Consumer Confidence Report 2024

The United States Environmental Protection Agency (EPA) requires drinking water utilities to provide an annual Consumer Confidence Report (CCR). The purpose of the CCR is to help people understand and make informed decisions about their drinking water. The CCR describes where the drinking water comes from, how it is treated, it summarizes the quality of the drinking water, and compares it to the standards for drinking water quality set by the EPA.

Where does the drinking water come from?

The water treated at the Great Falls Water Treatment Plant comes from the Missouri River just south of its confluence with the Sun River. It is classified as a surface water source.

As water travels over land or through the ground, it dissolves naturally occurring salts and minerals, and can collect nutrients from animal and human activities. In some locations it can even pick up radioactive material. It is for this reason that all drinking water, including bottled water, is expected to contain at least small amounts of contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. Oftentimes the most common issues associated with contaminants in the water are the taste, color, and odor. While undesirable, those characteristics do not necessarily pose any danger to consumers.

More information about contaminants and potential health effects can be obtained by calling the EPA Safe Drinking Water Hotline at 800-426-4791.

Some people may be more vulnerable to contaminants in drinking water than others. Immuno-compromised people, such as a person with cancer undergoing chemotherapy, people who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, and some elderly and infants can be particularly at risk for waterborne infections. These people should seek advice about drinking water from their health care providers.

EPA and CDC guidelines on ways to reduce the risk of infection by cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

Common Contaminants and possible sources:

Microbial contaminants

Viruses, bacteria and other microbes can come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

Inorganic contaminants

Salts and metals can be naturally occurring or can result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, and farming.

Organic contaminants

Substances including synthetic and volatile organic chemicals can be the by-products of industrial processes and petroleum production, but they may also come from gas stations, urban storm water runoff, and septic systems.

Radioactive contaminants

Radioactive substances can be naturally occurring or the result of oil and gas production and mining activities.

Pesticides and Herbicides

These substances result from a variety of sources like agricultural, and urban and residential stormwater runoff.

THE TREATMENT PROCESS

The City of Great Falls employs a conventional treatment process.

Coagulation and Flocculation:

Water from the Missouri River is pumped to the plant where it is mixed with chlorine, alum (an aluminum sulfate solution) and polymer. The chlorine provides disinfection of the water and the alum and polymer help facilitate the coagulation and flocculation process. Coagulation and flocculation is a process that causes the fine particulate and dissolved contaminants to be pulled from solution and bound together to form larger, heavier particulate called floc. The larger size and weight of the floc make it settle more readily in the next step of the process.

Sedimentation:

In this step the water moves into large, open basins. This slows the movement of the water and allows all of the large floc particles and heavier sediments to settle and collect at the bottom of the basins.

Mixed Media Filtration:

From the settling basins, the water makes its way through flumes and into mixed media filters. At the plant 16 mixed media filters are used to collect any fine particulate and floating matter that

may have made it through the previous steps. The filters are made up of a layer of anthracite (coal) and a layer of fine sand.

UV Disinfection:

Ultraviolet disinfection (UV disinfection) follows filtration. The water flows through four foot diameter pipes outfitted with five rows of 12 UV lights. Any bacteria or viruses that may still be present in the water are sterilized by the UV light and no longer pose a danger to humans and animals. This step is especially effective at treating organisms such as Cryptosporidium, which are very hardy and can survive the chlorination process.

Chloramination:

Lastly, an ammonia solution is added to the drinking water to react with the available chlorine to form chloramines. Chloramine is a more stable compound than chlorine and will remain in the drinking water in solution much longer than chlorine. This ensures that the drinking water retains its disinfection properties as it travels from the treatment plant to the consumers. Another advantage to chloramination is that it does not impart as strong of a flavor or smell as chlorine, which benefits people sensitive to those characteristics.

Great Falls Water Treatment Plant operators and staff monitor the treatment process continually. In-line analyzers coupled with electronic data collection software provide real-time information for the entire treatment process. Additionally, operators and staff collect a variety of samples at each treatment step and finished water samples from various locations in the City. These samples are analyzed at the Treatment Plant Laboratory as well as commercial laboratories to ensure the effectiveness of the treatment process and safety of the finished drinking water. Nearly 4 billion gallons of water are processed at the Water Treatment Plant annually.

Useful Definitions

Maximum Contaminant Level (MCL): the highest concentration that a contaminant is allowed in to be in drinking water.

Maximum Contaminant Goal Level (MCGL): the concentration level of a contaminant below which there is no known or expected risk to health.

Secondary Maximum Contaminant Level (SMCL): the concentration level of a secondary contaminant which when exceeded may adversely affect the aesthetic quality of the drinking water.

Primary Contaminant: Contaminants that can be harmful to human health at low concentrations.

