

US AIR FORCE ACADEMY 2017 Drinking Water Quality Report For Calendar Year 2016

Public Water System ID: CO0121845

We are pleased to present to you this year's water quality report. Our constant goal is to provide you with a safe and dependable supply of drinking water. Please contact Keith Sue at 719-333-4825 with any questions.

General Information

All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (1-800-426-4791) or by visiting <http://water.epa.gov/drink/contaminants>.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised 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 of infections. These people should seek advice about drinking water from their health care providers. For more information about contaminants and potential health effects, or to receive a copy of the U.S. Environmental Protection Agency (EPA) and the U.S. Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and microbiological contaminants call the EPA Safe Drinking Water Hotline at (1-800-426-4791).

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 that may be present in source water include:

- **Microbial contaminants:** viruses and bacteria that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- **Inorganic contaminants:** salts and metals, which can be naturally-occurring or result from urban stormwater 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 stormwater runoff, and residential uses.
- **Radioactive contaminants:** can be naturally occurring or be the result of oil and gas production and mining activities.
- **Organic chemical contaminants:** including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and also may come from gas stations, urban storm water runoff, and septic systems.

In order to ensure that tap water is safe to drink, the Colorado Department of Public Health and Environment prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

Lead in Drinking Water

If present, elevated levels of lead can cause serious health problems (especially for pregnant women and young children). It is possible that lead levels at your home may be higher than other homes in the community as a result of materials used in your home’s plumbing. If you are concerned about lead in your water, you may wish to have your water tested. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. Additional information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline (1-800-426-4791) or at <http://www.epa.gov/safewater/lead>.

Source Water Assessment and Protection (SWAP)

The Colorado Department of Public Health and Environment has provided us with a Source Water Assessment Report for our water supply. For general information or to obtain a copy of the report please visit <http://wqcdcompliance.com/ccr>. The report is located under “Source Water Assessment Reports”, and then “Assessment Report by County”. Select EL PASO County and find 121845; US Air Force Academy or by contacting Keith Sue at 719-333-4825. The Source Water Assessment Report provides a screening-level evaluation of potential contamination that could occur. It does not mean that the contamination has or will occur. We can use this information to evaluate the need to improve our current water treatment capabilities and prepare for future contamination threats. This can help us ensure that quality finished water is delivered to your homes. In addition, the source water assessment results provide a starting point for developing a source water protection plan. Potential sources of contamination in our source water area are listed on the next page.

Please contact us to learn more about what you can do to help protect your drinking water sources, any questions about the Drinking Water Quality Report, to learn more about our system, or to attend scheduled public meetings. We want you, our valued customers, to be informed about the services we provide and the quality water we deliver to you every day.

Our Water Sources

| <u>Source</u> | <u>Source Type</u> | <u>Water Type</u> | <u>Potential Source(s) of Contamination</u> | |
|---|------------------------|----------------------------|--|---|
| Purchased from Colorado Springs Utilities | Consecutive Connection | Surface Water/Ground Water | <ul style="list-style-type: none"> • EPA Superfund Sites • EPA Abandoned Contaminated Sites • EPA Hazardous Waste Generators • EPA Chemical Inventory/Storage Sites • EPA Toxic Release Inventory Sites • Permitted Wastewater Discharge Sites • Aboveground, Underground and Leaking Storage Tank Sites • Solid Waste Sites • Existing/Abandoned Mine Sites • Forest • Septic Systems • Oil/Gas Wells | <ul style="list-style-type: none"> • Concentrated animal Feeding Operations • Other Facilities • Commercial/Industrial Transportation • High and Low Intensity Residential • Urban Recreational Grasses • Quarries/Strip Mines/Gravel Pits • Agricultural Land • Road Miles |

Terms and Abbreviations

- **Maximum Contaminant Level (MCL)** – The highest level of a contaminant allowed in drinking water.
- **Treatment Technique (TT)** – A required process intended to reduce the level of a contaminant in drinking water.
- **Health-Based** – A violation of either a MCL or TT.
- **Non-Health-Based** – A violation that is not a MCL or TT.
- **Action Level (AL)** – The concentration of a contaminant which, if exceeded, triggers treatment and other regulatory requirements.
- **Maximum Residual Disinfectant Level (MRDL)** – The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- **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.
- **Maximum Residual Disinfectant Level Goal (MRDLG)** – 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.
- **Violation (No Abbreviation)** – Failure to meet a Colorado Primary Drinking Water Regulation.
- **Formal Enforcement Action (No Abbreviation)** – Escalated action taken by the State (due to the risk to public health, or number or severity of violations) to bring a non-compliant water system back into compliance.
- **Variance and Exemptions (V/E)** – Department permission not to meet a MCL or treatment technique under certain conditions.
- **Gross Alpha (No Abbreviation)** – Gross alpha particle activity compliance value. It includes radium-226, but excludes radon 222, and uranium.
- **Picocuries per liter (pCi/L)** – Measure of the radioactivity in water.
- **Nephelometric Turbidity Unit (NTU)** – Measure of the clarity or cloudiness of water. Turbidity in excess of 5 NTU is just noticeable to the typical person.
- **Compliance Value (No Abbreviation)** – Single or calculated value used to determine if regulatory contaminant level (e.g. MCL) is met. Examples of calculated values are the 90th Percentile, Running Annual Average (RAA) and Locational Running Annual Average (LRAA).
- **Average (x-bar)** – Typical value.
- **Range (R)** – Lowest value to the highest value.
- **Sample Size (n)** – Number or count of values (i.e. number of water samples collected).
- **Parts per million = Milligrams per liter (ppm = mg/L)** – One part per million corresponds to one minute in two years or a single penny in \$10,000.
- **Parts per billion = Micrograms per liter (ppb = ug/L)** – One part per billion corresponds to one minute in 2,000 years, or a single penny in \$10,000,000.
- **Not Applicable (N/A)** – Does not apply or not available.
- **Level 1 Assessment** – A study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.
- **Level 2 Assessment** – A very detailed study of the water system to identify potential problems and determine (if possible) why an E. coli MCL violation has occurred and/or why total coliform bacteria have been found in our water system on multiple occasions.

