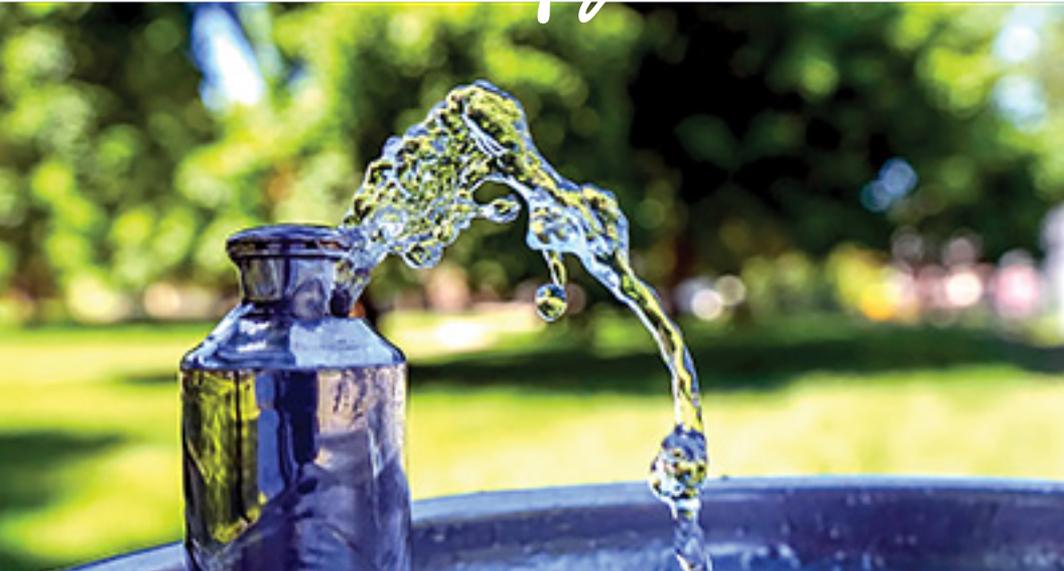


THE CITY OF

A photograph of a water fountain with a glass bottle on top. Water is splashing out of the bottle's opening, creating a dynamic splash against a blurred background of green trees and grass. The entire image is overlaid with a blue gradient.

2018  
**Kalamazoo Water  
Quality Report**

The City of Kalamazoo provides its customers with information about the quality of our drinking water each year in a Water Quality Report (sometimes referred to as a Consumer Confidence Report). Much of the information provided in this report, along with the additional monitoring and testing conducted throughout the year, is beyond what is required by the Safe Drinking Water Act and is provided as an extra service to our customers.

The 2018 water quality data in this report shows that the water we provide to our customers exceeds the standards established by federal and state regulations.

# Kalamazoo Water Supply System is the Largest Groundwater System in Michigan

Only 3% of the Earth's water is freshwater.  
Approximately 30% of freshwater is groundwater.



At less than a penny per gallon, the City of Kalamazoo provides safe, reliable and affordable water to our customers.

The City of Kalamazoo Public Water Supply System is the largest groundwater based drinking water system and the fifth largest water utility in Michigan. It is also ranked among the lowest for water rates out of the 50 largest systems within the state.

Our system utilizes limited treatment through chlorine, fluoride, and phosphate additives. Two stations are equipped with air strippers and iron removal capabilities.

**THIS REPORT** summarizes our efforts and commitment to provide safe, reliable, and affordable drinking water. Our facilities operate 24 hours a day, 7 days a week and are monitored continuously both on and off site by qualified, trained and licensed personnel.

## 2018 Kalamazoo Water Facts

### SOURCES:

- 17 active wellfields
- 16 pumping stations
- 98 wells
- 20 million gallons per day produced on average
- 34 million gallons per day maximum in 2018

### DISTRIBUTION:

- 196,292 customers served
- Service in 11 jurisdictions
- 827 miles of Water Main
- 6,057 hydrants
- 10 pressure service districts

**STORAGE:** 9 water storage facilities



# Protecting Our Water

Nearly half of the U.S. population depends on groundwater for its drinking water supply.

## Kalamazoo's Groundwater

Groundwater is relatively abundant, easy to extract, and generally lacks harmful bacteria. However, it can also be vulnerable to contamination from spills, leaks, or dumping of harmful substances to the ground.

In Kalamazoo County, the source of drinking water is groundwater. Groundwater exists underground in pore spaces between sand and gravel particles.

