

Why are there Contaminants in my Drinking Water?

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. Contaminants in drinking water may 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 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, 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 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, 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.

In order to ensure that tap water is safe to drink, EPA prescribes regulations that 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.

Nitrates

City of Santa Fe drinking water meets the federal drinking water standard of 10 ppm for nitrates (10 mg/L as N). Nitrates have been detected in some of the City Wells above 5 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. 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 advice from your health care provider.



Arsenic

The drinking water standard for arsenic is 10 µg/L. The City's drinking water met this standard throughout 2013. Arsenic occurs naturally in the earth's crust. When these 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.

Voluntary Monitoring

EPA has established secondary maximum contaminant levels (SMCL). Secondary Standards are non-enforceable standards that serve as guidelines to assist public water systems in managing their drinking water. The presence of these contaminants typically results from the erosion of natural deposits. Aluminum and manganese containing materials are used as treatment aids in the water treatment process.

Samples for voluntary monitoring at BRWTP are taken at the point of entry of water into the City's distribution system. As such, the reported concentrations of contaminants may be further diluted in the distribution system through mixing with water from other City sources.

Voluntary Primary Contaminant Monitoring at BRWTP					
Contaminant	Units	MCL	MCLG	Buckman RWTP	Violation
Barium	ppm	2	2	0.063 (0.040 - 0.063)	No
Fluoride	ppm	4	4	0.32 (0.21-0.32)	No
Nitrate (as N)	ppm	10	10	0.19 (0.10 - 0.19)	No
Uranium	ppm	30	0	0.0027 (0.00095 - 0.0027)	No

Voluntary Secondary Contaminant Monitoring at BRWTP			
Contaminant	Secondary Standard	Buckman RWTP	Sample Year
Aluminum	0.05 to 0.2 mg/L	0.011 (ND - 0.011)	2013
Chloride	250 mg/L	19 (17 - 19)	2013
Copper	1.0 mg/L	0.0023 (0.0013 - 0.0023)	2013
Fluoride	2.0 mg/L	0.41 (0.26 - 0.41)	2013
pH	6.5-8.5	7.85 - 7.97	2013
Sulfate	250 mg/L	48 (19 - 48)	2013
Total Dissolved Solids	500 mg/L	230 (197 - 230)	2013
Zinc	5 mg/L	0.0012 (ND - 0.0012)	2013

Voluntary Radiological Monitoring and Other Constituents at BRWTP			
Contaminant	Unit of Measurement	Buckman RWTP	Sample Year
Strontium-90	pCi/L	0.07	2013
Tritium	pCi/L	130	2013
Uranium-234/235	pCi/L	1.28 (ND to 1.28)	2013
Uranium-238	pCi/L	1.21 (ND to 1.21)	2013
Conductivity	µmhos/cm	320 (36 - 320)	2013

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 – 2013 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. Water from these wells is delivered to the Buckman Tank prior to distribution into the system.

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, the oocyst is resistant to chemical disinfectants like chlorine and the primary reason 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 is 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.

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 range from 0 to 0.4 oocysts/L.



Microbial and Disinfection Byproducts Rule

The Microbial and Disinfection Byproducts Rules (MDBPs) is a set of interrelated regulations that address risks from microbial pathogens and disinfectants/ disinfection byproducts (DBPs). The rule focuses on public health protection by limiting exposure to DBPs (known carcinogens), specifically total trihalomethanes (TTHM) and five haloacetic acids (HAA5), which can form in water through disinfectants used to control microbial pathogens.

The City of Santa Fe system has eight compliance sampling locations for TTHM and HAA5. Each location is sampled once per quarter. The average of analytical results for DBPs at a given location during the previous four quarterly samples is called the locaitonal running annual average (LRAA). The LRAA at each location must be below the MCL (0.060 mg/L for HAA5 and 0.080 mg/L for TTHM). Results shown in the Table below indicate that the individual quarterly values during 2013 ranged from 0 to 0.074 mg/L for HAA5 and 0 to 0.045 mg/L for TTHM. The highest LRAA was 0.0330 mg/L for HAA5 and 0.0309 mg/L for TTHM, indicating that the system is in compliance.