Detected Contaminants

The US Air Force Academy routinely monitors for contaminants in your drinking water according to Federal and State laws. The following tables show all detections found in the period of January 1 to December 31, 2016 unless otherwise noted. The State of Colorado requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year, or the system is not considered vulnerable to this type of contamination. Therefore, some of our data, though representative, may be more than one year old. Violations and Formal Enforcement Actions, if any, are reported in the next section of this report.

Note: Only detected contaminants sampled within the last 5 years appear in this report.

| Disinfectants Sampled in the Distribution System | | | | | | |
|--|------------------------|---|-------------------------------|-------------|--------------|---------|
| TT Requirement: At least 95% of samples per period (month or quarter) must be at least 0.2 ppm <u>OR</u> If sample size is less than 40 no more than 1 sample is below 0.2 ppm Typical Sources: Water additive used to control microbes | | | | | | |
| Contaminant Name | Time Period | Results | Number of Samples Below Level | Sample Size | TT Violation | MRDL |
| Chlorine | January-December, 2016 | <u>Lowest period</u> percentage of samples meeting TT requirement: 100% | 1 | 15 | No | 4.0 ppm |

| Microorganism Contaminants Sampled in the Distribution System | | | | | | | |
|--|------------------------|---------|-------------|--|------|---------------|--------------------------------------|
| Contaminant Name | Time Period | Results | Sample Size | MCL | MCLG | MCL Violation | Typical Sources |
| Coliform (TCR) | January-December, 2016 | 1 | 18 | More than 5.0% positive samples per period (If sample size is greater than or equal to 40) <u>OR</u> More than 1 positive sample per period (If sample size is less than 40) | 0 | No | Naturally present in the environment |

| Lead and Copper Sampled in the Distribution System | | | | | | | | |
|--|--------------------------|-----------------------------|-------------|-----------------|--------------------------------|-----------------------|---|--|
| Contaminant Name | Time Period | 90 th Percentile | Sample Size | Unit of Measure | 90 th Percentile AL | Sample Sites Above AL | 90 th Percentile AL Exceedance | Typical Sources |
| Copper | 09/22/2016 to 09/30/2016 | 0.15 | 30 | ppm | 1.3 | 0 | No | Corrosion of household plumbing systems; Erosion of natural deposits |
| Lead | 09/22/2016 to 09/30/2016 | 1.9 | 30 | ppb | 15 | 0 | No | Corrosion of household plumbing systems; Erosion of natural deposits |

| Disinfection Byproducts Sampled in the Distribution System | | | | | | | | | | |
|--|------|---------|------------------|-------------|-----------------|-----|------|--------------------------|---------------|--|
| Name | Year | Average | Range Low – High | Sample Size | Unit of Measure | MCL | MCLG | Highest Compliance Value | MCL Violation | Typical Sources |
| Total Haloacetic Acids (HAA5) | 2016 | 42.22 | 10.5 to 62 | 16 | ppb | 60 | N/A | | No | Byproduct of drinking water disinfection |
| Total Trihalomethanes (TTHM) | 2016 | 52.42 | 35 to 77.2 | 16 | ppb | 80 | N/A | | No | Byproduct of drinking water disinfection |

