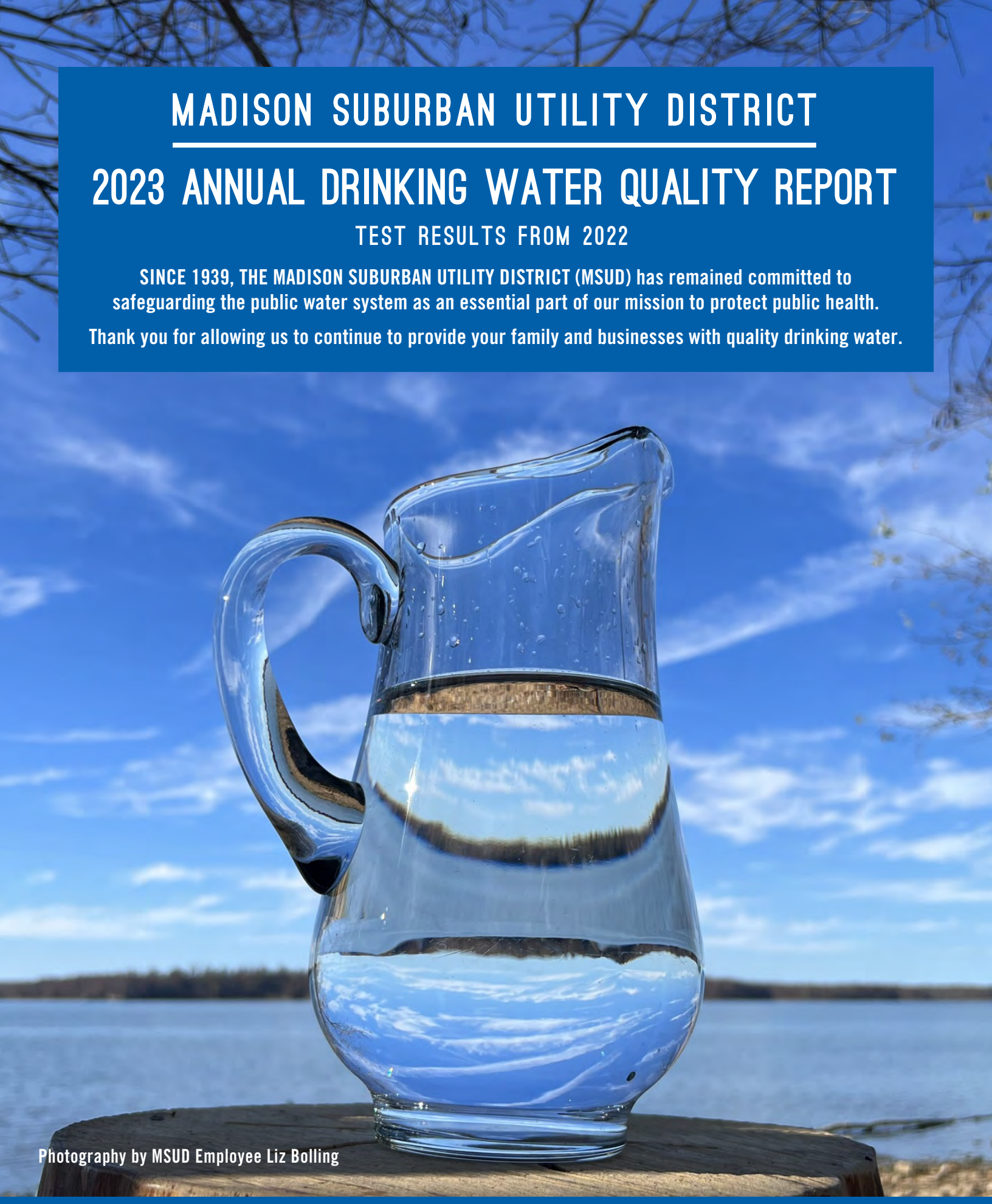
MADISON SUBURBAN UTILITY DISTRICT

2023 ANNUAL DRINKING WATER QUALITY REPORT

TEST RESULTS FROM 2022

SINCE 1939, 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.