## Wellhead Protection

The national Exemplary Source Water Protection Award by the American Water Works Association, the Michigan Wellhead Protection Program Award multiple times, and the Michigan "Richard Husby Public Awareness Award" for its Wellhead Protection Program education efforts. Since 1998, the Groundwater Foundation has designated Kalamazoo as a Groundwater Guardian Community.

The City of Kalamazoo has a Michigan Department of Environmental Quality (MDEQ) approved Wellhead Protection Program. The City was awarded

Kalamazoo's Wellhead Protection website [www.protectyourwater.net](http://www.protectyourwater.net) has specific educational information about its Water System, related ordinances, fun activities, links to other websites, and resources for stormwater and other surface water issues.

The MDEQ performed Source Water Assessments to assess the susceptibility of all public water supply sources to contamination. The susceptibility rating is on a six-tiered scale from "very low" to "high" based primarily on geologic sensitivity, water chemistry, well construction and contaminant sources. The susceptibility rating of the City's (then) 19 wellfields was: Moderate (2 wellfields), Moderate High (12 wellfields) and High (5 wellfields). For more information contact the Environmental Programs Manager at (269) 337-8583.

## Stormwater Management

Stormwater is rainwater or snowmelt runoff from streets and parking lots that collects in open grated catch basins and inlets, and drains directly to the Kalamazoo River, creeks, lakes or ponds. It is important to keep oils, grease, fuels, chemicals, lawn fertilizer, grass clippings, trash and debris from getting on our streets and parking lots. Remember – what gets to the street, gets to the creek!

The City of Kalamazoo has separate sewer systems for sanitary and stormwater.

Since groundwater and surface water are generally interconnected, your efforts to protect one may positively impact the other. Visit [www.protectyourwater.net/stormwater](http://www.protectyourwater.net/stormwater) or contact the Environmental Programs Manager at (269) 337-8583 to learn more regarding stormwater quality.

The City's Performance Standards for groundwater and stormwater can be found at [www.kalamazoo.org/environment](http://www.kalamazoo.org/environment) and [www.protectyourwater.net/regulations](http://www.protectyourwater.net/regulations)



# Protecting Our Water (CONTINUED)

A backflow in the water system can be created in areas that experience a sudden loss of pressure.

## CROSS-CONNECTIONS

As a City of Kalamazoo drinking water supply customer, you can help ensure that the water you are drinking within your home and business remains safe. Prevent cross-connections with the City of Kalamazoo's water supply by ensuring that all backflow prevention devices are installed, inspected and properly maintained by licensed and certified plumbers as required by state and local plumbing codes.

### What is a "cross-connection"?

Cross-connections are arrangements of piping or appurtenances through which a backflow of undesirable material could enter the potable (drinking) water system.

### What is a "backflow"?

Backflow is water flowing in the opposite direction of its normal flow. Backflow can allow contaminants to enter the drinking water system through cross-connections.

The undesirable material may come from sources connected to your own home or facility's internal or external plumbing. A backflow in the water system can be created in areas that experience a sudden loss of pressure. Pressure changes can occur as a result of water main breaks, fire department usage, or during times of hydrant flushing.

If any of these conditions occur in your area, you should flush your lines before using the water to minimize iron particles and other undesirable contaminants that may be present. Flush your taps by starting in your restroom facility or utility sink, and working out towards your food service area.

### Help prevent cross-connections:

- Do not submerge hoses in buckets, pools, tubs, sinks or process tanks.
- Do not use spray attachments without a backflow prevention device. The chemicals used on your lawn are toxic and can be fatal if ingested.
- Do buy and install backflow prevention devices (hose bib vacuum breakers) for all threaded faucets around your home or business. They are inexpensive and available at hardware stores and home-improvement centers.
- Never install sprinkler systems, fire suppression systems, or boilers with chemical additives without proper backflow prevention devices.
- Ensure that your softener drain line has an air gap between the drain line and the receiving drain.
- Residential and Commercial establishments connected to the municipal water system must properly abandon all water wells onsite and provide abandonment information to the City of Kalamazoo and the Kalamazoo Environmental Community Health Department.

# PFAS Tests for Kalamazoo Municipal Drinking Water Show Results Within Safe Drinking Water Guidelines



Recent PFAS testing of water pumping stations serving the Kalamazoo municipal drinking water system have found results well within the safe drinking water guidelines of 70 parts per trillion (ppt) set by the Environmental Protection Agency.

Fifteen water pumping stations in the City of Kalamazoo Public Water Supply System were sampled on June 15, 2018. None of the tests revealed levels above the 70 ppt health advisory level. Of the 15 samples, 12 results were “non-detections,” and 3 stations had detectable levels below the 70 ppt level.

