

2004

# 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.



## Water Source and Treatment

PPL Montana pumps water from the Yellowstone River six miles west of Forsyth to Castle Rock Lake. Our system draws surface 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 sulfate (coagulant), cationic polymer (coagulant), activated carbon and/or 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 on into an open distribution channel at the head of four filter bays. Media 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 becomes available for pumping into the Colstrip distribution system through the high service pumps. Colstrip has over 26 miles of distribution system.

## 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:

The high service pumping system is designed to serve three separate pressure zones in the Town of Colstrip. Zone 1 is the oldest and the lowest part of the town. It is served by two 500,000 gallon reservoirs. 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. Zone 3 is served by a 650,000 gallon reservoir in the southwestern part of the town. Six high service pumps serve these three pressure zones.

Clearwell water is also used for backwashing the filters. The backwash is sequenced and controlled by a SCADA system located in the control room. 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. All of our outside testing is done by Energy Laboratories of Billings except the total coliforms which are done by Aquatec Laboratories of Lewistown. Both labs are certified.

- *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 2003. 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)

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
<b>Inorganic Contaminant</b>						
<b>Fluoride F-</b>	4 ppm	4 ppm	1.93ppm	NO		10/04
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					
<b>Copper CU</b>	1.3 ppm	Al=1.3 ppm	100 ppb 90th percentile	NO		07/03
Other Information	Copper was tested for in 10 homes in Colstrip in 2003. 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					
<b>Lead PB</b>	0	Al=15 ppb	7 ppb 90th percentile	NO		07/03
Other Information	Lead was tested for in 10 homes in Colstrip in 2003. 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					

<b>Nitrate/Nitrite as N</b>	10 ppm	10 ppm	43 ppb	NO		03/04
Other Information	Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant you should ask advice from your health care provider.					
Likely Source of Contamination	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits					
<b>Microbiological Contaminants</b>						
<b>Turbidity</b>	NA	TT<=0.5	.371 NTU	NO		01/04
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 .5 ntu and our water was less than this 100% of the time.					
Likely Source of Contamination	Soil runoff					
<b>Radioactive Contaminants</b>						
<b>Alpha Emitters</b>	0	15 pCi/L	1.0 pCi/L	NO		08/02
Other Information	Certain minerals are radioactive and may emit forms of radiation known as photons and beta radiation. Some people who drink water containing beta and photon emitters in excess of the MCL over many years may have an increased risk of getting cancer.					
Likely Source of Contamination	Erosion of natural deposits					
<b>Volatile Organic Contaminants</b>						
<b>TTHMs</b>	0	80ppb	77 ppb	NO		09/04
Other Information						
Likely Source of Contamination	By-product of drinking water chlorination					
<b>HAA5s</b>	0	60ppb	50 ppb	NO		06/04
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	93 ppm		08/04
Bicarbonate as HCO3	NR	NR	113 ppm		08/04
Calcium	NR	NR	34 ppm		08/04
Chloride	NR	NR	10 ppm		08/04
Conductivity	NR	NR	438 umhos/cm		08/04
Hardness as CaCO3	NR	NR	137 ppm		08/04
Magnesium	NR	NR	13 ppm		08/04
Sulfate	NR	NR	106 ppm		08/04
pH	NR	NR	7.8 s.u.		08/04
Potassium	NR	NR	3 ppm		08/04
Sodium	NR	NR	30 ppm		08/04
Total Dissolved Solids	NR	NR	261 ppm		08/04

Listed Below are contaminants that were tested for but were not detected in 2004.

Benzene  
 Bromobenzene  
 Bromoform  
 Bromomethane  
 n-Butylbenzene  
 sec-Butylbenzene  
 tert-Butylbenzene  
 Carbon tetrachloride  
 1,2-Dichloroethane  
 Chlorobenzene  
 Chloroethane  
 Chloromethane  
 2-Chlorotoluene

4-Chlorotoluene  
 1,2-Dibromo-3-chloropropane  
 Dibromomethane  
 1,2-Dichlorobenzene  
 1,3-Dichlorobenzene  
 1,4-Dichlorobenzene  
 Dichlorodifluoromethane  
 1,1-Dichloroethane  
 1,2-Dibromoethane  
 1,1-Dichloroethene  
 cis-1,2-Dichloroethene  
 trans-1,2-Dichloroethene  
 1,2-Dichloropropane

1,3-Dichloropropane  
 2,2-Dichloropropane  
 1,1-Dichloropropene  
 cis-1,3-Dichloropropene  
 trans-1,3-Dichloropropene  
 Ethylbenzene  
 Hexachlorobutadiene  
 Isopropylbenzene  
 p-Isopropyltoluene  
 Methyl tert-butyl ether (MTBE)  
 Methylene chloride  
 Naphthalene  
 n-Propylbenzene

Styrene	1,2,4- Trichlorobenzene	1,3,5- Trimethylbenzene
1,1,1,2- Tetrachloroethane	1,1,1- Trichloroethane	Vinyl chloride
1,1,2,2- Tetrachloroethane	1,1,2- Trichloroethane	m+p-Xylenes
Tetrachloroethene	Trichloroethene	o-Xylene
Toluene	Trichlorofluoromethane	Xylenes, Total
1,2,3- Trichlorobenzene	1,2,3- Trichloropropane	Asbestos
Iron	1,2,4- Trimethylbenzene	
2,4,5- TP (Silvex)	Carbaryl	Methomyl
2,4-DB	Carbofuran	Metolachlor
3-Hydroxycarbofuran	Chlordane	Metribuzin
Alachlor	Chromium	Nickel
Aldicarb	Dalapon	Oxamyl
Aldicarb sulfone	Dicamba	Pentachlorophenol
Aldicarb sulfoxide	Dichlorprop	Picloram
Aldrin	Dieldrin	Propachlor
Antimony	Dinoseb	Radium 226
Atrazine	Endrin	Radium 226 + Radium 228
Barium	gamma-BHC (Lindane)	Radium 228
Baygon	Heptachlor	Selenium
Benzo(a)pyrene	Heptachlor epoxide	Simazine
Beryllium	Hexachlorobenzene	Thallium
bis(2-ethylhexyl)Adipate	Hexachlorocyclopentadiene	Toxaphene
bis(2-ethylhexyl)Phthalate	Mercury	
Butachlor	Methiocarb	
Cadmium		

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. 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:

Public Works Supervisor  
 Attn: John Bleth  
 Box 1902  
 Colstrip, MT 59323

Colstrip Water Treatment Plant  
 Attn: Bryan Swan  
 Box 1902  
 Colstrip, MT 59323

Phone: 748-2300  
 Fax: 406-748-2303

E-mail: [cityofcolstrip@mcn.net](mailto:cityofcolstrip@mcn.net)