Other Notes

Water is vital to our community, our way of life, our children's future, and the livelihood of generations to come.

The City of Bozeman encourages all citizens to become active in protecting our water sources. If you would like to participate in decisions which may affect the quality of life in Bozeman, please contact the Clerk of the Commission at 406-582-2321 for information about City Commission meeting times and agendas. For a copy of the City of Bozeman's Water Quality Report, please visit www.Bozeman.net/waterquality

This report was prepared by the City of Bozeman Water Treatment Plant personnel. If you have any questions, please call the Water Treatment Plant Assistant Superintendent at 406-994-0501 or MSU University Facilities Management at 406-994-2001.

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BOZEMAN MT
Water Treatment Plant

MONTANA STATE UNIVERSITY

Mountains & Minds

2022 Water Quality Report

Pure and Fresh

We are pleased to present our 2022 Water Quality Report for MSU-Bozeman. We want to inform you about the water we deliver everyday.

We are proud to say the MSU-Bozeman's drinking water meets or exceeds all applicable federal and state requirements. The water system for MSU-Bozeman had zero violations for 2022. Our goal continues to be to provide you with a safe and dependable supply of drinking water.

All sources of drinking water are subject to potential contamination by constituents which occur naturally or are manmade. These constituents include microbes, organic and inorganic chemicals, or radioactive chemicals. In order to ensure safe drinking water, the Environmental Protection Agency established regulations limiting the amount of certain contaminants for public water supplies.

This report contains a list of all ***detected*** contaminants found in MSU-Bozeman's drinking water.

Through a cooperative effort between MSU-Bozeman and the City of Bozeman, all required monitoring and reporting is conducted by the City of Bozeman Water Treatment Plant operators to ensure MSU-Bozeman's drinking water is safe and reliable.

Water Source

Montana State University-Bozeman is a consecutive system to the City of Bozeman. This means all drinking water for MSU-Bozeman comes from the City of Bozeman Water Treatment Plant. The sources of the City of Bozeman's drinking water are the following:

Hyalite Creek

The water from Hyalite Creek flows into the Middle Creek Reservoir (Hyalite Reservoir) where it is stored for current and future use. This is a surface water source.

Sourdough Creek

The creek water is drawn from the watershed in Sourdough Canyon. No storage reservoir exists since the breaching of Mystic Lake Dam in 1985. This is also a surface water source.

Water from Hyalite Creek is diverted via an underground pipeline and is mixed with water from Sourdough Creek at the City of Bozeman Water Treatment Plant located on Sourdough Canyon Road.

The Sourdough and Middle Creek water sources are utilized at a 22 million gallon per day (MGD) microfiltration membrane plant with robust pretreatment. This plant allows the City to meet the service demands and comply with the Environmental Protection Agency (EPA) and Montana Department of Environmental Quality (MTDEQ) regulations.

Source Water Assessment

Bozeman's watersheds are devoid of significant potential sources of contamination. The exception is the transportation corridor along Hyalite Creek, which has a high susceptibility to contamination by transportation of chemicals, especially vehicle fluids on Hyalite Road.

Water & Your Health

All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of 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 the Environmental Protection Agency's Safe Drinking Water Hotline at (800) 426-4791.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons, such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplant, people with HIV/AIDS or other immune system disorders, some elderly people, 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 microbial contaminants are available from the Environmental Protection Agency's Safe Drinking Water Hotline at (800) 426-4791.

Listed in the tables inside are all the contaminants detected in MSU-Bozeman and the City of Bozeman's drinking water during the 2022 calendar year. The Environmental Protection Agency (EPA) and State of Montana Department of Environmental Quality (DEQ) require monitoring of over 80 contaminants.

DEFINITIONS

Action Level (AL):	The concentration of a contaminant which, if exceeded, triggers treatment, or other requirements, which a water system must follow. Ninety percent of samples must be at, or below, this level. Lead and copper are measured at the 90th percentile.
Maximum Contaminant Level Goal (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 (MCL):	The highest level of a contaminant allowed in drinking water MCLs are set as close to MCLGs as feasible, using the best available treatment technology.
Maximum Residual Disinfectant Level (MRDL):	The highest level of a contaminant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants. (4.0 mg/L)
Maximum Residual Disinfectant Level Goal (MRDLG):	The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the bene- fits of the use of disinfectants to control microbial contaminants. (4.0 mg/L)
MFL:	Million Fibers per Liter.
Nephelometric Turbidity Units (NTU):	The level of turbidity in filtered water.
ppm and ppb:	Parts per million and parts per billion
pCi/L:	Picocuries per liter (a measure of radioactivity)
Treatment Technique (TT):	Required process intended to reduce the level of a contaminant in drinking water.
Running Annual Average (RAA):	Average of the results of the most recent four quarters.
Locational Running Annual Average (LRAA):	Average of the results for a location of the most recent four quarters.
UCMR4	Unregulated Contaminant Monitoring Rule #4. Sampled at the entry point to the system and in the distribution system Disinfection Byproduct (DBP) sample sites.

TABLES OF CONTAMINANTS

Chlorine and Fluoride are added and pH is adjusted by the City of Bozeman Water Treatment Plant as water exits the treatment plant. Chlorine is added to maintain a measurable chlorine residual throughout the entire distribution system. The chlorine residual is measured daily in the MSU-Bozeman distribution system. Fluoride is naturally occurring in nearly all water. Fluoride is dosed to meet EPA requirements (0.70 ppm). It is measured daily in the MSU-Bozeman distribution system. The pH is adjusted for corrosion control of lead and copper piping. The target pH is between 8.00 and 8.60 depending on the time of year. The pH is measured daily in the MSU-Bozeman distribution system. Total Trihalomethanes and Haloacetic Acids are measured at the Miller Dining Complex and the Plew Building. They are measured quarterly as part of the MSU-Bozeman distribution system for compliance with the Stage 2 Disinfection Byproducts Rule.

