Berea
THE GRINDSTONE CITY

2023 WATER QUALITY REPORT

The City of Berea is pleased to present to you the Consumer Confidence Report on the quality of your drinking water for 2023. The City of Berea Public Water System (PWS No. OH1800111) operated under an unconditional license in 2023. Included in this report are contaminates that were detected in our water in 2023, water quality test results, general health information and information on how you can participate in decisions concerning your water and how you can contact Berea Water Department.

Have a Concern?

Public participation and comments are encouraged at regular meetings of Berea City Council. Meetings are held on the first and third Mondays of each month. The public is able to attend the council meetings in person or are encouraged to contact their representative regarding their questions or concerns. For more information on this report, or if you have any questions or concerns please call the Water Plant at (440) 234-5652 or email waterplant@cityofberea.org

Mayor
Cyril M. Kleem

Director of Public Service/City Engineer
Antonio Armagno

Water Superintendent
Ken Yee

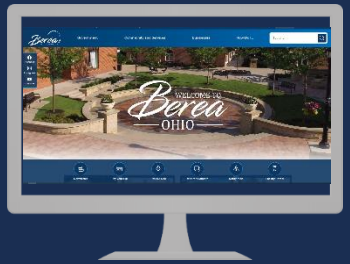
Questions?

Water Billing: (440) 891-3308

Service Garage: (440) 826-5853

Water Treatment Plant: (440) 234-5652

Visit our website
www.cityofberea.org



THE SOURCE

The City of Berea draws surface water from the Rocky River and can also draw from Coe lake. Our backup interconnection with the City of Cleveland Water was not used in 2023 as a primary source of our water and therefore is not included in this report.

For the purpose of source water assessments, all surface waters are considered to be susceptible to contamination. By their nature, surface waters are accessible and can be readily contaminated by chemicals and pathogens, with relatively short travel times from source to intake. Based on information compiled from the source water assessment, the Berea drinking water protection area is susceptible to contamination from urban and agricultural runoff, industrial sources, oil and gas production activities, sanitary sewer overflows, municipal wastewater discharges and failing on site waste water treatment systems (septic systems). Additional risks include: derailments, motor vehicle accidents or spills. It is important to note that this assessment is based on available data and therefore may not reflect current conditions. All surface waters in Ohio, including Berea's have a high susceptibility to contamination. A copy of Berea's Drinking Water Source Assessment can be obtained by calling (440) 234-5652

The EPA requires regular sampling to ensure drinking water safety. The City of Berea conducted sampling for bacteria; inorganic; synthetic organic; volatile organic, disinfection byproducts during 2023. Samples were collected for a total of 75 different contaminants most of which were not detected in the City of Berea water supply. The Ohio EPA requires us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though accurate, are more than one year old.

SOURCES OF CONTAMINATION

The sources of drinking water (both tap and bottle Water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of land or through the ground, it dissolves naturally occurring minerals and in some cases, radioactive material. It can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present 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 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, USEPA prescribes regulation which limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants and potential health effects can be obtained by calling the Federal Environmental Protection Agency's Safe Drinking Water Hotline at (800) 426 – 4791.

WHO NEEDS TO TAKE SPECIAL PRECAUTIONS?

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 infection. 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 microbial contaminants are available from the Safe Drinking Water Hotline (800) 426-4791.

CRYPTOSPORIDIUM INFORMATION

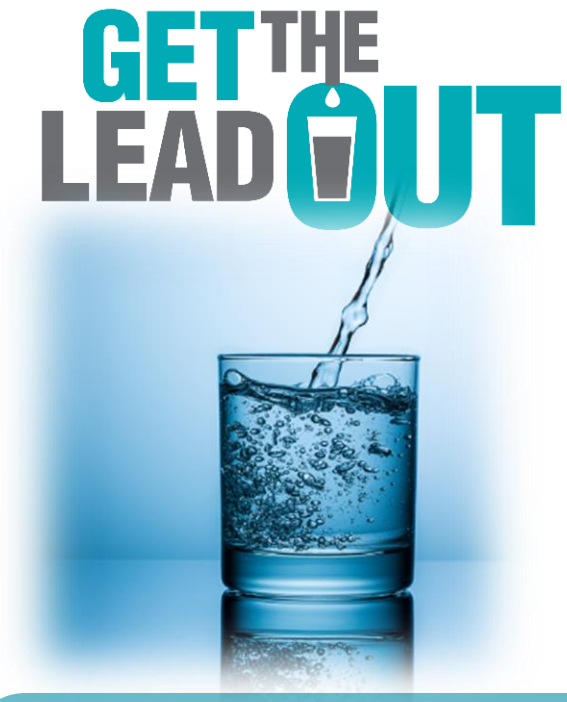
The City of Berea Water monitored for Cryptosporidium in the source water during 2018. Cryptosporidium was detected in 3 of the 9 raw water samples collected. It was not detected in the finish water. Berea added UV disinfection in 2014 which is approved by the OEPA to inactivate cryptosporidium. Cryptosporidium is a microbial pathogen found in surface water throughout the U.S. Although filtration removes cryptosporidium, the most commonly used filtration methods cannot guarantee 100 percent removal. Our monitoring of source water and/or finished water indicated the presence of these organisms. Current test methods do not enable us to determine if the organisms are dead or if they are capable of causing disease. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, immuno-compromised people are at greater risk of developing a life-threatening illness. We encourage immuno-compromised individuals to consult their doctor regarding appropriate precautions to avoid infection. Cryptosporidium must be ingested to cause disease, and it may be spread through means other than drinking water.

