

# 2016 Annual Drinking Water Quality Report

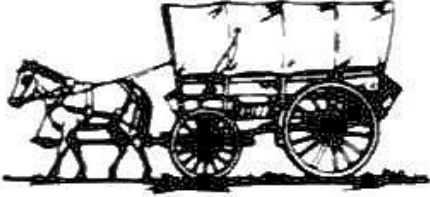
For

## Pioneer Water & Sewer District

8917 Poison Spider Road

Casper WY 82604

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We are pleased to present to you this year's Annual Drinking Water Quality Report. This report is designed to inform you about the quality water and services we deliver to you every day. Our constant goal is to provide you with a safe and dependable supply of drinking water. We want you to understand the efforts we make to continually improve the water treatment process and protect our water resources. We are committed to ensuring the quality of your water. Our water source is the Central Wyoming Regional Water System (CWRWS) and their source consists of twenty-nine groundwater wells and surface water drawn from the North Platte River.

### **We are pleased to report to our consumers that our drinking water is safe and meets Federal and State requirements.**

If you have any questions about this report or concerning your water utility, please contact **Lee Anne Bayne, District Manager** at **(307) 472-7300**. 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 meetings. They are held on **the second Monday of each month at 6:00 PM at the District office building located at 8917 Poison Spider Rd.**

**Pioneer Water & Sewer District** routinely monitors for constituents in your drinking water according to Federal and State laws. This table shows the results of our monitoring for the period of January 1<sup>st</sup> to December 31<sup>st</sup>, **2016**. As water travels over the land or underground it can pick up substances or contaminants such as microbes, inorganic and organic chemicals, and radioactive substances. All drinking water, including bottled drinking water, may be reasonably expected to contain at least small amounts of some constituents. It's important to remember that the presence of these constituents does not necessarily pose 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 1-800-426-4791.

The sources of drinking water include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it can dissolve naturally occurring minerals and, in some cases, radioactive materials. The water can also pick up substances such as:

1. Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural operations, and wildlife.
2. Inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban storm water runoff, industrial or domestic waste water discharges, oil and gas production, mining or farming.
3. Pesticides and Herbicides, which may come from agriculture, urban storm water runoff, and residential uses.
4. Organic chemical contaminants, which can come from industrial processes, gas stations, urban storm water runoff and septic systems.
5. Radioactive contaminants, which can be naturally occurring or the result of oil and gas production and mining activities.

In order to insure that tap water is safe to drink, EPA establishes regulations, which limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration establishes limits for contaminants in bottled water which must provide the same protection for human health.

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

*Non-Detects (ND)* - laboratory analysis indicates that the laboratory does not detect the constituent.

*Parts per million (ppm) or Milligrams per liter (mg/l)* - One part per million corresponds to one minute in two years or a single penny in \$10,000.

*Parts per billion (ppb) or Micrograms per liter* - One part per billion corresponds to one minute in 2,000 years, or a single penny in \$10,000,000.

*Parts per trillion (ppt) or Nanograms per liter* - One part per trillion corresponds to one minute in 2,000,000 years, or a single penny in \$10,000,000,000.

*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.

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

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

*Maximum Contaminant Level* - (mandatory language) The "Maximum Allowed" (MCL) is the highest level of a contaminant that is allowed in drinking water. MCL's are set as close to the MCLG's as feasible using the best available treatment technology.

*Maximum Contaminant Level Goal – (mandatory language)* The "Goal" (MCLG) is the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLG's allow for a margin of safety.

*Surface Water (SW)* – Water which is diverted from the North Platte River through the CWRWS water treatment plant

*Ground Water (GW)* – Water which is produced by the CWRWS wells.

*Not Applicable (N/A)* – Not applicable for this category.

TEST RESULTS						
Contaminant	Violation Y/N	Level Detected	Unit Measurement	MCLG	MCL	Likely Source of Contamination
<b>Microbiological Contaminants</b>						
<b>Total Coliform Bacteria</b>	N	None	Presence/absence	0	Presence in 5% of monthly samples	Naturally present in the environment
<b>Fecal Coliform and <i>E. coli</i></b>	N	ND	Presence/absence	0	A routine sample and repeat sample are TC positive, one is also FC or <i>E. coli</i> positive	Human and animal fecal waste
<b>Turbidity</b> Ground Water Surface Water	N	.212 .239	NTU	N/A	0.3	Soil runoff
<b>Cryptosporidium</b>	N	1.52	Oosysts/L	N/A	2-log removal	Animal and human fecal waste
<b>Radioactive Contaminants</b>						
<b>Alpha emitters</b> (Annual Average) SW SP01 GW SP02	N	2.8 10.8	pCi/L	0	15	Erosion of natural deposits
<b>Beta/photon emitters</b>	N/A	N/A	Mrem/yr	0	4	Decay of natural and man-made deposits
<b>Combined radium</b> SW SP01 GW SP02	N	3.5 0.8	pCi/L	0	5	Erosion of natural deposits
<b>Uranium</b>	N	11	Ppb	0	30	Erosion of natural deposits
<b>Inorganic Contaminants</b>						
<b>Copper</b> (PB&Cu Rule/Tap Monitoring) July 2013 Number of sites exceeding AL	N 0	0.56	ppm	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
<b>Copper (Source)</b>	N	ND	Ppm	1.3	AL=1.3	Erosion of natural deposits
<b>Flouride</b> SW SP01 GW SP02	N	0.3 0.3	ppm	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
<b>Lead</b> (Pb&Cu Rule/Tap Monitoring) July 2013 Number of sites exceeding AL	N 0	1	ppb	0	AL=15	Corrosion of household plumbing systems; erosion of natural deposits
<b>Lead (Source)</b>	N	ND	Ppb	0	AL=15	Erosion of natural deposits
<b>Nitrate (as Nitrogen)</b> SW SP01 GW SP02	N	0.1 0.4	ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
<b>Selenium</b> SW SP01 GW SP02	N	ND 10	ppb	50	50	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines
<b>Sodium</b> SW SP01 GW SP02	N	30 77	ppm	None	None	Naturally occurring

