Murfreesboro Water Resources Department

2019 Annual Water Quality Report

January 1, 2019 – December 31, 2019

City of MURFREESBORO TENNESSEE

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The goal of this water quality report is to provide you with information regarding your drinking water. We want to keep you informed about the water and services that we have delivered to you over the past year and we are pleased to provide you with this year's Annual Water Quality Report. **The most important part is to let you know that your water is safe for drinking.** We also want to take this opportunity to give you a little more background on your water system.

Where does my water come from?

Your water comes from two surface water locations. One water source is the East Fork of the Stones River and the other source is the J. Percy Priest Lake. Our goal is to protect our water from contaminants based on geologic factors and human activities near the water source. The Tennessee Department of Environment and Conservation (TDEC) prepared a Source Water Assessment Program (SWAP) Report is found on the TDEC website https://www.tn.gov/environment/program-areas/wr-water-resources/water-quality/source-water-assessment.html and includes water supplies including Murfreesboro Water Resources Department (MWRSD). The SWAP Report assesses the susceptibility of public water supplies to potential contamination. Water sources are rated as "reasonably susceptible", "moderately susceptible" or "slightly susceptible" based on geologic factors and human activities near the water source. MWRD conducted a SWAP update in December 2019. Both MWRD sources continue to be rated "moderately susceptible" to potential contamination.[1]

Can I drink water directly from streams or lakes?

No. Pure water does not occur naturally. In nature, all water contains some impurities. These impurities are referred to as contaminants. Drinking water, including bottled drinking water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these 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 EPA's Safe Drinking Water Hotline (800) 426-4791.

East Fork Stones River

As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, naturally-occurring 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, and mining or farming.

Este informe contiene información importante acerca de su agua potable. Haga que alguien lo traduzca para usted, o hable con alguien que lo entienda.

[1] An explanation of Tennessee's Source Water Assessment Program, the Source Water Assessment summaries, susceptibility scorings and the overall TDEC report to EPA can be viewed online at www.state.tn.us/environment/dws/dwassess.shtml or you may contact the Water System or TDEC at 1-888-891-TDEC to obtain copies of specific assessments.

- ✓ 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, come from gas stations, urban stormwater runoff, and septic systems.

- ✓ Radioactive contaminants which can be naturally-occurring or which can be the result from oil and gas production and mining activities.

Who regulates drinking water?

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

Is lead in my drinking water?

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. MWRD 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 running your tap and thus "flushing" the water line 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 www.epa.gov/safewater/lead or at the Safe Drinking Water Hotline (800) 426-4791.

What if I am immune-compromised?

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 persons, 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 microbiological contaminants are available from the Safe Drinking Water Hotline (800) 426-4791.

Cryptosporidium is a microbial parasite which is found in surface water throughout the United States. Symptoms of Cryptosporidium infection include nausea, diarrhea, and abdominal cramps. 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. Although Cryptosporidium can be removed by filtration, the most commonly used filtration methods cannot guarantee 100 percent removal. Monitoring of the East Fork Stones River and J. Percy Priest Lake, between 2014, 2015 and 2016 as part of the Long Term 2 Enhanced Surface Water Treatment Rule, indicated no presence of Cryptosporidium in forty-seven samples tested. No Cryptosporidium were detected in MWRD finished water samples. MWRD meets the treatment standard for Cryptosporidium therefore no additional treatment is required. Membrane filtration was added as part of the last upgrades at the water treatment plant and will remove 100% of Cryptosporidium. The new membrane filters remove all particles greater than 0.1 microns. The size of Cryptosporidium is between 3.0 and 7.0 microns. The new membrane filters were placed into service during December 2008. For more information regarding cryptosporidium contact the Safe Drinking Water Hotline (800) 426-4791.

How can I help conserve water?

MWRD urges water conservation. The most common and practical ways to conserve water are:

- ✓ Promptly repairing leaks.
- ✓ Installing low flow fixtures.
- ✓ Turning water off while brushing teeth.
- ✓ Only running the dishwasher and clothes washer when fully loaded.
- ✓ Defrosting frozen food in the refrigerator or in the microwave instead of running water over it.

