

Metro Water Services

2022 CONSUMER CONFIDENCE REPORT



Metro Water Services is committed to delivering clean, safe, reliable drinking water.

This report details our water quality testing results for 2022. We go above and beyond to meet and exceed all state and federal regulations for drinking water.

Historic Omohundro Water Treatment Plant Pump Room



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WHAT IS THE CONSUMER CONFIDENCE REPORT?

Metro Water Services (MWS) is regulated by the Environmental Protection Agency (EPA) under the Safe Drinking Water Act, which requires community water systems to provide all customers an annual report. This report includes information on our source water, our compliance with drinking water regulations, water quality testing results, and other educational information.

PLEASE SHARE THIS REPORT.



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

ESTE INFORME CONTIENE INFORMACIÓN MUY IMPORTANTE SOBRE SU AGUA BEBER. TRADÚZCALO Ó HABLE CON ALGUIEN QUE LO ENTIENDA BIEN.



Throughout your water's journey--from the river to your home and back-- MWS goes above and beyond to ensure the quality and reliability of our services.

« Look for the **Above and Beyond** icon throughout this report.

A MESSAGE FROM THE DIRECTOR

COMMITTED TO DELIVERING CLEAN AND SAFE DRINKING WATER.

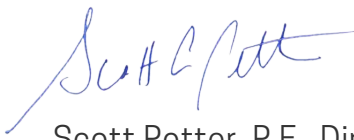
Dear Customers,

Metro Water Services places the highest value on providing our community with safe, high quality drinking water. As Nashville and Middle Tennessee continue to grow, our responsibilities remain the same: to monitor and treat water for substances that could impact health, taste, odor, and appearance. Our dedicated team of highly educated and skilled MWS employees are committed to going above and beyond to provide the



community with a quality product that meets and exceeds regulatory standards. We carry this commitment from the River to our water treatment plants, through over 3,000 miles of water main to your tap. As a department of the Metropolitan Government of Nashville & Davidson County, MWS is proud of the safe, clean, and reliable water services that we provide to our over 220,000 water account customers in Davidson County and portions of Rutherford and Williamson counties. MWS is pleased to deliver the 2022 Consumer Confidence Report showing that your drinking water is safe. For more information about Metro Water Services and the quality of your drinking water, visit water.nashville.gov.

Sincerely,



Scott Potter, P.E., Director

MWS partnered with Xylem to develop a real-time hydraulic and water quality distribution system decision support tool to assist with optimizing the operation and maintenance of its extensive distribution system. The core functionality of the developed program provides an accurate predictive simulation of the distribution system using Supervisory Control and Data Acquisition (SCADA) information to ensure that predictions represent actual historical operations. Through interactive web-based user interfaces, the following real time critical distribution information can now be obtained in real time or for any user defined date range:



ABOVE
AND
BEYOND

- Water Flow and direction at any point in the distribution system
- Water age throughout the entire system
- The breakdown of the water source by treatment plant
- Pressure at any point in the distribution system

MONITORING DISTRIBUTION IN THE 21ST CENTURY

ABOUT THE CUMBERLAND RIVER

The Tennessee Department of Environment and Conservation (TDEC) has prepared a Source Water Assessment Program (SWAP) Report for the untreated water sources serving this water system. A copy of the Water Assessment Report will be available for review at MWS' Administrative Library, located at 1600 Second Ave. North. A source water assessment summary is available at www.tn.gov/environment/program-areas/wr-water-resources/water-quality/source-water-assessment.html. The Cumberland River Source is rated highly susceptible to potential contamination. MWS has two water treatment plants and has the ability to withdraw water from more than one river level to minimize the chance of contamination.

CRYPTOSPORIDIUM » No cryptosporidium oocysts were detected in untreated river water during the last testing done in 2016. 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.

WATER TREATMENT PROCESS

LOCAL. Water is collected from the Cumberland River and screened for twigs and other large debris before entering one of our two treatment plants, K.R. Harrington and Omohundro.

TREATED. In the treatment plant we add alum, a chemical that makes the small particles of mud and algae stick together. These clumps of mud get larger until they are heavy enough to sink to the bottom of the tank. This is called coagulation, flocculation, and sedimentation.

FILTERED. The clear water on top of the tank is sent through our filters to remove any remaining particles, leaving the water crystal clear. We use a small amount of bleach to kill harmful bacteria and disinfect the water. We also add a small amount of fluoride, as endorsed by the Metro Health Department, to help prevent tooth decay.

TESTED. We test our water regularly before, during and after the treatment process to ensure that our customers receive clean, safe drinking water.

