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 0.08 oocysts/L. Since the concentration is <0.075 oocysts/L, no additional treatment at the Canyon Road 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 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.

Water Conservation Tips

As with Cryptosporidium oocysts, no Giardia Lambila 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 0.9 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 (0.0 oocysts/L)) and consequently no additional treatment at the Buckman Regional Water Treatment Facility is necessary.

As with Cryptosporidium oocysts, no Giardia Lambila 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 0.9 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 (0.0 oocysts/L)) and consequently no additional treatment at the Buckman Regional Water Treatment Facility is necessary.

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 occurs on the second and last Tuesday of each month starting at 2:00 pm. Meeting agendas are posted at:


The 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 2020 or previous years if sampling for a specific contaminant was not required during 2020.

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:


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. Agenda 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 2020 sampling, or during sampling in previous years if not analyzed during 2020. 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.

Lead and Copper Testing
Tests for lead and copper were taken from 10 customer taps located in the West Sector once on 9/13/2018. None of the samples exceeded the action level for lead or copper. The sample results are reported in Table 5 below. Ten samples will next be collected in 2021 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 2022 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 water 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.

Bromate Testing
Bromate monitoring is required at the entrance to the distribution system whenever ozone is used to treat drinking water. Buckman 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 2020 the highest RAA was 0.0052 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 2020.

TABLE 2—Results of Disinfection By-Product Testing for 2020

<table>
<thead>
<tr>
<th>West Sector Disinfectant Residual Results</th>
<th>Units</th>
<th>MRLD</th>
<th>MRDLG</th>
<th>LRAA (2020)</th>
<th>Range (2020)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Total Haloacetic Acids (HAA5) ppm</td>
<td>60</td>
<td>NA</td>
<td>21</td>
<td>7.69</td>
<td>21.4</td>
</tr>
<tr>
<td>Total Trihalomethanes (THM) ppm</td>
<td>80</td>
<td>NA</td>
<td>55</td>
<td>29.4</td>
<td>62.8</td>
</tr>
</tbody>
</table>

Typical Source
- By-product of drinking water chlorination.

TABLE 3—Results of Disinfectant Residual Testing for 2020

<table>
<thead>
<tr>
<th>West Sector</th>
<th>Disinfectant Residual Results</th>
<th>Units</th>
<th>MRLD</th>
<th>MRDLG</th>
<th>Range (2020)</th>
<th>Violation</th>
<th>Typical Source</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>ppm</td>
<td>4.0</td>
<td>4</td>
<td>0.5</td>
<td>0.5</td>
<td>No - Water additive used to control microorganisms</td>
</tr>
</tbody>
</table>

TABLE 4—Results of Disinfectant Residual Testing for 2020

<table>
<thead>
<tr>
<th>West Sector</th>
<th>Units</th>
<th>MCL</th>
<th>MCLG</th>
<th>Monthly Range (2020)</th>
<th>Violation</th>
<th>Typical Source</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>By-product of drinking water disinfection</td>
</tr>
</tbody>
</table>

Bromate ppm
- 0.0010
- 0.0045
- 0.0052

Typical Source
- No - By-product of drinking water disinfection

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 water 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 2020 (Next Analysis 2021)

<table>
<thead>
<tr>
<th>West Sector</th>
<th>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></td>
<td>Copper</td>
<td>ppm</td>
<td>AL = 1.3</td>
<td>1.3</td>
<td>0.7</td>
<td>0 of 10</td>
<td>9/13/2018</td>
<td>No</td>
<td>Erosion of natural deposits, corrosion of household plumbing systems.</td>
</tr>
<tr>
<td></td>
<td>Lead</td>
<td>ppm</td>
<td>AL = 15</td>
<td>0</td>
<td>2.0</td>
<td>0 of 10</td>
<td>9/13/2018</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, 10 samples were collected and the 9th highest sample result represents the 90th percentile.
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;
- 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 contaminant 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 2020 (please see Table 1, pages 486, of this document for the levels of arsenic measured in 2010—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 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 Byproducts Rule

