily water use for SFCU residential customers is 70 gallons per day (gpd). While this is below the national average (100 gpd), water resources in our area are limited and any reduction in consumption helps. Below are low or no cost methods for reducing water use:

- Take short showers - a 5 minute shower uses 4 to 5 gallons of water compared to up to 50 gallons for a bath.
- Shut off water while brushing your teeth, washing your hair, and shaving to save up to 500 gallons a month.
- Use a water-efficient showerhead. They're inexpensive, easy to install, and can save you up to 750 gallons a month.
- Run your clothes washer and dishwasher only when they are full. You can save up to 1,000 gallons a month.
- Water plants only when necessary.
- Fix leaky toilets and faucets. Faucet washers are inexpensive and take only a few minutes to replace. To check your toilet for a leak, place a few drops of food coloring in the tank and wait. If it seeps into the toilet bowl without flushing, you have a leak. Fixing it or replacing it with a new, more efficient model can save up to 1,000 gallons a month.
- Adjust sprinklers so only your lawn is watered. Apply water only as fast as the soil can absorb it and during the cooler parts of the day to reduce evaporation.
- Teach your kids about water conservation to ensure a future generation that uses water wisely. Make it a family effort to reduce next month's water bill!

Visit www.epa.gov/watersense for more information.

SANTA FE COUNTY UTILITIES DIVISION

South Sector Public Water System

2017 Water Quality Report

CONTENTS:

Overview

Santa Fe County Utilities (SFCU) is pleased to present the 2017 Water Quality Report for the **South Sector** public water system to our customers and the public. A safe and reliable water supply is vital to our community and is one of the primary missions of Santa Fe County.

In 2017, the South Sector's drinking water met all U.S. Environmental Protection Agency (EPA) drinking water quality Standards.

The South Sector supplies potable water to users outside the boundary of the City of Santa Fe (City) in the areas including Campo Conejos, Turquoise Trail South, Rancho Viejo, Oshara Village, La Pradera, Valle Vista, the County Public Safety Complex, Turquoise Trail School, Las Lagunitas and parts of La Cienega. Water is also provided to other systems, including the New Mexico National Guard, the New Mexico State Penitentiary and the La Cienega Mutual Domestic Water Consumers Association.

This report summarizes where the SFCU water supply comes from and how it compares to federal regulatory drinking water standards. As water quality samples are collected periodically throughout the year, this report presents data representative of the water quality during calendar year 2017 or previous years if sampling for a specific contaminant was not required during 2017.

If you have any questions about this report, concerns regarding your water utility, or would like to learn more about the County's plans for the future water supply, please visit our website at: www.santafecountynm.gov/public_works/utilities or call us at 505-992-9870.

If you would like to become involved in issues of water supply in our area, you are encouraged to attend meetings of our governing body, the Santa Fe County Commission, which occur on the second and last Tuesday of each month starting at 2:00 pm. Meeting agendas are posted at: www.santafecountynm.gov/committees/board_of_county_commissioners_bcc.

Additionally, the Santa Fe County Water Policy Advisory Committee meets every other month at 5:00 pm at the Public Works Complex, 424 NM Hwy 599 Frontage Rd. Agendas and minutes are posted at: http://www.santafecountynm.gov/committees/wpac.

En Español

Este informe contiene información sobre el agua calidad en el condado de Santa Fe del parte oeste del sistema de agua. Si tiene alguna pregunta o duda sobre este informe, por favor llama a la utilidad del condado de Santa Fe a 505-992-9870.

424 NM SR 599 Santa Fe, NM 87507
Phone (505) 992-9870 Fax (505) 992-3028
www.santafecountynm.gov

Sources of Supply

The sources of water supply for both the County and the City water systems are the same throughout the Santa Fe metropolitan and surrounding areas and include both ground water and surface water. The map below and page 3 illustrate and briefly explain the sources and treatment of the County and City water supply systems.

Source of Supply Water Quality

As required by the Federal Safe Drinking Water Act, water quality sampling and analysis are conducted to ensure drinking water quality meets standards. The City is required to test for over 80 contaminants, and the vast majority of these contaminants were not found above detection limits. Table 1 on page 4&5 lists contaminants which:

- have established primary Maximum Contaminant Levels (MCLs) and/or Maximum Contaminant Level Goal (MCLG) that are regulated, and;
- were detected in testing conducted by the City and New Mexico Environment Department.

