Quality On Tap!

Our Commitment Our Profession

GUARDIAN OF THE GULCH

City of Helena

WATER QUALITY

Treatment
Sampling
Monitoring

Department of Public Works
Helena Water Treatment Division

Dedicated to Safe Drinking Water

American Water Works

2008 Annual Water Quality Report

The City of Helena Public Water System Identification, (PWSID) Number MT0000241 currently serves 8,738 residential and 1,325 commercial water accounts with a yearly average of 5.4 million gallons of water each day flow through metered service connections. Water is also supplied to fire hydrants that ensure the safety of homes and businesses. Last year, the Water Treatment Division produced a total of 1.99 billion gallons with a maximum production of 13.6 million gallons on a single day. The City of Helena's Source Water Protection plan for Public Water System (PWS) # 0000241 can be viewed on the DEQ Web Site http://nris.state.mt.us/wis/swap/SwapQuery.asp

Water System -- To meet Helena's water needs, the City's Water Treatment Division operates two surface water treatment plants; the Missouri River Treatment Plant (MRTP) east of Helena and the Tenmile Water Treatment Facility west of Helena. Additional water is produced from the Eureka Well located at Cruse and Park Avenues. This pure groundwater source does not require further treatment.

Water Treatment – The City's treatment process consist of a series of steps to remove impurities and disinfect the untreated or raw water. When the raw water is first delivered to the treatment plants, chemicals are added that cause small particles to combine and become heavy (flocculation). Next the impurities are allowed to settle in sedimentation basins (Missouri River Treatment) or collect on special media (Tenmile Treatment). Then, the water is filtered through sand and anthracite coal filters to remove remaining small particles. Finally, a small amount of chlorine is added to the water and it is delivered to the City. These treatment processes are manned and operated by a team of highly trained, state certified water treatment professionals, and assisted by computerized systems control and data acquisition.

This year the City will complete a major upgrade to MRTP to improve reliability, maintain regulatory compliance and meet future growth needs. The upgrade includes a 1.5 million gallon, above ground, concrete clear well reservoir for disinfection and a new energy efficient High Zone Pumping Station. The City will be replacing several thousand feet of old water mains to improve system dependability, and reduce water loss due to leakage.

Last year, as in years past, your tap water met all EPA and state drinking water health standards. The City of Helena vigorously tests for water quality using independent laboratories and every effort is made to assure that the testing required by the State and Federal Government is completed. We are proud to report that our system has not exceeded any maximum contaminant level (MCL).

In April of 2006, we collected 30 samples to be analyzed for lead and copper based upon verbal direction from staff at Montana Department of Environmental Quality (MDEQ). On January 16, 2008 the City received a letter from MDEQ stating that sampling should have been performed between the months of June-September as required by 40 CFR 141.86. Since the letter was received after the allowed sampling period, the City was unable to repeat the testing during that time frame. The MDEQ letter requires that the City publish the following notification:

- *"We are required to monitor your drinking water for specific contaminates on a regular basis. Results of regular monitoring are an indicator of whether or not our drinking water meets health standards. During the 3-year, 2005-2007 sampling period, we did not monitor for Lead and Copper during the required seasonal period and therefore cannot be sure of the quality of our drinking water during that time."*

Sampling – Regular sampling and testing is an important assurance of the quality of water. Sampling includes the following:

Daily	Chlorine residuals, turbidity, pH, temperature, and color, (NTU).
Weekly	Bacteria (total coliform).
Quarterly	Trihalomethanes, Haloacetic Acids.
Yearly	Inorganic, volatile organic contaminants, synthetic organic contaminants, nitrates, lead and copper (every 3 years), radioactivity (every 4 years).

Monitoring -- Both the Montana State Environmental Lab (Cogswell Building) and Energy Laboratories, Inc. in Helena are at the heart of our quality assurance program. Their independent testing by certified chemists and technicians follows precise procedures established by the U.S. Environmental Protection Agency (EPA).

Listed below are the substances that **were detected** and analyzed by Energy Lab Inc. for the Helena Water Treatment Division. The maximum contaminated levels (MCL) apply to the water within our distribution system, after treatment, including groundwater sources. The U.S. EPA and the State of Montana have established MCL's at levels that assure public health and safety with a very low risk of health impacts.

This table shows the results of our monitoring for the period of January 1 to December 31, 2007.