In 2020, The City of Berea was sampled as part of the State of Ohio's Drinking water Per- and Polyfluoroalkyl Substances (PFAS) Sampling Initiative. Six PFAS compounds were sampled, and none were detected in our finished drinking water.

PFAS Compound	Statewide Action Level (ng/L)	Your PWS	
		EP001 Treated Water (ng/L)	RS001 Raw Water (ng/L)
PFOA	>70 single or combined with PFOS	<5	6.7
PFOS	>70 single or combined with PFOA	<5	7.3
GenX	>700	<25	<25
PFBS	>140,000	<5	5.3
PFHxS	>140	<5	<5
PFNA	>21	<5	<5

LEAD EDUCATION

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 City of Berea 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 at (800) 426-4791 or at http://www.epa.gov/safewater/lead.



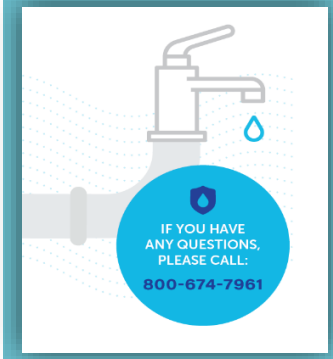
Nitrate in drinking water at levels above 10 ppm is a health risk for infants less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant, you should ask for advice from your healthcare provider.

LEAD SERVICE LINE INVENTORY

SURVEY

The Berea Water Department requests the help from residents by completing an important survey to document the material of your water service line from the water meter to the water faucet inside of your house or business. The results may help improve the quality of water you rely on every day.

SURVEYS MUST BE DONE ONLINE AT:
120water.formstack.com/forms/cityofbereawaterdept.
For questions please contact (800) 674-7961.



Postcards will be sent to residents whose service lines have been designated as "unknown". Not every resident will receive this survey. They are to be filled out by September 1, 2024. This information will be entered into the 120 water database which will be accessible to residents at a later date.

120Water™

LEAD CONCERNS?

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.

HOTLINE:
(800) 426-4791
http://www.epa.gov/safewater/lead

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Listed below is information on those in the City of Berea's drinking water.

TABLE OF DETECTED CONTAMINANTS

Contaminants (Units)	MCLG	MCL	Level Found	Range of Detections	Violation	Sample Year	Typical Source of Contaminants
Disinfectant and Disinfectant By-Products							
Total Chlorine (ppm)	MRDLG = 4	MRDL = 4	1.22	0.91-1.25	No	2023	Water additive used to control microbes
Haloacetic Acids (HAA5) (ppb)	N/A	60	13.5	6.0 - 17.2	No	2023	By-product of drinking water disinfection
Total Trihalomethanes (TTHM) (ppb)	N/A	80	52.1	29.8 - 62.2	No	2023	By-product of drinking water disinfection
Inorganic Contaminants							
Fluoride (ppm)	4	4	1.19	0.78 - 1.19	No	2023	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Nitrate (ppm)	10	10	5.7	0.6-5.7	No	2023	Run off from fertilizer use, Leaching from septic tanks, sewage; Erosion of natural deposits
Inorganic Contaminants							
Turbidity % meeting removal	N/A	TT	100%	100%	NO	2023	soil runoff
Turbidity (NTU)	N/A	0.3	0.30	0.07 - 0.30	NO	2023	
Total Organic Carbon	N/A	TT	2.21	2.00 - 3.32	NO	2023	Naturally present in the environment
100% of the samples were below the TT value of 0.3 NTU. A value less than 95% constitutes a TT violation. The highest single measurement was 0.24NTU. As reported above, the City of Berea's highest recorded turbidity for 2021 was 0.24 NTU.							
Lead and Copper							
Contaminants (units)	**Action Level (AL)**	**MCLG**	**Individual Results over the AL**	**90% of test levels were less than**	**Violation**	**Year Sampled**	**Typical source of Contaminants**
Lead (ppb)	15 ppb	0 ppb	0	<2ug/l	No	2023	Corrosion of household plumbing systems; erosion of natural deposits
	0 out of 30 samples were found to have lead levels in excess of the lead action level of 15 ppb.						
Copper (ppm)	1.3 ppm	1.3 ppm	0	0.0170 ppm	No	2023	Erosions of natural deposits; leaching from wood preservatives; Corrosions of household plumbing systems
	0 out of 30 sampleswere found to have copper levels in excess of the copper action level of 1.3 ppm.						