The table includes only those constituents found above detection limits during 2017 sampling, or during sampling in previous years if not analyzed during 2017. The EPA requires monitoring for certain contaminants less than once per year because the concentrations are not expected to vary significantly from year to year.

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 water poses a health risk. More information about contaminants and potential health effects have been included later in this report and can be obtained by calling the Environmental Protection Agency's (EPA) Safe Drinking Water Hotline (800) 426-4791, or visiting: http://www.epa.gov/safewater.

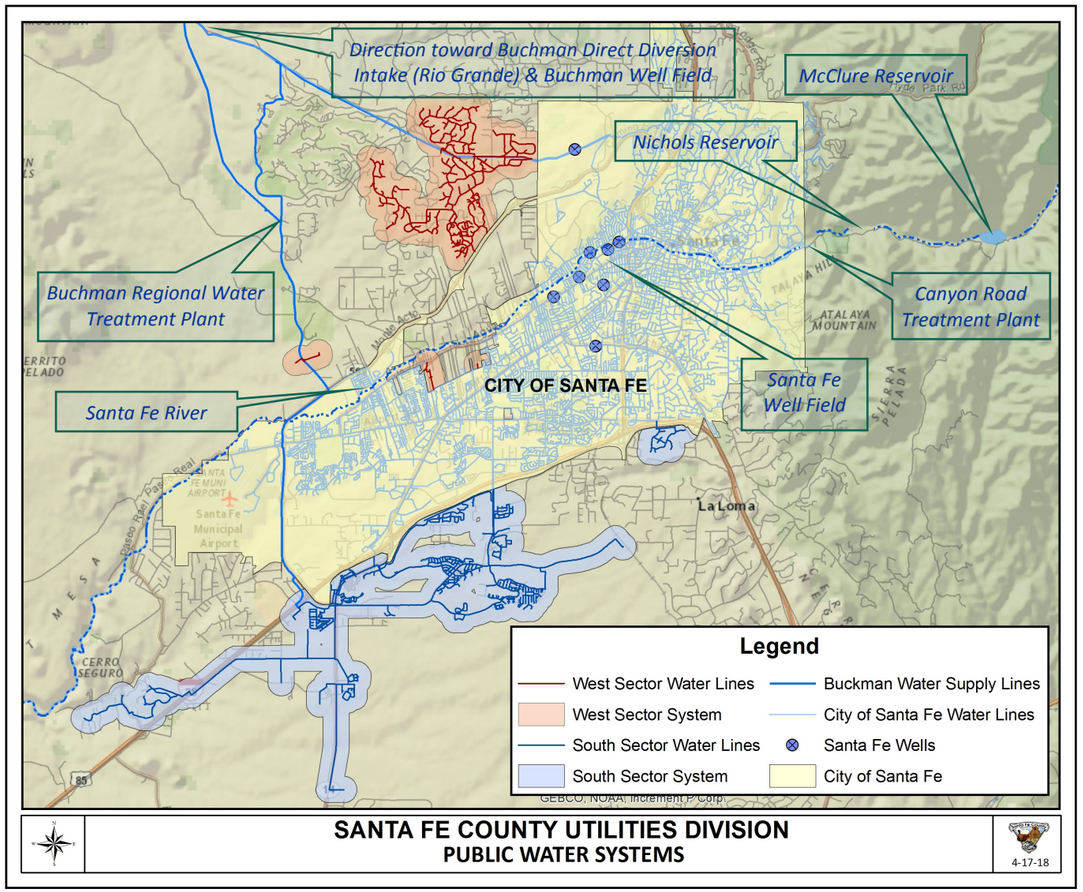


TABLE 2—Results of Disinfection By-Product Testing for 2017

South Sector Disinfection By-Product Results	Units	MCL	MCLG	LRAA (2017)	Range (2017)		Typical Source
					Low	High	
Total Haloacetic Acids (HAA5)	ppb	60	NA	15	9.33	19	By-product of drinking water chlorination.
Total Trihalomethanes (TTHM)	ppb	80	NA	60	45.2	72.1	By-product of drinking water chlorination.

