Consumer Confidence Report 2021

City of Great Falls, Public Drinking Water Supply

P. O. Box 5021, Great Falls, MT 59403 Phone (406) 727-1325

The City of Great Falls is committed to providing its citizens with a safe and dependable supply of drinking water. The city has prepared this report to inform the public about the quality the municipal drinking water. Please take a few minutes to review this document and feel free to call us with any questions or concerns.

Where does our water come from?

The drinking water used by the residents of Great Falls, Malmstrom Air Force Base (MAFB), and Black Eagle comes from the Missouri River. The Great Falls Water Treatment Facility, located just up gradient from the Missouri's confluence with the Sun River, is responsible for processing the river water and making it safe drinking water for the public.

Water treatment and purification

The Great Falls Water Treatment Plant utilizes a conventional water treatment process that includes coagulation, sedimentation, filtration, and disinfection to produce just over 4 billion gallons of drinking water per year. The plant continuously monitors the process both electronically and by collecting and analyzing samples in house or by sending the samples to a commercial laboratory for analysis. Samples are collected at the plant and at several locations throughout the city to ensure the safety and quality of the water. Plant personnel stay informed of new federal and state regulations so that we can promptly apply applicable treatment and/or monitoring changes. We completed the 2021 year by operating without any violations.

What contaminants are present in our source water?

Contaminants come in many forms. The most common contaminants exist in the form of dissolved minerals. As rainwater flows across the surface of the land and/or percolates through the soil it dissolves various minerals and can pick up contaminants from other sources, like pollution from industries or bacteria from animal wastes. The contaminants can then be carried to streams, rivers, ponds, lakes, groundwater, and reservoirs.

Some contaminants that may need removal from source water before human consumption include:

- **Microbial contaminants including viruses, bacteria, and protozoa**. These can originate from sewage treatment plants, leaky septic systems, agricultural livestock operations, and wildlife.
- **Inorganic contaminants such as salts and metals**. These can be naturally occurring or the result of urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, and/or farming.
- **Pesticides and herbicides**. These may come from a variety of sources including agriculture, urban storm water run-off, and/or residential uses.
- **Organic chemical contaminants.** These are typically the by-products of industrial processes and petroleum production though they can also come from gas stations, urban storm water runoff, and/or septic systems.
- **Radioactive contaminants**. These can be naturally occurring, the result of oil and gas production, and/or the result of mining activities.

Do I need to take special precautions?

The Environmental Protection Agency (EPA) establishes regulations by setting allowable limits for contaminants in drinking water supplied by municipalities. One can reasonably expect drinking water to contain allowable amounts of some contaminants, however the presence of these contaminants does not necessarily mean the water poses a specific health risk. You can obtain detailed information about specific contaminants by calling the EPA's Safe Drinking Water Hotline at (800)426-4791 or our local city-county health department at (406)454-6950.

Individuals determined to be immunocompromised (or display other immune system disorders), with cancer and undergoing chemotherapy, and/or who have undergone organ transplants may be more sensitive to some contaminants. Some elderly and infants may exhibit a higher risk of infection brought on by microbiological contamination. These people should seek advice about their drinking water from their health care provider. EPA/CDC guidelines on appropriate means to lessen these risks are also available from the Safe Drinking Water Hotline (800-426-4791).

Frequently Asked Questions (FAQ)

Q: How often is our drinking water tested?

A: Testing requirements, as determined by the EPA, depend on the source water and the number of people served. We are a medium-sized, surface-water sourced system, serving between 50,000 and 100,000 people. As such, Great Falls is required to continually monitor the levels of specific drinking water parameters including but not limited to turbidity and chlorine residual. Additionally, analysis for organic compounds, bacterial contamination, and inorganic contaminants happen regularly throughout the year.

Q: Why does the water coming out of my tap have a milky or cloudy appearance?

A: The water coming into your home may contain dissolved air held in solution by the pressure of the water distribution system and/or the temperature of the water. As water exits the tap in your home the pressure can drop rapidly and may release an abundance of tiny air bubbles giving the water a milky or cloudy appearance. It is not uncommon for this to occur more often during the colder months, as cold water holds dissolved oxygen in solution a lot more efficiently than warmer water. If left so sit, the water will clear from bottom to the top within a few minutes as the air bubbles rise and disperse.

Q: **How hard is Great Falls water?**

A: On a scale ranging from soft to very hard, Great Falls water is considered hard. This year our water ranged from 112 to 144 milligrams per liter as calcium carbonate or 7.9 to 10.2 grains per gallon. Some homeowners install water softeners as a matter of personal preference but softening is generally not necessary. There are no serious adverse health effects associated with hard water, though it can have a drying effect on skin and hair.

