Revised 2016 Annual Drinking Water Quality Report

For

Central Wyoming Regional Water System
1500 SW Wyoming Blvd.
Casper WY 82604
(307) 265-6063

We're pleased to present to you this year's Annual 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 consists of twenty-nine ground water 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 **Brian Schroeder, Water Treatment Plant Operations Manager at (307) 265-6063.** 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 third Tuesday of every month at 11:30 AM at the treatment plant located at 1500 SW Wyoming Blvd.**

Central Wyoming Regional Water System (CWRWS) 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 1st to December 31st, **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, and can pick up substances resulting from the presence of animals or from human activity. 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-Detect (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 (µg/l) - 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 (nanograms/l) - 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.

Colony-Forming Units (CFU) – the counting of viable cells, in contrast with microscopic examination which counts all cells, living or dead.

Million Fibers Per Liter (MFL) – Million fibers per liter is a measure of the presence of asbestos fibers per liter greater than 10 micrometers in length.

Millirem (Mrem) – Measure of radiation absorbed by the body. This dosage is commonly encountered, such as the amount of radiation received from medical x-rays and background sources.

picoCuries Per Liter (pCi/L) – picoCuries per Liter is a measurement of radioactivity in drinking water.

Action Level (AL) - 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 (MCL) - (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 (MCLG) - (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 water treatment plant.

Ground Water (GW) - Water which is produced by the Regional Water System's 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**
Microbiological Contaminants						
1. Total Coliform Bacteria	N	Negative	Presence/ Absence Testing	0	Presence of coliform bacteria in 5% of monthly samples	Naturally present in the environment

TEST RESULTS						
Contaminant	**Violation Y/N**	**Level Detected**	**Unit Measurement**	**MCLG**	**MCL**	**Likely Source of Contamination**
2. Fecal Coliform and *E.coli*	N	ND	Presence/ Absence Testing	0	a routine sample and repeat sample are total coliform positive, and one is also fecal coliform or *E. coli* positive	Human and animal fecal waste
3. Turbidity Groundwater Surface Water	 N N	 0.212 0.239	NTU	N/A	0.3	Soil runoff
4. Cryptosporidium	N	1.52	oocysts/L	N/A	2-log removal	Animal and human fecal waste
Radioactive Contaminants						
5. Beta/photon emitters	N/A	N/A	Mrem/yr	0	4	Decay of natural and man-made deposits
6. Alpha emitters (Annual Average) SW SP01 GW SP02	N	 2.8 10.8	pCi/1	0	15	Erosion of natural deposits
7. Combined radium SW SP01 GW SP02	N	3.5 0.8	pCi/1	0	5	Erosion of natural deposits
8. Uranium	N	11	ppb	0	30	Erosion of natural deposits
Inorganic Contaminants						
9. Antimony	N	ND	ppb	6	6	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder
10. Arsenic	N	ND	ppb	N/A	10	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
11. Asbestos	N	ND	MFL	7	7	Decay of asbestos cement water mains; erosion of natural deposits
12. Barium	N	ND	ppb	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
13. Beryllium	N	ND	ppb	4	4	Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense industries

TEST RESULTS						
Contaminant	**Violation Y/N**	**Level Detected**	**Unit Measurement**	**MCLG**	**MCL**	**Likely Source of Contamination**
14. Cadmium	N	ND	ppb	5	5	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paints
15. Chromium	N	ND	ppb	100	100	Discharge from steel and pulp mills; erosion of natural deposits
16. Copper (Source)	N	ND	ppm	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
16A. Copper (Pb&Cu Rule/Tap Monitoring) June to September 2014 Number of sites exceeding AL	N	0.29 0	ppm	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
17. Cyanide	N	ND	ppb	200	200	Discharge from steel/metal factories; discharge from plastic and fertilizer factories
18. Fluoride SW SP01 GW SP02	N	0.30 0.30	ppm	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
19. Lead (Source)	N	ND	ppb	0	AL=15	Corrosion of household plumbing systems, erosion of natural deposits
19A. Lead (Pb&Cu Rule) June to September 2014 Number of sites exceeding AL	N	ND 0	ppb	0	AL=15	Corrosion of household plumbing systems, erosion of natural deposits
20. Mercury (inorganic)	N	ND	ppb	2	2	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills; runoff from cropland
21. Nitrate (as Nitrogen) 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
22. Nitrite (as Nitrogen)	N	ND	ppm	1	1	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits

