

BARABOO WATER UTILITY

2023 WATER QUALITY REPORT

We're pleased to present to you this year's Annual Quality Water Report. This report is designed to inform you about the quality of water we deliver to you every day. If you have any questions about this report, please feel free to contact Utility Superintendent, Wade D. Peterson, or the staff at the Water Utility office at 608-355-2740.

Our goal at the Baraboo Water Utility is to provide you with the safest, most dependable supply of water possible. To that end we have spent many thousands of dollars on sampling our water, improving our treatment processes, and safeguarding our water resources. As you'll see in the following pages, Baraboo's water is safe and meets all Federal and State drinking water requirements.

WATER UTILITY INFORMATION

General Information

The original water facilities were constructed by a private company in 1886 and purchased by the City in 1904. Our facilities currently include 5 wells, 6 storage facilities, and 2 booster stations. The Utility is overseen by the City's Public Safety Committee and their monthly meeting is the last Monday of each month. These meetings are open to the public and customers are encouraged to attend.

MUNICIPAL DRINKING WATER

Substances in Drinking Water

The sources of drinking water (both tap water and bottled water) include rivers, lakes, reservoirs, springs, and groundwater. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals, radioactive materials, and substances resulting from human activity. All drinking water, including bottled water, may be reasonably expected to contain minerals and other constituents. It's important to remember that the presence of these materials does not necessarily pose a health risk. More information about contaminants and their respective potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (1-800-426-4791). The State of Wisconsin requires us to regularly test our water for certain contaminants at varying intervals, some of which are less than once per year because the concentrations of these contaminants is not expected to vary significantly from year to year. Accordingly, some of our data, though representative, is more than one year old. The data in the Test Results tables provides a summary of the sample results over the past five years.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-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).

BARABOO'S WATER

All of our water is supplied from five groundwater wells that draw water from sandstone and gravel formations hundreds of feet below the surface of the ground. Although the water from each well has different characteristics due to the makeup of the aquifer formation it draws water from, the water is blended together as it moves throughout the distribution system. In 2023 these wells pumped just over 356,501,000 gallons of water, an average of around 976,715 gallons per day for use by our customers. To obtain a summary of the source water assessment, please contact us at 608-355-2740.

Well #	2	4	6	7	8
Depth (ft)	300	377	351	185	450

Hardness in water at the wells has a range of 135 mg/l to 342 mg/l (average 231 mg/l) and in the system, it ranges from 138 mg/l to 353 mg/l (average 248 mg/l) (17-18 grains/gal.). pH in water at the wells has a range of 7.12 to 7.86 (average 7.37) and in the system, it ranges from 7.22 to 7.52 (average 7.35).

WATER ADDITIVES

We currently add chlorine as a disinfectant, fluoride to promote healthy development of teeth, and phosphate for lead and copper control.

Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.
- Inorganic contaminants, such as salts and metal, which can be natural-occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.
- Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff and residential uses.
- 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.

In order to ensure that tap water is safe to drink, EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water, which shall provide the same protection for public health.

DETECTED CONTAMINANTS

Your water was tested for many contaminants last year. We are allowed to monitor for some contaminants less frequently than once a year. The following tables list only those contaminants which were detected in your water. If a contaminant was detected last year, it will appear in the following tables without a sample date. If the contaminant was not monitored last year, but was detected within the last 5 years, it will appear in the tables below along with the sample date.

LEAD AND COPPER

Contaminant (units)	Action Level	MCLG	90th Percentile Level Found	# of Results	Sample Date (if prior to 2023)	Violation	Typical Source of Contaminant
COPPER (ppm)	AL=1.3	1.3	0.4900	0 of 30 results were above the action level.		No	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
LEAD (ppb)	AL=15	0	8.10	0 of 30 results were above the action level.		No	Corrosion of household plumbing systems; Erosion of natural deposits

CONTAMINANT HEALTH EFFECTS – LEAD

Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.

ADDITIONAL HEALTH INFORMATION

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. Baraboo Waterworks 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 at www.epa.gov/safewater/lead.

