2022 Water Quality Report for the Village of Baroda

Water Supply Serial Number: 00420

This report covers the drinking water quality for the Village of Baroda for the 2022 calendar year. This information is a snapshot of the quality of the water that we provided to you in 2022. Included are details about where your water comes from, what it contains, and how it compares to United States Environmental Protection Agency (U.S. EPA) and state standards.

Where does my water come from?

Your water is provided by the Lake Charter Township Water Treatment Plant (LCTWTP). Source water is pumped from Lake Michigan.

Source water assessment and its availability.

Your water comes from Lake Michigan. The Michigan Rural Water Association performed an assessment in 2021 to determine the susceptibility or the potential of contamination. Sensitivity/susceptibility ratings use a six-tiered scale from "very-low" to "high," based primarily on geologic sensitivity, water chemistry, and contaminant sources. Using the Great Lakes Protocol for assessing the intake sensitivity and susceptibility, LCTWS's intake sensitivity is Moderate, and the susceptibility is Moderately High.

Contaminants and their presence in water: Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some 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 U.S. EPA's Safe Drinking Water Hotline (800-426-4791).

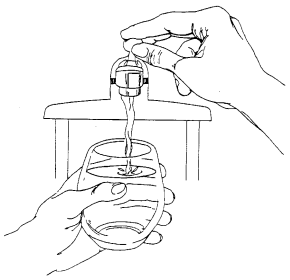
Vulnerability of sub-populations: Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune systems 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. U.S. EPA/Center for Disease Control guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

Sources of drinking water: The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. Our water comes from wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

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 metals, which can be naturally occurring or result from urban stormwater 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 and residential uses.
- **Radioactive contaminants**, which can be naturally occurring or be the result of oil and gas production and mining activities.
- **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 stormwater runoff, and septic systems.



In order to ensure that tap water is safe to drink, the U.S. EPA prescribes regulations that limit the levels of certain contaminants in water provided by public water systems. Federal Food and Drug Administration regulations establish limits for contaminants in bottled water which provide the same protection for public health.

Description of water treatment process.

Your water is treated at the Lake Charter Township water treatment plant in a “treatment train” (a series of processes applied in a sequence) that includes coagulation, flocculation, sedimentation, filtration, and disinfection. Coagulation removes dirt and other particles suspended in the source water by adding chemicals (coagulants) to form tiny sticky particles called “floc,” which attract the dirt particles. Flocculation (the formation of larger flocs from smaller flocs) is achieved using gentle, constant mixing. The heavy particles settle naturally out of the water in a sedimentation basin. The clear water then moves to the filtration process where the water passes through sand, gravel, charcoal, or other filters that remove even smaller particles. A small amount of chlorine or other disinfection method is used to kill bacteria and other microorganisms (viruses, cysts, etc.) that may be in the water before the water is stored and distributed to home and businesses in the community. The water quality is continuously monitored and ensured by hundreds of tests performed each day.

Water Quality Data

The table below lists all the drinking water contaminants that we detected during the 2022 calendar year. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk. Unless otherwise noted, the data presented in this table is from testing done January 1 through December 31, 2022. The State allows us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. All the data is representative of the water quality, but some are more than one year old.

Terms and abbreviations used below:

- 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 that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
- Maximum Residual Disinfectant Level (MRDL): 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.
- 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 benefits of the use of disinfectants to control microbial contaminants.
- Treatment Technique (TT): A required process intended to reduce the level of a contaminant in drinking water.
- N/A: Not applicable
- ND: not detectable at testing limit
- ppm: parts per million or milligrams per liter
- ppb: parts per billion or micrograms per liter
- ppt: parts per trillion or nanograms per liter
- pCi/l: picocuries per liter (a measure of radioactivity)
- Action Level (AL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.
- Level 1 Assessment: A study of the water supply to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.
- Level 2 Assessment: A very detailed study of the water system to identify potential problems and determine (if possible) why an *E. coli* MCL violation has occurred and/or why total coliform bacteria have been found in our water system on multiple occasions.

Baroda's water distribution system

Once the drinking water is pumped from the Lake Township water plant to our distribution system, it is tested for chlorine residual and possible bacteriological contamination, as well as other contaminants.

VILLAGE OF BARODA WATER DISTRIBUTION SYSTEM							
Regulated Contaminant	MCL, TT, or MRDL	MCLG or MRDLG	Level Detected	Range	Year Sampled	Violation Yes/No	Typical Source of Contaminant
TTHM Total Trihalomethanes (ppb)	80	N/A	60.25	44 - 77	2022	NO	Byproduct of drinking water disinfection
HAA5 Haloacetic Acids (ppb)	60	N/A	29.62	19.4 - 53	2022	NO	Byproduct of drinking water disinfection
Chlorine[2] (ppm)	4	4	1.32	1.04 – 1.55	2022	No	Water additive used to control microbes
Inorganic Contaminant Subject to Action Levels (AL)	Action Level	MCLG	Your Water[3]	Range of Results	Year Sampled	Number of Samples Above AL	Typical Source of Contaminant
Lead (ppb)	15	0	2	0 - 6	**2021**	0	Lead service lines, corrosion of household plumbing including fittings and fixtures; Erosion of natural deposits
Copper (ppm)	1.3	1.3	0.1	0 - 0.11	**2021**	0	Corrosion of household plumbing systems; Erosion of natural deposits

[2] The chlorine "Level Detected" was calculated using a running annual average.

[3] Ninety (90) percent of the samples collected were at or below the level reported for your water.

