

2019 Annual Consumer Confidence Report

F.E. Warren AFB
PWS I.D. No: WY5680122

Is my water safe?

Yes, our water meets all of Environmental Protection Agency's (EPA) health standards in accordance with Title 40, Code of Federal Regulation (CFR) Parts 141 and 142. In 2019, numerous tests were conducted for contaminants that may be found in drinking water. The 2019 Annual Consumer Confidence Report (CCR) for F.E. Warren AFB is supplemented by the attached 2019 City of Cheyenne Board of Public Utilities (BOPU) CCR. As shown in the City of Cheyenne BOPU CCR, Section 13, there were no violations of any standards in 2019. Included are details about where your water comes from, what it contains, and how it compares to standards set by federal regulatory agencies.

Do I need to take special precautions?

Some people may be more vulnerable to contaminants in drinking water than the general population. There are several groups of people at risk for infections. These people include: 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 people, and infants, can be particularly at risk for infections. These people should seek advice about drinking water from their health care providers. Guidelines from the EPA and Centers for Disease Control (CDC) identifying the appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791.

Where does my water come from?

Your water comes from the Cheyenne BOPU water system and is a mixture of surface and ground water. We maintain the drinking water distribution system within the base boundaries but do not treat the water in any way. We have limited monitoring requirements to supplement the complete range of sampling already performed by the City of Cheyenne BOPU. The 2019 City of Cheyenne BOPU CCR is included with our report and provides information about the City of Cheyenne's monitoring, additional definitions and required educational information, and the source of our water.

Other Information

If you have questions, please contact 90th Missile Wing Bioenvironmental Engineering at 773-3088 or 90th Missile Wing Water Quality Program Manager at 773-4359.

Abbreviations and Terms Used in This Report

AL	Action Level
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
mg/L	Number of milligrams of substance in one liter of water
µg/L	Number of micrograms of substance in one liter of water
ppm	Parts per million, or milligrams per liter (mg/L): One part per million corresponds to one minute in 2 years or one penny in \$10,000.
ppb	Parts per billion, or micrograms per liter (µg/L): One part per billion corresponds to one minute every 2,000 years or 1 penny in \$10,000,000.
ND	None detected
LRAA	Locational Running Annual Average
TTHM	Total Trihalomethanes
HAA5	Haloacetic Acids
TOC	Total Organic Carbon

Important Drinking Water Definitions

Action Level (AL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements, which a water system must implement. An action level is different from a Maximum Contaminant Level (MCL), in that while an MCL is a legal limit of contaminant, an action level is a trigger for additional prevention or removal steps.

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to MCLGs as feasible using the best available treatment technology and taking cost into consideration. MCLs are enforceable standards for public water-supply systems.

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.

Water Quality Data

F.E. Warren AFB does not duplicate sampling conducted by BOPU. Table 1, *Inorganic Contaminants* and Table 2, *Other Sampled Contaminants* below list all of the drinking water contaminants that were collected and/or detected during the calendar year of this report. Regulatory contaminant sampling frequency is based on the likelihood of changes in concentration; therefore, not all contaminants are sampled for each year.

In June 2018, 20 lead and copper drinking water samples were collected at designated sites throughout the base. Compliance is measured for lead and copper by utilizing the 90th percentile. The 90th percentile means if you sampled 20 times and rank ordered the analysis results from the lowest to highest, the 90th percentile would be the 18th sample result. These results are required to be reported to the EPA and are listed below in Table 1. The 90th percentile was 0 (ppb) for lead and 0.56 (ppm) for copper. These values are significantly less than the action levels defined by the EPA for environmental levels of lead and copper in drinking water. Because our lead and copper sample results were in compliance, the EPA has placed F.E. Warren AFB on the Reduced Monitoring Program, which requires monitoring every three years. The next round of samples will occur in June 2021.