DELIVERED. We deliver clean, safe water to over 220,000 customers throughout Metropolitan Nashville and Davidson County. We maintain over 3,000 miles of water pipes, 55 water pumping stations, and 35 reservoirs. Our crews work 24/7/365 to make sure you always have safe water at your tap.



ABOVE
AND
BEYOND

To ensure the highest quality water, our lab monitors taste and odor conditions by sampling from water from Old Hickory Dam, J Percy Priest Dam, River samples, and Operational plant samples during the summer season to assure proper carbon feed rates to best improve water quality taste and also keep cost of treatment down.

TASTE AND ODOR

WATER QUALITY TESTING

WATER SYSTEM TN0000494 RECEIVED ZERO DRINKING WATER VIOLATIONS IN 2022.

MWS is required by state and federal regulations to test for specified unregulated organic and inorganic chemicals. This testing has been performed and reported. All results are available for public inspection at the Metro Water Services Analytical Research Laboratory, 1450 Lebanon Pike. For more information, please contact the MWS Lab at (615) 862-4591 or visit our Web site at water.nashville.gov.

WATER HARDNESS

Water hardness is created, for the most part, by dissolved Calcium. Hardness is naturally found in the Cumberland River water due to the high amounts of Limestone deposits all through the State of Tennessee and Eastern Kentucky. The water treatment process doesn't remove hardness so the Hardness of the Cumberland River is very similar to that of Finished Drinking Water. Hardness is expressed as mg/l, parts per million (ppm), grains per gallon, or by a word description of the relative hardness of the sample. **Nashville's water is considered 'moderately hard'.**

mg/L (2022 data)	Minimum	Average	Maximum	Hardness as mg/L or ppm	Hardness as grains per gallon (gr/gal)	Classification
Total Hardness	69 mg/L	94 mg/L	130 mg/L	Less than 15	Less than 1	Very soft
Calcium Hardness	56 mg/L	73 mg/L	110 mg/L	15 to 30	1 to 3	Soft
				50 to 100	3 to 6	Medium hard
				100 to 200	6 to 12	Hard
				Greater than 200	Greater than 12	Very hard
gr/gal (2022 data)	Minimum	Average	Maximum			
Total Hardness	4.03 gr/gal	5.49 gr/gal	7.59 gr/gal			
Calcium Hardness	3.27 gr/gal	4.26 gr/gal	6.43 gr/gal			

A hardness of 17.1 mg/L (or ppm) = 1 grain per gallon

ABBREVIATIONS AND TERMS USED IN THIS REPORT

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.

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.

TT (TREATMENT TECHNIQUE): A required process intended to reduce the level of a contaminant in drinking water.

(MG/L): Milligrams per Liter or parts per million (ppm).

(µG/L): Micrograms per Liter or parts per billion (ppb).



Our state-of-the-art analytical lab's use of the Perkin Elmer Nexion 350X Inductively Couple Plasma Mass Spectrometer (ICP/MS) allows for the detection of metals 10X lower than the required drinking water detection limits set by the U.S. Environmental Protection Agency has

allowed MWS to not only meet, but to exceed water quality standards.



**USING ADVANCED
EQUIPMENT TO
EXCEED STANDARDS**

AL (ACTION LEVEL): The concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a water system must follow.

NTU (NEPHELOMETRIC TURBIDITY UNITS): Standard units for measurement of water clarity.

MRDL (MAXIMUM RESIDUAL DISINFECTANT LEVEL): The highest level of a disinfectant allowed in drinking water.

MRDLG (MAXIMUM RESIDUAL DISINFECTANT LEVEL GOAL): The level of a drinking water disinfectant below which there is no known or expected risk to health.

2022 WATER QUALITY DATA

MWS tests for 105 substances that may be present in drinking water. The table below shows those substances that were detected January 1 through December 31, 2021. If you would like a complete list of all substances for which we test, please call (615) 862-4494 to request a Water Quality Letter, or visit our website at water.nashville.gov.