1 part per trillion is equal to roughly one drop of impurity per 16 million gallons of water, or per 24 Olympic-sized swimming pools.

All “baseload stations,” those which typically operate daily to provide water to customers, revealed no detection of PFOA/PFOS. The three stations at which low levels were detected are considered “peaking stations”.

The three “peaking stations” where low levels were detected are only activated in case of emergency for fire response, system flushing, or in times of peak demand if other water stations cannot meet the demand.

## Hazardous Materials

A toxic product dumped on the ground or down a storm drain can contaminate our drinking water and surface waters and is strictly prohibited by law.

Help prevent pollutants from entering groundwater or surface water features by taking unused hazardous household chemicals to the Kalamazoo County Household Hazardous Waste Collection Center, located at 1301 Lamont Avenue, off Lake Street next to the Kalamazoo County Fairgrounds. Contact the center at (269) 373-5211 or view their website at [www.kalcounty.com/hhw](http://www.kalcounty.com/hhw) for more information. Unused prescription drug disposal locations and hours are listed at [www.kalcounty.com/hhw/med-disposal.htm](http://www.kalcounty.com/hhw/med-disposal.htm).

# 2018 WATER QUALITY DATA

Regulated Contaminant	MCL	MCLG	Level Detected	Results Range	Violation Yes/No
Nitrate (ppm)	10	10	2.0	ND - 2.0	No
Barium (ppm)(2014)	2	2	0.17	0.05-0.17	No

Regulated Contaminant	MCL	MCLG	Highest Running Annual Average	Results Range	Violation Yes/No
Arsenic (ppb) (2014-2018)	10	NA	8.7	ND - 8.7	No
Fluoride (ppm)	4	4	0.65	0.13 - 1.25	No
Haloacetic Acids (HAA5) (ppb)	60	NA	11.8	7 - 17	No
Total Trihalomethanes (ppb)	80	NA	24.9	11.3 - 39.1	No
Cis-1,2- Dichloroethylene (ppb)	70	70	1.9	ND - 2.8	No

Regulated Contaminant	MRDL	MRDLG	Highest Running Annual Average	Results Range	Violation Yes/No
Chlorine (ppm)	4	4	0.56	ND - 3.0	No

Special Monitoring and Unregulated Contaminant*	Highest Level Detected	Results Range	Average Result 2016
Sodium (ppm)*	82	6.2 - 82	31

Contaminant subject to AL	Action Level	90th Percentile	Sample Date	Number of Samples above AL
Lead (ppb)**	15	4	2016	4
Copper (ppb)	1300	900	2016	2

Analyte	Units	Lowest	Highest	Average	Violation Yes/No
Germanium µg/L	µg/L	ND	0.370	0.122	N
Manganese µg/L	µg/L	ND	261	256	N
o-Toluidine µg/L	µg/L	ND	0.562	0.036	N
Total Haloacetic Acids (5) µg/L	µg/L	10.60	18.82	15.01	N
Total Haloacetic Acids (6) µg/L	µg/L	12.98	21.60	17.62	N
Total Haloacetic Acids (9) µg/L	µg/L	16.70	26.80	22.23	N

\* Unregulated contaminants are those for which EPA has not established drinking water standards. Monitoring helps EPA to determine where certain contaminants occur and whether it needs to regulate those contaminants.

\*\* A lead level of 2 ppb was detected at a pumping station in 2014

**UCMR TESTING**

## Typical Source of Contamination

Runoff from fertilizer use, leaching from septic tanks, sewage; erosion of natural deposits

Discharge of drilling wastes; discharge from metal refineries and coal-burning factories; discharge from electrical aerospace and defense industries

## Typical Source of Contamination

Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes

Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories

By-product of drinking water disinfection

By-product of drinking water chlorination

Discharge from industrial chemical factories

## Typical Source of Contamination

Water additive used to control microbes

## Typical Source of Contamination

Erosion of natural deposits

## Typical Source of Contamination

Corrosion of household plumbing systems; erosion of natural deposits

Corrosion of household plumbing systems; erosion of natural deposits

TT Violation	Explanation	Length	Steps Taken to Correct the Violation	Health Effects
In 2018, the City of Kalamazoo violated a treatment technique for phosphate.	The state requires that public water supplies maintain phosphate within a range of acceptable levels. A public water supply is allowed nine days during a six-month period to be out of those ranges.	The City of Kalamazoo did not meet the acceptable ranges for phosphate for more than 9 days during the monitoring periods of January 1 – June 30, 2018 and July 1–Dec 31, 2018.	Treatment changes have been implemented to improve reliability, accuracy and precision of the phosphate feeding systems; new policies and procedures were adapted to address hydraulic demands and system monitoring was increased to provide faster water quality results.	This notice is not a violation of lead and copper rules, but any violation related to corrosion control requires education concerning lead and copper health effects. Please find this information on page 11 of this report. More information regarding this violation is provided at: <a href="https://www.kalamazoocty.org/ttv">https://www.kalamazoocty.org/ttv</a>