TABLE 3—Results of Disinfectant Residual Testing for 2017

South Sector Disinfectant Residual Results	Units	MRDL	MRDLG	Range (2017)		Violation	Typical Source
				Low	High		
Chlorine Residual	ppm	4.0	4	0.21	0.24	No	Water additive used to control microorganisms

Bromate Testing

Bromate monitoring is required at the entrance to the distribution system whenever ozone is used to treat drinking water. Buchman Regional Water Treatment Plant (BRWTP) is the only treated water source that supplies ozonated water to the City and County water system. Compliance is based on the running annual average (RAA) of monthly samples collected from BRWTP finished water. In 2017 the highest RAA was 0.005 mg/L, which is lower than the 0.010 mg/L MCL (Table 4 below), indicating that the system was in compliance with bromate requirements for all of 2017.

TABLE 4—Results of Disinfectant Residual Testing for 2017

South Sector	Units	MCL	MCLG	Monthly Range (2017)		Violation	Typical Source
				Low	High		
Bromate	ppm	0.010	zero	0.003	0.005	No	By-product of drinking water disinfection

Lead and Copper Testing

Tests for lead and copper were taken from 20 customer taps located in the South Sector twice in 2015 (during the period from 3/31/15 thru 4/2/15 and from 9/14/15 thru 9/28/15). None of the samples exceeded the action level for lead or copper. The sample results from the most recent sampling event (those taken between 9/14/15 and 9/28/15) are reported in Table 5 below. Ten samples will next be collected in 2018 during the period between June 1 and September 30 and analyzed for lead and copper and the results of those samples will be reported in our 2018 Water Quality Report.

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 house plumbing. SFCU 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 and up to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have its quality 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 (800) 426-4791, or visiting:

http://www.epa.gov/safewater/lead

TABLE 5—Results of Lead and Copper Testing for 2015 (Next Analysis 2018)

South Sector Lead & Copper Results	Units	MCL	MCLG	Your Water (90th percentile)	No. of Samples Exceeding the AL	Sample Dates	Violation	Typical Source
Copper	ppm	AL = 1.3	1.3	0.1	0 of 20	June 16, 2015	No	Erosion of natural deposits, corrosion of household plumbing systems.
Lead	ppb	AL = 15	0	1.9	0 of 20	June 16 2015	No	Erosion of natural deposits, corrosion of household plumbing systems.

Lead and Copper Action Level

The lead and copper levels reported are values for the 90th percentile. In this case, 20 samples were collected and the 18th highest sample result represents the 90th percentile.

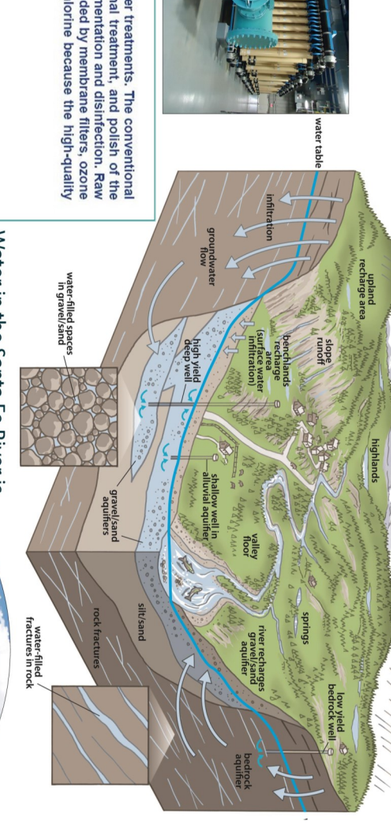
SOURCES AND TREATMENTS OF YOUR WATER SUPPLY

SOURCES OF SUPPLY

Santa Fe County shares ground and surface water supply sources with the City of Santa Fe. These sources are:

- ground water from wells in the City's Buckman well field, and 8 wells in the City well field contribute to the Santa Fe County Utility water supply .
- surface water from the Rio Grande and the Santa Fe River.

Raw surface water is diverted from the Rio Grande through an intake structure and is conveyed by an 11 mile pipeline to the Buckman Regional Water Treatment Plant where it is treated through an advanced treatment process.



Ground water from 13 wells in the City's Buckman well field, and 8 wells in the City well field contribute to the Santa Fe County Utility water supply .

Water in the Santa Fe River is dammed above Upper Canyon Road and stored in the Nichols and McClure Reservoirs prior to treatment through conventional processes at the City's Canyon Road Water Treatment Plant.