TEST RESULTS						
Contaminant	**Violation Y/N**	**Level Detected**	**Unit Measurement**	**MCLG**	**MCL**	**Likely Source of Contamination**
23. Selenium SW SP01 GW SP02	N	ND 10	ppb	50	50	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines
23A. Sodium SW SP01 (Surface Water) GW SP02 (Ground Water)	N	30 77	ppm	None	None	Natural occurring
24. Thallium	N	ND	ppb	0.5	2	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories
Synthetic Organic Contaminants including Pesticides and Herbicides						
25. 2,4-D	N	ND	ppb	70	70	Runoff from herbicide used on row crops
26. 2,4,5-TP (Silvex)	N	ND	ppb	50	50	Residue of banned herbicide
27. Acrylamide	N/A	N/A	ppb	0	TT	Added to water during sewage/wastewater treatment
28. Alachlor	N	ND	ppb	0	2	Runoff from herbicide used on row crops
29. Atrazine	N	ND	ppb	3	3	Runoff from herbicide used on row crops
30. Benzo(a)pyrene (PAH)	N	ND	Nanograms/l	0	200	Leaching from linings of water storage tanks and distribution lines
31. Carbofuran	N	ND	ppb	40	40	Leaching of soil fumigant used on rice and alfalfa
32. Chlordane	N	ND	ppb	0	2	Residue of banned termiticide
33. Dalapon	N	ND	ppb	200	200	Runoff from herbicide used on rights of way
34. Di(2-ethylhexyl) adipate	N	ND	ppb	500	500	Discharge from chemical factories
35. Di(2-ethylhexyl) phthalate	N	ND	ppb	0	6	Discharge from rubber and chemical factories
36. Dibromochloropropane	N	ND	Nanograms/1	0	200	Runoff/leaching from soil fumigant used on soybeans, cotton, pineapples, and orchards
37. Dinoseb	N	ND	ppb	7	7	Runoff from herbicide used on soybeans and vegetables
38. Diquat	N	ND	ppb	20	20	Runoff from herbicide use
39. Dioxin [2,3,7,8-TCDD]	N/A	N/A	Picograms/l	0	30	Emissions from waste incineration and other combustion; discharge from chemical factories

TEST RESULTS						
Contaminant	**Violation Y/N**	**Level Detected**	**Unit Measurement**	**MCLG**	**MCL**	**Likely Source of Contamination**
40. Endothall	N	ND	ppb	100	100	Runoff from herbicide use
41. Endrin	N	ND	ppb	2	2	Residue of banned insecticide
42. 1,2-Dibromoethene	N	ND	Nanograms/1	0	50	Discharge from petroleum refineries
43. Glyphosate	N	ND	ppb	700	700	Runoff from herbicide use
44. Heptachlor	N	ND	Nanograms/1	0	400	Residue of banned termiticide
45. Heptachlor epoxide	N	ND	Nanograms/1	0	200	Breakdown of heptachlor
46. Hexachlorobenzene	N	ND	ppb	0	1	Discharge from metal refineries and agricultural chemical factories
47. Hexachlorocyclo-pentadiene	N	ND	ppb	50	50	Discharge from chemical factories
48. gamma-BHC (Lindane)	N	ND	Nanograms/l	200	200	Runoff/leaching from insecticide used on cattle, lumber, gardens
49. Methoxychlor	N	ND	ppb	40	40	Runoff/leaching from insecticide used on fruits, vegetables, alfalfa, livestock
50. Oxamyl [Vydate]	N	ND	ppb	200	200	Runoff/leaching from insecticide used on apples, potatoes and tomatoes
51. PCBs [Polychlorinated biphenyls]	N	ND	Nanograms/1	0	500	Runoff from landfills; discharge of waste chemicals
52. Pentachlorophenol	N	ND	ppb	0	1	Discharge from wood preserving factories
53. Picloram	N	ND	ppb	500	500	Herbicide runoff
54. Simazine	N	ND	ppb	4	4	Herbicide runoff
55. Toxaphene	N	ND	ppb	0	3	Runoff/leaching from insecticide used on cotton and cattle