REGULATED AT THE WATER TREATMENT PLANT

Parameter & Units of Measure	Highest Avg. Level Detected	Range of Levels Detected in 2020	MCL	MCLG	Major Sources of Substance
Fluoride (mg/L)	0.71	0.61 - 0.86	4	4	Water additive that promotes strong teeth
Nitrate (mg/L)	0.448	0.436 - 0.464	10	10	Runoff from fertilizer use
Sodium (mg/L)	11.1	10.3 - 11.1	N/A	N/A	Natural deposit erosion
Turbidity (NTU)	0.04 -- 99.91%	0.02 - 0.63		TT = 1 NTU -- TT = % of samples < 0.3 NTU	Natural river sediment. Turbidity is a measurement of water clarity, which aids in determining the effectiveness of our filters

REGULATED IN THE DISTRIBUTION SYSTEM

E. Coli	0**	N/A	0	0	Human and animal fecal waste
Total Trihalomethanes (THM) (µg/L)	31.8*	16.3 - 51.1	80	N/A	Disinfection chemical (chlorine) combining with organic matter in the river water
Total Haloacetic Acids (HAA) (µg/L)	26.7*	14.4 - 33.5	60	N/A	
Chlorine (mg/L)	1.65	0.8 - 3.1	MRDL - 4	MRDLG - 4	Water additive used to control microbes

REGULATED AT THE CUSTOMERS' TAP

Parameter	90th Percentile	Sites Exceeding AL	MCL	MCLG	Major Sources of Substance
Copper (2022 analyses) (ppm)	0.119	0 of 52	AL = 1.3	1.3	Corrosion of household plumbing systems
Lead (2022: analyses) (ppb)	1.0	0 of 52	AL = 15	0	

* Sampling Conducted within the water distribution system at various State approved locations. Results shown are the Highest Locational Running Annual Average (LRAA), calculated quarterly for all samples taken

** Number of Samples Resulting in "Presence" detection.



ABOVE
AND
BEYOND

The Omohundro Water Treatment Plant draws water from the Cumberland River. This year the Water Operations Department completed the construction of a new passive screen and airburst system over intake number 4 at the treatment plant. The new passive screen will block debris in the river and keep it from entering the plant. The airburst system will use forced air to blow the debris off the screen and keep it from getting congested. These two attributes will increase the operational efficiency and allow the Omohundro Water Treatment Plant to continue to provide Nashville Davidson County with the highest quality of drinking water.

NEW INTAKE SYSTEM AT THE OMOHUNDRO WTP

A MESSAGE FOR VULNERABLE POPULATIONS

Drinking water, including bottled water, may reasonably be expected to contain small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk.

To ensure that tap water is safe to drink, the EPA prescribes regulations that limit the amount of certain impurities 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.

The sources of drinking water (both tap water and bottled water) include lakes, streams, ponds, reservoirs, springs, wells, and, in Nashville's case, the Cumberland River. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals, and can pick up substances resulting from the presence of animals or from human activity.

Some people may be more vulnerable to impurities in drinking water than the general population. Immuno-compromised persons such as cancer patients 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 for infection. These people should seek advice from their health care providers about drinking water.

Impurities that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria, which may come from septic systems, sewage treatment plants, agricultural livestock operations and wildlife.
- Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban storm run-off, 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, storm water run-off and residential uses.
- Organic chemicals, including synthetic and volatile organics, 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.

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



EVERY DAY, SEVEN DAYS A WEEK, SAMPLES OF RIVER, TREATED, AND FINISHED WATER ARE TESTED IN OUR STATE OF THE ART LABORATORIES TO ENSURE THE HIGHEST QUALITY FOR OUR CUSTOMERS.

PREVENTING LEAD IN DRINKING WATER

Nashville's drinking water does not contain lead when it leaves the treatment plants, but tap water can accumulate trace amounts of lead through the corrosion of lead plumbing materials. Lead pipes and service lines were common in homes until the mid-1950s.

WHERE IS LEAD FOUND IN THE HOME?

Homes built prior to 1978 often contain lead-based paint. When lead paint fails, it can chip or create dust, which can then be ingested. Lead paint is the most common source of lead exposure in children. Lead pipes and service lines were common in homes until the mid-1950s. The practice was federally banned in 1986, but lead was still used as a soldering material for copper pipe until 1988. Brass fixtures may also contain trace amounts of lead.

HOW DOES LEAD ENTER MY DRINKING WATER?

Nashville's drinking water does not contain lead when it leaves the treatment plants, but tap water can accumulate trace amounts of lead through the corrosion of lead plumbing materials. MWS regularly tests for lead in the drinking water at a selected number of lead service line locations. The EPA requires tested levels be below 15 parts per billion (ppb).

CONTROLLING CORROSION

Since 1987, MWS has had an intense corrosion control program to prevent the possibility of lead leaching into your water. A blended phosphate solution is added to the finished water and reacts to inhibit corrosion of water mains; tie-up nuisance metals; and remove scale deposits in pipes by bonding to the walls and forming a protective barrier.

