2011

Drinking Water Quality Report

Colstrip Montana

We're pleased to present to you this year's Annual Water Quality Report. This report is designed to inform you about the quality of 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. I'm pleased to report that our drinking water is safe and meets federal and state requirements.

Quality On Tap!

Our Commitment Our Profession

Water Source and Treatment

PPL Montana pumps water from the Yellowstone River six miles west of Forsyth to Castle Rock Lake. Our system draws water from Castle Rock Lake and is treated at The Colstrip Water Treatment Plant.

The water plant is a variable declining rate direct filtration facility. It is designed for raw water to gravity flow from Castle Rock Lake through an in-line mechanical mixer. It mixes aluminum chlorhydrate (coagulant), potassium permanganate (removes taste and odor), and fluoride with the raw water flow stream, then through a static mixer where a nonionic polymer is applied as a filter aid, and into an open distribution channel at the head of four filter bays. In these filters is a dual media of anthracite coal and sand. Filtered water leaving the filter bays enters a weir trough where chlorine is added for disinfection. Water cresting the clearwell weir trough falls into the clearwell and is available for pumping into the Colstrip distribution system through the high service pumps. Colstrip has over 26 miles of distribution system. The high service pumping system is designed to serve three separate pressure zones in the Town of Colstrip. Zone 1 has the lowest elevation in town. It is served by two 500,000 gallon reservoirs. Many of the old mains in this part of town have been replaced in the last few years. Zone 2 is the second highest portion of the distribution system and it is served by a 2,000,000 gallon reservoir in the northern portion of Colstrip. Because of a declining population in this area, this reservoir is maintained at 1,500,000 to achieve better turnover. Zone 2 was recently expanded west of the highway to homes and businesses at the Colstrip Commerce Circle. Zone 3 is served by a 650,000 gallon reservoir in the southwestern part of the town west of the highway. Six high service pumps serve these three pressure zones.

Water from the clearwell is also used for backwashing the filters. The backwash is controlled by a SCADA system located in the water treatment plant lab. The SCADA (supervisory control and data acquisition) system also monitors and records the function of all treatment processes, reservoir levels, the wastewater treatment plant and sewage lift stations.

There are turbidity meters on all filters and the clearwell that are recording continuously the clarity of the water. We have online chlorine and fluoride analyzers which monitor and record residuals leaving our treatment plant on a daily basis. We test chlorine residuals daily in our distribution system. We also test for total coliform bacteria (i.e. e-coli) monthly from 3 different sites in our distribution. We are sampling quarterly from the distribution to comply with the Disinfection By-Products Rule. We also sample yearly to comply with Phase II and Phase IV of the Surface Water Drinking Act. All of our outside testing is done by Energy Laboratories of Billings except the for total coliforms, which are done by Aquatec Laboratories of Lewistown. Both labs are certified.

In 2007 we installed an Onsite Hypochlorite Generating System which uses common rock salt to produce a mild bleach solution which is now used for disinfection. The addition of this system has allowed us to completely remove the hazards of using and storing ton cylinders of chlorine.

Water Contaminants

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*, 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 agriculture, urban stormwater runoff, and residential uses.
- *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 stormwater runoff, and septic systems.
- *Radioactive Contaminants*, which can be naturally-occurring or the result of oil and gas production and mining activities.

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 water poses a health risk. More information about contaminants and potential health effects can be obtained by calling EPA.s Safe Drinking Water Hotline, 1-800-426-4791.

In order to ensure that tap water is safe to drink, the Environmental Protection Agency (EPA) prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water which must provide the same protection for public health. 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 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.

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/Centers for Disease Control and Prevention (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, 1-800-426-4791.

The EPA requires monitoring of over 80 drinking water contaminants. Only those listed in the following table were detected in your drinking water. The table shows the test results for calendar year 2009. As authorized by the EPA, monitoring requirements for certain contaminants are less often than once a year because the concentrations of these contaminants are not expected to vary significantly from year to year.

As you will see by the following table, our system had no violations of the water quality standards. 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.

Important Terms

- *Action Level or AL:* The concentration of a contaminant, which if exceeded, triggers treatment or other requirements a water system must follow.
- *Maximum Contaminant Level Goal or 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 Contaminant Level or MCL:* The highest level of a contaminant allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
- *Maximum Residual Disinfectant Level or 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 Residual Disinfectant Level Goal or 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.
- *Treatment Technique or TT:* A required process intended to reduce the level of a contaminant in drinking water.