TABLE 1: Inorganic Contaminants

Contaminants	Violation Yes/No	MCLG	AL	90% Sample Result	Sample Date	# Samples Exceeding AL	90% Exceeds AL	Typical Sources
Lead-(ppb) Consumer Tap	No	0	15	0	June 2018	0	No	Corrosion of household plumbing systems; erosion of natural deposits
Copper-(ppm) Consumer Tap	No	1.3	1.3	0.56	June 2018	0	No	Corrosion of household plumbing systems; erosion of natural deposits

Table 2 lists the results of the chlorine and bacteria sampling. The outcome for Total Coliform Bacteria resulted in a Non-Detect (ND) meaning no bacteria was detected, with chlorine ranging from 0.02 to 1.90 mg/L. All levels are under the MCL.

TABLE 2: Other Sampled Contaminants

Contaminants	Violation Yes/No	Levels Detected (mg/L)	MCLG	MCL	Sample Dates	Typical Sources/Comments
Chlorine (mg/L)	No	Min: 0.02 Max: 1.90 Avg: 0.69	4.0	4.0	Jan – Dec 2019	Water additive to control microbes.
Total Coliform Bacteria	No	Presence/Absence Testing ND	0	0	Jan – Dec 2019	Naturally present in the Environment
TTHM (µg/L) Total Trihalomethanes (Sum of the 4 compounds: Chloroform, Bromoform, Bromodichloromethane, Dibromochloromethane)	No	<u>Bldg. 1152</u> Min: 20 Max: 26 Avg: 22 <u>Bldg. 665</u> Min: 19 Max: 27 Avg: 22	0	80	Jan – Dec 2019	By-product of drinking water chlorination.

<p>HAA5 (µg/L) Haloacetic Acids (Sum of the 5 compounds: Monochloroacetic Acid, Dichloroacetic Acid, Trichloroacetic Acid, Monobromoacetic Acid, Dibromoacetic Acid)</p>	<p>No</p>	<p><u>Bldg. 1152</u> Min: 14 Max: 27 Avg: 19.25 <u>Bldg. 665</u> Min: 0 Max: 18 Avg: 12.25</p>	<p>0</p>	<p>60</p>	<p>Jan – Dec 2019</p>	<p>By-product of drinking water chlorination.</p>
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City of *Cheyenne* Board of Public Utilities

Consumer Confidence Report - January 1 - December 31, 2019

The City of Cheyenne Board of Public Utilities (BOPU) is proud to release the Consumer Confidence Report for annual drinking water quality, for calendar year 2019. If you have any questions about this report, call the Water Quality Control Supervisor Kent Loader at (307) 635-7693.

Is Cheyenne's water safe? Summary of Report Findings.

Yes! The BOPU is proud to report that Cheyenne's drinking water is safe and meets or exceeds (is better than) federal and local requirements.

No Violations

Water quality sampling contained detects, but no violations. As you can see by the data in our table, our water system had no violations. We're proud that the drinking water provided by the BOPU meets or exceeds (is better than) drinking water standards established by the Environmental Protection Agency (EPA).

We have learned through monitoring and testing, that some constituents have been detected in Cheyenne's water. The EPA has determined that the amount of these constituents in drinking water is safe.

The BOPU's Water Treatment Division routinely monitors Cheyenne's drinking water for potential contaminants in accordance with Federal laws. The tables below show the most recent results of this water quality monitoring (through 12/31/2019), completed in accordance with the US EPA Drinking Water Regulations.

Where does Cheyenne's water come from?

Cheyenne's water comes from both surface water and groundwater sources. A Source Water Assessment and Protection report was completed in 2004. To view a copy of this report, call (307) 637-6460.

Douglas Creek

Surface water is collected from the Douglas Creek Watershed located about 75 miles west of Cheyenne in the Medicine Bow Mountains (also called the Snowy Range). Water from Douglas Creek is stored in Rob Roy Reservoir. Two pipelines deliver the water from Rob Roy Reservoir to Granite and Crystal Reservoirs.