Thank you for allowing us to continue to provide your family and businesses with quality drinking water.



Photography by MSUD Employee Liz Bolling

THINK BEFORE YOU FLUSH!

Flushing unused or expired medicines can be harmful to your drinking water. Disposing of medicines in the trash can also eventually lead to leaching in the ground water. Properly disposing of unused or expired medication helps protect you and the environment. Keep medications out of Tennessee's waterways by disposing your unused medicine in one of our permanent pharmaceutical take back bins. There are over 340 take back bins located across the state in all 95 counties. To find a convenient location please visit: http://tdeconline.tn.gov/rxtakeback. Dispose locally at one of the addresses below:

Nashville/Davidson Police Department • Madison Precinct
400 Myatt Dr, Madison, TN
Monday - Friday: 8:00 am - 4:30 pm • 615-880-3111

Goodlettsville Police Department
105 South Main Street, Goodlettsville, TN
Monday - Friday: 8:00 am - 4:30 pm • 615-851-2216

HOW DO I CONTACT MADISON SUBURBAN UTILITY DISTRICT?

MSUD Business Office:
615-868-3201, Monday – Friday, 7:30-4:00
or visit **www.msud.net**

AFTER HOURS EMERGENCIES: call 615-865-1636

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

Information for non-English Speaking Populations:
Este informe contiene información importante acerca de su agua potable. Haga que alguien lo traduzca para usted, o hable con alguien que lo entienda.

The District's Board of Commissioners meets each month at the Business Office, 108 W. Webster St, Madison, TN 37115. These meetings are open to the public with the specific dates and times listed at **www.msud.net**.

GENERATORS ENSURE CONTINUED WATER SERVICE

In the event of a loss of electric power, MSUD has standby emergency generators at the treatment plant and booster pump stations within the Distribution System so that MSUD customers will continue to have water during a power outage.

WATER SYSTEM SECURITY

We understand that our customers may be concerned about the security of their drinking water. MSUD has established District-wide security, and continually reviews processes for enhancements as needed. We urge the public to report any suspicious activities at any facilities, including our treatment plant, tanks, fire hydrants, etc. to 615-868-3201.

NUMEROUS WAYS TO PAY YOUR BILL

Bank Draft: download form at **www.msud.net**
Online Secure Payment: go to **www.msud.net**
Automated Telephone System: **615-868-3201**
Mail Payment to Address: P.O. Box 306140, Nashville, TN 37230-6140
Payment Drop Box: for checks or money orders only at
108 W. Webster Street, Madison, TN 37115

MSUD UTILIZES ASTERRA SATELLITE LEAK DETECTION TECHNOLOGY

In 2022, MSUD partnered with ASTERRA, a satellite imaging technology company to help with efforts in leak detection and water conservation by reducing water loss. ASTERRA uses Utilis-patented technology to detect soil moisture resulting from leaks by identifying disrupted patterns of chlorinated water.

MSUD's Distribution System is comprised of approximately 285 linear miles of pipe (mains and services combined). Multiple satellite scans were performed in 2022, resulting in mapped highlighted potential leak points of interest (Poi). MSUD then uses its own resources to perform on the ground investigations to pinpoint the leaks further and schedule their repairs using the Poi.

This technology also identifies non-surface leaks up to depths of 10ft. underground that may otherwise go undetected for long periods of time. Of the leaks MSUD staff has confirmed, only two were visible. The time and resource cost of leak detection is much lower than traditional leak detection. This is one of many methods that MSUD uses to be good stewards of a finite natural resource-water.

