

Annual Drinking Water Quality Report for 2024

Old Faithful Yellowstone National Park Public Water System 5680085



We're very pleased to provide you with this year's water quality report. Our goal is, and always has been, to provide to you a safe and dependable supply of drinking water.

We want our residents, employees, and visitors to be informed about their water utility. If you have any questions or complaints about your water or this report, please email the Utility Systems Operator Daniel Adams, daniel_adams@nps.gov or call the water treatment plant directly at 307-545-2732 or Jason Murphy Park Facility Manager for Utilities at 406-640-0035, jason_murphy@nps.gov

For a list of detected contaminants, please see Table 1 at the end of this document. To view a comprehensive list of constituents for which we test, their definitions and effects, please visit our online water quality report at <https://www.nps.gov/yell/learn/nature/waterquality-oldfaithful.htm>.

Usage and Production

The Old Faithful water system currently serves over 150 year-round residents, in addition to more than 10,000 visitors per day (summer). Last year, the Old Faithful Water Plant produced over 54 million gallons and had a daily maximum production of 358,000 gallons on June 20th, 2024.

Source Water

Old Faithful's source water is taken directly from the Firehole River and is treated and filtered before being distributed. The water in Yellowstone, including the Firehole, is greatly affected by the changing seasons (temperature and flow) as well as thermal features (water chemistry) which are unique to this

region. While this presents some challenges, we constantly strive to provide the safest and highest quality of drinking water possible to our community.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the land or underground, it can pick up substances or contaminants such as microbes, inorganic and organic chemicals, and radioactive substances.

All drinking water, including bottled drinking water, may be reasonably expected to contain at least small amounts of some constituents. It's important to remember that the presence of these constituents does not necessarily pose a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (800-426-4791).

Contaminants that may be present in source water

- ***Microbial Contaminants***, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- ***Pesticides and Herbicides***, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.
- ***Inorganic Contaminants***, such as salts and metals, which can be naturally occurring or result from urban storm water runoff, industrial, or domestic wastewater discharges, oil and gas production, mining, or farming.
- ***Organic Chemical Contaminants***, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can, also, come from gas stations, urban storm water runoff, and septic systems.
- ***Radioactive Contaminants***, which can be naturally-occurring or be the result of oil and gas production and mining activities.

Treatment

Our raw water is treated with coagulants that serve to join unwanted particles and make them easier to remove. We use two different proprietary blends of polyamines and polyaluminum chloride, which are polymers commonly used in water treatment. We also add a solution of Ferric Chloride to help control arsenic.

The water is filtered through several layers of anthracite coal, which serves to adsorb undesired particles. The final phase of the treatment process is the addition of a 12.5% solution of the disinfectant sodium hypochlorite (commonly known as liquid chlorine), which inactivates bacteria, viruses, and other microbes. Additionally, we add a small amount of concentrated (30%) sodium hydroxide to help control pH. All chemicals have been approved for use by NSF International to be used in drinking water.

These processes are constantly being monitored by sophisticated equipment and adjusted by a team of trained water and wastewater professionals certified by the state of Wyoming.

Monitoring

The Mammoth Water Quality Laboratory and Energy Laboratories in Billings, Montana provide water testing services and support our quality assurance program. These certified laboratories follow precise drinking water analyses established by the U.S. Environmental Protection Agency and serve to ensure that our treated water meets federal regulations.

In order to ensure your tap water is safe, the Environmental Protection Agency has set very stringent levels or **Maximum Contaminant Levels (MCLs)** - the highest allowable level a contaminant is allowed in drinking water. A person would have to drink 2 liters of water every day at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immune-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, 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 microbiological contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

Lead and Copper Information

Yellowstone National Park (YNP) is committed to providing high-quality drinking water to our employees and residents. As part of our ongoing water quality and public health efforts, we would like to share the following important information about lead in drinking water.

Health Risks of Lead Exposure

Lead can cause serious health effects in people of all ages, especially:

- Pregnant individuals
- Infants (both formula-fed and breastfed)
- Young children

Understanding the Source of Lead in Water

Lead in drinking water primarily comes from materials and parts used in:

- Service lines
- Household plumbing

Yellowstone is responsible for maintaining public water systems and is in the process of conducting a lead service line inventory and replacement program. Currently there are still service lines with unknown status, and connectors of unknown material throughout the park. If you would like to know the status of a service line, please email Jason_Murphy@nps.gov or call 406-640-0035.

Why Lead Exposure May Fluctuate

Even if your tap water tested no detection at one point in time, lead levels can vary. As such, lead exposure remains possible due to fluctuations in water chemistry and plumbing conditions.

In 2024 Yellowstone National Park sent 90 lead and copper building and housing samples for analysis. No results exceeded the EPA limits for lead and copper. The park will continue to annually monitor lead and copper levels in park housing and buildings.

The Yellowstone Facilities team is working together with NPS public health to evaluate the installation of point of use water filtration systems in park housing and buildings.