When Cheyenne collects water from Douglas Creek, the Board of Public Utilities (Board) must replace the water. The Board replaces the water with water from west of the Continental Divide in the Little Snake River Watershed. The Little Snake River is located in the Sierra Madre Mountains approximately 110 miles west of Cheyenne. A series of collection structures and pipelines collect water from tributaries in the Little Snake River and transport the water under the Continental Divide to Hog Park Reservoir. Water released from Hog Park can also be stored in Seminoe Reservoir. The BOPU uses this stored water as trade water. Hog Park Reservoir, Seminoe Reservoir and Rob Roy Reservoir drain to the North Platte River. When the BOPU releases water from Hog Park Reservoir or Seminoe Reservoir, the BOPU can collect water at Rob Roy Reservoir.

Crow Creek

Surface water is also collected from the Crow Creek Watershed. Crow Creek is located about 30 miles west of Cheyenne in the Laramie Mountains near the Vedauwoo area. Water from Crow Creek is stored in North Crow Reservoir (North Crow Creek), Granite and Crystal Reservoirs (Middle Crow Creek) and South Crow Diversion Structure (South Crow Creek).



Water stored in Crystal Reservoir and South Crow Diversion Structure is delivered to the R.L. Sherard Water Treatment Plant by pipelines.

Groundwater

Cheyenne owns and operates about 36 wells in four well fields located west and northwest of Cheyenne. The wells pump from the High Plains (Ogallala and White River) Aquifers. Approximately 30 percent of the water used in Cheyenne comes from wells.

Learn more about Cheyenne's water by watching videos.

We encourage all of our customers to learn about Cheyenne's water system and the Safe Drinking Water Act. Help us protect our valuable water sources that protect our health, provide fire protection, provide a natural resource for businesses and provide for our way of life. Our water is vital to our future. Visit our website at www.cheyennebopu.org and watch videos for the following information.

- Where does Cheyenne's water come from?
- View a map of Cheyenne's water system.
- How does the BOPU prepare drinking water?
- How does the BOPU protect water resources?
- How does the BOPU protect water quality as it is delivered to homes and businesses?
- Find out more about how the United States of America protects drinking water through the Environmental Protection Agency's Safe Drinking Water Act.

A Note from the EPA About Drinking Water Sources and Regulations

All 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 the water poses a health risk.

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. To ensure tap water is safe to drink, the EPA regulates the amount of certain contaminants in water from public water systems. The Food and Drug Administration regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

Contaminants that may be present in source water include:

Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.

Inorganic contaminants, such as salts and metals, which 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, which may come from a variety of sources such as agricultural, urban storm water runoff, and residential uses.

Organic chemical contaminants, including synthetic and volatile organic chemicals which are by-products of industrial process 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.

More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline at 1 (800) 426-4791 or by visiting <https://www.epa.gov/sdwa>.

Definitions

In the table below, you will find many terms and abbreviations which might not be familiar. To help you better understand these terms, we've provided the following definitions.

Action Level (AL) - the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

Maximum Contaminant Level (MCL) - The "maximum allowed" is the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the Maximum Contaminant Level Goals as feasible using the best available treatment technology.

MCL values are set at very stringent levels. To understand the possible health effects described for many regulated constituents, a person would have to drink 2 liters of water every day at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect. *(Reprinted with permission from the National Rural Water Association.)*

Maximum Contaminant Level Goal (MCLG) - The "Goal" is 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.

Nephelometric Turbidity Unit (NTU) - Nephelometric Turbidity Unit is a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable by the average person.

Parts per billion (ppb) or microgram per Liter (ug/L) - one part per billion corresponds to one minute in 2,000 years, or one penny in \$10,000,000.

Parts per million (ppm) or milligram per Liter (mg/L) - one part per million corresponds to one minute in two years, or one penny in \$10,000.

Picocurie per Liter (pCi/L) - picocurie per Liter is a measure of radioactivity.

RTST - Sample was taken at the Round Top Storage Tank.

SWTP - Sample was taken at the Sherard Water Treatment Plant.

Treatment Technique (TT) - A treatment technique is a required process intended to reduce the level of contaminant in drinking water.