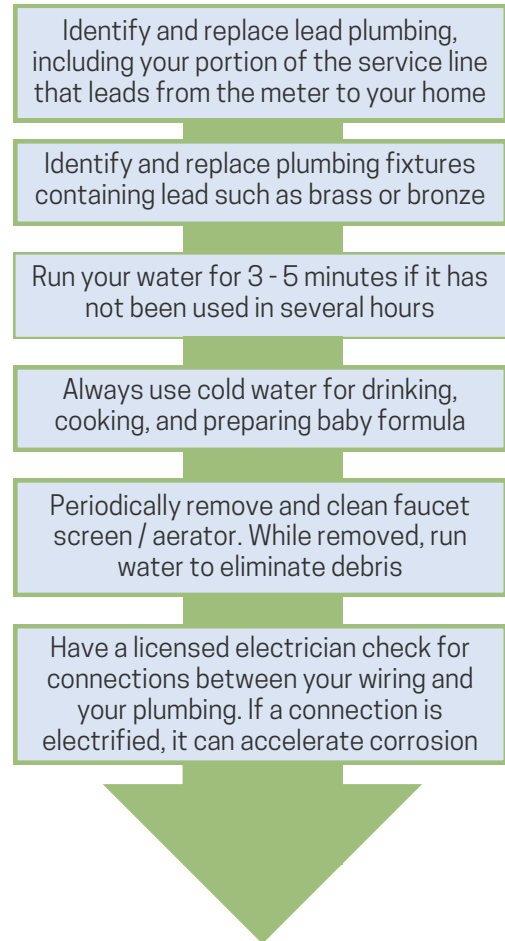
HOW DO I KNOW IF I HAVE LEAD PLUMBING?

Identify the color of your pipes, lead is generally a dull gray. Carefully scratch the pipe with a key. If the pipe is made of lead, the area you've scratched will turn a bright silver color. Do not use a knife or other sharp instrument and take care not to cut or puncture a hole in the pipe.

WHAT ARE THE RISKS OF LEAD EXPOSURE?

Lead exposure can cause adverse health effects including increases in blood pressure of some adults; delays in normal physical and mental development in babies and young children; and, deficits in the attention span, hearing, and learning abilities of children.

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. MWS 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 drinking 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 or at epa.gov/safewater/lead.



Boiling water will NOT reduce lead

For more information about lead, visit our website and download our "Preventing Lead In Drinking Water" brochure at bit.ly/MWSLeadPrevention

Per- and polyfluoroalkyl substances (PFAS) are a large and diverse group of man-made chemicals. These chemicals have unique properties, such as resistance to high and low temperatures, resistance to degradation, and non-stick characteristics.

Metro Water Services began voluntarily testing for PFAS compounds in 2015. Tests on drinking water leaving our treatment plants conducted in 2015, 2019, and again in 2021 found no reportable levels or minute levels of PFAS. Results of testing completed in 2022 and most recently, in 2023 were non- detect.

On March 14, 2023, the Environmental Protection Agency (EPA) proposed the first national primary drinking water standards for six PFAS.

Metro Water Services is currently meeting the proposed drinking water standards.

PFAS Compound	KR Harrington WTP Finished Water	Omohundro WTP Finished Water	Proposed MCL
PFOA	Non-Detect	Non-Detect	4.0 ppt
PFOS	Non-Detect	Non-Detect	4.0 ppt
PFHxS	Non-Detect	Non-Detect	9.0 ppt*
Gen X	Non-Detect	Non-Detect	10.0 ppt*
PFNA	Non-Detect	Non-Detect	10.0 ppt*
PFBS	Non-Detect	Non-Detect	2,000.0 ppt*

More information about PFAS is available on our website at www.nashville.gov/departments/water/water-quality/pfas



STAYING PROACTIVE WITH PFAS

QUESTIONS

For questions about billing, to start or change water service, or if you have a water, sewer, or stormwater emergency, contact Metro Water Services at (615) 862-4600.

If you have questions about this report, contact Sonia Allman at (615) 862-4494 or MWSCcommunications@groups.nashville.gov.

Este informe contiene información muy importante sobre su agua beber. Tradúzcalo ó hable con alguien que lo entienda bien.

HOW YOU CAN BE INVOLVED

The public may participate in decisions concerning water quality by attending the Metropolitan Council meetings held on the first and third Tuesdays of each month at the Metro Courthouse, One Public Square.

ADA INFORMATION

If you need assistance or an accommodation, please contact the Safety Office at 1600 Second Ave. North, Nashville, TN 37208 or (615)



WATER.NASHVILLE.GOV