

# 2007 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 2007, numerous tests were conducted for contaminants that may be found in drinking water. As you'll see in the attached Cheyenne Board of Public Utilities (BOPU) Consumer Confidence Report, section 12 (attached), 20 contaminants were detected but all were at safe levels. No potential for harm existed at the levels found. Included are details about where your water comes from, what it contains, and how it compares to standards set by regulatory agencies.

## Do I need to take special precautions?

Some people may be more vulnerable to contaminants in drinking water than the general population. These people should seek advice about drinking water from their health care providers. 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. 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 Drinking Water Hotline (800-426-4791).

## Where does my water come from?

Your water comes from the 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 BOPU. The City's Consumer Confidence Report for 2007 is included with our report (see attachment). BOPU's 2007 CCR provides information about the city's monitoring and the source of our water.

## Source water assessment and its availability

A Source Water Assessment and Protection (SWAP) report was completed in 2004. To view a copy of this report, please contact BOPU at 637-6460.

## How can I get involved?

To learn more about the city's water system, please attend any of the BOPU regularly scheduled Board meetings held at the Municipal Building, 2101 O'Neil, room 122, at 3:00 PM, on the third Monday of each month.

## Other Information

If you have questions, please contact 2d Lt Christopher S. Bates of the Bioenvironmental Engineering Flight, at 773-3088 or Maj Kalpesh B. Patel, Water Quality Program Manager, at 773-4356 at the 90th Civil Engineering Squadron.

## Abbreviations and Terms Used in This Report

AL	Action Level
BOPU	Cheyenne Board of Public Utilities
CCR	Consumer Confidence Report
CDC	Center for Disease Control and Prevention
CFR	Code of Federal Regulations; Mandatory standards required by federal law
EPA	Environmental Protection Agency
MNR	Monitored Not Regulated
MPL	State Assigned; Maximum Permissible Level
µg/L	Number of micrograms of substance in one liter of water
mg/L	Number of milligrams 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 2000 years or 1 penny in \$10,000,000
ND	None detected

## 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 follow. An action level is different from an 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 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.

**Maximum Residual Disinfection 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.

**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.

**Range:** The range of highest and lowest analytical values of a reported contaminant. For example, the range of reported analytical detections for an unregulated contaminant may be 10.1 ppm (lowest) to 13.4 ppm (highest value). EPA requires this range to be reported.

**Safe Drinking Water Act (SDWA):** Federal law, which sets forth drinking water regulations.

**Variations and Exemptions:** State or EPA permission not to meet an MCL or a treatment technique under certain conditions.

## Water Quality Data

F. E. Warren does not duplicate sampling conducted by BOPU. Table 1 and table 2 below list all of the drinking water contaminants that we 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 August 2006, 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 90<sup>th</sup> percentile. The 90<sup>th</sup> percentile means if you sampled 20 times and rank ordered the analysis results from the lowest to highest, the 90<sup>th</sup> percentile would be the 18<sup>th</sup> sample result. These results are required to be reported to the EPA and are listed below in Table 1. The 90<sup>th</sup> percentile for lead was 1 part per billion (ppb) and 0.32 parts per million (ppm) for copper. Based on our lead and copper sample results being in compliance, the EPA has placed F. E. Warren AFB on Reduced Monitoring Program that requires monitoring every three years. The next round of samples will be between 1 June 2009 and 30 September 2009.

In October 2007, 25 drinking water samples were collected at the Teen and Youth Activity Centers to comply with the Air Force Lead Assessment Program. All samples were below the regulatory limit of 0.020 mg/L, ranging from 0 to 0.005 mg/L.