CONTAMINANTS WITH A HEALTH ADVISORY LEVEL OR A SECONDARY MAXIMUM CONTAMINANT LEVEL

The following tables list contaminants which were detected in your water and that have either a Health Advisory Level (HAL) or a Secondary Maximum Contaminant Level (SMCL), or both. There are no violations for detections of contaminants that exceed Health Advisory Levels, Groundwater Standards or SMCL. SMCL are levels that do not present health concerns, but may pose aesthetic problems such as objectionable taste, odor, or color. HAL are levels at which concentrations of the contaminant present a health risk.

Contaminant (units)	Site	SMCL (ppm)	HAL (ppm)	Level Found	Range	Sample Date (if prior to 2023)	Typical Source of Contaminant
SULFATE (ppm)		250		16.00	6.90-16.00		Runoff/leaching from natural deposits, industrial wastes

Health effects for any contaminants with MCL violations/Action Level Exceedances/SMCL exceedances/HAL exceedances

INORGANIC CONTAMINANTS

Contaminant (units)	Site	MCL	MCLG	Level Found	Range	Sample Date (if prior to 2023)	Violation	Typical Source of Contaminant
ARSENIC (ppb)		10	n/a	2	0 - 2		No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
BARIUM (ppm)		2	2	0.041	0.014 - 0.041		No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
CHROMIUM (ppb)		100	100	4	0 - 4		No	Discharge from steel and pulp mills; Erosion of natural deposits
FLUORIDE (ppm)		4	4	0.6	0.4-0.6		No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
NICKEL (ppb)		100		5.0000	0.0000-5.0000		No	Nickel occurs naturally in soils, ground water, and surface waters and is often used in electroplating, stainless steel and alloy products.
NITRATE (NO ₃ -N) (ppm)		10	10	5.03	0.37-5.3		No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
SELENIUM (ppb)		50	50	1	0-1		No	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines.
SODIUM (ppm)		n/a	n/a	7.86	2.79-7.86		No	n/a

DISINFECTION BYPRODUCTS

Contaminant (units)	Site	MCL	MCLG	Level Found	Range	Sample Date (if prior to 2023)	Violation	Typical Source of Contaminant
HAA5 (ppb)	D-1	60	60	1	1		No	By-product of drinking water chlorination
TTHM (ppb)	D-1	80	0	4.7	4.7		No	By-product of drinking water chlorination
HAA5 (ppb)	D-9	60	60	0	0		No	By-product of drinking water chlorination
TTHM (ppb)	D-9	80	0	5.7	5.7		No	By-product of drinking water chlorination

UNREGULATED CONTAMINANTS

Contaminant (units)	Site	MCL	MCLG	Level Found	Range	Sample Date	Violation	Typical Source of Contaminant
PFAS/PFOS (ppt)	E-2	70	70	ND	70	5/11/2022	No	Firefighting foam/food packaging
PFAS/PFOS (ppt)	E-4	70	70	ND	70	5/11/2022	No	Firefighting foam/food packaging
PFAS/PFOS (ppt)	E-6	70	70	ND	70	5/11/2022	No	Firefighting foam/food packaging
PFAS/PFOS (ppt)	E-7	70	70	ND	70	5/11/2022	No	Firefighting foam/food packaging
PFAS/PFOS (ppt)	E-8	70	70	ND	70	5/11/2022	No	Firefighting foam/food packaging

Synthetic Organic Contaminants including Pesticides and Herbicides

Contaminant (units)	Site	MCL	MCLG	Level Found	Range	Sample Date (if prior to 2023)	Violation	Typical Source of Contaminant
SIMAZINE (ppb)		4	4	0.01	0.00 - 0.01		No	Herbicide runoff

