

2023 Consumer Confidence Report

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

This report details our water quality testing results for 2023. We go above and beyond to meet and exceed all state and federal regulations for drinking water.



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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.



“
**We carry this
commitment
from the
Cumberland River
to our water
treatment plants,
through over
3,000 miles of
water main to
your tap.**
”

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 223,000 water account customers in Davidson County and portions of Rutherford and Williamson counties. MWS is pleased to deliver the 2023 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](https://www.water.nashville.gov).

Sincerely,

A handwritten signature in blue ink that reads "Scott Potter". The signature is fluid and cursive, written over a white background.

Scott Potter, P.E., Director

ABOUT THE CUMBERLAND RIVER

The Cumberland River is formed on the Cumberland Plateau in KY and generally flows west almost 700 miles looping through Nashville on its way to the Ohio River.

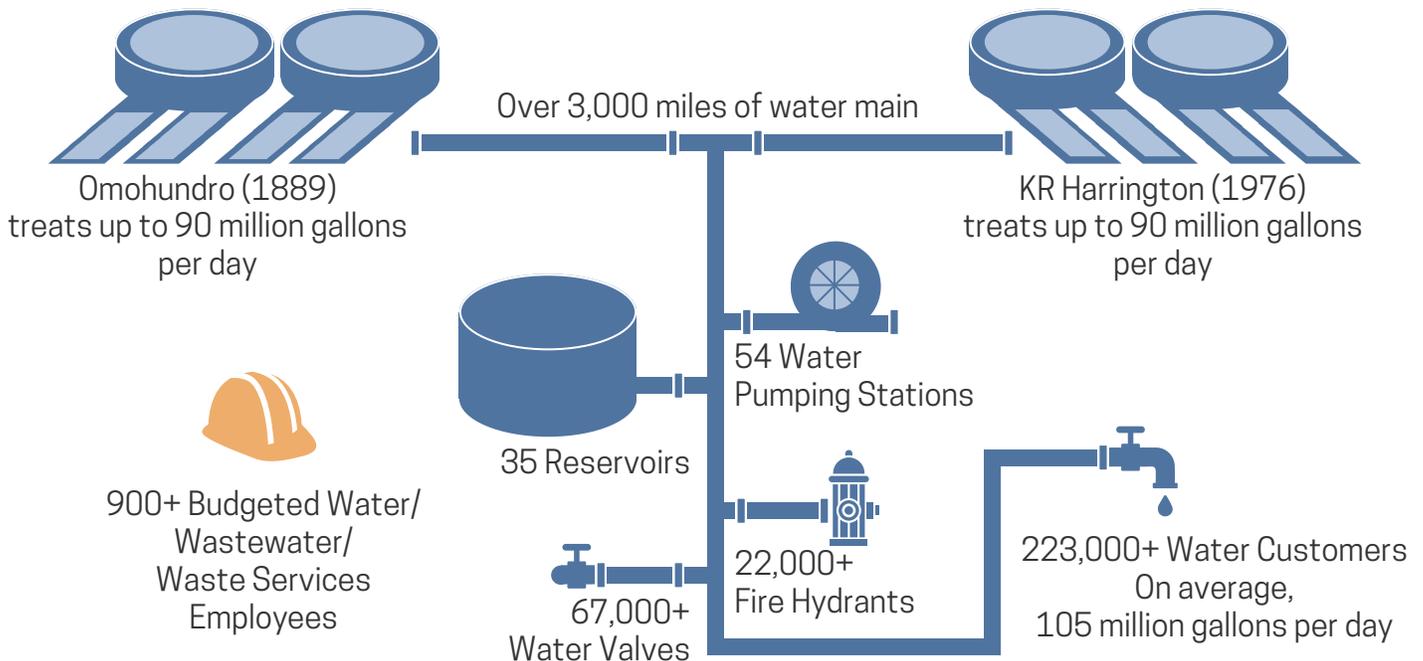
Nashville is fortunate to have the Cumberland River as its abundant supply of water.

