

# MADISON SUBURBAN UTILITY DISTRICT

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## 2019 ANNUAL DRINKING WATER QUALITY REPORT

TEST RESULTS FROM 2018



*Cedar Hill Park | Photo by MSUD Employee Liz Bolling*



# In 2018 MSUD earned a 100% score from the TN Department of Environment and Conservation during the state performed Sanitary Survey on the water system's performance to regulatory and operational standards.

**FOR MORE THAN 80 YEARS, THE MADISON SUBURBAN UTILITY DISTRICT (MSUD)** has remained committed to safeguarding the public water system as an essential part of our mission to protect public health. The water treated and distributed by the District meets or exceeds all State and Federal requirements and the EPA's health standards. We are meeting water demands for livability of the customers, and the growth and developments of this community in a positive, innovative way for present and future drinking water and fire protection demands. Our annual test results are included later in this report. Read your water system's story at [www.msud.net](http://www.msud.net). We thank you for allowing us to continue to provide your family with quality drinking water.

Share this report with your neighbors and others who use MSUD water and may not have received this notice. Remember all public water systems must provide a Water Quality Report each year. Encourage those you know to read the Report issued by their own water provider found at <https://www.epa.gov/ccr>.

This report is available electronically at our website: <https://www.msud.net/docs/madccr2019.pdf>. You may also email [msud@msud.net](mailto:msud@msud.net) or call **615-868-3201** to request a copy be mailed.

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## HOW DO I CONTACT MSUD?

MSUD Business Office:  
**615-868-3201**, Monday – Friday, 7:30-4:00; or visit [www.msud.net](http://www.msud.net)

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## AFTER HOURS EMERGENCIES: call 615-865-1636

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Questions about this report or Water Quality? **615-865-1636**

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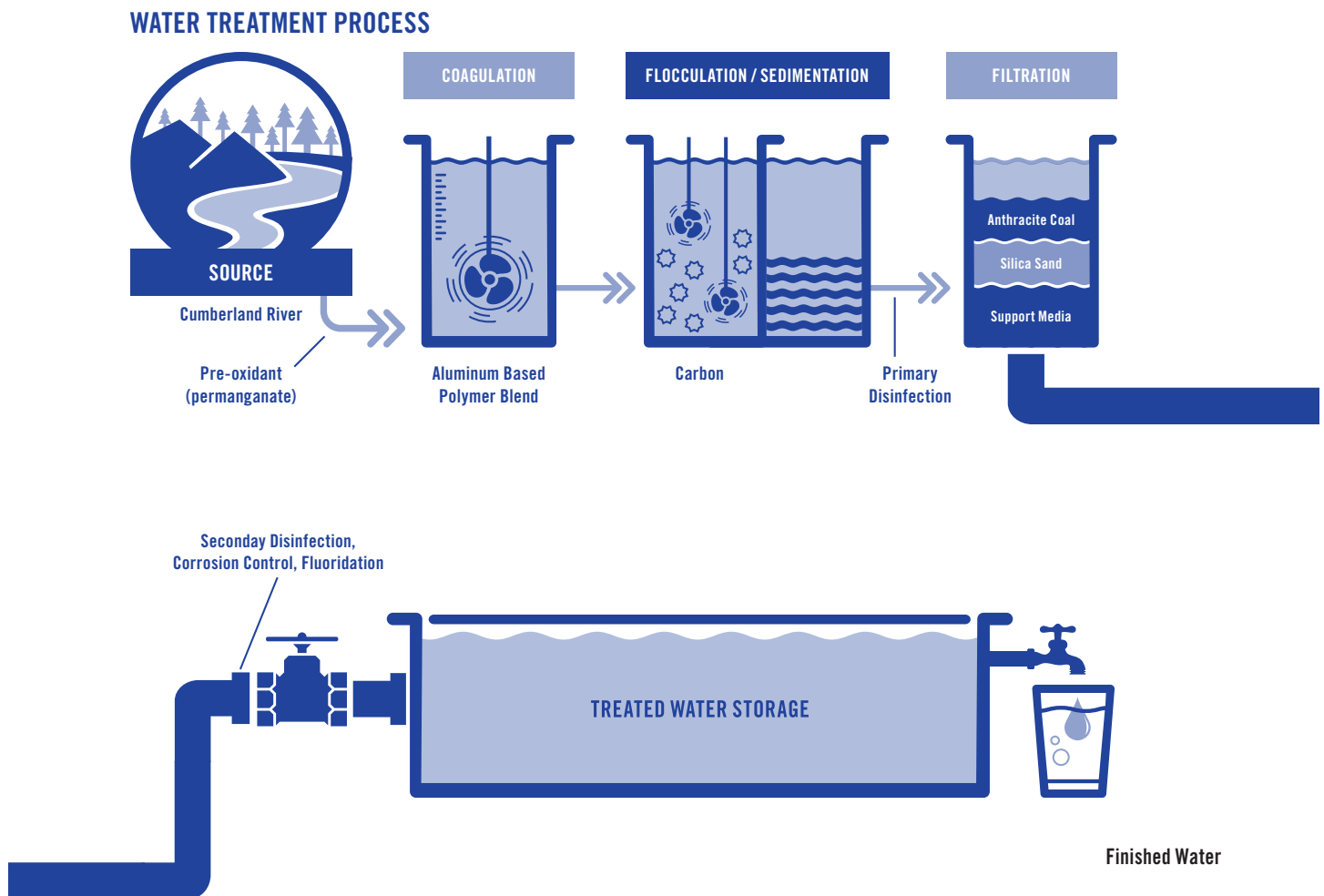
En español: Este informe contiene información importante sobre su agua potable. Si tiene alguna pregunta, comuníquese con MSUD para obtener más información.