Colorado Springs Utilities (PWSID CO0121150)
 Monitored at the McCullough and Pine Valley Water Treatment Plants (entry points to the distribution system)

| Contaminant | MCL | MCLG | Units | Highest Level Detected (Range) | MCL Violation | Sample Dates | Possible Source(s) of Contamination |
|--|---|------|-------|--|---------------|---------------------------|--|
| Barium | 2 | 2 | ppm | 0.021 (0.020-0.021) | No | April 2016 | Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits |
| Fluoride | 4 | 4 | ppm | 0.20 (0.16-0.20) | No | April 2016 | Erosion of natural deposits; discharge from fertilizer and aluminum factories |
| Hexachlorocyclopentadiene | 50 | 50 | ppb | 0.05 | No | May, July, October 2016 | Discharge from chemical factories |
| Di-(2-Ethyhexyl) phthalate | 6 | 0 | ppb | 3.65 (ND-3.65) | No | May, July, October 2016 | Discharge from rubber and chemical factories |
| Picloram | 500 | 500 | ppb | 0.1 (ND-0.1) | No | May, July, October 2016 | Herbicide runoff |
| Radium, Combined 226, 228 | 5 | 0 | pCi/L | 1.9 (ND – 1.9) | No | Mar 2011, May, Jun 2014 | Erosion of natural deposits |
| Sodium | N/A | N/A | ppm | 7.43 (6.69–7.43) | No | April 2016 | Erosion of natural deposits |
| Total Organic Carbon (TOC) ¹ | TT | N/A | N/A | N/A | No | Running Annual Average | Naturally present in the environment |
| Turbidity ² | TT ≤0.3 in 95% of monthly samples | N/A | NTU | Highest turbidity 0.25 (May 2016) 100% of samples ≤0.3 | No | Jan – Dec 2016 | Soil Runoff |
| Chloicine ³ | TT No more than 4 hours with a sample <0.2 ppm | N/A | ppm | 0 samples above or below level | No | Jan- Dec 2016 | Water additive used to control microbes |

¹The Disinfectants and Disinfection Byproducts Rule provides several alternative compliance criteria besides the TOC removal ratios. We did not report TOC removal ratios because we demonstrated compliance with alternative criteria. The alternative compliance criteria that we use is 40CFR §141.135(a)(2)(ii); our treated water TOC levels are <2.0ppm calculated quarterly as a running annual average.

2Turbidity is a measure of the cloudiness of the water and has no known health effects. We monitor turbidity because it is a good indicator of the effectiveness of our filtration system. Compliance with the TT of 95% of samples ≤ 0.3 NTU is calculated using combined filter effluent turbidity results taken 6 times per day at 1:00, 5:00 and 9:00 a.m. and p.m.

3Chlorine is monitored continuously at each water treatment plant at the entry point to distribution. Compliance with the TT is no more than 4 hours with a sample below 0.2ppm.

Violations, Significant Deficiencies, Backflow/Cross-Connection, and Formal Enforcement Actions

| Violations | | | | | |
|---|--|-------------------------|----------------|------------------|-----------------|
| Name | Category | Time Period | Health Effects | Compliance Value | TT Level or MCL |
| Coliform (TCR) | MONITORING, ROUTINE, MINOR (RTCR) - NON-HEALTH-BASED | 06/01/2016 - 06/30/2016 | N/A | N/A | N/A |
| CHLORINE/CHLORAMINE | MONITORING, RTN/RPT MINOR (SWTR-FILTER) - NON-HEALTH-BASED | 06/01/2016 - 06/30/2016 | N/A | N/A | N/A |
| CHLORINE | MONITORING, ROUTINE (DBP), MINOR - NON-HEALTH-BASED | 04/01/2016 - 06/30/2016 | N/A | N/A | N/A |
| Additional Violation Information | | | | | |
| Explanation of the violation(s), the steps taken to resolve them, and the anticipated resolved date: | | | | | |
| <p>The coliform (TCR) violation was due to a positive bacteriological sample. Positive bacteriological samples can be caused by cross-contamination during sampling, but can also indicate contamination within a specific section of the drinking water system. Due to this positive result, we have resampled the faucet originally sampled, as well as the service connections up and downstream of this connection and the results were negative for bacteriological contamination. We are confident that the drinking water distribution system is currently free of any harmful contamination.</p> | | | | | |
| <p>Chlorine/chloramines are used by drinking water systems to kill harmful bacteria. State regulators require a minimum chlorine level of 0.2 mg/L. During this time period, the chlorine level in our water system dropped below the minimum level. The Civil Engineering Utility section has addressed this issue and adjusted chlorine levels in the system. They also flushed water from affected lines to circulate freshly chlorinated water into the affected lines. The Bioenvironmental Engineering Flight will continue to work with our CE partners to ensure these levels are maintained. We have not dropped below the minimum level since this single sample was taken and we do not anticipate any health concerns at this time.</p> | | | | | |

| Violations | | | | | |
|---|----------|-------------|----------------|------------------|-----------------|
| Name | Category | Time Period | Health Effects | Compliance Value | TT Level or MCL |
| <p>Disinfection Byproducts (DBPs) are sampled quarterly here at USAFA. These samples are submitted to a certified laboratory for analyses. Our agreement with the laboratory includes the submittal of the results to the Colorado Department of Public Health and Environment (CDPHE). In June of last year our samples were submitted to our usual lab, but the lab did not have all of the information necessary to file the results with the CDPHE. Unfortunately, we were not contacted by the lab about this issue and therefore did not have our sampling results reported to the CDPHE in time. We have since ensured the laboratory has all of the proper information to send to the state and we do not see this violation as a future issue.</p> | | | | | |