Microbial Contaminants and Turbidity

Contaminant	Violation Yes/No	Level Detected	MCLG	MCL	Likely Source of Contamination/ Comments
Total Coliform Bacteria	No	Presence/ Absence Testing	0	Presence of coliform in $\geq 5\%$ of monthly samples	Naturally present in the environment. 720 samples were required for regulatory compliance. The BOPU collected 920 samples. Of that number, no samples tested positive for total coliform.
Turbidity	No	≤ 0.09 NTU 100%	N/A	TT 95% < 0.3	Soil runoff. Maximum allowable filtered water turbidity is 0.3 NTU in 95% of all samples. Turbidity values are recorded every 4 hours from all filters in operation and values reported monthly to the EPA.

The BOPU tested raw (untreated) water for Giardia and Cryptosporidium in 2017 but found less than one per liter of sample.

Inorganic Contaminants

Contaminant	Violation Yes/No	Level Detected	Unit	MCLG	MCL	Likely Source of Contamination/ Comments
Arsenic	No	RTST: 0.00 SWTP: 0.00	ppb	0	10	Erosion of natural deposits; runoff from orchards; glass and electronics production waste. Arsenic was last detected in 2018 at 1.5 ppb.
Barium	No	RTST: 0.045 SWTP: 0.041	ppm	2	2	Discharge of drilling wastes; erosion of natural deposits.
Copper	No	0.4 90 th percentile, based on 30 samples taken (27 th highest value) in August 2017	ppm	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives. This sample was taken from a private residence.
Fluoride	No	RTST: 0.3 SWTP: 0.3	ppm	4	4	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories.
Lead	No	3.3 90 th percentile, based on 30 samples collected (27 th highest) in August 2017	ppb	0	AL=15	Corrosion of household plumbing systems; erosion of natural deposits. This sample was taken from a private residence.
Nitrate (as Nitrogen)	No	RTST: 0.5 SWTP: 0.5	ppm	10	10	Runoff from fertilizer use; leaching from septic tanks; sewage; erosion of natural deposits.
Sulfate	No	RTST: 18 SWTP: 19	ppm	None	250	Used as a coagulation compound in the treatment of drinking water. Water additive – ferric sulfate

Additionally, the Board tested drinking water from Antimony, Beryllium, Bromate, Cadmium, Chromium, Cyanide, Mercury, Nickel, Nitrite, Selenium and Thallium but found no detects. Asbestos was sampled in 2018 but found no detects.

The BOPU also sampled for and detected Sodium (SWTP: 8.8 ppm, RTST: 11 ppm). Sodium comes primarily from water treatment chemicals and erosion of natural deposits.

Organic Contaminants

Contaminant	Violation Yes/No	Level Detected RTST	Level Detected SWTP	Unit	MCLG	MCL	Likely Source of Contamination/ Comments
Total Trihalomethanes (sum of the 4 compounds: Chloroform, Bromoform, Bromodichloromethane, Dibromochloromethane)	No	Min=23.7 Max=27.9 Avg=25.3	Min=12.4 Max=56.7 Avg=28.6	ppb	0	80	By-product of drinking water chlorination.
Haloacetic Acid (Sum of the 5 compounds: Monochloroacetic Acid, Dichloroacetic Acid, Trichloroacetic Acid, Monobromoacetic Acid, Dibromoacetic Acid)	No	Min=15.1 Max=20.6 Avg=17.5	Min=9.0 Max=27.0 Avg=17.8	ppb	0	60	By-product of drinking water chlorination.
Total Organic Carbon	No	N/A	Raw Max=5.5 Finished Min=1.8	ppm	N/A	TT	Measure of the organic matter associated with the water source.