LEAD AND COPPER SURVEY

The U.S. Environmental Protection Agency (EPA) finalized its Lead and Copper Rule Revisions (LCRR) in 2021, establishing requirements for water utilities of all sizes, including those without lead service lines (LSL) in their systems to create an inventory list of customer service lines. Our water mains are ductile iron and cast iron, with a small amount of PVC. Our service lines to your meters are copper.

THIS IS WHERE WE CAN USE YOUR HELP

You will soon receive correspondence asking you to go online and complete a short survey so that MSUD can compile the information required by EPA. We will need your assistance to identify plumbing material used from your meter to your faucets. Lead was used in soldering copper pipes prior to 1989. Homes and businesses built prior to this date may have lead joints in their service lines and plumbing.

Self-reporting is the easiest and least intrusive way for us to inventory your lines. MSUD is not responsible for plumbing from the meter to residences and businesses. Every three years, MSUD conducts lead and copper monitoring on various consumer faucet samples as required. Results can be found on the last page of this Water Quality Report. We appreciate your support and help in this matter. MSUD takes immense pride in providing you with the highest quality drinking water.

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 service lines and home plumbing. MSUD is responsible for providing high quality drinking water but cannot control the variety of materials used in private plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your faucet for 30 seconds to two 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 **1-800-426-4791** or at **http://www.epa.gov/safewater/lead**.

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 **1-800-426-4791.**

In order to ensure that your water is safe to drink, the EPA and the TN Department of Environment and Conservation (TDEC) 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 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 by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline at **1-800-426-4791.**

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.

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.

ELECTRONIC REPORT

This report is available electronically at our website: **https://msud.net/wp-content/uploads/2023/03/madccr2023.pdf**

You may also email **msud@msud.net** or call the office at **615-868-3201** to request a copy be mailed.

REQUIRED EPA MONITORING UNDER THE PRIMARY DRINKING WATER STANDARD

Every year we monitor the presence of over 100 compounds in your water, before, during and after treatment.

MONITORED AT THE TREATMENT PLANT

Contaminant	Violation	Date Collected	Level Detected	Unit of Measure	Range	MCL	MCLG	Likely Sources of Contaminants
Nitrate	No	01/04/22	0.402	ppm		10	10	Runoff from fertilizer use; leaching from septic tanks; sewage; erosion of natural deposits
Sodium	No	06/08/22	8.90	ppm				Erosion of natural deposits; used in water treatment
Turbidity[1]	No	Daily	0.149	NTU		TT		Soil Runoff
Total Organic Carbon[2]	No	Monthly	47%			TT > 25% removal	TT	Naturally present in the environment

(1) Turbidity is a measure of the cloudiness of the water. We monitor it because it is 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 2022.

MONITORED AROUND THE DISTRICT

Contaminant	Violation	Date Collected	Level Detected	Unit of Measure	Range	MCL	MCLG	Likely Sources of Contaminants
Fluoride	No	quarterly	0.55	ppm	0.49-0.61	4.0	4.0	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Total Trihalomethanes[4] (TTHM)	No	quarterly	60 Highest LRAA	ppb	30-100	80 LRAA		By-product of drinking water chlorination
Total Haloacetic Acids[4] (HAA5)	No	quarterly	50 Highest LRAA	ppb	20-60	60 LRAA		By-product of drinking water chlorination
Total Coliform Bacteria (RTCR)	No	2022	0			TT - Trigger	0	Naturally present in the environment

(4) 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	2022	1.72	ppm	0.53-3.40	4.0	4.0	Water additive used to control microbes

MONITORED AT THE CUSTOMER'S FAUCET

Contaminant	Violation	Date Collected	Level Detected	Unit of Measure	Range	MCL	MCLG	Likely Sources of Contaminants
Copper[5]	No	2020	0.134	ppm	0.025-0.24	AL=1.3	1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead[5]	No	2020	<0.2 (BDL)	ppb	<0.2	AL=1.5	0	Corrosion of household plumbing systems, erosion of natural deposits

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

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 on 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.**