vanced 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 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 <0.25 oocysts/L, no additional treatment at the Cany-

The BDD, which includes the Buckman Regional Water Treat-

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

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. BDD began a second round of sampling, one sample a month, starting in October 2015 and scheduled to end in September 2017. No cryptosporidium oocysts have been detected since monitoring began in October 2015 (through December 2016).
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 485 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 2016 sampling, or during sampling in previous years if not analyzed during 2016. 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.

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 West Sector uses free chlorine as a disinfectant. For 2016, sampling was performed at 24 monitoring locations each month. The results are shown in Table 3.

TABLE 3—Results of Disinfectant Residual Testing for 2016

<table>
<thead>
<tr>
<th>West Sector</th>
<th>Disinfectant Residual Results</th>
<th>Units</th>
<th>MRDL</th>
<th>MRDLG</th>
<th>Range (2016)</th>
<th>Violation</th>
<th>Typical Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Sector</td>
<td>Chlorine Residual ppm</td>
<td>4.0</td>
<td>4</td>
<td>0.57</td>
<td>0.81</td>
<td>No</td>
<td>Water additive used to control microorganisms</td>
</tr>
</tbody>
</table>

Lead and Copper Testing

Tests for lead and copper were taken from 20 customer taps located in the West 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 4 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 4—Results of Lead and Copper Testing for 2015 (Next Analysis 2018)

<table>
<thead>
<tr>
<th>West Sector Lead &amp; Copper Results</th>
<th>Units</th>
<th>MCL</th>
<th>MCLG</th>
<th>Your Water (90th percentile)</th>
<th>No. of Samples Exceeding the AL</th>
<th>Sample Dates</th>
<th>Violation</th>
<th>Typical Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper</td>
<td>ppm</td>
<td>AL = 1.3</td>
<td>1.3</td>
<td>0.26</td>
<td>0 of 20</td>
<td>Sept. 14 - 28, 2015</td>
<td>No</td>
<td>Erosion of natural deposits, corrosion of household plumbing systems.</td>
</tr>
<tr>
<td>Lead</td>
<td>ppb</td>
<td>AL = 15</td>
<td>0</td>
<td>2.4</td>
<td>0 of 20</td>
<td>Sept. 14 - 28, 2015</td>
<td>No</td>
<td>Erosion of natural deposits, corrosion of household plumbing systems.</td>
</tr>
</tbody>
</table>

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 10th highest sample result represents the 90th percentile.

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 ad
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 stormwater 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 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; 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.

In 2016, the West Sector had 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 2016, the West 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 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 West Sector’s water met the MCL standards. The results are presented in Table 2.

Specific Contaminants:

- **Arsenic**
  The drinking water standard for arsenic is 10 ppb. The SFCU’s water supply met this standard throughout 2016 (please see Table 1, pages 4 & 5, of this document for the levels of arsenic measured in 2014-2016—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 71 parts per million (ppm). Nitrates 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 carrying 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 Disinfectant 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 2016, the West 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 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 West Sector’s water met the MCL standards. The results are presented in Table 2.
TABLE 1—2016 West Sector Water Quality