* Lead sampling was performed in July 2021 for MSU-Bozeman. 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. MSU-Bozeman and the City of Bozeman are 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 at (800) 426-4791 or http://www.epa.gov/safewater/lead.

TABLES OF CONTAMINANTS

MSU-BOZEMAN

Contaminant	Detected Level or Average	Range	MCL or AL	MCLG	Typical Contaminant Source
Asbestos****	< 0.2 MFL		7 MFL		Decay of asbestos cement water mains; erosion of natural deposits
Total Trihalomethanes	20.00 ppb (LRAA Miller) 22.23 ppb (LRAA Plew Bldg.)	11.00 – 29.00 ppb 6.90 – 44.00 ppb	80 ppb (LRAA)	N/A	By-product of drinking water chlorination
Haloacetic Acids	16.25 ppb (LRAA Miller) 16.23 ppb (LRAA Plew Bldg.)	11.00 – 21.00 ppb 7.90 – 25.00 ppb	60 ppb (LRAA)	N/A	By-product of drinking water chlorination.
Lead* see previous page	2.0 ppb (90th percentile)	Zero sites exceeded A.L.	15ppb (AL)	0 ppb	Erosion of natural deposits; corrosion of household plumbing systems
Copper	0.042 ppm (90th percentile)	Zero sites ex-ceeded A.L.	1.3 ppm (A.L.)	1.3 ppm	Corrosion of household plumbing systems; erosion of natural deposits
pH	8.43 SU	7.79 – 8.68 SU			Adjusted for corrosion control
Chlorine	0.71 ppm	0.26 – 0.98 ppm	4 ppm (MCL)	4 ppm	Water additive to control microbes
Fluoride	0.53 ppm	0.32 – 0.79 ppm	4 ppm (MCL)	4 ppm	Erosion of natural deposits; water additive which promotes strong teeth
UCMR4 HAA5 @DBP1 HAA6Br in 2019 HAA9	15.33 ppb 0.47 ppb 15.80 ppb	5.81 – 24.66 ppb 0.34 – 0.59 ppb 6.20 – 25.21 ppb	60 ppb (HAA5)		By-product of drinking water chlorination
UCMR4 HAA5 @DBP1 HAA6Br in 2019 HAA9	13.20 ppb 0.46 ppb 13.55 ppb	4.71 – 21.66 ppb 0.34 – 0.56 ppb 4.71 – 22.23 ppb	60 ppb (HAA5)		By-product of drinking water chlorination

CITY OF BOZEMAN

Contaminant	Detected Level or Average	Range	MCL or AL	MCLG	Typical Contaminant Source
Uranium*** Radium*** Gross Alpha*** Barium***** Arsenic	0.0004 mg/L 0.6 (+/-1.0) pCi/L 2.0 (+/-1.7) pCi/L 19.00 ppb 0.0006 mg/L		0.03 mg/L (MCL Uranium) 5 pCi/L (MCL Radium) 2000 ppb (MCL Barium) 0.010 mg/L (MCL Arsenic)	0 mg/L 0pCi/L 2000 ppb 0 mg/L	Erosion of natural deposits; or runoff from orchards for Aresenic
Total Trihalomethanes	34.00 ppb (Highest LRAA)	9.0 – 34.0 ppb	80 ppb (RAA)	N/A	By-product of drinking water chlorination
Haloacetic Acids	24.00 ppb (Highest LRAA)	9.5 – 24.0 ppb	60 ppb (RAA)	N/A	By-product of drinking water chlorination
Lead*	0.0 ppb (90th percentile)	Zero sites exceeded A.L.	15ppb (AL)	0 ppb	Erosion of natural deposits; corrosion of household plumbing systems
Copper	0.055 ppm (90th percentile)	Zero sites exceeded A.L.	1.3 ppm (A.L.)	1.3 ppm	Corrosion of household plumbing systems; erosion of natural deposits
Fluoride	0.54 ppm (average)	0.30 – 0.76 ppm	4 ppm (MCL)	4 ppm	Erosion of natural deposits; water additive which promotes strong teeth
Turbidity**	0.017 NTU (100% < 0.15 NTU)	0.012 – 0.044 NTU	TT = 1 NTU TT = 95% <0.15 NTU	N/A	Natural result of soil runoff
UCMR4 HAA5 @DBP1 HAA6Br HAA9	17.1 ppb 1.04 ppb 18.14 ppb	13.5 – 20.7 ppb 0.86 – 1.21 ppb 14.36 – 21.91 ppb	60 ppb (HAA5)		By-product of drinking water chlorination
UCMR4 HAA5 @DBP4 HAA6Br HAA9	19.05 ppb 1.00 ppb 20.05 ppb	15.1 – 23.0 ppb 0.91 – 1.09 ppb 16.01 – 24.09 ppb	60 ppb (HAA5)		By-product of drinking water chlorination
UCMR4 Manganese @ Entry Point	0.32 ppb	< 0.40 – 0.64 ppb	50 ppb		Erosion of natural deposits

*Lead has not been detected in Bozeman's source water. City of Bozeman sampling was done February though March of 2022 in accordance with EPA regulations. Lead and Copper are regulated over the entire distribution system (not by source) so these results are not repeated for the Lyman Source.

**Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. The City of Bozeman's filtered water must be less than, or equal to, 0.15 NTU in at least 95% of monthly measurements, and it can never exceed 1 NTU. The single highest measurement was 0.044 NTU. Bozeman's average daily turbidity was 0.017 NTU.

***Last collected in 2018 per EPA regulations. ****Last collected in 2020 per EPA regulations. *****Last collected in 2021 per EPA regulations.