Secondary Contaminant: contaminants in water that do not necessarily pose a health risk but interfere with the aesthetic quality of the drinking water.

Variances or Exceptions: State or EPA permission to not meet an MCL or a treatment technique limit under certain conditions.

Treatment Technique: A required process intended to reduce the levels of a contaminant or contaminants in drinking water.

Action Level (AL): the concentration of a contaminant which, if exceeded, triggers increased treatment requirements.

Contaminant: a constituent, impurity, or other undesirable element that makes a product polluted, unfit, or inferior.

Maximum Residual Disinfection Level Goal (MRDLG): the level of drinking water disinfection below which there is no known or expected risk to health. The MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

Maximum Residual Disinfection Level (MRDL): the highest concentration of disinfectant allowed in drinking water.

Reporting Limit (RL): the lowest concentration that can be reliably measured within a specified range of precision and accuracy limits during routine laboratory operation.

Secondary Maximum Contaminant Level (SMCL): guidelines to identify acceptable concentrations of contaminants that may cause unpleasant tastes, odors, or colors in drinking water.

Method Detection Limit: the minimum measured concentration of a substance that can be measured with 99% confidence that is not a blank.

Non-Detect (ND): the concentration of a target analyte is below the method detection limit for the analysis.

Contaminants regulated at your tap

January 2024

Constituent	AL	Results at the 90th Percentile	MCGL	# of sites above the AL	# of sites sampled	90th Percentile AL exceedance	Possible Sources of Contamination
Lead	15 ppb	9.0 ppb	0	2	61	No	Corrosion of service lines and household plumbing systems. Erosion of natural deposits.
Copper	1300 ppb	45.7 ppb	0	1	61	No	Corrosion of service lines and household plumbing systems. Erosion of natural deposits.

July 2024

Constituent	AL	Results at the 90th Percentile	MCGL	# of sites above the AL	# of sites sampled	90th Percentile AL exceedance	Possible Sources of Contamination
Lead	15 ppb	8.0 ppm	0	5	61	No	Corrosion of service lines and household plumbing systems. Erosion of natural deposits.
Copper	1300 ppb	47.3ppb	0	0	61	No	Corrosion of service lines and household plumbing systems. Erosion of natural deposits.

Finished water from the treatment plant was analyzed for lead and copper on 7/23/2024. Both were ND.

The 90th percentile is the result concentration that 90 percent of all sample sites analyzed fall below. If this number exceeds the AL for either metal, the Water Plant would need to make changes to the treatment process so the water will not cause metals to leach from the plumbing in homes.

To satisfy EPA testing requirements, Great Falls Water Plant Lab staff collected water samples from targeted homes throughout the City every six months in 2024. The results are in the table above.

Sampling will continue in 2025 and will happen every six months. If you are interested in being included in future sampling events please contact the Water Plant. More information and regular updates about the Lead and Copper Rule can be found on the EPA's website (https://www.epa.gov/dwreginfo/lead-and-copper-rule).

Additionally, the City of Great Falls Water Treatment Plant will be undergoing upgrades to add corrosion control treatment techniques to the finished drinking water. The process will involve pH control to ensure that the pH of the water entering the distribution system is at or above 7 and the addition of orthophosphate. Orthophosphate will create a protective barrier in metal pipes and not allow water with a pH of less than 7 to dissolve pipe constituents into the drinking water. This will help protect people living in homes with lead service lines from the detrimental effects of lead consumption.

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water primarily comes from materials and components associated with service lines and home plumbing. The City of Great Falls is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. If you have a lead service line and your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for at least 30 seconds or up to 5 minutes before using the water for drinking or cooking. If you are

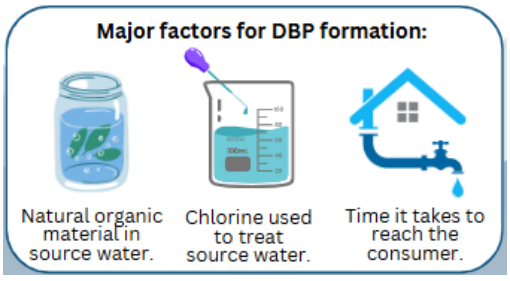
concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing materials, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at http://www.epa.gov/safewater/lead.

Contaminants regulated within the distribution system

Constituent	MCL	MCGL	Concentration	Regulation Met?	Possible Sources of Contamination
Total Coliform Bacteria (TC)	<5% positive for TC	0.0	0 positive TC samples out of 852 samples anal yzed.	Yes	Naturally occurring bacteria in the environment.
Total Residual Chlorine (mg/L)	4.0	4.0	0.58 - 1.97	Yes	Disinfection additive that limits bacterial growth.
Haloacetic Acids (HAA5, ppb)	60	--	22-53 Annual Average = 41	Yes	Byproducts of the drinking water disinfection process.
Total Trihalomethanes (TTHM, ppb)	1300 ppb	47.3ppb	22-53 Annual Average = 41	0	Byproducts of the drinking water disinfection process.