Table of Detected Contaminants

Key to Table:

AL = Action Level
MCL = Maximum Contaminant Level
MCLG = Maximum Contaminant Level Goal
ppm = parts per million, or milligrams per liter (mg/l)
ppb = parts per billion, or micrograms per liter (ug/l)
ND = No Detect
NR = Not Regulated
N/A = Not Applicable
NTU = Nephelometric Turbidity Units
TTHMs = Total Trihalomethanes
pCi/l = picocuries per liter (a measure of radioactivity)

Contaminant	MCLG	MCL	Highest Compliance level	Violation Yes/No	Range of Detection	Year, Date Obtained
Inorganic Contaminant						
Fluoride F-	4 ppm	4 ppm	1.1 ppm	NO	.4 – 1.1 ppm	01/28/11
Other Information		Fluoride is added to our drinking water to promote dental health. Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Children may get mottled teeth.				
Likely Source of Contamination		Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories				
Copper CU	1.3 ppm	1.3 ppm	.22 ppm	NO	ND - .22 ppm	08/31/10
Other Information		Copper was tested for in 10 homes in Colstrip in 2010. All were below the action level. 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.				
Likely Source of Contamination		Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives				
Lead PB	0	.015 ppm	.005 ppm	NO	Nd - .005 ppm	08/31/10
Other Information		Lead was tested for in 10 homes in Colstrip in 2010. All were below the action level. Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested and flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the Safe Drinking Water Hotline (1-800-426-4791).				
Likely Source of Contamination		Corrosion of household plumbing systems, erosion of natural deposits				
Arsenic	N/A	.002 ppm	ND	NO	ND	08/22/11
Other Information		EPA is reviewing the drinking water standard for arsenic because of special concerns that it may not be stringent enough. Arsenic is a naturally occurring mineral known to cause cancer in humans at high concentrations.				
Likely Source of Contamination		Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes				
Microbiological Contaminants						
Turbidity	NA	.300 ppm	.243 NTU	NO	.029 - .243	12/11/11
Other Information		Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of water quality. High turbidity can hinder the effectiveness of disinfectants. Our specified limit is .3 ntu and our water was less than this 100% of the time.				
Likely Source of Contamination		Soil runoff				
Volatile Organic Contaminants						
TTHMs	0	.080 ppm	.090 ppm	NO	.024 – .090 ppm	06/30/11
Other Information						
Likely Source of Contamination		By-product of drinking water chlorination				
HAA5s	0	.060 ppm	.053 ppm	NO	.020 – .053 ppm	09/21/11
Other Information						
Likely Source of Contamination		By-product of drinking water chlorination				

Below is a table of other constituents. Although not regulated, they are provided for the informational purposes of our customers.

Constituent	MCLG	MCL	Measured Value			Year, Date Obtained
Alkalinity as CaCO3	NR	NR	99 ppm			08/25/11
Bicarbonate as HCO3	NR	NR	121 ppm			08/25/11
Calcium	NR	NR	31 ppm			08/25/11
Chloride	NR	NR	12 ppm			08/25/11
Conductivity	NR	NR	426 umhos/cm			08/25/11
Hardness as CaCO3	NR	NR	130 ppm 9 grains/gal			08/25/11
Magnesium	NR	NR	13 ppm			08/25/11
Sulfate	NR	NR	98 ppm			08/25/11
pH	NR	NR	8.2 s.u.			08/25/11
Potassium	NR	NR	3 ppm			08/25/11
Sodium	NR	NR	34 ppm			08/25/11
Total Dissolved Solids	NR	NR	251 ppm			08/25/11

We 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.

This report is required by the federal Safe Drinking Water Act and will NOT BE MAILED out to individual water customers. A copy of this report can be picked up City Hall. It can also be viewed and printed from our website www.cityofcolstrip.com/ccr.html. We want our valued customers to be informed about their water utility. Call for information about the next opportunity for public participation in decisions about our drinking water. If you have comments or concerns, please attend any of our regularly scheduled city council meetings. They are held on the second and fourth Tuesday of each month at 7:00 PM at City Hall.

For More Information Contact:

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