	Sample Highest				Range 2013 ‡		Typical Source
	MCL†	MCLG†	Year	LRAA†	Low †	High †	
Haloacetic Acids (HAA5s)	.060	NA	2013	.033	0	0.074	By-product of drinking water chlorination
Total Trihalo-methane (TTHMs)	.080	NA	2013	.031	0	0.045	By-product of drinking water chlorination

† = units are ppm (mg/L)

‡ = individual samples at all locations

Contacts for Additional Information

If you have any questions, comments, or suggestions regarding this report please contact Brian Snyder at 955-4201 or write to the address on page 1.

- City of Santa Fe Billing Information and Customer Service 955-4333
- City Water Quality Issues 955-4232 Alex Puglisi
- New Mexico Environment Department Drinking Water Program (877) 654-8720
- Environmental Protection Agency Safe Drinking Water Hot Line (800) 426-4791
- New Mexico Environment Department <http://www.nmenv.state.nm.us>
- Environmental Protection Agency www.epa.gov/safewater
- U.S. Geological Survey <http://nm.water.usgs.gov>
- Center for Disease Control <http://www.cdc.gov>
- City of Santa Fe's Website www.santafenm.gov
- Buckman Direct Diversion www.bddproject.org



Copper and Lead Sampling

Tests for lead and copper are taken from customer taps located throughout the City once every three years. The most recent round of lead and copper testing took place in August 2012. 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.

Inorganic Contaminants	MCLG	AL**	City Water Levels (90th percentile)*	# of Sample <AL	Sample Date	Exceeds AL	Typical Source
Copper (ppm)	1.3	1.3	0.70	31	August 2012	No	Erosion of natural deposits; Corrosion of household plumbing systems.
Inorganic Contaminants	MCLG	AL**	City Water Levels (90th percentile)*	# of Sample <AL	Sample Date	Exceeds AL	Typical Source
Lead (ppb)	0	15	5.8	31	August 2012	No	Erosion of natural deposits; Corrosion of household plumbing systems.

*Results of monitoring are used to determine the concentration at the 90th percentile (e.g., if 100 samples analyzed, the concentration at the 90th highest sample). Based on the number of samples analyzed in 2012 the 90th percentile is the 28th sample.

Asbestos

The most recent sample for asbestos in the distribution system was collected on December 16, 2013. No asbestos fibers were detected in the sample collected (detection limit 0.2 million fibers per liter or MFL). Some people who drink water containing asbestos in excess of the MCL over many years may have an increased risk of developing benign intestinal polyps.

Contaminants	MCLG*	MCL*	Result*	Sample Year*	Violation	Typical Source
Asbestos	7	7	ND (<0.2)	2013	No	Decay of asbestos cement in water mains; erosion of natural deposits

* units are MFL (million fibers per liter) for fibers > 10 µm

Important Drinking Water Definitions

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.

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

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

ppm: parts per million or milligrams per liter (mg/l)

ppb: parts per billion or micrograms per liter (µg/l)



2013 City of Santa Fe Water Quality Table

The table on the following page lists contaminants which:

1. Have associated primary Maximum Contaminant Levels (MCLs) that are regulated and;
2. Were detected in testing conducted by the City and New Mexico Environment Department.

The table includes only those constituents found above detection limits during 2013 sampling, or during sampling in previous years if not analyzed during 2013. 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. The City is required to test for over 80 contaminants, and the vast majority of these contaminants were not found above detection limits. 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 can be obtained by calling the Environmental Protection Agency's (EPA) Safe Drinking Water Hotline (800) 426-4791, or visiting www.epa.gov/safewater.