Tenmile, MRTP, Hale/Eureka Water Sources

TEST RESULTS								
Contaminant	**Violation Y/N**	**Sample Date**	**Highest Level Detected**	**Range Detected/ RAA**	**Unit Measure**	**MCLG**	**MCL**	**Likely Source of Contamination**
Microbiological Contaminants								
1.Turbidity **Tenmile** **MRTP**	N N	Dec 24, 07 Oct 14, 07	**0.29** **0.26**		NTU	NA	TT = <0.3 NTU 95% of the time TT = 1 NTU max	Soil run off.
2. Total Organic Carbon **Tenmile** **MRTP**	N N	Jun 07 Nov 07	**4.7** **2.6**	2.4-4.7 (RAA 3.36) 1.8-2.6 (RAA 1.99)	ppm	NA	TT	Naturally present in the environment.
3. Chlorine Residual **Tenmile**	N	Oct 07	**2.0**	0.2 - 2.0 (RAA 0.77)	ppm	MRDLG=4	MRDL=4	Water additive to control microbes.
Inorganic Contaminates								
4. Arsenic **Tenmile** **MRTP** **Hale / Eureka**	N N N	Jul 07, 07 Jul 07, 07 Jul 07, 07	**ND** **2.0** **2.0**		ppb	NA	10	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
5. Copper 90th percentile of 30 samples taken	N	Apr 21, 06	**.29**		ppm	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.
6. Lead 90th percentile of 30 samples taken	N	Apr 21, 06	**4**		ppb	0	AL= 15	Corrosion of household plumbing systems; erosion of natural deposits.
7. Nitrate + Nitrite as N **Tenmile** **MRTP** **Hale / Eureka**	N N N	Jul 26, 07 Jul 26, 07 Jul 26, 07	**0.09** **0.17** **1.40**		ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage;
8. Fluoride **Tenmile** **MRTP** **Hale / Eureka**	N N N	Jul 26, 07 Jul 26, 07 Jul 26, 07	**0.20** **0.8** **0.20**		ppm	4	4	erosion of natural deposits.
Volatile Organic Contaminants (voc's)								
9. Total Trihalomethanes **Tenmile** **MRTP** **Hale/Eureka**	N N N	Oct 07 May 07 Oct 07	**48** **50** **7**	35-48 (RAA 40) 33-50 (RAA 39) 4-7 (RAA 5)	ppb	NA	80.0 RAA	By-product of drinking water chlorination.
10. Total Haloacetic Acid **Tenmile** **MRTP** **Hale/Eureka**	N N N	Aug 07 Aug 07 Oct 07	**44** **66** **1**	14-44 (RAA 30) 25-66 (RAA 42) ND-1 (RAA 0)	ppb	NA	60.0 RAA	By-product of drinking water chlorination

***Abbreviated Definitions:**

AL	Action level. The concentration of a contaminant, which if exceeded, triggers treatment or other requirements.
NA	Not Available.
ND	No Detection.
TT	Treatment Technique. Required process intended to reduce the level of a contaminant in drinking water.
ppm or mg/L	Parts Per Million. One part per million corresponds to one minute in two years.
ppb or ug/L	Parts Per Billion. One part per billion corresponds to one minute in 2,000 years.
NTU	Nephelometric Turbidity Unit. A measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.
pCi/L	Picocuries per liter--measure of radioactivity in water.
MCL	Maximum Contaminant Level. Highest allowable amount of a contaminant that is allowed in drinking water.
MCLG	Maximum Contaminant Level Goal. Level of a contaminant in drinking water below which no known or expected risk to health exists. MCLG's allow for a margin of safety
MRDL	Maximum Residual Disinfectant Level. The highest level of a disinfectant allowed in drinking water. There is convincing evidence that the addition of a disinfectant is necessary for control of microbial contaminants.
MRDLG	Maximum Residual Disinfectant Level Goal. The level of a drinking water disinfectant below which there is no known or expected risk to health.
RAA	Running Annual Average.

Turbidity is a measure of the clarity of water. We monitor this as an indicator of the effectiveness of our filtration system.

pH is an expression of the basic or acidic condition of a liquid. The pH scale ranges from 0 to 14. Neutral being 7, the most acidic is 0 the most caustic is 14. Natural waters typically have a pH between 6.8 and 8.5. The pH in our system ranges from 7.2 to 8.0.

Hardness of the Helena Waters

Source Water	Level Detected /mg/L	Converted to Grains / Gallon
Tenmile Water Plant	**24.67**	**1.7**
Missouri River Plant	**135.71**	**9.5**
Eureka Well	**240.0**	**16.8**

Hardness is a natural characteristic of water caused by dissolved calcium and magnesium.

The MCL for hardness is 300 mg/L.

Radon is a naturally occurring radioactive gas in the earth's crust. It is soluble in water and is tasteless, colorless and odorless. Helena's surface and ground water sources detection ranged from 220 pCi\ l to 1770 pCi/L . The U.S. EPA is proposing a MCL of 300 pCi\L in drinking water with an alternative MCL of 4000 pCi\L for systems that implement a Multi-Media Mitigation Program. There is no federal regulation for radon levels in drinking water as of this printing**.** Exposure to air transmitted radon over a long period of time may cause adverse health effects. For additional information call the state radon program at 444-5318 or EPA's Radon Hotline (1-800-SOS-RADON).

All sources of drinking water are subject to potential contamination by constituents that are naturally occurring or man made. Those constituents can be microbes, organic or inorganic chemicals, or radioactive materials. All 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 U.S. EPA'**s Safe Drinking Water Hotline at 1-800-426-4791.**

Some people may be more vulnerable to contaminants in drinking water than others. Immuno-compromised persons such as persons undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, the elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The EPA and Centers for Disease Control guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbiological contaminants are available from the **Safe Drinking Water Hotline (1-800-426-4791).**

If you have any questions about this report or concerning your water utility, please contact Donald Clark, Water/Wastewater Treatment Superintendent at 447-1593 X 102, or e-mail dclark@ci.helena.mt.us. To learn more about the City of Helena and the City's Water Utility, visit our web site at http://www.ci.helena.mt.us/.

Prepared February 19th by
Julie Muscutt, Certified Water Operator I
John Schwartz, Water Production Supervisor
Reviewed and approved by
Lynora Rogstad, Water /Wastewater Treatment Coordinator
Donald Clark, Water/Wastewater Treatment Superintendent