The EPA has given the Cumberland River in Nashville a good grade for water quality. For more information, visit mywaterway.epa.gov/community/37208/drinking-water.

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.

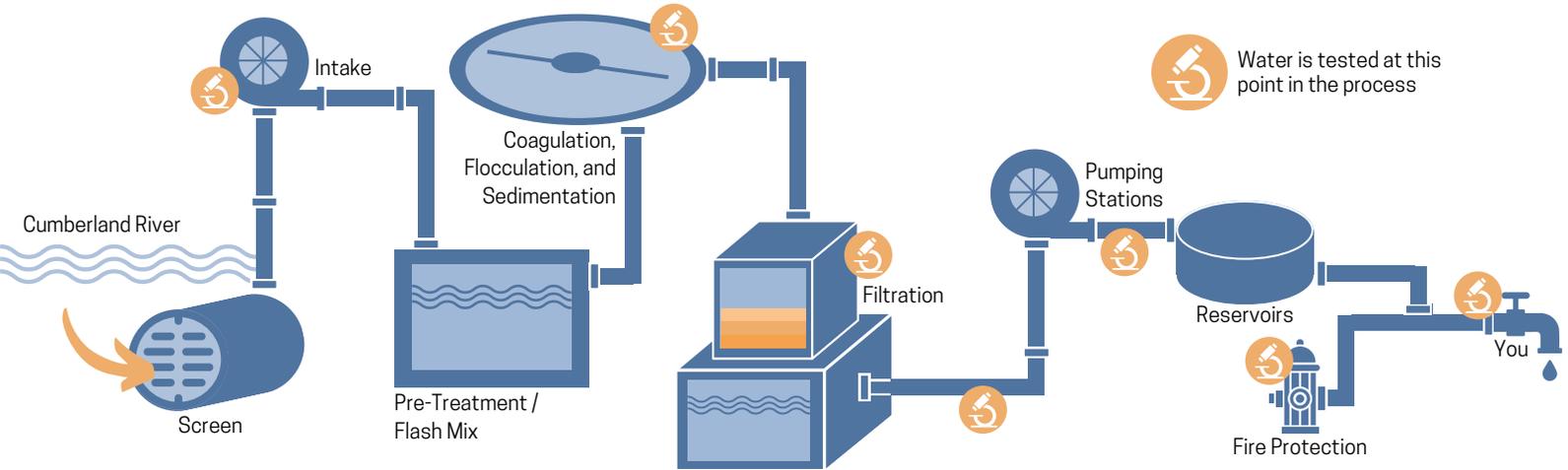
The Cumberland River Source is rated highly susceptible to potential contamination. MWS has two water treatment plants and has the ability to withdraw water from more than one river level to minimize the chance of contamination.

WATER TREATMENT INFRASTRUCTURE



WATER TREATMENT PROCESS

LOCAL TREATED FILTERED TESTED DELIVERED



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 223,000 customers throughout Metropolitan Nashville and Davidson County. We maintain over 3,000 miles of water pipes, 54 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

As part of Metro Water Services' commitment to keep water rates affordable for our customers and incentivize wise water use, we have a tiered rate structure. In a tiered rate structure, the volumetric rate is based on how much water you use. Most MWS customers receive 2 gallons of water for one penny or less.



Visit our website at www.nashville.gov/departments/water/customers/rates for more information about rates.

COMMITMENT TO AFFORDABLE WATER RATES

WATER QUALITY TESTING

WATER SYSTEM TN0000494 RECEIVED ZERO DRINKING WATER VIOLATIONS IN 2023.

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 website at water.nashville.gov.

WATER HARDNESS

Hardness as mg/L or ppm	Hardness as grains per gallon (gr/gal)	Classification
Less than 15	Less than 1	Very soft
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

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 (2023 data)	MWS	Range of Detection	MCL
Total Hardness	100.5 mg/L	88.5 - 128.4	Not established
Calcium Hardness	79.5 mg/L	67.1 - 102.6	Not established

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



In 2023, Metro Water Services installed new on-line Total Organic Carbon (TOC) analyzers (YSI 9220) at both the Omohundro and K.R. Harrington Water Treatment Plants for continuous monitoring of raw and finished water.