The District's Board of Commissioners meets each month at the Business Office, 108 W. Webster St, Madison, TN. These meetings are open to the public with the specific dates and times listed at [www.msud.net](http://www.msud.net).



## WATER TREATMENT PROCESS

MSUD utilizes some of the most current technology and water chemistry processes to efficiently treat raw river water and transform it into crystal clear, safe drinking water. The MSUD Treatment Plant sends an average of 8 million gallons of water per day into the distribution system, and has a capacity of nearly double that. Water treatment involves two types of processes: (1) physical removal of particulates and contaminants and (2) chemical disinfection. State of TN Certified Water Treatment Plant Operators are continuously monitoring the river water and adjusting treatment processes to ensure the finished water is just right. The diagram below outlines how we treat the water you drink.



## CONTAMINANTS IN BOTTLE AND TAP

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 Environmental Protection Agency's Safe Drinking Water Hotline (**800-426-4791**).

In order to ensure that tap water is safe to drink, the EPA and the TN Department of Environment and Conservation prescribe regulations which limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

## DO I NEED TO TAKE SPECIAL PRECAUTIONS?

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised people such as those undergoing chemotherapy, those 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 microbial contaminants are available from the Safe Drinking Water Hotline at **1-800-426-4791**.

**Lead Levels** – 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 customer's service lines and home plumbing. MSUD is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When 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 your 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 (**1-800-426-4791**) or by visiting <http://www.epa.gov/safewater/lead>. Also visit [www.msud.net/docs/LeadNews.pdf](http://www.msud.net/docs/LeadNews.pdf) for specific information about lead in our water.

In 2012 MSUD began an extensive meter exchange program by replacing all residential meters, thus complying with upcoming EPA standards. Since that time, the change of commercial meters has been ongoing and is approximately 70% complete.

## WHAT IS THE SOURCE OF MY WATER?

Your water comes from the Cumberland River. As a surface water source, it has been rated as highly susceptible to potential contamination based on geologic factors and human activities in the vicinity. A source water assessment has been conducted and is available for review at the Madison Suburban Utility District offices and can be viewed online at <https://www.tn.gov/environment/program-areas/wr-water-resources/water-quality/source-water-assessment.html>.

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:

- Microbial Contaminants - such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operation, 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, stormwater runoff, and residential uses.
- Organic Chemical Contaminants - including synthetic and volatile organic chemicals, which are byproducts 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.

## MONITORING YOUR WATER QUALITY

Madison Utility employs the most highly trained drinking water professionals in the State. All certified Water Treatment and Distribution Operators complete years of rigorous training, both in the field and in the classroom. These trained Operators must pass the Standardized Tests administered by the State and must earn continuing education credits to stay current on new regulations, stay up-to-date on operational best practices and available resources.

Every year we monitor the presence of over 100 compounds in your water, before, during, and after treatment. Reported on the next pages are only the compounds we have detected, and are monitored under the Primary Drinking Water Standard established by EPA. For more information on the Safe Drinking Water Act and current standards visit <http://www.water.epa.gov/lawsregs/rulesregs/sdwa/>.