1Monitoring Data for Regulated Contaminants **Lake CHARTER TOWNSHIP WATER TREATMENT PLANT**							
Regulated Contaminant	MCL, TT, or MRDL	MCLG or MRDLG	Level Detected	Range	Year Sampled	Violation Yes/No	Typical Source of Contaminant
Arsenic (ppb)	10	0	0	NA	2022	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Barium (ppm)	2	2	.023	NA	2022	No	Discharge of drilling wastes; Discharge of metal refineries; Erosion of natural deposits
Nitrate (ppm)	10	10	.28	NA	2022	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Fluoride (ppm)	4	4	.12	NA	2022	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Sodium[1] (ppm)	N/A	N/A	14	NA	2022	No	Erosion of natural deposits
TTHM Total Trihalomethanes (ppb)	80	N/A	60.9	NA	2022	No	Byproduct of drinking water disinfection
HAA5 Haloacetic Acids (ppb)	60	N/A	22.7	NA	2022	No	Byproduct of drinking water disinfection
Chlorine[2] (ppm)	4	4	1.61	NA	2022	No	Water additive used to control microbes
Total Coliform	TT	N/A	ND	ND	2022	No	Naturally present in the environment
E. coli in the distribution system (positive samples)	See E. coli note[3]	0	0	ND	2022	No	Human and animal fecal waste
Fecal Indicator – E. coli at the source (positive samples)	TT	N/A	0	N/A	2022	No	Human and animal fecal waste

[1] Sodium is not a regulated contaminant.

[2] The chlorine “Level Detected” was calculated using a running annual average.

[3] *E. coli* MCL violation occurs if: (1) routine and repeat samples are total coliform-positive and either is *E. coli*-positive, or (2) the supply fails to take all required repeat samples following *E. coli*-positive routine sample, or (3) the supply fails to analyze total coliform-positive repeat sample for *E. coli*.

Per- and polyfluoroalkyl substances (PFAS) **LAKE CHARTER TOWNSHIP WATER TREATMENT PLANT**							
Regulated Contaminant	MCL, TT, or MRDL	MCLG or MRDLG	Level Detected	Range	Year Sampled	Violation Yes/No	Typical Source of Contaminant
Hexafluoropropylene oxide dimer acid (HFPO-DA) (ppt)	370	N/A	ND	N/A	2022	NO	Discharge and waste from industrial facilities utilizing the Gen X chemical process
Perfluorobutane sulfonic acid (PFBS) (ppt)	420	N/A	ND	N/A	2022	NO	Discharge and waste from industrial facilities; stain-resistant treatments
Perfluorohexane sulfonic acid (PFHxS) (ppt)	51	N/A	ND	N/A	2022	NO	Firefighting foam; discharge and waste from industrial facilities
Perfluorohexanoic acid (PFHxA) (ppt)	400,000	N/A	ND	N/A	2022	NO	Firefighting foam; discharge and waste from industrial facilities
Perfluorononanoic acid (PFNA) (ppt)	6	N/A	ND	N/A	2022	NO	Discharge and waste from industrial facilities; breakdown of precursor compounds
Perfluorooctane sulfonic acid (PFOS) (ppt)	16	N/A	2.2	N/A	2022	NO	Firefighting foam; discharge from electroplating facilities; discharge and waste from industrial facilities
Perfluorooctanoic acid (PFOA) (ppt)	8	N/A	2.6	N/A	2022	BI	Discharge and waste from industrial facilities; stain-resistant treatments
Inorganic Contaminant Subject to Action Levels (AL)	Action Level	MCLG	Your Water[4]	Range of Results	Year Sampled	Number of Samples Above AL	Typical Source of Contaminant
Lead (ppb)	15	0	4	<1.0ppb – 24 ppb	**2021**	1	Lead service lines, corrosion of household plumbing including fittings and fixtures; Erosion of natural deposits
Copper (ppm)	1.3	1.3	0.1	.0027ppm - .110ppm	**2021**	0	Corrosion of household plumbing systems; Erosion of natural deposits

[4] Ninety (90) percent of the samples collected were at or below the level reported for our water.

Additional Monitoring

The Lake Charter Township water treatment plant also performed monitoring for some for which the U.S. EPA has not established drinking water standards.

	LAKE CHARTER TOWNSHIP WATER TREATMENT PLANT				
Unregulated Contaminant Name	Average Level Detected	Range	Violation	Year Sampled	Comments
Chloride (ppm)	12 ppm	N/A	No	2022	Erosion of natural deposits
Hardness as $CaCO_3$ (ppm)	137 ppm	N/A	No	2022	Erosion of natural deposits
Sulfate (ppm)	27 ppm	N/A	No	2022	Erosion of natural deposits
Iron (ppm)	0	N/A	No	**2021**	Erosion of natural deposits

Information about lead: 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. The Village of Baroda 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 have a lead service line it is recommended that you run your water for at least 5 minutes to flush water from both your home plumbing and the lead service line. 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 http://www.epa.gov/safewater/lead.

Monitoring and Reporting to the Department of Environment, Great Lakes, and Energy (EGLE) Requirements: The State of Michigan and the U.S. EPA require us to test our water on a regular basis to ensure its safety. We met all the monitoring and reporting requirements for 2022.

We will update this report annually and will keep you informed of any problems that may occur throughout the year, as they happen. Copies are available at the Village of Baroda Municipal Building, 9091 First St. and will also be available on our website at

We invite public participation in decisions that affect drinking water quality. Village Council Meetings are held at 6:30 p.m. on the first Monday of each month at the Baroda Municipal Building. For more information about your water, or the contents of this report, contact AJ Mottl (269) 231-9084. For more information about safe drinking water, visit the U.S. EPA at http://www.epa.gov/safewater.