Water Analysis Data

Data tables on the following pages contain terms and abbreviations with which you may be unfamiliar. In order to help you better understand this data we offer the following definitions and explanations:

Parts per million (ppm) or milligrams per Liter (mg/L) - one part per million is approximately equivalent to one minute in two years or one ounce in 7,812 gallons of water.

Parts per billion (ppb) or micrograms per Liter (μg/L) - one part per billion is approximately equivalent to one minute in 2,000 years or one ounce in 7,812,000 gallons of water.

ND – Not detected/non-detect or below the reporting limit allowed by the analysis method.

Nephelometric Turbidity Unit (NTU) - a measure of the clarity of water. Water having turbidity in excess of 5 NTU would appear noticeably cloudy to the average person.

Secondary Maximum Contaminant Level (SMCL) – the SMCL represents reasonable goals for drinking water quality and provides a guideline for public water suppliers. Secondary contaminants affect mainly the aesthetic qualities such as undesirable taste or odors.

Maximum Contaminant Level Goal (MCLG) - the "Goal" is 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 "Maximum Allowed" is the highest allowable level of a contaminant in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

Maximum Residual Disinfection 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 benefits of the use of disinfectants to control microbial contaminants.

Maximum Residual Disinfection Level (MRDL) - 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.

Action Level (AL) - the concentration of a contaminant which, if exceeded, triggers additional treatment(s) or other requirements which a water system must follow.

Treatment Technique (TT) - a required process intended to reduce the level of a contaminant in drinking water.

Variances and Exemptions – state or EPA permission not to meet an MCL or a treatment technique under certain conditions.

The City of Great Falls monitors for contaminants in drinking water according to Federal and State laws. The data summary tables included in this report document test results from monitoring conducted during the 2021 calendar year. The State of Montana and the EPA require monitoring for some contaminants at a frequency less than once per year; therefore, some results may be older than one year. The tables are presented as follows:

Table I. Regulated Water Quality Contaminants
Table II. Secondary Contaminants and Other Parameters
Table III. Unregulated Contaminant Rule 4 and Additional Unregulated Contaminants

Additional report copies are available free of charge from the Great Falls Water Treatment Plant. An electronic copy can be located at https://greatfallsmt.net/ccr2021. If you have any questions about this report or your water utility, please contact us at (406)727-1325.

Table I. Regulated Water Quality Contaminants					
Contaminant	**Range Detected**	**MCL**	**MCLG**	**Violation Yes/No**	**Likely Source of Contamination**
Microbiological Contaminants					
Total Coliform Bacteria	0	5% of Samples	0%	No	Naturally present in environment
Turbidity (NTU)	0.554 NTU on 6/3/21 ≤0.50 NTU 95% of time	TT = 1 NTU maximum; TT ≤0.50 NTU 95% of the time	0	No	Soil Runoff
Inorganic Contaminants					
Arsenic (ppb)	2	10	0	No	Erosion of natural deposits, volcanic activity and mining waste. More prevalent in groundwater(s).
Chlorine (ppm)	0.52-2.40	4	4	No	Disinfectant added to limit microbial growth.
Chloramines (ppm)	0.39-2.16	4	4	No	Created to prolong disinfectant life in distribution.
Fluoride (ppm)	0.7	4	4	No	Erosion of natural deposits, discharge from fertilizers and Industrial emissions.
Nitrate – NO_3 (ppm)	0.20	10	10	No	Runoff from fertilizer use, leaching from septic tanks, sewage, and erosion of natural deposits.
Copper (ppm)*	0.505 ppm @ 90th Percentile	AL = 1.3 ppm 90th percentile must be less than 1.3 ppm	1.3	No	Corrosion of service lines, household plumbing systems and erosion of natural deposits.
Lead (ppb)*	3.0 ppb @ 90th percentile	AL = 15 ppb; 90th percentile must be less than 15 ppb	0	No	Corrosion of service lines, household plumbing systems, erosion of natural deposits, and leaching from wood preservatives
***Samples analyzed during triannual lead and copper testing in June 2020. Copper and lead concentrations in the finished water from the plant tested on 02/10/2021 were ND.**					
Volatile Organic Compounds					
Contaminant	**Annual Average**	**MCL**	**Violation Yes/No**	**Likely Source**	
Haloacetic Acids (HAA5) (ppb)	27.6	60	No	By-product of drinking water disinfection	
Total trihalomethanes (TTHM) (ppb)	39.6	80	No	By-product of drinking water disinfection	
Total Organic Carbon (TOC)	2.4 ppm 17.6% achieved removal	15% required removal	No	Decay of organic plant/animal matter	

