



# Water Quality Report 2018

## Berea's Water Sources: Rocky River & Coe Lake



The City of Berea public water system has prepared the following report on the quality of our drinking water. Included here are general health information, water quality test results, suggestions on how you can participate in decisions concerning your drinking water and how to contact us.

Public comments are encouraged at regular meetings of Berea City Council, which meets on the first and third Mondays of each month at 7:30 pm at City Hall (except in July and August). For more information on this report, contact Ken Yee, Water Treatment Superintendent, at (440) 234-5652 or e-mail [waterplant@cityofberea.org](mailto:waterplant@cityofberea.org).

The City of Berea public water system (PWS No. 18000111) uses surface water drawn from the East Branch of the Rocky River. Water also can be drawn from Coe Lake and Baldwin Creek when needed. Surface waters are susceptible to contamination. Sources of contamination include urban and agricultural runoff, industrial sources, oil and gas production, sanitary sewer overflows, municipal wastewater treatment discharges and septic systems, train and motor vehicle accidents or spills.

The City of Berea public water system treats the water to meet drinking water quality standards, but no single treatment technique can address all potential contaminants. More detailed information is provided in [Berea's Drinking Water Source Assessment report](#), available by contacting the Ohio EPA at (800) 686-6330, by going to [epa.state.oh.us/ddagw/pdu/swap](http://epa.state.oh.us/ddagw/pdu/swap) or by calling the Berea Water Plant Superintendent at (440) 234-5652.



**Lead Educational Info:** 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 Berea Water Department 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>.

**CRYPTOSPORIDIUM INFORMATION:** The City of Berea monitored for Cryptosporidium in the source water during 2018. Cryptosporidium was detected in 3 sample out of 9 collected from the raw water. It was not detected in the finished water. Berea added UV disinfection in 2014 which became approved by The OEPA in 2017 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% removal. Monitoring of source water indicates the presence of these organisms. Current test methods do not enable us to determine if the organism is alive or 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. However, immune-compromised people are at greater risk of developing life threatening illness. We encourage immune-compromised individuals to consult their doctor regarding appropriate precautions to take to avoid infection. Cryptosporidium must be ingested to cause disease and it may be spread through means other than drinking water.

*Mayor*  
**Cyril M. Kleem**

*Director of Public Service*  
**Paul Anzalone**

*Water Superintendent*  
**Kenneth Yee**

### Calling the Berea Water Department:

**Water Billing: (440) 891-3308**

9am - 2pm Mon-Fri. Meter repair, To have water turned off/on, questions on your Water bill, to schedule a final read.

**Service Garage: (440) 826-5853**

7am -3pm for watermain breaks, hydrant leaks & sewer problems.

**Water Treatment Plant: (440) 234-5652**

If water is discolored, water quality or low pressure issues. **Extension 0** rings all phones-24 hours.



## Table of Detected Contaminants

Contaminants (units)	MCLG	MCL	Level Found	Range of Detections	Violation	Sample Year	Typical Source of Contaminants
<b>Bacteriological</b>							
Turbidity (NTU)	NA	TT	0.430	0.043-0.429	NO	2018	Soil run off
Turbidity % meeting standard	NA	TT	100%	97.8-100%	NO	2018	
Total Organic Carbon*	NA	TT	2.19	1.44-3.54	NO	2018	Naturally present in the environment
<b>Inorganic Contaminants</b>							
Fluoride (mg/l)	4	4	1.10	0.80-1.10	NO	2018	Erosion of natural deposits, Additive to promote strong teeth. Discharge from fertilizer and aluminum factories
Barium (mg/l)	2	2	0.0133	NA	NO	2018	Discharge from metal refineries, erosion of natural deposits
Nitrate (mg/l)	10	10	7.40	0.528-7.40	NO	2018	Runoff from fertilizer use; leaching from septic tanks, sewage, Erosion of natural deposits
<b>Volatile Organic Contaminants</b>							
HAA5 (ug/l)	NA	60	20.23	5.85-28.75	NO	2018	By-product of drinking water chlorination
TTHMs (ug/l)	NA	80	79.40	26.44-104.4	NO	2018	
<b>Residual Disinfectants</b>							
Total Chlorine (mg/l)	4	MRDL 4	1.10	0.79-1.16	NO	2018	Water additive to control microbes
<b>Lead &amp; Copper Contaminants</b>							
Sampling period	Contaminant <small>[Typical sources in Drinking water]</small>		Action Level (AL)	Individual Results Over the AL		violation	90% of levels Were less than:
Jan-June 2018	Lead		15 ug/l	0 of 60 samples collected were over the AL		NO	3 ug/l
July-Dec 2018	<small>[corrosion of household plumbing systems; Erosion of natural deposits]</small>		15 ug/l	0 of 60 samples collected were over the AL		NO	2 ug/l
Jan-June 2018	Copper		1.3 mg/l	0 of 60 samples collected were over the AL		NO	0.03 mg/l
July-Dec 2018	<small>[corrosion of household plumbing systems; Erosion of natural deposits]</small>		1.3 mg/l	0 of 60 samples collected were over the AL		NO	0.03mg/l