The Microbial and Disinfection Byproducts Rule is a set of interrelated regulations that address risks from microbial pathogens and disinfection by-products (DBPs). The Stage 2 Disinfectants and Disinfectant 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 disinfectant (e.g. chlorine) used to control microbial pathogens. In 2020, 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 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 West 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 West Sector uses free chlorine as a disinfectant. For 2020, sampling was performed at 24 monitoring locations each month. The results are shown in Table 3.
<table>
<thead>
<tr>
<th>Contaminant</th>
<th>Units</th>
<th>MCL</th>
<th>MCLG</th>
<th>City Well Field*</th>
<th>Sample Year</th>
<th>Buckman Tank Sample Year</th>
<th>Sample Year</th>
<th>Canyons Road WTP Sample Year</th>
<th>Sample Year</th>
<th>Buckman RWTP Sample Year</th>
<th>Sample Year</th>
<th>Violation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Synthetic Organic Contaminants (SOCs)</strong></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>Dichloromethane</td>
<td>ppb</td>
<td>5</td>
<td>0</td>
<td>ND</td>
<td>2020</td>
<td>0.7</td>
<td>2020</td>
<td>ND</td>
<td>2020</td>
<td>ND</td>
<td>2020</td>
<td>No</td>
</tr>
<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>
</tr>
<tr>
<td>Arsenic</td>
<td>ppb</td>
<td>10</td>
<td>0</td>
<td>0.008</td>
<td>2017-2020</td>
<td>0.9</td>
<td>2020</td>
<td>ND</td>
<td>2020</td>
<td>ND</td>
<td>2020</td>
<td>No</td>
</tr>
<tr>
<td>Barium</td>
<td>ppm</td>
<td>2</td>
<td>1.0</td>
<td>(1.0 - 1.9)</td>
<td>2017-2020</td>
<td>2.8</td>
<td>2020</td>
<td>ND</td>
<td>2020</td>
<td>2.7</td>
<td>2020</td>
<td>No</td>
</tr>
<tr>
<td>Fluoride</td>
<td>ppm</td>
<td>4</td>
<td>0.2</td>
<td>(0.2 - 0.2)</td>
<td>2017-2020</td>
<td>0.8</td>
<td>2020</td>
<td>ND</td>
<td>2020</td>
<td>ND</td>
<td>2020</td>
<td>No</td>
</tr>
<tr>
<td>Nitrate [as N]</td>
<td>ppm</td>
<td>10</td>
<td>5.4</td>
<td>(2.5 - 5.4)</td>
<td>2017-2020</td>
<td>0.9</td>
<td>2020</td>
<td>ND</td>
<td>2020</td>
<td>ND</td>
<td>2020</td>
<td>No</td>
</tr>
<tr>
<td>Selenium</td>
<td>ppb</td>
<td>50</td>
<td>0.004</td>
<td>(ND -0.004)</td>
<td>2017-2020</td>
<td>0.01</td>
<td>2020</td>
<td>ND</td>
<td>2020</td>
<td>ND</td>
<td>2020</td>
<td>No</td>
</tr>
<tr>
<td><strong>Radioactive Contaminants</strong></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>0.9</td>
<td>2017-2020</td>
<td>0.9</td>
<td>2020</td>
<td>ND</td>
<td>2020</td>
<td>ND</td>
<td>2020</td>
<td>No</td>
</tr>
<tr>
<td>Gross Beta/Photon Emitters</td>
<td>pCi/L</td>
<td>50</td>
<td>0</td>
<td>1.4</td>
<td>2017-2020</td>
<td>2.8</td>
<td>2020</td>
<td>ND</td>
<td>2020</td>
<td>2.7</td>
<td>2020</td>
<td>No</td>
</tr>
<tr>
<td>Radium 226/228</td>
<td>pCi/L</td>
<td>5</td>
<td>0</td>
<td>0.8</td>
<td>2017-2020</td>
<td>0.04</td>
<td>2020</td>
<td>ND</td>
<td>2020</td>
<td>ND</td>
<td>0.25</td>
<td>No</td>
</tr>
<tr>
<td>Uranium</td>
<td>ppb</td>
<td>30</td>
<td>1</td>
<td>0.2</td>
<td>2017-2020</td>
<td>1.0</td>
<td>2020</td>
<td>ND</td>
<td>2020</td>
<td>2.7</td>
<td>2020</td>
<td>No</td>
</tr>
<tr>
<td><strong>Surface Water Contaminants</strong></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 (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>NA</td>
<td>0.26</td>
<td>2020</td>
<td>No</td>
</tr>
<tr>
<td>Turbidity (lowest monthly % meeting limits)</td>
<td>NTU</td>
<td>TT = 0.1</td>
<td>0</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>1.0</td>
<td>2020</td>
<td>No</td>
</tr>
<tr>
<td>Total Organic Carbon (removal ratio) / TOC - TREATED</td>
<td>NA</td>
<td>TT = 0</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>1.0</td>
<td>2020</td>
<td>No</td>
</tr>
</tbody>
</table>

**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 (running annual average of TOC removal ratio must be >1 each month).
- c. The range represents the highest and low values within the Compliance Period indicated, if more than one sample was collected.
- d. Gross Alpha Emitters excluding Radon and Uranium
- e. City wellfield: Alto, Aqua Fria, Ferguson, Osage, Santa Fe, St. Mikes & Torreon.
- f. Buckman Wells 1-13 and Northwest Well.
- g. Running annual average (RAA) of TOC removal ratio for each month during 2020 - minimum ratio was 1.2 as per 40 CFR 141.135 (c) 2006
- h. Violation
- i. Naturally present in the environment
- j. Monitoring and Reporting of Compliance Data Violations
- 1. Water quality report Adequacy/Availability/Content 10/01/2019 - 03/31/2020
- 2. Water quality report 07/01/2020 - 2020 Was not submitted in a timely manner
- 3. Public Notice Rule Linked to Violation 02/22/2018 - 2020
- 4. Corrected by collection bacterial samples in September 2020 with negative results

**Key to Units, Terms and Abbreviations**
- NA: Not Applicable
- ND: Not Detected
- NTU: Nephelometric Turbidity Units
- 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)
- %: Percentage
- violations
- TT: A Treatment Technique standard was set instead of an Maximum Contaminant Level

**Typical Source**
- a. Discharge from pharmaceutical and chemical factories.
- b. Discharge from drilling wastes; Discharge from metal refineries; Erosion of natural deposits
- c. Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion from natural deposits
- d. Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion from natural deposits
- e. Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion from natural deposits
- f. Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion from natural deposits
- g. Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion from natural deposits
- h. Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion from natural deposits
- i. Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion from natural deposits
- j. Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion from natural deposits