For other water conservation tips please visit www.drinktap.org. Promptly repairing leaks within your plumbing system not only helps us to keep down production costs, it provides savings on your monthly billings. Even as we encourage conservation, we understand the seasonal need to replenish pools and to water landscaped areas. An automatic sewer adjustment is made for residential customers during the months of April through October whenever the usage of water during these months exceeds the average winter usage by twenty percent.

How can I help protect my source water?

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. Help protect your source water by properly disposing of:

- ✓ Automotive products.
- ✓ Lawn and garden products.
- ✓ Household cleaners.
- ✓ Pharmaceuticals and personal care products.

Flushing unused or expired medicines can be harmful to your drinking water. Properly disposing of unused or expired medication helps protect you and your environment. Keep medications out of Tennessee's waterways by disposing in the proper method. For proper disposal of medication and other products contact Rutherford County Environmental Education at (615) 542-4633.

How can I help eliminate cross-connections?

MWRD urges customers to be on guard against cross-connections that might contaminate the water supply. A cross-connection is a link between an approved drinking water supply and any system other than an approved drinking water supply. If your irrigation system is supplied by a well or stream, the system must be totally segregated from the public water supply. Our City ordinance provides safeguards against cross-connections. MWRD has full time employees whose sole function is to guard against these types of cross-connections. The risk from residential cross-connections is less than that from industrial and commercial applications but is very real. Cross-connections can occur in private residences when garden hoses are left submerged in pools, when they lay in elevated positions above the hose bib, or when chemical sprayers are attached to hoses to spray pesticides. Hoses should be disconnected promptly after use, and the installation of hose bib vacuum breakers is highly recommended. This is a simple device that is available at most hardware and plumbing supply stores.

How good is MWRD's water?

MWRD routinely monitors contaminants in your drinking water in accordance with Federal and State laws. We have learned through our monitoring that some contaminants have been detected. The Water Quality Data Tables located in this report shows the contaminants that were detected for the period from January 1 to December 31, 2019, or the last time they were required to be monitored based upon regulatory requirements. **We are proud that your drinking water meets or exceeds all Federal and State requirements.**

How does MWRD make my water safe?

MWRD works around the clock to provide top quality water to every tap. An upgrade of Stones River Water Treatment Plant was completed in 2010 with an expansion of its treatment capacity from 15.7 million gallons per day to 20 million gallons per day. The additions of membrane filtration, standby power generation, sodium hypochlorite disinfection system, along with the renovation of the water quality laboratory, were included in the expansion. The water treatment plant now operates granular activated carbon beds for removal of taste, odor, total organic carbon, pharmaceuticals, personal care products and disinfection byproducts. All improvements by MWRD are directed at continually ensuring that you are receiving the highest quality of water.

Stones River Water Treatment Plant

WATER QUALITY DATA TABLE (Regulated Contaminants)

Contaminant	MCL	MCLG	Level Found	Range of Detection	Violation Yes/No	Date of Sample	Typical Source of Contaminant
Microbiological Contaminants							
Total Coliform (%)	Greater than 5% of monthly samples are positive	0	0	0	No	2019	Naturally present in the environment
TOC (ppb) Total Organic Carbon	TT(1)	N/A	42%-64% removal (25% required) (1)	830-2,440	No	2019	Naturally present in the environment
Turbidity (NTU)	TT(2)	N/A	0.08	0.01 - 0.08	No	2019	Soil runoff
Radioactive Contaminants							
Gross Alpha (pCi/l)	15	0	2	2	No	2014	Erosion of natural deposits
Combined radium (pCi/l)	5	0	0.84	0.84	No	2014	Erosion of natural deposits
Inorganic Contaminants							
Copper (ppb)	AL=1,300	1,300	157(3)	2.5 – 258	No	2017	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Fluoride (ppb)	4,000	4,000	710	647 – 796	No	2019	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Lead (ppb)	AL=15	0	2.57(3)	0.92 – 40.1	No	2017	Corrosion of household plumbing systems; Erosion of natural deposits
Nitrate (ppb)	10,000	10,000	1050	N/A	No	2019	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Sodium (ppm)	N/A	N/A	9.07	N/A	No	2019	Erosion of natural deposits
Volatile Organic Contaminants							
Chlorine (ppm)	MRDL=4	MRDL=4	3.43	1.78 – 3.43	No	2019	Water additive used to control microbes
HAAs (ppb) Haloacetic Acids	60	N/A	35.2	15.5 – 43.4	No	2019	By-product of drinking water chlorination
TTHMs (ppb) Total trihalomethanes	80	N/A	57.5	20.0 – 89.8(4)	No	2019	By-product of drinking water chlorination

