2021 CONSUMER CONFIDENCE REPORT

Water Quality

Treatment
Sampling
Monitoring

Scott Reservoir

Department of Public Works
Helena Water Treatment Division

2021 Annual Water Quality Data

The City of Helena's Public Water System (PWS) Identification Number MT0000241 currently serves 10,296 residential and 2,573 commercial water accounts. Last year, the Water Treatment Division produced a total of 2.16 billion gallons, (5.9 million gallons on average per day) with a maximum production of 16.6 million gallons on a single day. July was the month with the highest usage at 361.8 million gallons. Water is also supplied to fire hydrants that ensure the safety of homes and businesses. For more information on our PWS # MT0000241 go to the MT DEQ Web Site http://deq.mt.gov/Water If you have any questions about this report, or concerns with your water utility, please contact Ben Rigby, Water Production Superintendent at 457-8511, or e-mail brigby@helenamt.gov To learn more about your City of Helena water utility, visit us on the web at http://www.helenamt.gov

Thank You! *– The City of Helena's Public Water System would like to begin the 2022 Consumer Confidence Report by thanking you, the consumer for conserving water last year. It was a difficult year with severe drought and an increase in service lines. With your support following the water restrictions, we were able to support normal usage and maintain our fire suppression requirements. Again, thank you for your support!*

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 Plant (TMTP) west of Helena. Additional water is produced from the Eureka Well located at Cruise and Park Avenues. This pure groundwater source does not require further treatment.

Water Treatment – The City's treatment process consists of a series of steps to remove impurities and disinfect 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 at the MRTP or collect on special media in the contact absorption clarifiers (CACs) at the TMTP. Then, the water is filtered through sand and anthracite coal filters to remove remaining small particles. These filters are cleaned or "backwashed" with treated water to remove accumulated particles and sediment. The backwash water from the MRTP is used for managed irrigation and recycled back into the plant to be retreated. The process allows the MRTP to be a "zero discharge facility," not only saving permitting and operational costs, but also conserving previously wasted water. At the end of the treatment process a small amount of sodium hypochlorite is added for disinfection before the water is delivered to the distribution system.

All the collecting, treating, sampling and monitoring is performed by well trained, state certified water treatment professionals, and assisted by a SCADA (supervisor control and data acquisition) computer system that makes it possible to monitor the storage tanks and pump stations from the treatment plants.

In 2021, as in years past, your tap water met all EPA and State drinking water health standards. The City of Helena continually tests for water quality using independent laboratories and every effort is made to assure that the testing required by State and Federal Regulators are performed. We are proud to announce that our system has not exceeded any maximum contaminant level (MCL).

Turbidity is a measure of the clarity of water. We monitor turbidity 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 and 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 8.5.

Water Produced by each plant in 2021:

TMTP	1.411 billion gallons
MTRP	555.5 million gallons
Eureka	195.6 million gallons

Hardness of Helena Water

Source Water	Detect Level	Grains/Gal
TMTP	**33 mg/l**	**1.9**
MRTP	**123 mg/l**	**7.2**
EUREKA	**229 mg/l**	**13.4**

MCL for hardness is 300 mg/l

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	Inorganics, VOC's (volatile organic contaminants), SOC's (synthetic organic contaminants), and nitrates.
Every 3 years	Lead and Copper
Every 4 years	Radioactivity

Monitoring – Both, Energy Laboratories, Inc. & Alpine Analytical 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. and Alpine Analytical 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.

The state allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though representative, are more than one year old.

Radioactive Contaminants	Collection Date	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Units	Violation	Likely Source of Contamination
Gross alpha excluding radon and uranium	07/11/2017	4.1	0 - 4.1	0	15	pCi/L	N	Erosion of natural deposits.
Uranium	07/11/2017	3	0 - 3	0	30	ug/l	N	Erosion of natural deposits.

Tenmile Water Treatment Plant, Missouri River Treatment Plant (MRTP), Hale/Eureka Water Sources

TEST RESULTS								
Contaminant	**Compliance Y/N**	**Sample Date**	**Highest Level Detected**	**Range Detected/ RAA**	**Unit Measure**	**MCLG**	**MCL**	**Likely Source of Contamination**
Contaminates								
1.Turbidity **Tenmile** **MRTP**	Y Y	July 2021 June 2021	**0.25** **0.13**		NTU	NA	TT = <0.3 NTU 95% of the time TT = 1 NTU max	Soil run off.
2. Total Organic Carbon **Tenmile Raw Water** **Tenmile Finished Water** **MRTP Raw Water** **MRTP Finished Water**	Y Y Y Y	April 2021 April 2021 Sept 2021 Sept 2021	**5.4** **3.5** **3.0** **1.7**	2.1-5.4 (RAA 3.1) 1.5-3.5 (RAA 2.1) 2.3-3.0 (RAA 2.5) 1.5-1.7 (RAA 1.6)	ppm	NA	TT	Naturally present in the environment.
3. Chlorine Residual **Tenmile &MRTP**	Y	Jan-Dec 2021	**1.62**	0.37 – 1.62 (RAA – 1.19)	ppm	MRDLG =4	MRDL=4	Water additive to control microbes.
Inorganic Contaminates (IOC's)								
4. Arsenic **Tenmile** **MRTP** **Hale / Eureka**	Y Y	Aug 14, 2021 Aug14, 2021 Oct 27, 2020	**5.0** **5.0** **2.0**		ppb	NA	10	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
5. Copper 90th percentile for all 30 samples taken	Y	Aug 2021	**0.317**		ppm	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.
6. Lead 90th percentile for all 30 samples taken	Y	Aug 2021	**3.0**		ppb	0	AL= 15	Corrosion of household plumbing systems; erosion of natural deposits.
7. Nitrate + Nitrite as N **Tenmile** **MRTP** **Hale / Eureka**	Y Y Y	July1, 2021 July1, 2021 July1, 2021	**0.06** **0.12** **1.12**		ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage;
8. Fluoride **Tenmile** **MRTP** **Hale / Eureka**	Y Y Y	Aug 16, 17 Aug 16, 17 Aug 16, 17	**ND** **0.8** **0.10**		ppm	4	4	Erosion of natural deposits.
Volatile Organic Contaminants (VOC's)								
9. Total Trihalomethanes **DBP-1** **DBP-2** **DBP-3** **DBP-4**	Y Y Y Y	Dec 2021 Dec 2021 Dec 2021 Jun 2021	**43** **32** **42** **82**	27-43 (RAA 34.3) 23-33 (RAA 28.3) 31-42 (RAA 37) 38-82 (RAA 52.3)	ppb	NA	80.0 RAA	By-product of drinking water chlorination.
10. Total Haloacetic Acid **DBP-1** **DBP-2** **DBP-3** **DBP-4**	Y Y Y Y	Jun 2021 Dec 2021 Dec 2021 Jun 2021	**27** **33** **43** **53**	22-27 (RAA 24.8) 19-33 (RAA 25) 24-43 (RAA 32.5) 26-53 (RAA 40.3)	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 more than 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.

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 800-SOS-RADON.

All sources of drinking water are subject to potential contamination by constituents that are naturally occurring, or manmade. 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 800-426-4791.**

Some people may be more vulnerable to contaminants in drinking water than others. Persons with immuno-compromised diseases such as HIV/AIDS or other immune system disorders, persons receiving chemotherapy, or who have had an organ transplant, the elderly and infants can be susceptible to 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 800-426-4791.**

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. The City of Helena 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 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 www.epa.gov/safewater/lead

Prepared March 31 ,2022
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The table below shows our monitoring results for the period of January 1 to December 31, 2021.