

## Why are there Contaminants in my 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. 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 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.

RESULTS OF RECENT SMCL VOLUNTARY TESTING								
Parameter	Units	SMCL	City Well Field		Canyon Road Plant		Buckman Well Field	
			Low	High	Low	High	Low	High
Aluminum	mg/l	0.05-0.2		No Data	ND	0.21	ND	0.57
Chloride	mg/l	250	ND	17	25	27.48	2.87	7.8
Copper	mg/l	1		No Data		<0.01	ND	0.054
Iron	mg/l	0.3	ND	0.01		<0.05	ND	0.95
Manganese	mg/l	0.05	ND	ND	ND	0.046	ND	0.054
pH		6.5-8.5	7.7	7.93	7.4	7.5	7.04	8.21
Silver	mg/l	0.1		No Data		ND	ND	0.0017
Sulfate	mg/l	250	ND	39.2	21.38	26	9.68	29.66
Total Dissolved Solids	mg/l	500	172	264	130	148	190	685.4
Zinc	mg/l	5	No Data	No Data		ND	ND	0.058
Hardness (Ca & Mg)	mg/l	NA	56	174	25.9	26	40.5	532

SMCL – Secondary Drinking Water Standard – monitoring recommended, ND – Not Detected  
NA – Not Applicable, mg/l – milligrams per liter

## Results of Voluntary Monitoring

EPA has established secondary maximum contaminant levels (SMCL). SMCLs 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.

In 2006 Los Alamos National Laboratory (LANL) conducted sampling of Buckman Wells 1, 2, and 8. 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. The wells were sampled for naturally occurring radionuclides, such as uranium, potassium-40, and gross beta and LANL derived contaminants; americium-241, cobalt-60, cesium-137, plutonium (Pu), chromium, tritium and strontium. Additional sampling was conducted for organics, perchlorate, general inorganics, high explosives and metals. Naturally occurring radionuclides, such as uranium and potassium-40 were detected. No LANL derived contaminants were detected with the exception of a qualified detection of Pu-238 in Buckman Well 1. This means Pu 238 was detected at a level below which an accurate measure can be given. A body of radiochemical data for the Buckman Wells exists and will continue to be developed. The data suggests that the overall pattern is non-detect for Pu-238 in Buckman Wells. The remaining parameters were either below the detection level or at background levels. The New Mexico Environment Department conducted a similar test in February 2007. The results are pending.

## Contacts for Additional Information

If you have any questions, comments, or suggestions regarding this report please contact Gary Martinez at 955-4201 or write to the above address.

City Billing Information and Customer Service 955-4333

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](http://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.ci.santa-fe.nm.us](http://www.ci.santa-fe.nm.us)

## Arsenic

In 2006 the drinking water standard for arsenic changed from 50µg/l to 10 µg/l. Arsenic occurs naturally in the earth's crust. When these arsenic-containing rocks, minerals, and soil erode, they release arsenic into ground water. In 2006 SDWC drinking water met the new standard. Although some individual wells in the Buckman wellfield contain arsenic above 10 µg/l, the water from different Buckman wells is blended in the Buckman Tank before being distributed to SDCW Customers. Therefore, compliance with the federal standard is measured at the Buckman Tank. Under very rare pumping conditions, SDCW may not meet the arsenic standard at the Buckman Tank compliance point. These include:

- Total water system demand is greater than 10 million gallons per day and the Canyon Road Water Treatment Plant is limited because of drought or off-line.
- Buckman wells with lower arsenic-concentrations and other water supply sources are not operational.

In 2006 SDCW requested and received an exemption from the new arsenic standard for a period of 3 years (ending December 2008). The exemption was granted by the New Mexico Environment Department and is based on continued public health protection and a strategy for compliance. The strategy includes:

- Operating Buckman wells in specified combinations to achieve the lowest blended arsenic concentration. In the current compliance period 2005 - 2007 this approach resulted in arsenic levels at the Buckman Tank compliance point of 6 µg/l.
- Construction of the Buckman Direct Diversion, which will supply treated surface water low in arsenic and will be used to supplement or replace existing high arsenic containing ground-water wells.
- Improvements to the Canyon Road Treatment Plant to increase production from 4 million gallons per day to 10 million gallons per day to allow for greater utilization of low-arsenic Santa Fe River water.