How You Can Protect Yourself and Your Family

There are several steps you can take to reduce the risk of lead exposure:

- **EPA recommends use of a Certified Water Filter:** Choose one certified by an American National Standards Institute (ANSI) accredited certifier to reduce lead. Be sure to follow the manufacturer's instructions for proper use.
- **Use Cold Water Only:** Always use cold water for:
 - Drinking
 - Cooking
 - Preparing baby formula (boiling water does not remove lead)
- **Flush Your Pipes*:** Run your taps for several minutes before using water for drinking or cooking. You can flush your system by:
 - Running the tap
 - Taking a shower
 - Doing laundry
 - Running a dishwasher

*Homes with lead service lines or galvanized pipes requiring replacement may need longer flushing times.

Testing and More Information

If you are concerned about lead in your water and would like to request water testing, or learn more about your service line:

Contact: Jason Murphy, Jason_Murphy@nps.gov 406-640-0035

More information about lead in drinking water, testing methods, and ways to reduce exposure is available here: <https://www.epa.gov/safewater/lead>.

Additional Information on WY5680085 LSLI can be found at:

<https://www.nps.gov/yell/learn/nature/water.htm>.

Sampling Frequency

Routine sampling and testing are important parts of our water quality and assurance program and includes the following:

- Daily: Chlorine residuals, turbidity, pH, and temperature.
- Weekly: Total alkalinity and hardness.
- Monthly: Bacteria (total coliform & e. coli), Arsenic.
- Quarterly: Total organic carbon, Disinfection Byproducts; Trihalomethanes & Haloacetic acids.
- Annually: Volatile organic chemicals, inorganics, and nitrates.
- Every 3 Years: Synthetic organic chemicals, Lead and Copper.
- Every 6 years: Radionuclides.

Violations

As you can see by the table below, we have learned through our monitoring and testing that some constituents have been detected. The EPA has determined that your water **is safe** at these levels. We are proud that your drinking water meets or exceeds all Federal and State requirements for almost all contaminants. Over the course of 2024 Old Faithful had 4 **new violations**. All of which were from the Lead and Copper Rule (LCR) and were the results of elevated levels of Lead detected in 2023. Two had to do with public education where we failed to adequately educate you regarding the health problems associated with and sources of elevated lead levels in our water system. One was that we failed to propose treatment to our regulator in response to results that indicate our water needs treatment to reduce lead and/or copper levels. The final violation was that we failed to test our drinking water for the contaminant and period indicated. Because of this failure, we cannot be sure of the quality of our drinking water during the period indicated. All required documents have been submitted and the issues have been resolved as of April 2025.

Detections

Table 1 lists those substances that **were detected** during the monitoring period of January 1, 2024 to December 31, 2024, and/or the most recent sampling frequency. For an entire list of tested constituents, their definitions and effects, please visit our online water quality report at <https://www.nps.gov/yell/learn/nature/waterquality-oldfaithful.htm>.

Definitions

The following terms and abbreviations have been defined to help you better understand some terms you may not be familiar with:

90th Percentile - a value in a dataset that's greater than 90% of the other values. It means that 90% of the sample results were below this point, while 10% are above it.

AL - Action Level - The concentration of a contaminant which, if exceeded, triggers treatment or other requirements a water system must follow.

MCL - Maximum Contaminant Level - The “Maximum Allowed” is the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

MCLG - Maximum Contaminant Level Goal: 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.

NTU - Nephelometric Turbidity Unit: A measure of water clarity. A turbidity measurement of 0.5 NTU is just barely noticeable to the average person.

ND - Non-Detectable: Laboratory analysis indicates constituent is not present.

piCi/L - Picocuries per liter: A measure of radioactivity in water.

mg/L - Milligrams per liter: One part per million corresponds to one minute in two years or a single penny in \$10,000. Same as ppm.

ppm - Parts per million. Same as mg/L.

ppb - Parts per billion: One part per billion corresponds to one minute in two thousand years or a single penny in \$10,000,000. Same as µg/L.

µg/L - Micrograms per liter. Same as *ppb*.

RAA - *Running annual average*. A representative value calculated by taking all the measurements from the past 365 days adding them together and dividing by the total number of measurements. As newer results are introduced into the calculation, older ones are removed.

SMCL - *Secondary Maximum Contaminant Level*: EPA does not enforce these levels. They are established as guidelines to assist public water systems in managing their drinking water for aesthetic considerations, such as taste, color, and odor. These contaminants are not considered to present a risk to human health at the SMCL.

TT - *Treatment Technique*: A required process intended to reduce the level of a contaminant in drinking water.