TEST RESULTS						
Contaminant	**Violation Y/N**	**Level Detected**	**Unit Measurement**	**MCLG**	**MCL**	**Likely Source of Contamination**
Volatile Organic Contaminants						
56. Benzene	N	ND	ppb	0	5	Discharge from factories; leaching from gas storage tanks and landfills
57. Carbon tetrachloride	N	ND	ppb	0	5	Discharge from chemical plants and other industrial activities

TEST RESULTS						
Contaminant	**Violation Y/N**	**Level Detected**	**Unit Measurement**	**MCLG**	**MCL**	**Likely Source of Contamination**
58. Chlorobenzene	N	ND	ppb	100	100	Discharge from chemical and agricultural chemical factories
59. 1,2-Dichlorobenzene	N	ND	ppb	600	600	Discharge from industrial chemical factories
60. 1,4-Dichlorobenzene	N	ND	ppb	75	75	Discharge from industrial chemical factories
61. 1,2 - Dichloroethane	N	ND	ppb	0	5	Discharge from industrial chemical factories
62. 1,1 – Dichloroethylene	N	ND	ppb	7	7	Discharge from industrial chemical factories
63. cis-1,2-Dichloroethylene	N	ND	ppb	70	70	Discharge from industrial chemical factories
64. trans - 1,2 – Dichloroethylene	N	ND	ppb	100	100	Discharge from industrial chemical factories
65. Dichloromethane	N	ND	ppb	0	5	Discharge from pharmaceutical and chemical factories
66. 1,2-Dichloropropane	N	ND	ppb	0	5	Discharge from industrial chemical factories
67. Ethylbenzene	N	ND	ppb	700	700	Discharge from petroleum refineries
68. Styrene	N	ND	ppb	100	100	Discharge from rubber and plastic factories; leaching from landfills
69. Tetrachloroethylene	N	ND	ppb	0	5	Leaching from PVC pipes; discharge from factories and dry cleaners
70. 1,2,4 – Trichlorobenzene	N	ND	ppb	70	70	Discharge from textile-finishing factories
71. 1,1,1 - Trichloroethane	N	ND	ppb	200	200	Discharge from metal degreasing sites and other factories
72. 1,1,2 –Trichloroethane	N	ND	ppb	3	5	Discharge from industrial chemical factories
73. Trichloroethylene	N	ND	ppb	0	5	Discharge from metal degreasing sites and other factories
74. Toluene	N	ND	ppm	1	1	Discharge from petroleum factories
75. Vinyl Chloride	N	ND	ppb	0	2	Leaching from PVC piping; discharge from plastics factories

TEST RESULTS						
Contaminant	**Violation Y/N**	**Level Detected**	**Unit Measurement**	**MCLG**	**MCL**	**Likely Source of Contamination**
76. Xylenes	N	ND	ppm	10	10	Discharge from petroleum factories; discharge from chemical factories

TEST RESULTS						
Contaminant	**Violation Y/N**	**Level Detected**	**Unit Measurement**	**MCLG**	**MCL**	**Likely Source of Contamination**
Disinfectants and Disinfection Byproducts						
TTHM (Total trihalomethanes) Highest Annual Average Range of Results	N	19 12 -19	ppb	N/A	80	By-product of drinking water chlorination
HAA5 (Total Haloacetic Acids) Highest Annual Average Range of Results	N	2.4 0 – 2.4	ppb	N/A	60	By-product of drinking water chlorination
Bromate (Finished Water) Running Annual Average Highest Level Detected Range of Results (Running Annual Average)	N	6.1 11 1.1 – 11	ppb	0	10 (MCL based on running annual average)	Bromate is a by-product of using Ozone as a disinfectant if Bromide is present in the source water.
Average TOC (Total Organic Carbon) SW Raw Water SW Finished Water Percent TOC removal	N	5.5 2.5 54%	ppm	N/A	35% removal	Natural occurring
Chloramine Residual Running Annual Average Range of Results	N	1.63 0.32-2.55	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.

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, immuno-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 U.S. Environmental Protection Agency (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 upon 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 Safe Drinking Water Act, while utilizing 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.

In 2014 the Central Wyoming Regional Water System conducted tests for lead and copper in its water supply. This is a required sample that is done every three years. We are proud to report that the results show we are below the action level for both lead and copper.

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. Central Wyoming Regional Water System 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 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 Central Wyoming Regional Water System 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.