While our drinking water meets EPA's standard for arsenic, it does contain low levels of arsenic. EPA's new 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. If you have any questions or comments on the strategy for compliance please contact us.



## Disinfection By-Products (DBPs)

During disinfection, chlorine combines with naturally occurring organic and inorganic matter present in the water. The reaction forms disinfection by-products (DBPs). Sources with higher organic levels include surface waters, such as lakes, rivers and streams. Groundwater, especially those from deep wells, tends to contain little organic matter.

Of the 27 samples collected, one sample (collected in August of 2006) detected THMs at 109µg/l. The City remains in compliance with the THM maximum contaminant level (MCL). Compliance with the MCL is based on the average of all samples collected. Because this single sample was above the MCL of 80 µg/l the following statement is provided: "Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous system, and may have an increased risk of getting cancer."

## A Monitoring Requirement Not Met for Disinfection By-Products (DBPs)

SDCW is required to monitor drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not the City's drinking water meets health standards. Monitoring for the DBPs - trihalomethanes (THMs) and haloacetic acids (HAA5s) are required to be performed quarterly (every 3 months). City staff collected and submitted all the required samples to the State of New Mexico Environment Department for submission to the laboratory. DBP 2<sup>nd</sup> quarter samples were not submitted to laboratory for analysis. All previous and subsequent sampling for these compounds in 2006 indicated no violations of drinking water standards. The table below compares the testing requirements against the testing conducted by the SDCW.

	THMs	HAA5s
<b>Required sampling frequency</b>	9 samples each quarter in 2006	9 samples each quarter in 2006
<b>Number of samples taken</b>	27/36	27/36
<b>When samples should have been taken</b>	2 <sup>nd</sup> Quarter 2006 (April - June)	2 <sup>nd</sup> Quarter 2006 (April - June)
<b>When samples were taken</b>	3 <sup>rd</sup> Quarter 2006 (July - August)	3 <sup>rd</sup> Quarter 2006 (July - August)

Forty additional DBP samples were collected and analyzed in July and August of 2006 because of a special water study the City conducted to determine areas in the City's distribution system most vulnerable to DBP formation and with the highest levels of DBPs. The results of the study were provided to the New Mexico Environment Department along with monitoring site recommendations. THMs ranged from 5µg/l to 82.9µg/l and HAA5s ranged from 5µg/l to 46.8µg/l. The selected monitoring sites will be used in 12-month Initial Distribution Evaluation Study (IDSE) which will be conducted 2007 and 2008. Future monitoring locations will be established based on IDSE findings.

## Nitrates

City of Santa Fe drinking water meets the federal drinking water standard of 10 ppm for nitrates. 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.

## Lead and Copper Sampling

Tests for lead and copper are taken from customer taps located throughout the City once every three years. Testing at customer taps was conducted in 2006. Lead and copper are present in home plumbing fixtures and pipes. If you are concerned about elevated lead levels in your home's water you may wish to have your water tested or you can flush your tap for 30 seconds to 2 minutes before using tap water. Flushed water can be used to water plants.

	Copper (ppm)	Lead (ppb)
<b>MCLG</b>	1.3	0
<b>AL</b>	1.3	15
<b>City Water Levels (90<sup>th</sup> percentile)*</b>	0.240	<5
<b># of Sample &lt;AL</b>	29	30
<b>Sample Date</b>	19-Sep-06	19-Sep-06
<b>Exceeds AL</b>	No	No
<b>Typical Source</b>	Erosion of natural deposits; Leaching from wood preservatives; Corrosion of household plumbing systems.	Corrosion of household plumbing; Erosion of natural deposits

\*Results of monitoring are used to determine the concentration at the 90<sup>th</sup> percentile (e.g., 100 samples analyzed, the 90<sup>th</sup> highest.)

## 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)



## 2006 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. Contaminants were detected at or above detection limits established by the USEPA in calendar year 2006 or the most recent test if a sample was not analyzed in 2006. The compounds detected represent a small fraction of the substances that SDCW tested for. Testing is required for over 80 contaminants. 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, 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](http://www.epa.gov/safewater).