TOC is a measure of organic compounds in water, including petroleum products, organic acids, pesticides, pathogens, etc. Reactions between this organic matter and disinfectants used for water treatment can create harmful by-products.

The On-Line TOC analyzer provides continuous real time data and advance warning of organic compounds that could negatively impact operations and affect water quality.



ABOVE
AND
BEYOND

This data allows operators to make immediate scientific decisions regarding process control, ensuring the highest water quality is provided to our customers in an efficient manner.



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.

2023 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, 2023. 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 (ppm)	0.69	0.59 - 0.84	4	4	Water additive that promotes strong teeth
Nitrate (ppm)	0.357	0.355 - 0.359	10	10	Runoff from fertilizer use
Sodium (ppm)	10.9	10.2 - 11.3	N/A	N/A	Natural deposit erosion
Turbidity (NTU)	0.05 -- 99.95%	0.02 - 0.46		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) (ppb)	39.0*	14.2 - 54.8	80	N/A	Disinfection chemical (chlorine) combining with organic matter in the river water
Total Haloacetic Acids (HAA) (ppb)	27.2*	11.1 - 34.5	60	N/A	
Chlorine (ppm)	1.69	0.70 - 3.4	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 = 1.30	1.30	Corrosion of household plumbing systems
Lead (2022 analyses) (ppb)	1.0	0 of 52	AL = 15.0	0.00	

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.

* 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.

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.

ppm: Parts per million or milligrams per liter (mg/L).

ppb: Parts per billion or micrograms per liter (µg/L).

What is a ppm?

One part per million (ppm) is 1 unit per every 1,000,000 or 1/1,000,000. You can think of it as one second in 11.5 days or one single penny in \$10,000.

ppb?

One part per billion (ppb) is 1 unit per every 1,000,000,000 or 1/1,000,000,000. You can think of it as one second in 31.5 years or one single drop of water in a 10,000 gallon swimming pool.

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.

SAFE DISPOSAL OF PHARMACEUTICAL PRODUCTS

As analytical methods improve, pharmaceutical compounds and personal care products are being found at very low levels in many of our nation's lakes, rivers and streams. To date, research throughout the world has not demonstrated an impact on human health from pharmaceuticals in drinking water. Knowing how to properly dispose of unused or expired medication can help protect you and the environment.

Medication collection events and programs are part of a nationwide effort to reduce the amount of pharmaceutical products being flushed or poured down drains and landfilled. There are over 340 take back bins located across the state in all 95 counties. To find a convenient location to you, please visit:

tdeconline.tn.gov/rxtakeback.

In Nashville, you can safely dispose of unwanted drugs at any of the Metro Nashville Police locations listed here: **www.nashville.gov/departments/police/support-services/evidence-storage/safely-dispose-unwanted-drugs**. These drop boxes accept prescriptions, over the counter medications, pet medications, medicated ointment, lotions or drops, liquid medications, inhalers, and pills in any packaging.

Due to improved technology, scientists are now able to detect substances in water at parts per trillion (ppt). A ppt is the equivalent of 1 second in 32,000 years. This has allowed detection of substances that were previously unaware of.

MWS has voluntarily tested raw water from the river and our finished drinking water for Prescription and Personal Care Products (PPCP). In our analysis, minute amounts of compounds such as ibuprofen, naproxen and caffeine were detected. All detected compounds are approved for human consumption by the FDA.



Pharmaceuticals and personal care products can get into our water various ways such as improper disposal, being excreted or being washed off (ointments, bug spray, etc.). The best method of protection is to prevent them from getting in the water through proper disposal.

**VOLUNTARY TESTING FOR
PRESCRIPTION AND PERSONAL CARE PRODUCTS**

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.