(1) MWRD met the treatment technique requirements for total organic carbon in 2019. The percent (%) removed is determined from the amount of TOC removed from the raw water during the treatment process and the amount of TOC that is remaining in the finished water. The % required is the % removal required by regulation based upon treatment technique. The % removed must be equal to or greater than the % required unless alternative compliance criteria are used.
(2) MWRD met the treatment technique for turbidity with 100% of monthly samples below the turbidity limit of 0.3 NTU. Turbidity is a measure of the cloudiness or clarity of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system.
(3) Lead and copper values are 90th percentile values. During the most recent round of lead and copper testing, 1 out of 50 households sampled exceeded the action level.
(4) Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer.

TERMS AND ABBREVIATIONS FOR TABLE

- ✓ **Action Level (AL):** The concentration of a contaminant, which if exceeded, triggers treatment or other requirements that a water system must follow.
- ✓ **Below Detection Level (BDL):** The concentration of a contaminant is below the minimum level that the instrument is capable of detecting.
- ✓ **Maximum Contaminant Level (MCL):** The highest level that a contaminant is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
- ✓ **Maximum Contaminant Level Goal (MCLG):** 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.
- ✓ **Maximum Residual Disinfectant Level (MRDL):** 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.
- ✓ **Maximum Residual Disinfectant Level Goal (MRDLG):** 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 contamination.
- ✓ **Method Detection Limit (MDL):** The lowest concentration (greater than zero) of the substance tested that can be measured and reported with 99 percent confidence.
- ✓ **Nephelometric Turbidity Unit (NTU):** The measure of clarity in the water. Turbidity in excess of 5 NTU is just noticeable to the average person.
- ✓ **Parts per billion (ppb) or micrograms per liter (µg/L):** One part per billion or one microgram per liter corresponds to one minute in 2,000 years, or a single penny in $10,000,000.
- ✓ **Parts per million (ppm) or milligram per liter (mg/L):** One part per million or one milligram per liter corresponds to one minute in two years, or a single penny in $10,000.
- ✓ **N/A:** Not applicable.
- ✓ **Treatment Technique (TT):** A required process intended to reduce the level of a contaminant in drinking water.
- ✓ **Level 1 Assessment:** A Level 1 assessment is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.
- ✓ **Level 2 Assessment:** A Level 2 assessment is a very detailed study of the water system to identify potential problems and determine (if possible) why an E. coli MCL violation has occurred and/or why total coliform bacteria have been found in our water system on multiple occasions.

WATER QUALITY DATA TABLE (Unregulated Contaminants)			
Contaminant	**MRL**	**Average of Values**	**Range of Detection**
Unregulated Contaminant Monitoring			
Manganese (ppb)	0.4	3.4	1.3-8.5
Total HAA9 (ppb)	0.2	33.5	4.4-95.1

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

TERMS AND ABBREVIATIONS FOR TABLE

- ✓ **Minimum Reporting Level (MRL):**
The estimate of the lowest concentration of a compound that can be quantitatively measured by members of a group of experienced drinking water laboratories.
- ✓ **Parts per billion (ppb) or micrograms per liter (µg/L):**
One part per billion or one microgram per liter corresponds to one minute in 2,000 years, or a single penny in $10,000,000.

Who do I call if I have questions or concerns regarding my water?

If you have any questions about this report, please contact Alan Cranford at (615) 848-3222 between 7:00 a.m. and 3:00 p.m. Monday through Friday. For water quality concerns please call (615) 848-3222, 24-hours per day seven days per week. We conduct multiple tests during the day on the quality of the source water, water as it is passing through the treatment process and finished water before it is sent to the distribution system to customers. Monday – Friday we post results for chlorine, hardness, fluoride, turbidity and pH on the Department's Facebook page. In addition, our water quality laboratory conducts tests throughout the week on samples collected at residences, schools and businesses throughout the distribution system. All personnel have MWRD issued identification and at no time do we contract out the collection of samples from residences. Only MWRD personnel will collect samples from residences in the system. Please feel free to ask for identification if anyone asks to collect a water sample from your home or business. If they cannot produce the identification, please contact MWRD at (615) 848-3222.