TEST RESULTS (Table 1)								
Micro-organisms								
Contaminant	Violation Y/N	Sample Date	Highest Level Detected	Range of Levels	Units	MCLG	MCL	Likely Source of Contamination
Turbidity	N	Daily	0.44 (5/23/24)	0.03- 0.44	NTU	0.30 NTU	1 NTU	Soil runoff. (While this level exceeds the MCL we did not fall below the 95% threshold)
				98%- 100%			TT = 95% of samples < 0.30 NTUs	
	Turbidity is a measurement of the cloudiness of the water caused by suspended particles. We monitor it because it is a good indicator of water quality and the effectiveness of our filtration system and disinfectants.							
Inorganic Contaminants								
Contaminant	Violation Y/N	Sample Date	Highest Level Detected	Range of Levels	Units	MCLG	MCL	Likely Source of Contamination
Antimony	N	11/02/24	1	1-1	ppb	6	6	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder.
Arsenic	N	5/09/24	9	0-9	ppb	0	10	Geothermal processes, weathering of rocks and soils containing arsenic.
	While your drinking water meets EPA standards for arsenic, it does contain low levels of arsenic. 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.							
Fluoride	N	11/02/24	2.5	2.5-2.5	ppm	4.0	4.0	Weathering of rocks and soils containing fluoride.
Nitrogen	N	11/02/24	0.02	0.02- 0.02	ppm	10	10	Runoff from fertilizer use; leaking from septic tanks, sewage; erosion of natural deposits
Sodium	N	11/02/24	21	21-21	ppm	NO MCLG*	NO MCL*	Erosion of natural deposits. *At the present time the EPA guidance level for sodium in drinking water is 20 mg/L. This value was developed for those individuals restricted to a total sodium intake of 500 mg/day.
Sulfate	N	11/02/24	4	4-4	ppm	NO MCLG*	NO MCL*	Weathering of rocks and soils containing sulfates. *Sulfate SMCL is 250 ppm.

Lead and Copper								
Contaminant	Violation Y/N	Sample Dates	Range of Levels Detected	90 Th Percent ile	Units	MCLG	MCL	Likely Source of Contamination
Lead Jan-Jun	N	1/1/24 – 6/30/24	0 – 11	4	ppb	0	AL = 15	Corrosion of household plumbing, erosion of natural deposits
Copper Jan-Jun	N	1/1/24- 6/30/24	0 - 0.264	0.128	ppm	1.3	AL = 1.3	Corrosion of household plumbing, erosion of natural deposits; leaching from wood preservatives.
Lead Jul-Dec	N	7/1/24 – 12/31/24	0 - 4	4	ppb	0	AL = 15	Corrosion of household plumbing, erosion of natural deposits
Copper Jul-Dec	N	7/1/24- 12/31/24	0 - 0.25	0.102	ppm	1.3	AL = 1.3	Corrosion of household plumbing, erosion of natural deposits; leaching from wood preservatives.
Disinfectant Byproducts								
Contaminant	Violation Y/N	Sample Date	Highest Level Detected	Range of Levels Detected	Units	MCLG	MCL	Likely Source of Contamination
Chlorine	N	Daily	2.43 (10/10/24)	1-2.43	ppm	4	4	Water additive used to control microbes.
Bromo-dichloromethane (TTHM)	N	5/10/24	14	11-14	ppb	0	n/a	Byproduct of drinking water chlorination.
Bromoform (TTHM)	N	2/26/24	1.1	0.45-1.1	ppb	0	n/a	Byproduct of drinking water chlorination.
Chlorodibromomethane (TTHM)	N	2/26/24	7.2	5.1-7.2	ppb	60	n/a	Byproduct of drinking water chlorination.
Chloroform (TTHM)	N	5/10/24	21	12-21	ppb	70	n/a	Byproduct of drinking water chlorination.
Total Trihalomethanes (TTHM)	N	5/10/24	41	4.4-41	ppb	n/a	80	Byproduct of drinking water chlorination.
Dibromoacetic acid (HAA5)	N	2/26/24	2.0	1.1-2.0	ppb	n/a	n/a	Byproduct of drinking water chlorination.
Dichloroacetic acid (HAA5)	N	5/10/24	13	6.4-13	ppb	0	n/a	Byproduct of drinking water chlorination.
Tri-chloroacetic acid (HAA5)	N	5/10/24	18	7.2-18	ppb	20	n/a	Byproduct of drinking water chlorination.
Total Haloacetic Acids	N	5/10/24	33	16-33	ppb	n/a	60	Byproduct of drinking water chlorination.
Bromochloroacetic acid	N	5/10/24	6.2	4.1-6.2	ppb	n/a	n/a	Byproduct of drinking water chlorination.
Radioactive Contaminants								
Contaminant	Violation Y/N	Sample Date	Highest Level Detected	Units	MCLG	MCL	Likely Source of Contamination	
Gross Alpha	N	1/24/19	2.0 +/- 0.8	pCi/L	0	15	Erosion of natural deposits.	
Total Organic Carbon								
Contaminant	Violation Y/N	Sample Date	Removal Ratio	Units	MCLG	MCL	Likely Source of Contamination	
Total Organic Carbon (TOC)	N	Quarterly	1.16	Removal ratio	n/a, TT	< 1.0 removal	Decomposition of organic matter such as plants, animals, and microorganisms.	

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For more information please contact:

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