# REQUIRED EPA MONITORING UNDER THE PRIMARY DRINKING WATER STANDARD

## MONITORED AT THE TREATMENT PLANT

Contaminant	Violation	Date Collected	Level Detected	Unit of Measure	Range	MCL	MCLG	Likely Sources of Contaminants
Nitrate	No	2/6/18	0.103	ppm		10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Sodium	No	7/30/18	9.48	ppm				Erosion of natural deposits; used in water treatment
Turbidity <sup>1</sup>	No	Daily	0.12	NTU	0.05-0.12	TT		Soil runoff
Total Organic Carbon <sup>2</sup>	No	Monthly	33% removed*			TT	TT	Naturally present in the environment

(1) Turbidity is a measure of the cloudiness of the water. We monitor it because it's a good indicator of the effectiveness of our filtration system. We met the treatment technique requirement for turbidity with 100% of daily samples below the limit of 0.15 NTU.

(2) We met the treatment technique requirement for total organic carbon removal in 2018. \*25% required.

## MONITORED AROUND THE DISTRICT

Contaminant	Violation	Date Collected	Level Detected	Unit of Measure	Range	MCL	MCLG	Likely Sources of Contaminants
Fluoride	No	quarterly	0.32	ppm	<0.100 - 0.63	4.0	4.0	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Total Trihalomethanes <sup>3</sup> (TTHM)	No	quarterly	40 highest LRAA	ppb	20-70	80 LRAA		By-product of drinking water chlorination
Total Haloacetic Acids <sup>3</sup> (HAAS)	No	quarterly	40 highest LRAA	ppb	20-50	60 LRAA		By-product of drinking water chlorination
Total Coliform Bacteria (RTCR)	No	2018	0			TT - Trigger	0	Naturally present in the environment

(3) Highest Locational Running Annual Average (LRAA) calculated quarterly.

Contaminant	Violation	Date Collected	Average	Unit of Measure	Range	MRDL	MRDLG	Likely Sources of Contaminants
Chlorine	No	2018	1.53	ppm	0.30-2.60	4.0	4.0	Water additive used to control microbes

## MONITORED AT THE CUSTOMER'S TAP

Contaminant	Violation	Date Collected	Level Detected	Unit of Measure	Range	MCL	MCLG	Likely Sources of Contaminants
Copper <sup>4</sup>	No	2017	0.23	ppm	0.01-0.31	AL=1.3	1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead <sup>4</sup>	No	2017	BDL	ppb	BDL	AL=1.5	0	Corrosion of household plumbing systems; erosion of natural deposits

(4) Level detected is 90th percentile. During the most recent testing, 0 out of 30 households sampled contained concentrations exceeding the action level (AL).

# REQUIRED EPA MONITORING UNDER THE PRIMARY DRINKING WATER STANDARD

## MONITORED AT OUR SOURCE (UNTREATED RIVER WATER)

Contaminant	Date Collected	Level Detected	Unit of Measure	Range	Likely Sources of Contaminants
Cryptosporidium <sup>5</sup>	September 2017 - September 2018	0.33 (1 of 12)	Oocysts/L	0-0.3	Naturally present in the environment
Giardia	September 2017 - September 2018	0.100	Oocysts/L	0-0.100	Naturally present in the environment
E. coli	September 2017 - September 2018	96	MPN/100mL	<1 to > 2419	Human and animal fecal waste.

(5) Cryptosporidium is a microbial parasite, which is found in surface water throughout the United States. Although Cryptosporidium can be removed by filtration, the most commonly used filtration methods cannot guarantee 100% removal. Monitoring of our source water indicated the presence of cryptosporidium in 1 out of 12 samples tested. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals are able to overcome the disease within a few weeks. However, immuno-compromised people have more difficulty and are at greater risk of developing severe, life threatening illness. Immuno-compromised individuals are encouraged to consult their doctor regarding appropriate precautions to take to prevent infection. For more information on cryptosporidium, contact the Safe Drinking Water Hotline at (800) 426-4791.

## UNREGULATED CONTAMINANT MONITORING RULE 4 (UCMR-4)

Unregulated contaminants are those for which the EPA has not established primary drinking water standards. The purpose of unregulated contaminant monitoring is to assist the EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulation is warranted. For additional information on UCMR-4, call the Safe Drinking Water Hotline at (800) 426-4791.