Table II. Secondary Contaminants			
Contaminant	**Level Detected**	**SMCL**	**Effects at Elevated Levels**
Aluminum (ppb)	0.05	50 - 200	Colored Water
Chloride (ppm)	12	250	Salty Taste
Sulfate (ppm)	48	250	Salty Taste
Total Dissolved Solids (ppm)	218	500	Hardness, deposits, colored water, staining, and salty taste
pH (s.u.)	6.87 – 7.49	6.5 - 8.5	Low pH: bitter metallic taste, corrosion High pH: slippery feel, soda taste, mineral deposits
Other Parameters			
Total Hardness as $CaCO_3$ (ppm)	142	None	Water spots, deposits
Alkalinity (ppm)	112-146	None	None
Potassium (ppm)	3	None	None
Sodium (ppm)	18	None	None
Magnesium (ppm)	11	None	None

Table III. Unregulated Contaminant Monitoring Rule 4 (UCMR4) and Additional Unregulated Contaminants			
Contaminant	**Range Detected**	**Reporting Limit**	**Likely Source of Contamination**
Distribution System			
Bromochloroacedic acid (µg/L)	ND – 3.79	0.30	By-product of drinking water chlorination
Bromodichloroacedic acid (µg/L)	ND – 6.51	0.50	
Chlorodibromoacedic acid (µg/L)	ND – 0.740	0.30	
Dibromoacedic acid (µg/L)	ND – 0.353	0.30	
Dichloroacedic acid (µg/L)	0.64 – 19.20	0.20	
Monochloroacedic acid (µg/L)	ND – 2.67	2.0	
Trichloroacedic acid (µg/L)	ND – 24.6	0.50	
Finished Water			
Manganese (µg/L)	0.472-0.692	0.40	Naturally occurring in rocks and soil, contamination from mining and industrial discharges
Anatoxin-a (µg/L)	ND	0.30	Produced by harmful algal blooms
Cylindrospermopsin (µg/L)	ND	0.090	
Microcystins & Nodularins (µg/L)	ND	0.30	
Perfluorooctanoic acid (PFOA) (ng/L) *	< 2.0	2.0	Contamination from synthetic compounds used in a variety of industrial and consumer product applications including non-stick cookware and firefighting foams
Perfluorooctanesulfonic acid (PFOS) (ng/L) *	< 2.0	2.0	
Source Water			
Total Organic Carbon (µg/L)	2000-2900	500	Decay of organic plant/animal matter
Bromide (µg/L)	22.4 – 3660	20	Occurs naturally in Earth's crust, seawater, and fossil fuels
Perfluorooctanoic acid (PFOA) (ng/L) *	< 2.0	2.0	Contamination from synthetic compounds used in a variety of industrial and consumer product applications including non-stick cookware and firefighting foams
Perfluorooctanesulfonic acid (PFOS) (ng/L) *	< 2.0	2.0	

*** Not included in UCMR4. Analyzed to determine concentrations at the time of collection for future regulations (2020).**
The EPA issues a UCMR every five years. The unregulated contaminants listed above were part of testing conducted in 2019 and 2020.

Information on finished water monitoring

During 2021, water plant personnel collected 70 routine distribution system samples every month. Each sample was tested for total residual chlorine concentration, pH, turbidity, total coliform (TC) and Escherichia coli bacteria (EC). Every sample yielded results within acceptable limits for all tested, and no sample tested positive for TC or EC.

Summary and Upcoming Projects

The City is committed to providing the community with safe drinking water. Recent upgrades to the water plant include completion of the first phase of a two phase filter replacement project. The project involves replacing drains and hardware, installing air scour systems, and replacing the filter media. The first phase was completed in early 2021. The second phase is projected to start in the fall of 2022.

In December of 2021 the EPA announced plans to adopt changes to the lead and copper rule, though finalization of the changes are not expected to be announced until October of 2024. The City of Great Falls is working to meet the known adopted changes by conducting service line material inventories of those served by the Great Falls water distribution system. This inventory will provide guidance for creating a sampling plan for continued lead and copper analysis. Once the adopted changes are finalized in October of 2024, the inventory will also be used to identify areas most at risk to start the work of replacing service lines in homes and businesses. More information and regular updates can be found on the EPA's website (https://www.epa.gov/dwreginfo/lead-and-copper-rule).

Here is a quick reference to help you identify the type of water lines in your home or business. If you have any questions or concerns you may contact the Water Treatment Plant. We can work with you to help identify the type of service line coming into your home or business.

Again, if you have any questions about this report or your water quality, please contact our lab personnel or the plant manager, Jason Fladland, at (406)727-1325.