In 2023 we had an unconditioned license to operate our water system.

BACKFLOW PREVENTION AND CROSS CONNECTION CONTROL

What are some common backflow hazards that threaten the homeowner and other consumers?

- Hose connections to chemical solution aspirators to feed lawn and shrub herbicides, pesticides or fertilizers.
- Lawn irrigation systems.
- Chemically treated heating systems.
- Hose connections to a water outlet or laundry tub.
- Swimming pools, hot tubs, spas.
- Private and/or non-portable water supplies located on property.
- Water operated sump drain devices.
- Feed lots/livestock holding areas or barnyards fed through pipes or hoses from your water supply plumbing.

What are examples of cross-connection and backflow scenarios?

- Soapy water or other cleaning compounds backsiphon into the water supply plumbing through a faucet or hose submerged in a bucket or laundry basin.
- Pool water backsiphons into the water supply plumbing through a hose submerged in a swimming pool.
- Fertilizers/pesticides backsiphon into the water supply plumbing through a garden hose attached to a fertilizer/pesticide sprayer.
- Chemicals/pesticides and animal feces drawn into the water supply plumbing from a lawn irrigation system with submerged nozzles.
- Bacteria/chemicals/additives in a boiler system backsiphon into the water supply plumbing.
- Unsafe water pumped from a private well applies backpressure and contaminates the public water supply through a connection between the private well discharge and the portable water supply plumbing.

Ohio Environmental Protection Agency

TURBIDITY

Turbidity is a measure of the cloudiness of water and is an indication of the effectiveness of our filtration system. The turbidity limit set by the EPA is 0.3 NTU in 95% of the samples analyzed each month and shall not exceed 1 NTU at any time. As reported above, the City of Berea's highest recorded turbidity result for 2023 was 0.30 NTU and lowest monthly percentage of samples meeting the turbidity limits was 100%.

The value reported under "level found" for Total Organic Carbon (TOC) is the lowest ratio between percent of TOC actually removed to the percentage of TOC required to be removed. A value greater than one indicates that the water system is in compliance with TOC removal requirements. A value of less than 1 indicates a violation of the TOC removal requirements

- **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 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 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.

- **Action Level (AL):** The concentration of a contaminant which, if exceeded, triggers treatment 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.

Contact Time (CT) means the mathematical product of a "residual disinfectant concentration" (C), which is determined before or at the first customer, and the corresponding "disinfectant contact

- **Microcystins:** Liver toxins produced by a number of cyanobacteria. Total microcystins are the sum of all the variants/congeners (forms) of the cyanotoxin microcystin.

- **Cyanotoxin:** Toxin produced by cyanobacteria. These toxins include liver toxins, nerve toxins, and skin toxins. Also sometimes referred to as "algal toxin".

- **PFAS:** Per- and polyfluoroalkyl substances (PFAS) are a group of man-made chemicals applied to many industrial, commercial and consumer products to make them waterproof, stain resistant, or nonstick. PFAS are also used in products like cosmetics, fast food packaging, and a type of firefighting foam called aqueous film forming foam (AFFF) which are used mainly on large spills of flammable liquids, such as jet fuel. PFAS are classified as contaminants of emerging concern, meaning that research into the harm they may cause to human health is still ongoing.

- Parts per Million (ppm) or Milligrams per Liter (mg/L) are units of measure for concentration of a contaminant. A part per million corresponds to one second in a little over 11.5 days.

- Parts per Billion (ppb) or Micrograms per Liter (µg/L) are units of measure for concentration of a contaminant. A part per billion corresponds to one second in 31.7 years.

- The "<" symbol: A symbol which means less than. A result of <5 means that the lowest level that could be detected was 5 and the contaminant in that sample was not detected.