Contaminant	Violation Y/N	Level Detected	Unit Measurement	MCLG	MCL	Likely Source of Contamination
<b>Disinfectants and Disinfection Byproducts</b>						
<b>TTHM</b> (Total trihalomethanes) Highest Annual Average	N	19.0	ppb	N/A	80	By-product of drinking water chlorination
Range of Results		12 -19				
<b>HAA5</b> (Total Haloacetic Acids) Highest Annual Average	N	2.4	ppb	N/A	60	By-product of drinking water chlorination
Range of Results		0 – 2.4				
<b>Bromate (Finished Water)</b> Running Annual Avg Highest Level Detected Range of Results	N	6.1 11 1.1 - 11	ppb	0	10 (based on running annual average)	By-product of using Ozone as a disinfectant if bromide is present in the source water
<b>Average TOC</b> (Total Organic Carbon) SW Raw Water SW Finished Water Percent TOC removal	N N N	5.5 2.5 54%	ppm	N/A	35% removal	Naturally occurring
<b>Chloramine Residual</b> Running Annual Avg. Range of Results	N	.40 .09 – 1.46	ppm	N/A	4.0	By-product of drinking water chlorination

What does this mean?

As you can see by the table, our system had no MCL violations. **We're proud that your drinking water meets or exceeds all Federal and State requirements.** We have learned through our monitoring and testing that some constituents have been detected. The EPA has determined that your water is **SAFE** at these levels.

MCL's are set at very stringent levels. To understand the possible health effects described for many regulated constituents, a person would have to drink a half gallon 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.

Some of our data in the tables is more than one year old, since certain chemical contaminants are monitored less than once a year. Our sampling frequency complies with EPA drinking water regulations.

Cryptosporidium is a microbial parasite which is found in surface water throughout the U.S. Although filtration removes Cryptosporidium, the most commonly-used filtration methods cannot guarantee 100 percent removal. Our monitoring indicates a **low level** of these organisms was detected in our **untreated source water**. **Once our source water is treated, it is safe for consumption.**

Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals are able to overcome

the disease within a few weeks. However, immune-compromised people have more difficulty and are at greater risk of developing severe, life threatening illness. Immuno-compromised individuals are encouraged to consult their doctor regarding appropriate precautions to take to avoid infection. *Cryptosporidium* must be ingested for it to cause disease, and may be passed through means other than drinking water.

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) or EPA (800-227-8917).

As part of the Interim Enhanced Surface Water Treatment Rule (IESWTR) regulation governing treatment for the pathogen *Cryptosporidium* (40 CFR Part 141, Subpart P), the EPA requires a treatment technique for 99% removal of *Cryptosporidium*. Water Systems using surface water or ground water under the direct influence of surface water (GWUDI) must comply with this new treatment technique starting in January 2002.

Currently, the CWRWS utilizes GWUDI from collection devices along the North Platte River: vertical wells and Ranney collectors or caissons. This water is not treated in a filtration plant, but it is ozonated and disinfected with chloramines. Alternative filtration occurs through these devices, such as riverbank filtration occurring from the wells. On December 10, 2001, EPA granted conditional removal credit to the CWRWS GWUDI system while a detailed study was conducted to demonstrate the effectiveness of the alternative filtration technologies to remove *Cryptosporidium*. During the study period, the CWRWS implemented interim measures designed to ensure public health protection. The study was completed and a final report provided to EPA in January 2005.

EPA granted approval to the GWUDI system as an alternative filtration technology on March 18, 2005 based on the preponderance of these study results, and previous studies and knowledge of the GWUDI system. This decision has been predicated on the primary goals of protecting public health and ensuring compliance with the Sage Drinking Water Act, while using sound science and recognizing cost considerations for the CWRWS. This approval is contingent upon CWRWS complying with several operational and performance requirements to improve pathogen removal, including abandoning or filtering water from the infiltration gallery, and ongoing monitoring of water quality. The CWRWS will also continue to provide inactivation of this GWUDI water with ozonation and chloramines, and will meet all other monitoring and treatment technique requirements of the surface water treatment rules.

Following is a description of concerns and possible health effects of contaminants which were detected in our water, although at amounts less than the MCL.

**Copper:** Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor. To minimize exposure to copper, the tap should be flushed by running water through it for 30 seconds to 2 minutes before using the water for drinking or cooking.

**Lead:** 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. Pioneer Water & Sewer District 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 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 is available from the Safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>.

**Turbidity:** Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.

We at the Pioneer Water & Sewer District work around the clock to provide top quality water to every tap. We ask that all our customers help us protect our water sources, which are the heart of our community, our way of life and our children's future.