



Murfreesboro Water and Sewer Department
2013 Annual Water Quality Report
January 1, 2013 – December 31, 2013





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The purpose 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 in the vicinity of the water source. We continue to work with the State to determine the vulnerability of our water supply to contamination. The Tennessee Department of Environment and Conservation (TDEC) prepared a Source Water Assessment Program (SWAP) Report, which was completed in August 2003, for the water supplies serving Murfreesboro Water and Sewer Department (MWSD). 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 in the vicinity of the water source. The MWSD conducted a SWAP update in November 2010 that was approved by the TDEC. Both MWSD 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



East Fork Stones River

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.

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-

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.

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, 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?

Elevated levels of lead, if present, 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. The MWSD 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 at <http://www.epa.gov/safewater/lead> or on the Safe Drinking Water Hotline.

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.



Membrane Filters

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 2005 and 2007 as part of the Long Term 2 Enhanced Surface Water Treatment Rule, indicated the presence of Cryptosporidium in seven out of forty-eight samples tested. No Cryptosporidium were detected in the MWSD finished water samples. The MWSD meets the treatment

standard for Cryptosporidium therefore no additional treatment is required at this time. 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 after the testing described above. For more information on cryptosporidium contact the Safe Drinking Water Hotline (800) 426-4791.

How can I help conserve water?

MWSD 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 <http://www.drinktap.org/home/water-information/conservation>. 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 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.
- Improper disposal of these products by pouring them down the sink or by flushing them down the toilet will

lead to harming the environment and the water source for our community. For proper disposal of these products and more contact Rutherford County Environmental Education at (615) 542-4633.

How can I help eliminate cross-connections?

MWSD 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. MWSD 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 strongly recommended. This is a simple device that is available at most hardware and plumbing supply stores.

How good is MWSD's water?

The MWSD 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, 2013, 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.

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	1	0-1	No	2013	Naturally present in the environment
TOC (ppb) Total Organic Carbon	TT ⁽¹⁾	N/A	20%-53% removal (15% required) (1)	830-2,390	No	2013	Naturally present in the environment
Turbidity (NTU)	TT ⁽²⁾	N/A	0.48	0.02 - 0.48	No	2013	Soil runoff
Inorganic Contaminants							
Barium (ppb)	2,000	N/A	14	N/A	No	02/09/12	Discharge of drilling wastes; Discharge from metal refineries; Erosion from natural deposits
Chlorine (ppm)	MRDL=4	MRDL=4	3.8	1.0 – 3.8	No	2013	Water additive used to control microbes
Copper (ppb)	AL=1,300	1,300	87.2 ⁽³⁾	N/A	No	06/24/11	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Fluoride (ppb)	4,000	4,000	730	530 – 1,260	No	2013	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Lead (ppb)	AL=15	0	ND ⁽³⁾	N/A	No	06/24/11	Corrosion of household plumbing systems; Erosion of natural deposits
Nitrate (ppb)	10,000	10,000	827	N/A	No	02/07/13	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Sodium (ppm)	N/A	N/A	14.7	N/A	No	02/07/13	Erosion of natural deposits
Volatile Organic Contaminants							
HAAs (ppb) Haloacetic Acids	60	N/A	50	24 – 57	No	2013	By-product of drinking water chlorination
TTHMs (ppb) Total trihalomethanes	80	N/A	65	17 – 58 ⁽⁴⁾	No	2013	By-product of drinking water chlorination

- (1) MWSD met the treatment technique requirements for total organic carbon in 2013. 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) MWSD met the treatment technique for turbidity with 99.99% 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, 0 out of 30 households sampled exceeded the action level. Non-detect (ND) means that the contaminant was not detected above the method detection limit (MDL).
- (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 billion 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.

WATER QUALITY DATA TABLE (Unregulated Contaminants)			
Contaminant	MRL	Average of Values	Range of Detection
Unregulated Contaminant Monitoring			
Chlorate (ppb)	20	158	110-210
Hexavalent Chromium (ppt)	30	140	110-170
Strontium (ppb)	0.30	97	94-100
Vanadium (ppt)	200	318	230-410

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
<p>✓ 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.</p> <p>✓ 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.</p> <p>✓ Parts per trillion (ppt) or nanograms per liter (ng/L): One part per trillion or one nanogram per liter corresponds to one minute in 2,000,000 years, or a single penny in \$10,000,000,000.</p>

How does MWSD make my water safe?

The MWSD works around the clock to provide top quality water to every tap.

An upgrade of the 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 Stones River Water Treatment Plant now operates granular activated carbon beds for removal of taste, odor, total organic carbon and disinfection byproducts. All of these improvements by the MWSD are directed at continually ensuring that you are receiving the highest quality of water.

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.



Stones River Water Treatment Plant

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 7 days per week. We conduct multiple tests during the course of 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. In addition, our water quality laboratory conducts tests throughout the week on samples collected at residences, schools and businesses throughout the distribution system. All of our personnel have MWSD issued identification and at no time do we contract out the collection of samples from residences. Only MWSD 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 the MWSD at (615) 848-3222.

How is MWSD funded?

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

How large is MWSD?

The MWSD serves more than 36,000 water customers with a population of over 100,000 using more than 435 miles of water lines. The water treatment plant operates continuously and has an average production of over 11 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?

MWSD reads every water meter and bills each customer every month. In the event of an abnormally high meter reading, we will attempt to alert the customer. Payment may be made at our drive-up window, walk-in service counter, night depository; by mail, bank draft or online using a major credit card at <http://www.murfreesborotn.gov>. EZPay is an optional payment method provided by the City of Murfreesboro to make certain payments online, however, there is a service fee. Bank Draft is also available. A voided check is required to initiate the bank draft. Payments can still be made by cash, check, or money order at our cashier counters or by mail with no service fee. Your account balance reflects payments received as of the previous business day. Any payments made on or after 11 p.m. central time will be processed on the next business day.

The MWSD Customer Service System is "Under Construction." The MWSD is transitioning to a new Customer Service System. This new system includes a new billing system with web interface, a new bill design, proactive alerts, ability to obtain real-time account information over the phone, and paperless billing. Customer Service questions may be directed to Sharon Seibert at sseibert@murfreesborotn.gov. Our emergency after-hours phone number is (615) 893-1223.

Who do I contact for general information or services?

General information and services are available from our administrative offices at 890-0862 from

8:00 a.m. to 4:30 p.m. Monday through Friday. TTY services are available at (615) 848-3214.



Administration and Customer Service Building

The MWSD is now on Facebook. Please like us to get the latest updates, news and information.



The MWSD GIS maps are located at <http://mwsdmaps.murfreesborotn.gov/gisapps/MWSD>. Adobe Flash Player is required to view the maps.

What about public participation?

The Water and Sewer Board supervises and controls the water and sewer systems of the City in cooperation with the City Manager. The City Manager appoints the members with the consent of the City Council. There are seven (7) members. One (1) is a Council member and the remaining six (6) serve 4-year terms. The Board members are Clay Beach, Alphonse Carter, Ron Crabtree, Kathy Nobles, John Sant Amour, Jr., Sandra Trail, and Ron Washington (Council Member).

Water and Sewer 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>. You are welcome to attend these meetings.