Thank you to Berea residents who participated in the two sampling events for lead and copper testing during 2018. The Ohio EPA encourages water systems to sample the same qualifying sites over time so that the trend in the results can be monitored and compared to historical data. Some residents have participated since the inception of the program in 1992. We understand that it may be inconvenient at times but you are playing a part in ensuring our water is safe and remains low in corrosivity.

## The City of Berea Water Department...

*In 2018 had a current, unconditioned license to operate our water system.*

We conducted sampling for bacteria, microcystin (algal toxin), radioactive, inorganic, synthetic organic & volatile organic contaminants during 2018. Samples were collected for 97 different contaminants, most of which were not detected in the City of Berea public 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.

### Definitions:

< = a symbol which means less than. A result of <5 means the lowest level that can be detected is 5 and the contaminant in that sample was not detected.

**MCL = Maximum Contamination Level:** 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.

**MCLG = Maximum Contamination 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.

**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.

**\*TOC-** The value reported for total organic carbon is the lowest running annual average ration between the % of TOC actually removed to the % of TOC required to be removed. A value less than 1 indicates a violation of the TOC removal requirements.

**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.

**mg/L** = milligrams per liter; or parts per million      **µg/L** = micrograms per liter; or parts per billion      **n/a** = not applicable      **ND** = Not Detected

**NTU** = Nephelometric Turbidity Units : 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 Water System's** highest recorded turbidity result for 2018 was **0.429** NTU and lowest monthly percentage of samples meeting the turbidity limits was 97.8%

### What are sources of contamination to drinking water?

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 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: (A) Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife; (B) 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; (C) Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses; (D) 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; (E) 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 regulations 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 does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Federal Environmental Protection Agency's Safe Drinking Water Hotline (1-800-426-4791).

**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 (1-800-426-4791).

### Revised Total Coliform Rule (RTCR) Information

All water systems were required to begin compliance with a new rule, the Revised Total Coliform Rule, on April 1, 2016. The new rule maintains the purpose to protect public health by ensuring the integrity of the drinking water distribution system and monitoring for the presence of total coliform bacteria, which includes E. coli bacteria. The U.S. EPA anticipates greater public health protection under the new rule, as it requires water systems that are vulnerable to microbial contamination to identify and fix problems. As a result, under the new rule there is no longer a maximum contaminant level violation for multiple total coliform detections. Instead, the new rule requires water systems that exceed a specified frequency of total coliform occurrences to conduct an assessment to determine if any significant deficiencies exist. If found, these must be corrected by the PWS.

UNREGULATED CONTAMINANTS:	Unregulated Contaminant	Level Found	Range
Unregulated contaminants are substances for which USEPA has no established drinking water standard. USEPA requires us to monitor in order to determine where certain substances occur and whether USEPA needs to regulate those substances in the future. The results in the table to the right are disinfection byproducts that make up TTHMs reported in the preceding table on the previous page. Total Trihalomethanes are a regulated contaminant, but the individual components listed to the right are not.	<i>Chloroform (ppb)</i>	<i>36.40</i>	<i>7.22-50.50</i>
	<i>Bromoform (ppb)</i>	<i>2.79</i>	<i>0.80-5.29</i>
	<i>Bromodichloromethane (ppb)</i>	<i>24.10</i>	<i>9.39-28.42</i>
	<i>Dibromochloromethane (ppb)</i>	<i>18.39</i>	<i>6.88-20.98</i>

### DRINKING WATER NOTICE

#### BEREA CITY PWS Has levels of TTHM above Drinking Water Standards For Second Quarter of 2019

Our water system recently violated the maximum contaminant level for TTHM in 2019. The average level of TTHM over the last four quarters (2 quarters in 2018 and 2 quarters in 2019) was 0.082 mg/L. The standard for TTHM is 0.080 mg/L.