NEW PFAS REGULATIONS

On April 10, 2024, the Environmental Protection Agency (EPA) issued the first-ever national drinking water standards for six Per- and Polyfluoroalkyl substances (PFAS). The final rule establishes maximum contaminant levels goals (MCLGs) and maximum contaminant levels (MCLs) for perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS), and a hazard index level for Perfluorohexanesulfonic acid (PFHxS), Perfluorononanoic acid (PFNA), Perfluorobutanesulfonic acid (PFBS), GenX Chemicals (HFPO-DA).

MWS began voluntarily testing for PFAS as early as 2015 and has tested every three years since. Tests on drinking water leaving our treatment plants conducted in 2015, 2019, 2021 and again in 2023 found no reportable levels of PFAS. Our latest testing was done in November 2023 and results of that analysis were non- detect.

For more information about PFAS, visit our website at www.nashville.gov/departments/water/water-quality/pfas.

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.

Identify and replace lead plumbing, including your portion of the service line that leads from the meter to your home

Identify and replace plumbing fixtures containing lead such as brass or bronze

Run your water for 3 - 5 minutes if it has not been used in several hours

Always use cold water for drinking, cooking, and preparing baby formula

Periodically remove and clean faucet screen / aerator. While removed, run water to eliminate debris

Have a licensed electrician check for connections between your wiring and your plumbing. If a connection is electrified, it can accelerate corrosion

Boiling water will NOT reduce lead

For more information about lead, visit our website and download our "Preventing Lead In Drinking Water" brochure at nashville.gov/departments/water/water-quality/lead.

MWS NEEDS YOUR HELP

The EPA Lead and Copper Rule Revision requires utilities to inventory water service line material for all of its customers. This inventory must include the public and private portion of the service line. Once the information is compiled, a public facing map will be created.

Visit arcg.is/1a0SCr to take the brief, 10 minute survey.





To comply with the new EPA Lead and Copper Rule Revision which requires utilities to inventory both public and private water service line material for all its customers, MWS is using the SciAps X-550 handheld XRF metal analyzer. The SciAps X-550 analyzer delivers Positive Material Identification (PMI) in 1 second with excellent precision and can access hard-to-reach test locations such as meter boxes. This allows us to gather precise and accurate data both efficiently and effectively.

ANALYZING PIPE MATERIAL WITH PRECISION

LOOKING TO THE FUTURE

HISTORIC 8TH AVENUE RESERVOIR



Approximately 10 years ago, discussions began regarding the future of the historic 8th Ave Reservoir and designs for historic restoration began.

The 8th Avenue Reservoir Improvements Project began the summer of 2021 to extend the life of a vital component of our water infrastructure. By installing cast in place concrete tanks with baffling within the existing structure, MWS is improving water quality, increasing operational reliability and flexibility, and reducing the risk of slippage and leakage. Construction of Phase 1, a new 15-million-gallon concrete tank in the west basin of the reservoir was completed in August 2023. Upon completion of the west basin, the east basin was drained, and the original 8th Ave reservoir was cut and capped and permanently disconnected from the system. Construction of Phase 2, a 20-million-gallon concrete tank on the east side has begun. Phase 3 to be done at a later date will include a new tower structure to access the reservoir and additional historic renovations. Find out more about this project: historic8thavenuereservoir.com

PROCESS ADVANCEMENTS



MWS has always delivered safe, clean, and reliable water to our customers and we strive to stay informed of new technologies and ahead of new regulations. To continually explore emerging technologies to best provide safe and reliable drinking water to our customers now and in the future, MWS executed a 2-year pilot plant treatment study in 2018 to determine the best future treatment system for the department's source water.

Based on results of the pilot study, MWS has begun a 10-year Process Advancements Project that will allow us to proactively address aging infrastructure, expand capacity, reduce flood risk, and incorporate the use of new treatment technologies for enhanced water quality at our water treatment facilities, preparing them for the next generation. Find out more about the process advancements:

AdvancingMWSWater.org

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 MWSCommunications@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 call (615) 862-4862



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