Contaminant	Date collected	Unit of Measure	Average	Range
N- Butanol	2018	ppb	0.89	0.67 - 1.1
Manganese	2018	ppb	1.875	1.1 - 3.6
Haloacetic Acids – 9 (HAA9)	2018	ppb	34.54	24.8 - 44.1

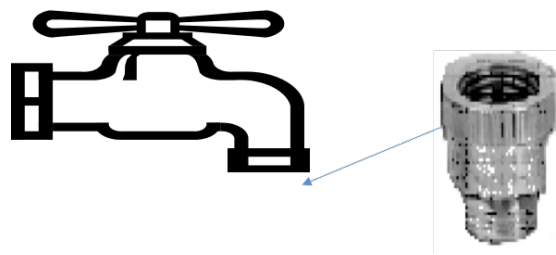
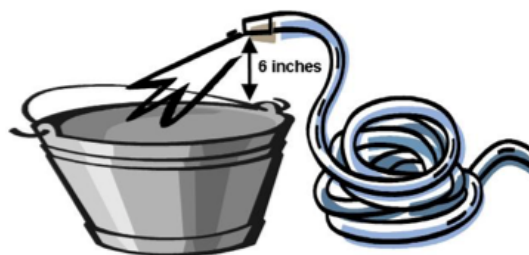
## DATA TABLE DEFINITIONS

- (ppm) – Parts per million or (mg/L) Milligrams per liter: This is explained as a relation to time and money as one part per million corresponds to one minute in two years, or one penny in \$10,000.
- (ppb) – Parts per billion or (µg/L) Micrograms per liter: This is explained as a relation to time and money as one part per billion corresponds to one minute in 2,000 years, or one penny in \$10,000,000.
- (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. To understand the possible health effects described for many regulated constituents, a person would have to drink 2 liters of water every day at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect.
- (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
- (NTU) – Nephelometric Turbidity Unit: This is a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.
- (TT) – Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water.
- (RTCR) – Revised Total Coliform Rule: This rule went into effect on April 1, 2016 and replaces the MCL for total coliform with a Treatment Technique Trigger for a system assessment
- (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 the 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.
- (BDL) – Below Detection Limit: Laboratory analysis indicates that the contaminant is not present at a level that can be detected.
- (AL) – Action Level: The concentration of a contaminant which, when exceeded, triggers treatment or other requirements which a water system must follow.

## WATER SAFETY 101

A cross connections is a situation where a possible source of contamination is directly linked to our public water system. If the end of your hose is connected to a chemical container, swimming pool or other contaminant during a water main break or fire, the substance can be siphoned back into the water system. This condition, known as back siphonage or backflow, could cause a public health hazard. A garden hose submersed in any liquid or attached to certain devices used to spray pesticides or herbicides forms a cross connection. Devices are available to prevent this problem; however, the best solution is to always be careful how you use your hose. Remember, never place your hose in anything you would not want to drink.

A simple way to stop backflow is by using an air gap. An air gap can be created by arranging your hose so that the end is at least six inches above the top rim of the container it is being used to fill.



Another method of preventing backflow with a garden hose is using a device known as a vacuum breaker. Vacuum breakers are inexpensive devices that can be screwed onto your outside faucet. These devices will prevent contaminants from being siphoned back into your plumbing and the public water system.



## PROTECTING OUR WATER

The best and most cost-effective way to ensure safe water at the tap is to keep our source waters clean. Dispose of unused and old paint and motor oil at designated drop-off locations. These chemicals, if allowed to leach into the ground and pavement, eventually make their way to the river and into our drinking water.

## THINK BEFORE YOU FLUSH!

Flushing unused or expired medicines can be harmful to your drinking water. Properly disposing of unused or expired medication helps protect you and the environment. Keep medications out of Tennessee's waterways by disposing in one of our permanent pharmaceutical take back bins. There are nearly 100 take back bins located across the state, to find a convenient location please visit: <http://tdeconline.tn.gov/rxtakeback/>

**Dispose Locally at:**

**Metro Police Department • Madison Precinct**

400 Myatt Dr, Madison, TN

Monday - Friday: 8:00 am - 4:00 pm

**Goodlettsville Police Department**

105 South Main St, Goodlettsville, TN

Monday - Friday: 8:00 am - 4:30 pm





## MSUD FAST FACTS

2018 MSUD Water System Work Statistics

Tested 3,323  
Backflow Devices

Sold 552 New Water  
Taps or Meters

Flushed, Tested and  
Maintained 2,318  
Public Fire Hydrants

Installed 6,900 Ft  
of New Water Mains

Pumped 3.042  
Billion Gallons  
of Water

Obtained 233,180  
Meter Readings

Rendered 227,954  
Water Bills

Performed 16,898  
Service Orders