**TABLE 1. Inorganic Contaminants**

Contaminants	Do we meet the Standard?	MCLG	AL	90% Sample Result	Sample Date	# Samples Exceeding AL	90% Exceeds AL	Typical Sources
--------------	--------------------------	------	----	-------------------	-------------	------------------------	----------------	-----------------

Lead – Action level at Teen and Youth Centers (mg/L)	YES	0	0.020	0.004	October 2007	0	No	Plumbing systems
Lead – Action level at consumer taps (ppb)	YES	0	15	1	August 2006	0	No	Corrosion of household plumbing systems
Copper – action level at consumer taps (ppm)	YES	1.3	1.3	0.32	August 2006	0	No	Corrosion of household plumbing systems; erosion of natural deposits

Table 2 lists the results of the chlorine and bacteria sampling. Results for bacteriological growth all came up none detected (ND), with chlorine ranging from 0 to 0.85 mg/L. The low end of the chlorine results is due to those samples being taken at the end of the water lines.

**TABLE 2. Other Sampled Contaminants**

Contaminants	Do we meet the Standard?	Levels Detected	MCLG	Sample Dates	# Samples Exceeding MCLG	Typical Sources/Comments
Chlorine – Action level at consumer taps (mg/L)	YES	min – 0 avg – 0.55 max – 0.85	MRDLG = 4.0	Jan – Dec 2007	0	Water additive to control microbes.
Total Coliform Bacteria	YES	ND	0	Jan – Dec 2007	0	Naturally Present in the Environment

**For more information please contact:**

2d Lt Christopher S. Bates  
6900 Alden Drive  
F. E. Warren AFB WY 82005  
Phone: 307-773-3088  
Fax: 307-773-2880

Maj Kalpesh B. Patel  
300 Vesle Drive, Bldg 367  
F. E. Warren AFB WY 82005  
Phone: 307-773-4356  
Fax: 307-773-4153

Cheyenne Board of Public Utilities  
2100 Pioneer  
Cheyenne Wyoming 82001

The City of Cheyenne Board of Public Utilities (BOPU) is releasing the Consumer Confidence Report for Annual Drinking Water Quality for calendar year 2007.

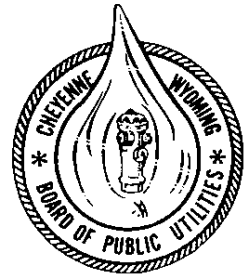
**Consumer Confidence Report for  
Annual Drinking Water Quality**

**Section 1. Findings:** We report that the BOPU drinking water is safe and meets or exceeds federal and local requirements.

**Section 2. About Our Water Supply:** The BOPU receives both surface water and groundwater. Surface water is collected from the Douglas Creek Drainage, located in the Snowy Range Mountains, about 90 miles west of Cheyenne. The water is stored in Rob Roy Reservoir and transported to Granite and Crystal Reservoirs via two water delivery pipelines. Surface water is also collected from the Crow Creek Drainage, located in the Pole Mountain/Vedauwoo area, about 30 miles west of Cheyenne. Crow Creek water is collected and stored in North Crow Reservoir (North Crow Creek Drainage), in Granite and Crystal Reservoirs (Middle Crow Creek Drainage) and South Crow Reservoir (South Crow Creek Drainage). Water is delivered from these reservoirs to the R.L. Sherard water treatment plant by pipelines. The City owns and operates about 35 groundwater wells located west and northwest of Cheyenne. The wells pump from the Ogallala and White River Aquifers.

Cheyenne also collects surface water in the Little Snake River Drainage (LSRD). The LSRD is located about 180 miles west of Cheyenne on the western slope of the Continental Divide. This water is transported through a tunnel and stored in Hog Park Reservoir located on the eastern slope of the Divide. Water released from Hog Park Reservoir is traded for surface water from the Douglas Creek Drainage. As water is released from Hog Park Reservoir, Cheyenne is allowed to collect water from the Douglas Creek Drainage and store the water in Rob Roy Reservoir for use in the drinking water system. A Source Water Assessment and Protection (SWAP) report was completed in 2004. To view a copy of this report, call 637-6460.