While your drinking water meets EPA's standards for arsenic, it does contain low levels. EPA's standard balances the current understanding of arsenic's possible health effects against the cost 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.

# Water Quality Data Table Abbreviations And Terms



## DEFINITIONS

According to federal and state laws the City of Kalamazoo monitors for contaminants in your drinking water. The table is based on analyses conducted in 2017 and those tests conducted less frequently than once per year. The Water Quality Data Table lists only the contaminants that were detected. If the test was not performed in 2017, then the most recent analysis is listed. The City of Kalamazoo's state certified laboratory analyzes for the absence of microorganisms and levels of limited treatment chemicals (hexametaphosphate, fluoride, and residual chlorine) in the City's water supply at several locations three to five days per week. All limited treatment chemicals are on automated feed control systems that are monitored 24/7 by City of Kalamazoo staff.

**AL (Action Level)** – The concentration of a contaminant, which, if exceeded, triggers treatment or other requirements that a water system must follow.

**Contaminant** – A biological, chemical, physical, or radiological substance or matter in water.

**MCLG (Maximum Contaminant Level Goal)** – The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLG's allow for a margin of safety.

**MCL (Maximum Contaminant Level)** – The highest level of a contaminant that is allowed in drinking water. MCL's are set as close to MCLG's as feasible using the best available treatment technology.

**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 disinfection below which there is no known or expected risk to health. MRDLG's do not reflect the benefits of the use of disinfectants to control microbial contaminants.

**ND** – Non-detected

**pCi/L (Picocuries per Liter)** – A measure of radioactivity.

**PPB** – Part per billion; the equivalent of one microgram per Liter.

**PPM** – Part per million; the equivalent of one milligram per Liter.

**Trihalomethanes** – Compounds formed during the chlorination (disinfection) of drinking water.

**NA** – Not Applicable

**Monitoring for Unregulated Contaminants** – The U.S. Environmental Protection Agency (EPA) federal regulations affecting monitoring of unregulated contaminants at public water systems are known as the Unregulated Contaminants Monitoring Rule (UCMR). The purpose of monitoring for unregulated contaminants in drinking water is to provide data to support the EPA administrator's decisions concerning whether or not to regulate these contaminants in the future for the protection of public health.

# Additional Health Information

Sources of drinking water for both tap water and bottled water can include rivers, lakes, streams, pond 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:

- 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, urban stormwater 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 stormwater 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 which limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

All 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 health risks. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline at 1-800-426-4791.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised 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 are available from the Safe Drinking Water Hotline at 1-800-426-4791.

Water Quality Reports from previous years  
are available on the City of Kalamazoo's website at  
[www.kalamazoo.org/waterqualityreport](http://www.kalamazoo.org/waterqualityreport).



# The City of Kalamazoo's Lead & Copper Program

The City of Kalamazoo conducts a lead and copper monitoring program at least every three years...

The City of Kalamazoo is committed to providing safe and reliable drinking water to Kalamazoo and its surrounding communities, and has consistently been in compliance with the 1991 Safe Drinking Water Act Lead and Copper Rule and all revisions of the rule.

## Effective and Safe Water Treatment

The City has utilized a corrosion control program since 1956 that works to reduce water corrosiveness to pipes, fittings and fixtures containing lead and copper. To ensure an optimized strategy, the City of Kalamazoo performs routine monitoring of corrosion control parameters within the water distribution system and testing for lead and copper in customers' homes. Our Public Services Department periodically evaluates the most effective corrosion control methods available and additional ways to further enhance this program. In 2018, the City began the addition of new phosphate blends to the system for corrosion control.

## Lead Service Replacement

A proactive annual capital improvement program has been in place for over twenty years to address lead service replacements. The rate of lead service replacements continued to increase in 2018, totaling 558, due in part to a \$1 million grant from the Michigan Department of Environmental Quality and a continued \$500,000 contribution from the Kalamazoo Foundation for Excellence.