# City of Santa Fe 2006 Water Quality Table



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

Customer Service (505) 955-4333  
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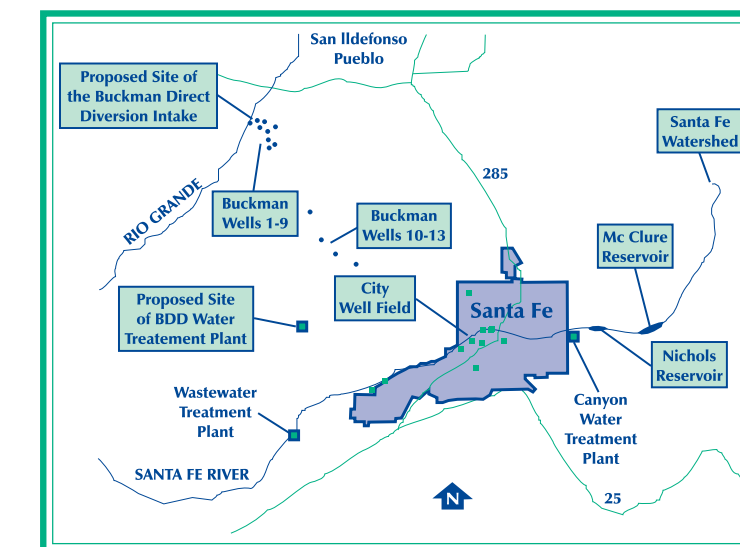
## 2006 WATER QUALITY REPORT

The City of Santa Fe's Sangre De Cristo Water Division (SDCW) is pleased to provide the 2006 Water Quality Report. A safe and dependable water supply is vital to our community and is the primary mission of SDCW. The report is provided annually and contains information on calendar year 2006 water quality. In 2006, SDCW 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.

### Sources of Supply

The SDCW is served by three distinct sources of supply. 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 is treated through a conventional treatment process at the Canyon Road Water Treatment Plant. 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 active wells located near the Rio Grande, approximately 15 miles northwest of Santa Fe. All three sources are treated with chlorine which is used for disinfection and pathogenic microorganism reduction. Fluoride is added to the water supply to benefit the community as recommended by public health professionals.

### Map of Water Sources



### Source Water Assessment and its 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 505-476-8638.

The Santa Fe City Council built upon the recommendations in the Source Water Assessment and in 2005 adopted the "Safe Drinking Water and Source Water Protection" and the "Stormwater Illicit Discharge Control" ordinances which 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. A hotline has been set up (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 Water Drinking Hotline (800-426-4791).

### En Espanol

Este reporte contiene informacion importante sobre la calidad del agua en Santa Fe. Si tiene alguna pregunta o duda sobre este reporte puede hablarle a Gary Martinez al telefono 505.955.4201.