UNREGULATED CONTAMINANT MONITORING (UCMR) RULE 4

Contaminant (units)	Site	MCL	MCLG	Level Found	Range	Sample Date (if prior to 2023)	Violation	Typical Source of Contaminant
HAA5 (ppb)	D-1	60	60	1.201	1	10/14/2019	No	By-product of drinking water chlorination
HAA6Br (ppb)	D-1	n/a	n/a	1.115		10/14/2019	No	By-product of drinking water chlorination
HAA9 (ppb)	D-1	n/a	n/a	1.857		10/14/2019	No	By-product of drinking water chlorination
HAA5 (ppb)	D-2	60	60	0.999	1	10/14/2019	No	By-product of drinking water chlorination
HAA6Br (ppb)	D-2	n/a	n/a	0.636		10/14/2019	No	By-product of drinking water chlorination
HAA9 (ppb)	D-2	n/a	n/a	0.688		10/14/2019	No	By-product of drinking water chlorination
MANGANESE (ppb)	E-6	50	300	113.23		10/14/2019	No	Leaching from natural deposits
MANGANESE (ppb)	E-6	50	300	122.79		4/13/2020	No	Leaching from natural deposits
MANGANESE (ppb)	E-8	50	300	107.38		10/14/2019	No	Leaching from natural deposits
MANGANESE (ppb)	E-8	50	300	111.27		4/13/2020	No	Leaching from natural deposits

UCMR — Unregulated contaminants are those for which EP has not established drinking water standards. The purpose of the unregulated contaminant monitoring is to assist EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulations is warranted. EPA required us to participate in the monitoring.

RADIOACTIVE CONTAMINANTS

Contaminant (units)	Site	MCL	MCLG	Level Found	Range	Sample Date (if prior to 2023)	Violation	Typical Source of Contaminant
GROSS ALPHA, EXCL. R & U (pCi/l)		15	0	4.5	0.6-4.5	7/27/2020	No	Erosion of natural deposits
RADIUM, (226 + 228) (pCi/l)		5	0	2.8	2.8		No	Erosion of natural deposits
GROSS ALPHA, INCL. R & U (n/a)		n/a	n/a	5.1	1.1-5.1	7/27/2020	No	Erosion of natural deposits
COMBINED URANIUM (ug/l)		30	0	0.8	0.8		No	Erosion of natural deposits

Definition of Terms

Term	Definition
AL	Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
HA & HAL	HA: Health Advisory Level: As estimated of acceptable drinking water levels for a chemical substance based on health effects information. HAL: Health Advisory Level is a concentration of a contaminant which, if exceeded, poses a health risk and may require a system to post a public notice. Health Advisories are determined by the US EPA.
HI	Hazard Index: A Hazard Index is used to assess the potential health impacts associated with mixtures of contaminants. Hazard Index guidance for a class of contaminants or mixture of contaminants may be determined by the US EPA or WI Department of Health Services. If a Health Index is exceeded a system may be required to post a public notice.
Level 1 Assessment	A Level 1 assessment is a study of the water system to identify potential problems and determine, if possible, why total coliform bacteria have been found in our water system.
Level 2 Assessment	A Level 2 assessment is a very detailed study of the water system to identify potential problems and determine, if possible, why an E. coli MCL violation has occurred or why total coliform bacteria have been found in our water system, or both, on multiple occasions.
MCL	Maximum Contaminant Level: 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.
MFL	million fibers per liter
MRDL	Maximum residual disinfectant level: The highest level of a disinfectant allowed in drinking water. There is convincing evidence that 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. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
mrem/year	millirems per year (a measure of radiation absorbed by the body)
NTU	Nephelometric Turbidity Units
pCi/l	picocuries per liter (a measure of radioactivity)
ppm	parts per million, or milligrams per liter (mg/l)
ppb	parts per billion, or micrograms per liter (ug/l)
ppt	parts per trillion, or nanograms per liter
ppq	parts per quadrillion, or picograms per liter
PHGS	PHGS: Public Health Groundwater Standards are found in NR 140 Groundwater Quality. The concentration of a contaminant which, if exceeded, poses a health risk and may require a system to post a public notice.
RPHGS	RPHGS: Recommended Public Groundwater Standards: Groundwater standards proposed by the WI Department of Health Services. The concentration which, if exceeded, poses a health risk and may require a system to post a public notice.
SMCL	Secondary drinking water standards or Secondary Maximum Contaminant Levels for contaminants that affect taste, odor, or appearance of the drinking water. The SMCLs do not represent health standards.
TCR	Total Coliform Rule
TT	Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water.