Additionally, the Board tested drinking water for the following organic compounds but found no detects: Acrylamide; Alachlor; Atrazine; Benzene; Benzo(a)pyrene (PAHs); Carbofuran; Carbon Tetrachloride; Chlordane; Chlorobenzene; 2,4-D; Dalapon; 1,2-Dibromo-3-chloropropane (DBCP); o-Dichlorobenzene; p-Dichlorobenzene; 1,2-Dichloroethane; 1,1-Dichloroethylene; cis-1,2-Dichloroethylene; trans-1,2-Dichloroethylene; Dichloromethane; 1,2-Dichloropropane; Di(2-ethylhexyl) adipate; Di(2-ethylhexyl) phthalate; Dinoseb; Dioxin (2,3,7,8-TCDD); Diquat; Endothall; Endrin; Epichlorohydrin; Ethylbenzene; Ethylene Dibromide; Glyphosate; Heptachlor; Heptachlor Epoxide; Hexachlorobenzene; Hexachlorocyclopentadiene; Lindane; Methoxychlor; Oxamyl (Vydate); Polychlorinated Biphenyls (PCBs); Pentachlorophenol; Picloram; Simazine; Styrene; Tetrachloroethylene; Toluene; Toxaphene; 2,4,5-TP (Silvex); 1,2,4-Trichlorobenzene; 1,1,1-Trichloroethane; 1,1,2-Trichloroethane; Trichloroethylene; Vinyl Chloride; Xylenes (total).

Radionuclides

Contaminant	Violation Yes/No	Level Detected RTST	Level Detected SWTP	Unit	MCLG	MCL	Likely Source of Contamination/ Comments
Gross Alpha	No	10.1±2.4 (2018)	4.3±1.9 (2018)	pCi/L	None	15	Erosion of natural deposits.
Radium 226	No	0.20±0.12 (2018)	0.08±0.10 (2018)	pCi/L	None	15	Erosion of natural deposits.
Radium 228	No	0.31±0.54 (2018)	0.22±0.52 (2018)	pCi/L	None	15	Erosion of natural deposits.
Uranium	No	1.6	0	ppb	None	30	Naturally present in the environment.

A Note About Drinking Water Quality and Immuno-compromised Persons

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 systems disorders, some elderly, and infants can be particular risk from infections. These people should seek advice about drinking water from health care providers. EPA/Centers for Disease Control and Prevention guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbiological contaminants are available from the Safe Drinking Water Hotline at 1 (800) 426-4791 or at <http://www.epa.gov/safewater>.

A Note About Lead

Cheyenne started programs and studies to prevent the leaching of lead and copper from water pipes into our finished drinking water in the early 1990's. Today, the R.L. Sherard Water Treatment plant has the ability to adjust water pH and alkalinity to reduce the corrosiveness of treated drinking water. Partnering with the EPA, the Board regularly monitors the amount of lead coming from faucets in older homes selected because they were constructed when lead was used in plumbing. These tests have shown the level of lead to be substantially below EPA's action level.

Lead in drinking water comes primarily from material and components used with home plumbing. While the Board provides high-quality drinking water, the Board has limited control regarding the materials that are used in plumbing components in homes and buildings.

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. If you are concerned, 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. If you are concerned about lead in your drinking water, you may wish to have your water tested. Information on lead in drinking water, testing methods and steps you can take to minimize exposure are available from the Safe Drinking Water Hotline at 1 (800) 426-4791 or at <http://www.epa.gov/safewater/lead>.

How is the water system funded?

In the Board's continuing effort to provide a safe and dependable water supply, it is necessary to make improvements to Cheyenne's water system. Water system improvements and maintenance are paid for through water rates charged to the users.

Our Goal

Our goal is to provide the community of Cheyenne with safe, quality drinking water that meets federal and local requirements and provides the utmost benefit for the community's investment.



Questions

Questions about this report or concerning your water utility should be directed to:

Brad Brooks
Director
(307) 637-6460

Kent Loader
Water Quality Control Supervisor
(307) 635-7693

We want our customers to be informed about their water. If you want to learn more or participate in Cheyenne's water system, please attend any of our regularly scheduled Board Meetings.

Board Meetings
Third Monday of each month
3:00 p.m. MST
2416 Snyder Avenue
Cheyenne, WY