There are currently 2,667 known lead services, 6383 service lines of unknown material, and 48,572 total service lines. The City of Kalamazoo is conducting a thorough inventory throughout the year and any updates to these numbers will be listed in future Water Quality Reports.

## Water Quality Monitoring

The City of Kalamazoo conducts a lead and copper monitoring program at least every three years to comply with federal and state lead and copper regulations. This program targets homes that are likely to have the highest concentrations of lead in their drinking water, and includes those with lead service lines as well as homes with copper plumbing built before lead solder was outlawed in the late 1980s.

2016 lead testing indicated that 90 percent of water samples contained less than 4 parts per billion.

The EPA action level for lead is 15 ppb at the 90th percentile, which means 90% of homes tested must have a lead concentration of 15 parts per billion or less. In 2014, a 90th percentile result of 13 parts per billion resulted in customer concerns regarding the lead concentrations in their drinking water. It was determined that the high result was partially due to improper sampling techniques and/or plumbing fixture selections, and was not representative of lead concentrations in the system. This led to a commitment by the City of Kalamazoo to perform the lead and copper monitoring a year ahead of schedule in 2016, and utilize only trained sampling staff. In 2016, testing determined that the 90th percentile result was 4 parts per billion.



## Free Water Testing

The City of Kalamazoo has provided residents with FREE lead and copper sampling and testing for over 20 years. If you are concerned that you may have lead in your home's water, please contact Kalamazoo's Public Services Department at (269) 337-8550 to arrange for sampling. While waiting for your results, flushing your water lines for a few minutes or until you feel a temperature change before using will reduce any potential risk.

### Contact (269) 337-8550 to arrange for free lead sampling

For help finding out if you have lead service lines in your home, you can contact the City's Department of Public Services Field Services Division at (269) 337-8729.

## Health Effects

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. 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.

Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The City of Kalamazoo is responsible for providing high quality drinking water, but cannot control the variety of materials used in household 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 (until there is a significant temperature change in the water) before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Please contact the City of Kalamazoo Laboratory Supervisor at (269) 337-8550 for testing. 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 [www.epa.gov/safewater/lead](http://www.epa.gov/safewater/lead).

Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.

***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 (until there is a significant temperature change in the water) before using water for drinking or cooking.***

## Customer Views Welcome

If you are interested in learning more, have questions on the contents of the report or would like to comment on water issues, please feel free to contact the Environmental Services Programs Manager at (269) 337-8667. Contact information is listed below for issues related to water.

If you would like to address issues in a public forum, the City of Kalamazoo Commission meetings are held on the 1st and 3rd Monday of each month at 7:00 p.m. in City Hall at 241 West South Street, Kalamazoo, Michigan 49007. We will update this report annually and keep you informed of any new developments or significant issues that occur throughout the subject-reporting year.

### Utility Customer Service

**(269) 337-8149**

opening or closing accounts, billing, payments, meter readings, leaks, or other related questions

### Water Testing for Lead & Copper

**(269) 337-8550**

arrange to have your home or businesses water tested for free

### Environmental Programs Manager

**(269) 337-8667**

questions regarding the Water Quality Report and laboratory data pertaining to water quality

### Field Services Section

**(269) 337-8729**

report a water main break, get assistance determining if your property has lead plumbing components, report clogged catch basins or inlets (call (269) 337-8148 after business hours)

### 24/7 Water/Sewer Emergency

**(269) 337-8148**

report an emergency outside of normal business hours

### Illicit Discharge Elimination Hotline

**(269) 381-3171**

report illegal dumping of chemical or hazard materials

### Water Operations

**(269) 337-8756**

report any issues with water quality (call (269) 337-8148 after business hours)

### EPA Safe Drinking Water Hotline

**(800) 426-4791**

information and guidelines from the Environmental Protection Agency



## Boil Water Advisories & Orders

**Boil Water Advisories (BWAs)** are most commonly issued when a significant temporary loss of pressure to a defined area occurs or had a reasonable potential to have occurred due to a water infrastructure break, repair, or replacement. BWAs may be issued before a planned/scheduled repair or infrastructure replacement, or issued under emergency conditions, such as a water main break or when other water infrastructure is severely damaged. Although rare, BWAs can be issued under a variety of other situations, such as an act of vandalism, terrorism, or a known or unknown source of contamination in the water system. Please note that the BWA will always describe the specific area affected, contact numbers, and any appropriate directions, such as boiling your water. The vast majority of these BWAs are cautionary and issued without any evidence of contamination.

More information on Boil Water Advisories and customer communications is available at: <https://www.kalamazoo.org/bwa>