**Section 3. Monitoring:** The BOPU's Water Treatment Division routinely monitors for potential contaminants in the drinking water according to Federal laws. The table in Section 5 shows the results of our monitoring for the compliance period January 1<sup>st</sup> through December 31<sup>st</sup>, 2007.



**Section 4. Definitions:**

In this table 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 MCLGs as feasible using the best available treatment technology.

*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 to the average person.

*Parts per billion (ppb) or microgram per Liter (µg/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.

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

**Section 5. No Violations:** A detect but no violation: As you can see by the table, our system had no violations. We're proud drinking water provided by the BOPU water system meets or exceeds all Federal requirements. We have learned through monitoring and testing that some constituents have been detected. The EPA has determined that Cheyenne's water IS SAFE at these levels.

**Section 6.** The sources of drinking water (both tap water & bottled water) include rivers, streams, lakes, reservoirs, ponds, 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: (A) *Microbial contaminants*, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife. (B) *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. (C) *Pesticides and herbicides*, which may come from a variety of sources such as agricultural, urban storm water runoff, and residential uses. (D) *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. (E) *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 which limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

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 at (800-426-4791).

40 CFR, Part 141, §141.153(h)(1)(i),(ii)(A),(B),(C),(D),(E),(iii) and (iv).

**Section 7.** Maximum Contaminant Level (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.

*(Section (10.) reprinted with permission from the National Rural Water Association)*

**Section 8.** 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/CDC guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbiological contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

**Section 9.** 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 home plumbing. The BOPU 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 to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your 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 is available from the safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>.

**Section 10.** In our continuing effort to provide a safe and dependable water supply it is necessary to make improvements to Cheyenne's water system. System improvements are paid for through water rates charged to the users.

**Section 11. Questions:** Questions about this report or concerning your water utility should be directed to *Tim Wilson, Director @ 637-6460 or Bud Spillman, Water Treatment Manager @ 635-7693*. We want our valued customers to be informed about their water utility. If you want to learn more, please attend any of our regularly scheduled Board meetings held at 2101 O'Neil, Room 122, at 3:00 p.m., on the third Monday of each month.

**Section 12. Goal:** Our goal is to provide the community of Cheyenne with safe, quality drinking water that meets federal and local requirements at the lowest cost. We encourage all of our water customers to learn about Cheyenne's water system and the Safe Drinking Water Act requirements and to help us protect our valuable water sources, which are the heart of our community, our way of life and vital to our future.

**Attention Property Owners and Managers:**

Please share this report with your tenants. Thank you.

**Section 13. Table Referencing Contaminant Detects and/or Violations**

R - Round Top Storage Tank G.W.		TEST RESULTS				S – Sherard Plant
Contaminant	Violation Yes/No	Level Detected	Unit Measurement	MCL G	MCL	Likely Source of Contamination/Comments
Total Coliform Bacteria	No	Presence/Absence Testing  0		0	Presence of coliform bacteria in 5% of monthly samples	Naturally present in the environment.
Turbidity	No	0.14 NTU		0	0	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.
		100%			% <0.3	
Lead – 90 <sup>th</sup> percentile, based on 30 samples collected (27 <sup>th</sup> highest value) 8/2005	No	4.2	ppb	0	AL=15 ppb	Corrosion of household plumbing systems, erosion of natural deposits. This sample was taken from a private residence on the system.
Copper – 90 <sup>th</sup> Percentile, based on 30 samples collected (27 <sup>th</sup> highest value) 8/2005	No	0.2	ppm	1.3	AL=1.3 ppm	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives. This sample was taken from a private residence on the system.
Fluoride	No	Min: 0.4 Max: 1.0 Avg: 0.7	ppm	4	4	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories.
Nitrate	No	R: 0.78	ppm	10	10	Runoff from fertilizer use;