The EPA has developed a health advisory for the manganese in drinking water. While it is an essential nutrient for humans and animals at low concentrations, high concentrations of manganese could have adverse neurological effects. The health advisory limit has been set by the EPA at 0.3 mg/L. The concentration of manganese in the finished drinking water for the City of Great Falls is ND.

While we employ the use of a UV system to sterilize viruses and bacteria, chlorine is the primary disinfectant used by the Water Plant. Chlorine does an excellent job of killing bacteria and microorganisms that could be harmful, but it also reacts with naturally occurring organic materials commonly found in surface water sources. When chlorine reacts with the organic compounds, it can form what is called Disinfection Byproducts (DBPs), or HAA5 and TTHMs. The concentration of these byproducts can vary seasonally with higher concentrations typically found during the warmer months of the year. The City of Great Falls monitors chlorine levels and the concentrations of organic carbon in the river water to adjust treatment techniques to try to minimize the formation of DBPs.



Constituent	MCL	MCGL	Regulation Met?
Total Organic Carbon (TOC)	15% Removal Rate Required	1.8 - 4.1 ppm	Yes; 15% removal rate met.

Contaminants regulated at the Treatment Plant

Constituent	MCL	MCGL	Concentration	Regulation Met?	Possible Sources of Contamination
Turbidity (NTU)	<0.3 NTU 95% of the time	0	0.009 - 0.138	Yes	Runoff
Total Residual Chlorine (mg/L)	4.0	4.0	1.70 - 2.13	Yes	Disinfection additive.
Chloramine (mg/L)	4.0	4.0	1.63 - 2.42	Yes	Disinfection additive.
Aresenic (mg/L)	0.01	0.0	0.005	Yes	Erosion of natural contaminants, mining wastes.
Fluoride (mg/L)	2.0	2.0	0.7	Yes	Erosion of natural contaminants. All fluoride present is naturally occurring.
Nitrate (mg/L)	10	10.0	ND	Yes	Runoff, fertilizers, septic tank leachates, industrial wastes.
pH	6.5-8.5	-	6.52 - 7.45	Yes	Erosion of natural contaminants, human activities.
Uranium (ug/L)	30	0.0	1.4	Yes	Erosion of natural deposits. Testing was completed in 2023.

EPA's standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. EPA continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.

The City of Great Falls Water Treatment Plant operated the entire year with no violations.

Miscellaneous Constituents of Interest

Constituent	SMCL	Monitoring Location	Concentration	Possible Sources of Contamination
Hardness (mg/L)	--	Finished Water (post-treatment)	146	Erosion of natural contaminants. Can cause water spots and deposits on fixtures.
Alkalinity (mg/L as calcium carbonate)	--	Finished Water (post-treatment)	80.0 - 155.0	Runoff. Can impart a salty or soda flavor to the water. May also contribute so dry skin.
Chloride (mg/L)	250.0	Finished Water (post-treatment)	13	Runoff. Can give water a salty flavor.

Constituent	SMCL	Monitoring Location	Concentration	Possible Sources of Contamination
Total Dissolved Solids (TDS, mg/L)	500.0	Finished Water (post-treatment)	239	Runoff. Can contribute to hardness and cause colored water, staining, and mineral deposits.
Sulfate (mg/L)	250.0	Finished Water (post-treatment)	56	Runoff. Can give water a metallic or medicinal flavor. May also contribute to a sulfur smell.
Aluminum (mg/L)	0.05 - 0.20	Finished Water (post-treatment)	0.08	Runoff.
Calcium (mg/L)	--	Finished Water (post-treatment)	38	Runoff, erosion of natural contaminants.
Magnesium (mg/L)	--	Finished Water (post-treatment)	12	Runoff, erosion of natural contaminants.
Potassium (mg/L)	--	Finished Water (post-treatment)	3	Runoff, erosion of natural contaminants.
Sodium (mg/L)	--	Finished Water (post-treatment)	19	Runoff, erosion of natural contaminants.

Unregulated Contaminant Monitoring Rule (UCMR)

As part of the EPA's responsibility under the Safe Drinking Water Act, every five years a list of priority, unregulated contaminants of interest are listed for each public water system to monitor over 12 months. In 2023 the City of Great Falls Water Treatment Plant conducted testing for the UCMR5 (5 denoting the fifth monitoring event) on the finished drinking water. The targeted, unregulated contaminants for this round were lithium (Li) and 29 different PFAS compounds.