Plant Awards and Recognition

In 2010, the Stones River Water Treatment Plant was recognized with two prestigious awards. The 2010 Engineering Excellence Grand Award from the American Council of Engineering Companies of Tennessee and the Award of Excellence for Plant Operations in the 10 million gallons per day and above category from the Kentucky-Tennessee Section American Water Works Association.

The Stones River Water Treatment Plant is a volunteer participant in the Partnership for Safe Water program. The Partnership is a voluntary effort between six drinking water organizations and more than 300 water utilities. The goal of the Partnership is to provide a new measure of public health protection to millions by encouraging utilities to voluntarily improve performance beyond current regulatory requirements. The preventative measures are based around optimizing treatment plant performance and operations. The result is the production and delivery of superior quality water to all utility customers.

How is MWRD funded?

MWRD is owned and operated by the City of Murfreesboro. MWRD receives no tax revenue from City, State or Federal governments, but relies solely upon our rates and fees for operational funding.

How large is MWRD?

MWRD serves more than 38,000 water customers with a population of over 100,000 using more than 440 miles of water lines. The water treatment plant operates continuously and has an average production of over 12 million gallons per day (MGD) of potable water. Our goal is to provide you a safe and dependable supply of drinking water.

What if I have a question about my bill or methods of payment?

MWRD Customer Service is open to the public Mon-Fri from 8-4:30 p.m. We offer counter and drive-through service. Should you have any questions or concerns regarding your account, you may contact Customer Service at (615) 848-3209 during regular business hours or contact the Customer Service Manager Randy McCollough at rmccullough@murfreesborotn.gov. Payments can be made in office during regular business

hours via cash, check or credit card (fees applicable for credit card payments). Other payment options offered are: night depository, mail, bank draft, phone via IVR (Interactive Voice Recognition), and online via the customer portal Link at https://mwsdlink.murfreesborotn.gov (fees for credit card or e-check payments are applicable). With our customer portal Link, you may set up paperless billing and review your billing, payment and consumption history any time of day or night.

Administration and Customer Service Building

For more information regarding MWRD Customer Service Department, please visit our website at www.murfreesborotn.gov/mwrd. For up to date news and information, like us on Facebook. Our after-hours emergency number is (615) 893-1223.

We are closed on the following holidays:

- New Year's Day
- Martin Luther King Day
- Presidents Day
- Memorial Day
- Independence Day
- Labor Day
- Veterans Day
- Thanksgiving
- Friday after Thanksgiving
- Christmas Eve
- Christmas Day

Who do I contact for general information or services?

General information and services are available from our administrative offices at (615) 890-0862 from 8:00 a.m. to 4:30 p.m. Monday through Friday. MWRD is on Facebook. Please like us to get the latest updates, news and information.

What about public participation?

The Water Resources Board supervises and controls the water, wastewater and stormwater systems of the City in cooperation with the City Manager. The Mayor appoints the members with the consent of the City Council. There are eight (8) members. Two (2) are Council members and the remaining six (6) serve 4-year terms. The Board members are John Sant Amour, Jr. – Chairman, Dr. Alphonse Carter, Jr., Ron Crabtree, Brian Kidd, Kathy Nobles, Madeline Scales-Harris (Council Member), Sandra Trail, and Kirt Wade (Council Member).

The Water Resources Board meetings are held on the fourth Tuesday of each month at 3:30 p.m. unless otherwise advertised. Meetings will be held at the location advertised in the Murfreesboro Post and on the City's website http://www.murfreesborotn.gov/421/Water-Resources-Board. You are welcome to attend these meetings.

What if I need to rent a fire hydrant meter?

Fire hydrant meters are limited in number and will be made available on a first come, first serve basis. They may be used by contractors or homeowners. Meters are rented Monday - Friday 8:00 am - 3:00 pm.

Operations and Maintenance Facility