(as Nitrogen)		S: 0.48				leaching from septic tanks, sewage; erosion of natural deposits
TTHM [Total Trihalomethanes]	No	R Min: 17.0 Max 29.9 Avg: 25.2 S Min: 17.2 Max: 56.2 Avg: 33.0	ppb	0	80	By-product of drinking water chlorination
HAA	No	R Min: 9.5 Max: 17.7 Avg: 15.2 S Min: 9.5 Max: 34.0 Avg: 18.5	ppb	0	60	By-product of drinking water chlorination

Contaminant	Violation Yes/No	Level Detected	Unit Measurement	MCLG	MCL	Likely Source of Contamination/Comments
Radionuclides						
Gross Alpha 11/2006	No	R Max: 5.4	pCi/L	None	15	Gross Alpha – Erosion of natural deposits
Radium 226 11/2006	No	S Max: 8.6 R:0.22±0.21	pCi/L	None		
Radium 228 11/2006	No	S: 0.26±0.28	pCi/L	None		Radium – Erosion of natural deposits
Radon 222		R: 0.72±0.49	pCi/L	None		
Uranium *11/2006	No	S: 0.57±0.52 R: 31.6±11.9 S: -15.0±9.9 R: 8.2* S: 0.32±0.15	ppb	None	30	Radon – Erosion of natural deposits  Uranium – Erosion of natural deposits
Bromate 7/2006	No	Max – <0.005	ppm	0	0.010	By product of Ozone
Chlorine	No	Min: 0.1 Max: 1.1 Avg: 0.8	ppm	N/A	N/A	Maximum Residual Disinfectant Level 4.0 ppm
Chlorine Dioxide	No	Max: .50 Avg: .08	ppm	.8	.8	Water additive to control microbes and manganese
Chlorite	No	Max: .73	ppm	.8	1.0	By product of chlorine dioxide
TOC	No	TOC Raw Max: 5.8 TOC Finished Min: 2.0	ppm	Up to 45% removal		Total Organic Carbon is the measure of organic matter associated with the water source.
Barium	No	R: 47 S: 29	ppb	2000	2000	Discharge of drilling wastes; erosion of natural deposits.
Chromium	No	R: 2.2	ppb	100	100	Discharge from steel

		S: <2.0				and pulp mills; erosion of natural deposits.
Nickel	No	R: <1.0 S: <1.0	ppb	100	N/A	Metal found in natural deposits as ores containing other elements

Additionally, the BOPU tested the drinking water for the following contaminants, and found no detects:

**INORGANIC CONTAMINANTS**

Antimony, Arsenic, Beryllium, Bromate, Cadmium, Cyanide, Mercury, Nitrite, Selenium, Thallium

**SYNTHETIC ORGANIC CONTAMINANTS INCLUDING PESTICIDES AND HERBICIDES**

2,4-D, 2,3,5-TP (Silvex), Alachlor, Atrazine, Benzo(a)pyrene, Carbofuran, Chlordane, Dalapon, Di(2-ethylhexyl)adipate, Endrin, Heptachlor, Heptachlor epoxide, Hexachlorobenzene, Hexachlorocyclopentadiene, Oxamyl (Vydate), Pentachlorophenol, Simazine, Toxaphene

**VOLATILE ORGANIC CONTAMINANTS**

Benzene, Carbon Tetrachloride, Chlorobenzene, 1,2-Dichloroethane, 1,1-Dichloroethylene, cis-1,2-Dichloroethylene, trans-1,2-Dichloroethylene, Ethylbenzene, Styrene, 1,2,4-Trichlorobenzene, 1,1,1-Trichloroethane, Toluene, Vinyl Chloride, Xylene, MTBE

**UNREGULATED CONTAMINANTS**

Acetochlor, 2,4-Dinitrotoluene, 2,6-Dinitrotoluene, 4,4-DDE, DCP Acid Metabolites, EPTC, Molinate, Nitrobenzene, Terbacil, Perchlorate

**LONG TERM 2 ENHANCED SURFACE WATER TREATMENT RULE (LT2)**

Source water cryptosporidium samples collected monthly – no detects.