From these sources clean, potable water is distributed through a vast network of waterlines to you.

The Buckman Regional Water Treatment Plant includes a series of conventional and advanced water treatments. The conventional treatments remove the vast majority of contaminants. The advanced processes provide additional treatment, and polish the finished drinking water. Conventional treatment processes include coagulation, flocculation, sedimentation and disinfection. Raw water ozonation improves the effectiveness of conventional treatment. Advanced treatment is provided by membrane filters, ozone and granular activated carbon contactors. Disinfection is accomplished with lower amounts of chlorine because the high-quality water does not need as much chlorine.

Why Are There Contaminants In Drinking Water?

The sources of all drinking water (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 or suspends naturally occurring and man-made substances. These substances can include:

Microbial contaminants, such as viruses and bacteria that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife;

Inorganic contaminants, such as salts and metals that may be naturally-occurring or result from urban storm-water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, and farming;

Pesticides and herbicides, that 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; and

Radioactive contaminants, which can be naturally occurring, man-made from nuclear facilities and atmospheric deposition from former above-ground testing, or be the result of oil and gas production, and mining activities.

Intentionally added substances: Water from all four supply sources for the SFCU water supply is disinfected with chlorine to protect against waterborne pathogens. To protect consumers' teeth, fluoride may also be added at levels generally recommended by public health professionals.

In order to ensure that tap water is safe to drink, state and federal regulations limit the amount of certain contaminants allowed 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.

Do I Need To Take Special Precautions?

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as individuals with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. Health care providers should advise you about certain risks associated with tap water if you have an immune compromising condition. EPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Water Drinking Hotline (1-800-426-4791).

Specific Contaminants:

Arsenic

The drinking water standard for arsenic is 10 ppb. The SFCU's water supply met this standard throughout 2017 (please see Table 1, pages 4&5, of this document for the levels of arsenic measured in 2017—varying locations). Arsenic occurs naturally in the earth's rock crust. When arsenic-containing rocks, minerals, and soil erode, they release arsenic into ground water. While our drinking water meets EPA's standard for arsenic, it does contain low levels of arsenic. The EPA 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.

Nitrates

The SFCU's drinking water supply meets the federal drinking water standard of 10 ppm for nitrates. Nitrates have been detected in some of the City Wells up to 7 parts per million (ppm). 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 which is a potentially fatal blood disorder in which there is a reduction in the oxygen caring capacity of blood. 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 seek advice from your health care provider concerning nitrate in drinking water.

Microbial and Disinfection By-products Rule

The Microbial and Disinfection By-products Rule is a set of interrelated regulations that address risks from microbial pathogens and disinfection by-products (DBPs). The Stage 2 Disinfectants and Disinfection By-Products Rule (DBPR) focuses on public health protection by limiting exposure to known carcinogenic DBPs, specifically total trihalomethanes (TTHM) and five haloacetic acids (HAA5), which can form in water through disinfectants (e.g. chlorine) used to control microbial pathogens. In 2017, the South Sector had one compliance sampling location for TTHM and a separate location for HAA5. Each of these locations was sampled once each quarter throughout the year. The average of analytical results for DBPs at a given location during the previous four quarterly samples is called the locational running annual average (LRAA). The LRAA for each location must be below the MCL (60 ppb for HAA5 and 80 ppb for TTHM). Based upon the samples that were collected, the South Sector's water met the MCL standards. The results are presented in Table 2.

Disinfectant Residual Testing

The Stage 2 DBPR also regulates the maximum residual for disinfectants, including chlorine. Disinfectants are added to control microorganisms as part of treatment and to maintain microbiological water quality throughout the distribution system and up to your tap. The South Sector uses free chlorine as a disinfectant. For 2017, sampling was performed at 24 monitoring locations each month. The results are shown in Table 3 .