<table>
<thead>
<tr>
<th>Contaminant</th>
<th>Units</th>
<th>MCL</th>
<th>MCLG</th>
<th>City Well Field</th>
<th>Sample Date</th>
<th>Buckman Tank</th>
<th>Sample Date</th>
<th>Canyon Road WTP</th>
<th>Sample Date</th>
<th>Buckman RWTP</th>
<th>Sample Date</th>
<th>Violation</th>
<th>Typical Source (s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inorganic Contaminants</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arsenic</td>
<td>ppb</td>
<td>10</td>
<td>0</td>
<td>4</td>
<td>2016</td>
<td>2014</td>
<td>ND</td>
<td>2016</td>
<td>ND</td>
<td>2015</td>
<td>No</td>
<td>Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes</td>
<td></td>
</tr>
<tr>
<td>Barium</td>
<td>ppm</td>
<td>2</td>
<td>2</td>
<td>0.6</td>
<td>2016</td>
<td>2014</td>
<td>ND</td>
<td>2016</td>
<td>ND</td>
<td>2015</td>
<td>No</td>
<td>Discharge from drilling wastes; Discharge from metal refineries; Erosion of natural deposits</td>
<td></td>
</tr>
<tr>
<td>Bromate</td>
<td>ppb</td>
<td>10</td>
<td>0</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>1.7</td>
<td>(ND-4.7)</td>
<td>2015</td>
<td>No</td>
<td>Byproduct of drinking water disinfection</td>
</tr>
<tr>
<td>Chromium</td>
<td>ppb</td>
<td>100</td>
<td>100</td>
<td>ND</td>
<td>2016</td>
<td>2014</td>
<td>ND</td>
<td>2016</td>
<td>1</td>
<td>2016</td>
<td>No</td>
<td>Discharge from steel and pulp mills; erosion of natural deposits</td>
<td></td>
</tr>
<tr>
<td>Fluoride</td>
<td>ppm</td>
<td>4</td>
<td>4</td>
<td>0.19</td>
<td>2016</td>
<td>0.4</td>
<td>2014</td>
<td>0.13</td>
<td>2016</td>
<td>0.28</td>
<td>2016</td>
<td>No</td>
<td>Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories</td>
</tr>
<tr>
<td>Nitrate [as N]</td>
<td>ppm</td>
<td>10</td>
<td>10</td>
<td>7.15</td>
<td>(3.95 - 7.15)</td>
<td>2016</td>
<td>0.1</td>
<td>2016</td>
<td>0.12</td>
<td>2016</td>
<td>No</td>
<td>Runoff from fertilizer use; Leaching from septic tanks, sew- age; Erosion from natural deposits</td>
<td></td>
</tr>
<tr>
<td>Radioactive Contaminants</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross Alpha Emitters</td>
<td>pCi/L</td>
<td>15</td>
<td>0</td>
<td>0</td>
<td>2014</td>
<td>4.2</td>
<td>2014</td>
<td>ND</td>
<td>2014</td>
<td>1.2</td>
<td>2014</td>
<td>No</td>
<td>Erosion of natural deposits</td>
</tr>
<tr>
<td>Gross Beta/Photon Emitters</td>
<td>pCi/L</td>
<td>50</td>
<td>NA</td>
<td>1.5</td>
<td>(ND - 1.5)</td>
<td>2014</td>
<td>2.3</td>
<td>2014</td>
<td>1.4</td>
<td>2014</td>
<td>2.3</td>
<td>2014</td>
<td>No</td>
</tr>
<tr>
<td>Radon 226/228</td>
<td>pCi/L</td>
<td>5</td>
<td>0</td>
<td>0.07</td>
<td>(0.10 - 0.77)</td>
<td>2014</td>
<td>0.07</td>
<td>2014</td>
<td>0.18</td>
<td>2014</td>
<td>0.1</td>
<td>2014</td>
<td>No</td>
</tr>
<tr>
<td>Uranium</td>
<td>ppb</td>
<td>30</td>
<td>0</td>
<td>2.0</td>
<td>(ND - 2.0)</td>
<td>2014</td>
<td>2.0</td>
<td>2014</td>
<td>2014</td>
<td>1</td>
<td>2014</td>
<td>No</td>
<td>Erosion of natural deposits</td>
</tr>
<tr>
<td>Surface Water Contaminants</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turbidity(^2) (highest single measurement)</td>
<td>NTU</td>
<td>TT = 1.0</td>
<td>0</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>0.25</td>
<td>2016</td>
<td>0.29</td>
<td>2016</td>
<td>No</td>
</tr>
<tr>
<td>Turbidity(^2) (lowest monthly % meeting limits)</td>
<td>NTU</td>
<td>TT = % &lt;0.3 NTU</td>
<td>0</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>100%</td>
<td>2016</td>
<td>100.0%</td>
<td>2016</td>
<td>No</td>
<td>Soil Runoff</td>
</tr>
<tr>
<td>Total Organic Carbon (TOC)</td>
<td>NA</td>
<td>TT (45% Removal)</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>46% to 68% removal(^3)</td>
<td>2016</td>
<td>NA</td>
<td>NA</td>
<td>No</td>
<td>Naturally present in the environment</td>
</tr>
</tbody>
</table>

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 lowest and the highest, are provided. All results have been below each respective MCL. b. Buckman Wells 113 and Northwest 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.

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
µhos/cm - microhoms 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. MCLs 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.