PFAS is short for perfluoroalkyl- and polyfluoroalkyl- substances. These synthetic compounds are considered forever chemicals because they do not easily breakdown. PFAS are very common and found in everyday things such as non-stick cookware, waterproof clothing and shoes, outdoor equipment, tarps, food packaging, and dental floss. The health impacts of PFAS are still being investigated but it is suspected that they may cause some forms of cancer. Most of what is known about the health effects of lithium is related to its use as a pharmaceutical drug. Very little is known about how the intake of lithium from food and water may affect health.

In April 2024 the EPA announced new regulations that require public water systems to monitor for six PFAS compounds. Initial monitoring must be completed by 2027 with ongoing compliance monitoring requirements to follow. The UCMR5 testing done by Water Plant staff satisfies the initial monitoring requirements.

Constituent	MCL	MCGL	Concentration	Possible Sources of Contamination
Lithium (ppb)	Not Specified	0	57.0 - 80.8	Erosion of natural contaminants.
PFAS (ppb)	0.002 - 0.02	0	ND	Synthetic chemicals used in manufacturing and processing facilities, firefighting foams, and various household products.

All UCMR 5 testing was completed by City of Great Falls in 2023.

Learn more about PFAS by visiting the EPA's website:

https://www.epa.gov/pfas

Learn more about the UCMR5 here:

https://www.epa.gov/dwucmr/fifth-unregulated-contaminant-monitoring-rule

Current and Upcoming Projects

As part of our commitment to provide the residents of Great Falls with quality drinking water, the Water Treatment Plant is regularly undergoing routine maintenance and upgrades. Below is a summary of the current and upcoming projects at the Plant.

Service Line Inventory:

The EPA is requiring that all water systems have a comprehensive inventory of all drinking water service lines. The City of Great Falls Engineering Department and Water Plant Staff have been working with residents to identify the composition of the service lines entering the homes in Great Falls. This is an ongoing process that will continue until all lines have been identified. If you have questions about your service line, or would like to inform us about what material your service line is comprised of, please call the Lead and Copper Hotline at 406-455-8401. You can also visit the City website for more information:

https://greatfallsmt.net/publicworks/water-service-line-inventory

Solids Handling Building:

The solids handling facility has been completed. It contains a gravity thickener and two screw presses. All three work in unison to thicken and dewater the sludge produced during the treatment process. The dewatered sludge is collected in trash receptacles and disposed of as needed. This process will not only allow the Water Plant to better manage the solids produced by the water treatment process.

Corrosion Control Treatment:

Samples collected for the Lead and Copper Rule in June 2023 had a 90th percentile lead concentration of 0.01 mg/L. While this was not an exceedance, the difference between the 90th

percentile concentration (0.01 mg/L) and the home with the highest concentration of lead triggered the City of Great Falls to have to use corrosion control treatment to help stabilize the chemistry of the finished drinking water. This will be necessary if the pH of the finished water decreases and the water is no longer scale forming.

In May 2024 the MT DEQ accepted the proposed corrosion control treatment plan submitted by the City. Treatment will included pH control by the addition of sodium hydroxide and the addition of orthophosphate to protect plumbing materials from being dissolved into the drinking water. The corrosion control treatment techniques must be operating by May 2026.

Please contact the Water Treatment Plant with any questions or concerns about the new treatment techniques by calling 406-727-1325.

Lead and Copper Testing in Schools and Daycares:

As part of the Lead and Copper Rule Improvements (LCRI) finalized in October 2024, all community water systems are required to sample elementary schools and daycare facilities for lead and copper concentrations in the drinking water. Most schools in the state of Montana have been testing for lead and copper concentrations and have taken action to limit student and staff exposures to the metals. Results for the schools that participated can be found here:

https://deq.mt.gov/water/Programs/dw-lead

Compliance requirements for this do not start until 2027, however Water Plant and City staff will be working to catalogue schools and daycare facilities within City limits. Once the lists are complete, City staff with work with each location to create and carry out a sampling plan. Sampling for lead and copper will occur at each site over the 10-year time frame as defined by the new regulation. All results will be reported to the locations and made publicly available in future CCRs at a minimum.

While sampling is required at elementary schools only, if other schools request testing, it will be made available to them.

If there are any questions about this report or the quality of the drinking water in your home please contact the Water Plant Laboratory Personnel, or the Water Utility Branch Manager, Cody McRady, at 406-727-1325.

Public participation and opinions can be voiced at City Commission Meetings held on the first and third Tuesdays of every month at 7pm in the Commission Chambers. A guide to public participation can be found on the City website: https://greatfallsmt.net/livestream

If you are interested in a tour, call the plant at 406-727-1325.