City of Santa Fe 2013 Water Quality Table

Regulated Compliance Monitoring



City of Santa Fe Water Division
P.O. Box 909, Santa Fe, NM 87504

Customer Service (505) 955-4333
Administration (505) 955-4202

2013 Water Quality Report

Contaminant	Units	MCL	MCLG	City Well Field ^d	Sample Year	Buckman Tank ^e	Sample Year	Canyon Road WTP	Sample Year	Buckman RWTP	Sample Year	Violation	Typical Source
Inorganic Contaminants													
Arsenic	ppb	10	0	4.6 (1.2 - 4.6)	2011	1.6	2011	ND	2013	ND	2013	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Barium	ppm	2	2	0.8 (0.24 - 0.8)	2011	0.073	2011	ND	2013	ND	2013	No	Discharge from drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chromium	ppb	100	100	ND	2011	ND	2011	ND	2013	1	2013	No	Discharge from steel and pulp mills; erosion of natural deposits
Fluoride	ppm	4	4	0.18 (0.10 - 0.18)	2011	0.25	2011	0.12	2013	0.49	2013	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Selenium	ppb	50	50	1.7 (ND - 1.7)	2011	ND	2011	ND	2013	ND	2013	No	Discharge from steel/metals factories; Discharge from plastic and fertilizer factories
Nitrate [as N]	ppm	10	10	7.9 (2.7 - 7.9)	2013	0.14	2013	ND	2013	0.19	2013	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion from natural deposits
Radioactive Contaminants (Compliance period 2011 to 2013)													
Gross Alpha Emitters	pCi/L	15	0	1.3 (1.2 - 1.3)	2013	0.1	2013	0.6	2011	0.9 (0 - 0.9)	2011	No	Erosion of natural deposits
Gross Beta/Photon Emitters	pCi/L	50 ^a	NA	4.4 (1.1 - 4.4)	2013	2.1	2013	0.7	2011	3.3 (1.9 - 3.3)	2011	No	Decay of natural and man-made deposits.
Radium 226/228	pCi/L	5	0	0.45 (0.20 - 0.45)	2013	0	2013	0	2011	0.42 (0 - 0.42)	2011	No	Erosion of natural deposits
Uranium	ppb	30	0	3.0 (1.0 - 3.0)	2013	1.0	2013	ND	2011	1.0 (ND - 1.0)	2011	No	Erosion of natural deposits;
Surface Water Contaminants													
Turbidity ^c (highest single measurement)	NTU	TT = 1.0	0	NA	NA	NA	NA	0.62	2013	0.4	2013	No	Soil Runoff
Turbidity ^c (lowest monthly % meeting limits)	NTU	TT = % <0.3 NTU	0	NA	NA	NA	NA	99.4%	2013	99.2%	2013	No	Soil Runoff
Total Organic Carbon (TOC)	NA	TT (35%-45% Removal)	NA	NA	NA	NA	NA	44% to 88% removal ^b	2013	NA	NA	No	Naturally present in the environment

Notes:

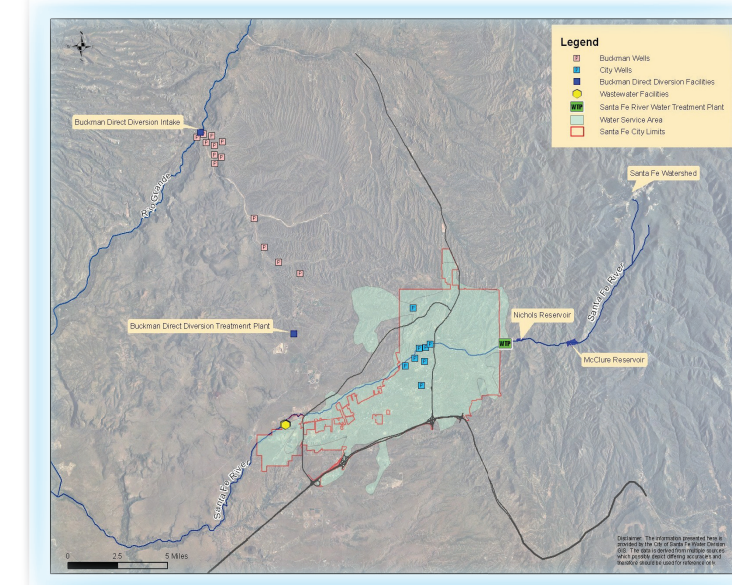
- a. EPA considers 50 pCi/L to be the level of concern for beta particles.
- b. Alternative compliance criteria used to meet TOC removal requirements
- c. Turbidity is a measure of the cloudiness of water. We monitor it because it is a good indicator of the effectiveness of our filtration system.
- d. City wellfield: Alto, Agua Fria, Ferguson, Osage, Santa Fe, St. Michaels & Torreon.
- e. Buckman Wells 1-13 and Northwest Well.