#### What should I do?

*You do not need to use alternative (e.g. bottled) water supply. However, if you have specific health concerns, consult your doctor.*

The levels detected do not pose an immediate risk to your health. Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer.

#### What is being done?

We are investigating and taking the following necessary steps: Decrease water age on extents of system, specifically the industrial corridor on Bagley Rd. after holiday weekends. Automatic flushing units to be installed to correct the problem as soon as possible. Also, increasing the granular activated carbon treatment and possibly eliminating the older water storage tank at the Water Plant.

For more information, please contact Water Superintendent Ken Yee at 440-234-5652 or by mail at: 11 Berea Commons, Berea, OH 44017

*Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.*

# City of Berea

Water Quality Information inside.....



## Upcoming Water System Improvements in 2019:

- Kraft St. 6" cast iron water main will be replaced with 8" pvc pipe for improved flow and water quality.
- An outside consulting firm was hired in 2018 to create a hydraulic model of the water distribution system to help identify deficiencies and plan future improvements. The report is being finalized and the model is owned by Berea to run future simulations.
- Critical valve exercising was completed in spring 2019 and additional hydrant flushings have been added for dead end streets for spring and fall

## UCMR 4 sampling

Unregulated contaminants are those for which USEPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulation is warranted. In 2018 the Berea Water System participated in the fourth round of the Unregulated Contaminant Monitoring Rule (UCMR 4). For more information on all contaminants tested for, please call Ken Yee, Superintendent at 440-234-5652. The detected contaminants are listed below.

UCMR 4 Sampling 2018 Detected Contaminant	Average	Range	Location
Bromide (mg/l)	0.0596	.0596	Raw
TOC (ug/l)	4920	4920	Raw
HAA5 (ug/l)	16.25	10.2-21.9	Distribution
HAA6 (ug/l)	9.68	7.73-11.0	Distribution
HAA9 (ug/l)	24.35	16.5-30.9	Distribution

City of Berea  
11 Berea Commons  
Berea, Ohio 44017

PRESORTED STANDARD  
U.S. PAID  
BEREA, OH  
PERMIT #225  
ECRWSS

# POSTAL PATRON

## Corrosion Control Study Update

The City of Berea has been conducting a voluntary corrosion control study since summer of 2017. The goal of the study is to optimize our water to be non corrosive, less scaling, and to sequester any iron particles due to cast iron piping which is prevalent in our water distribution piping network.

The City installed 3 pipe racks (one at each of the water towers, and one in the water treatment plant) in which "coupons" of lead, copper, and plastic are monitored on a regular basis for loss of metal or deposits on the plastic.

Different types of phosphate polymer blends have been added to the water and results of the coupons are monitored. In addition to the tests on these metal pieces, the OEPA required us to monitor additional samples for lead and copper at residential housing sites. The City of Berea had analyzed by a private lab in 2018 120 samples collected by customers in their homes. We are pleased to announce that all samples resulted in lower levels and all results were under the action level. The study will continue to run at least throughout the rest of 2019. We are hoping to reduce discoloration as well and are monitoring complaints and hydrant flushing results. We have selected the product that works best, and we have been optimizing the dosage. Once this dosage has proved to work well with good results from our lead and copper testing in resident's homes, the Berea Water System will request permission from the OEPA to feed this phosphate blend permanently.



*The EPA requires regular sampling to ensure drinking water safety. The chart on the inside contains information on those contaminants that were found in the City of Berea Water System.*



## NITRATE EDUCATIONAL INFO:

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 advice from your health care provider. The highest level of nitrate detected during 2018 in Berea's water was 7.4 ppm.