TABLE 1—2017 South Sector Water Quality

Contaminant	Units	MCL	MCLG	City Well Field[a]	Sample Date	Buckman Tank[b]	Sample Date	Canyon Road WTP	Sample Date	Buckman RWTP	Sample Date	Violation	Typical Source (s)
Inorganic Contaminants													
Arsenic	ppb	10	0	3.5 (ND-3.5)	2017	ND	2017	ND	2017	ND	2017	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Barium	ppm	2	2	0.73 (ND-0.73)	2017	0.02	2017	0.07	2017	0.04	2017	No	Discharge from drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Fluoride	ppm	4	4	0.1 (ND-0.1)	2017	0.4	2017	0.5	2017	0.3	2017	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Nitrate [as N]	ppm	10	10	7 (2-7)	2017	ND	2017	ND	2017	ND	2017	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion from natural deposits
Selenium	ppb	50	50	2 (0-2)	2017	ND	2017	ND	2017	ND	2017	No	Byproduct of drinking water disinfection
Synthetic Organic Contaminants													
Di(2-Ethylhexyl) Phthalate	ppm	0.006	0	0.001 (ND-0.001)	2017	ND	2017	ND	2017	ND	2017	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion from natural deposits
Radioactive Contaminants													
Gross Alpha Emitters	pCi/L	15	0	1.5 (0.2-1.5	2017	1.8	2017	NA	NA	ND	2017	No	Erosion of natural deposits
Gross Beta/Photon Emitters	pCi/L	50[c]	NA	1.4 (ND - 1.4)	2017	3.5	2017	NA	NA	1.7	2017	No	Decay of natural and man-made deposits
Radium 226/228	pCi/L	5	0	0.75 (0.39 - 0.75)	2017	0.03	2017	NA	NA	0.03	2017	No	Erosion of natural deposits
Uranium	ppb	30	0	1	2017	2.0	2017	NA	NA	ND	2017	No	Erosion of natural deposits
Surface Water Contaminants													
Turbidity[d] (highest single measurement)	NTU	TT = 1.0	0	NA	NA	NA	NA	0.22	2017	0.99	2017	No	Soil Runoff
Turbidity[d] (losouth monthly % meeting limits)	NTU	TT = % <0.3 NTU	0	NA	NA	NA	NA	100%	2017	99.4%	2017	No	Soil Runoff
Total Organic Carbon (TOC)	NA	TT[e]	NA	NA	NA	NA	NA	1.2[f] (1.2-1.3)	2017	NA	NA	No	Naturally present in the environment

Notes: a. City wellfield: Alto, Agua Fria, Ferguson, Osage, Santa Fe, St. Mikes & Torreon wells—As there are multiple sampling locations (each well) ranges, with the losouth and the highest, are provided. All results have been below each respective MCL. **b.** Buckman Wells 1-13 and Northsouth Well. **c.** EPA considers 50 pCi/L to be the level of concern for beta particles. **d.** Turbidity is a measure of the cloudiness of water. We monitor it because it is a good indicator of the effectiveness of our filtration system. **e.** Alternative compliance criteria used to meet TOC removal requirements (running annual average of TOC removal ratio must be >1 each month. **f.** Running annual average (RAA) of TOC removal ratio for each month during 2017 - minimum ratio was 1.2 (as per 40 CFR 141.135 "&"("&"c"&") 2006)".

NA	**Not Applicable**
ND	**Not Detected**
NTU	**Nephelometric Turbidity Units** (a measure of turbidity)
ppm	**parts per million,** or milligrams per liter (mg/L)
ppb	**parts per billion,** or micrograms per liter (µg/L)
pCi/L	**picocuries per liter** - a measure of radioactivity
µg/L	**micrograms per liter**
mg/L	**milligrams per liter**
µmhos/cm	**micromhos per centimeter** or µS/cm (microsiemens per centimeter) – a measure of electrical conductivity in water due to the presence of dissolved inorganic ions (e.g., calcium, chloride, sodium, etc.).
AL	**Action Level** - The concentration of a contaminant, if exceeded, triggers treatment or other requirements.

LRAA	**Locational Running Annual Average** - the average of analytical results for samples at a particular monitoring location during the previous four calendar quarters. LRAA at each sampling location must be below the MCL .
MCL	**Maximum Contaminant Level** - The highest level of a contaminant that is allowed in drinking water. MCL's 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.
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.
SMCL	**Secondary MCL** - Non-mandatory water quality standards for certain contaminants established as guidelines to assist public water systems in managing their drinking water for aesthetic considerations, such as taste, color and odor. These contaminants are not considered to present a risk to human health at the SMCL.
TT	**Treatment Technique** - a required process intended to reduce the level of a contaminant in drinking water.