Key to Units, Terms and Abbreviations

- ppm: parts per million, or milligrams per liter (mg/L)
- ppb: parts per billion, or micrograms per liter (ug/L)
- pCi/L: picocuries per liter (a measure of radioactivity)
- NA: Not Applicable
- ND: Not Detected
- NTU: Nephelometric Turbidity Units

TT: A Treatment Technique standard was set instead of an Maximum Contaminant Level

Map of Water Sources



The City of Santa Fe's Water Division (the City) is pleased to provide the 2013 Water Quality Report. A safe and dependable water supply is vital to our community and is the primary mission of the City. This report is provided annually and contains information on the quality of water obtained throughout the calendar year. In 2013, the City's drinking water met all U.S. Environmental Protection Agency (EPA) and State drinking water quality limits. The report contains additional details about where your water comes from, what it contains, and how it compares to standards set by federal and state regulatory agencies. It also provides educational information on contaminants which may be a concern.

Sources of Supply

The City was served by four distinct sources of supply in 2013. The 17,000 acre Santa Fe Watershed provides surface runoff to the Santa Fe River where it is stored in the McClure and Nichols Reservoir prior to treatment. Surface water from the Santa Fe River and Rio Grande is treated through conventional and advanced treatment processes at the Canyon Road Water Treatment Plant and Buckman Regional Water Treatment Plant (BRWTP), respectively. The City Well Field is mostly located in close proximity to the Santa Fe River and consists of 8 active wells located within the City limits of Santa Fe. The Buckman Well Field consists of 13 wells located near the Rio Grande, approximately 15 miles northwest of Santa Fe. All four sources are treated with chlorine for protection of customers against disease-causing microorganisms (pathogens), including bacteria and viruses. Fluoride is added to the water supply to benefit the community as recommended by public health professionals. In 2011, the Buckman Direct Diversion (BDD) Project surface water supply was successfully integrated into the municipal distribution system and operated in conjunction with the City's pre-existing sources of supply throughout 2013. The surface water treated at the BRWTP is taken directly from the Rio Grande. BDD not only improves sustainability for the area but also increases the City's resilience under drought conditions, replacing current groundwater pumping that cannot be sustained, and making the City's wells available as drought and emergency reserves rather than sources used to meet daily water demands.

Source Water Assessment and Availability

The New Mexico Environment Department (NMED) completed a Source Water Assessment for the City of Santa Fe. This assessment includes a determination of source water protection areas and an inventory of pollution sources within the areas of concern. NMED concluded: "The Susceptibility Analysis of the City of Santa Fe water utility reveals that the utility is well maintained and operated, and the sources of drinking water are generally protected from potential sources of contamination based on an evaluation of the available information. The susceptibility rank of the entire water system is "moderately low". A copy of the Assessment is available by contacting NMED at 1-877-654-8720.

City ordinances adopted in 2005 built upon the recommendations in the Source Water Assessment. The "Safe Drinking Water and Source Water Protection" and the "Stormwater Illicit Discharge Control" ordinances provide additional controls and protections for the City's ground and surface water supplies. In addition, the City established a Stormwater Program with the goal of reducing pollutant discharged to the Santa Fe River. Please contact 955-5644 to report illegal dumping in storm drains, streets and arroyos.

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 persons 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. These people should seek advice about drinking water from their health care providers. 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 Drinking Water Hotline (800-426-4791).

En Español

Este reporte contiene información importante sobre la calidad del agua en Santa Fe. Si tiene alguna pregunta o duda sobre este reporte puede hablarle a Victor Archuleta al teléfono 505-955-4370.