Contaminant	Units	MCL	MCLG	City Well Field <sup>d</sup>	Range <sup>d</sup> 2005-2006		Sample Date	Buckman Tank <sup>e</sup>	Range <sup>d</sup> 2005-2006		Sample Date	Canyon Rd. WTP	Range <sup>d</sup> 2005-2006		Sample Date	Violation	Typical Source
					Low	High			Low	High			Low	High			
<b>Inorganic Contaminants</b>																	
Arsenic	ppb	10 <sup>a</sup>	0 <sup>a</sup>	6	ND	6	05-Dec-05	6			05-Dec-05	ND			25-Oct-06	No	Erosion of natural deposits; Runoff from orchards. Runoff from glass and electronics production wastes.
Barium	ppm	2	2	0.5	0.074	0.5	20-Nov-06	0.154			05-Dec-05	0.008			25-Oct-06	No	Discharge from drilling wastes. Discharge from metal refineries. Erosion of natural deposits.
Chromium [Total]	ppb	100	100	26	ND	26	05-Dec-05	4.8	4.8	28	20-Sep-06	ND			25-Oct-06	No	Discharge from steel and pulp mills. Erosion of natural deposits.
Fluoride	ppm	4	4	0.2	ND	0.2	23-Mar-05	0.44			07-Mar-05	1.3	0.4	1.3	25-Oct-06	No	Erosion of natural deposits. Water additive which promotes strong teeth. Discharge from fertilizer and aluminum factories.
Nickel	ppm	MNR	MNR	6	ND	1	15-Aug-05	ND			05-Dec-05	Not Tested				No	Erosion of natural deposits.
Nitrate [as N]	ppm	10	10	7.59	0.97	7.59	25-Jan-06	1.2			22-Feb-06	ND			25-Oct-06	No	Runoff from fertilizer use. Leaching from septic tanks, sewage. Erosion from natural deposits.
Selenium	ppb	50	50	2	ND	2	07-Mar-05	2			05-Dec-05	ND			25-Oct-06	No	Discharge from petroleum and metal refineries. Erosion of natural deposits. Discharge from mines.
<b>Volatile Organic Contaminants</b>																	
Bromodichloromethane	ppb	80	0	ND			2005	ND			07-Mar-05	3.6			25-Oct-06	No	By-product of drinking water chlorination.
Chloroform	ppb	80	70	ND			2005	ND			07-Mar-05	13			25-Oct-06	No	By-product of drinking water chlorination.
<b>Radioactive Contaminants</b>																	
Gross Alpha Emitters	pCi/L	15	0	2.83	ND	2.83	01-Dec-04	7.1			01-Dec-04	ND			25-Oct-04	No	Erosion of natural deposits.
Gross Beta/Photon Emitters	pCi/L	50 <sup>b</sup>	NA	2.38	ND	2.38	01-Dec-04	6.5			01-Dec-04	ND			25-Oct-04	No	Decay of natural and man-made deposits.
Radium 226/228	pCi/L	5	0	2.08	ND	2.08	01-Dec-04	0.735			01-Dec-04	ND			25-Oct-04	No	Erosion of natural deposits.
Uranium	ppb	30	0	1.76	0.987	1.76	07-Mar-05	11			01-Dec-04	0.289			25-Oct-04	No	Erosion of natural deposits.
<b>Disinfectants &amp; Disinfection By-Products</b>																	
Haloacetic Acids (HAAs)	ppb	60	NA	7.26	ND	26.4	3 Qtrly Samples/2006	4.18	ND	12.6	3 Qtrly Samples/2006	13.5	ND	25.7	3 Qtrly Samples/2006	No	By-product of drinking water chlorination.
THMs [Total Trihalomethane]	ppb	80	NA	18.2	ND	63.3	3 Qtrly Samples/2006	15.6	ND	62.2	3 Qtrly Samples/2006	49.7	ND	109	3 Qtrly Samples/2006	No	By-product of drinking water chlorination.
<b>Surface Water Contaminants</b>																	
Turbidity <sup>g</sup> (highest single measurement)	NTU	TT = 0.3	0	NA				NA				0.68	0.02	0.68	Continuous	No	Soil Runoff.
Turbidity <sup>g</sup> (lowest monthly % meeting limits)	NTU	TT = Percentage <0.3 NTU	0	NA				NA				99.3%		100%	Continuous	No	Soil Runoff.
Total Organic Carbon (TOC)	ppm	TT	NA	NA				NA				18 to 66% Removal <sup>f</sup>	2.54	5.36	Monthly in 2006	No	Naturally present in the environment.

- Notes:**  
a. These arsenic values are effective January 23, 2006. Until then the MCL is 50µg/l and there is no MCLG.  
b. EPA considers 50 pCi/L to be the level of concern for beta particles.  
c. The City complies with alternative compliance criteria to meet TOC removal requirements.  
d. The range represents the highest and low values. Range values are not given if only one sample was taken during the range period.  
e. 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.  
f. City wellfield: Alto, Auga Fria, Ferguson, Osage, Santa Fe, St. Mikes & Torreon.  
g. Buckman wells 1-13 and Northwest well.

#### Key to Units, Terms and Abbreviations

- NA: Not Applicable  
ND: Not Detected  
NTU: Nephelometric Turbidity Units  
MNR: Monitoring not required, but recommend  
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)  
ug/l: Number of micrograms of substance per liter of water  
mg/l: Number of milligrams of substance per liter of water  
TT: A Treatment Technique standard was set instead of an Maximum Contaminant Level