2015 ANNUAL DRINKING WATER QUALITY REPORT<hr/> Madison Suburban Utility District ______

years

Test Results from 2014

For the last 75 years, The Madison Suburban Utility District has been committed to providing customers with safe and reliable drinking water.

The Madison Suburban Utility District (MSUD) was formed in July 1939 as one of Tennessee's first public utility districts under the Utility District Act of 1937. We serve approximately 42 square miles of Northeastern Davidson County including Madison, Goodlettsville, Bellshire, Rivergate, and parts of Inglewood.

We are pleased to present our Annual Drinking Water Quality Report and annual newsletter and to inform you that the District has once again earned a perfect score from the Tennessee Department of Environment and Conservation for operational performance. In the required Sanitary Survey of Public Water Systems conducted January 2015, Madison Suburban was evaluated and found "Approved" by TDEC, and scored a 100%. The District's water meets or exceeds all State and Federal requirements and the EPA's health standards. TDEC thanked the District for their hard work and dedication to excellence while operating the public water system.



The District was recognized by the Council of the Metropolitan Government of Nashville and Davidson County at the May 19th meeting. The Resolution in recognition of our performance and dedication to our customers was sponsored by Council members Karen Bennett - District 8, Bill Pridemore -District 9, Doug Pardue - District 10, Anthony Davis - District 7, and Walter Hunt - District 3.



As we continue to celebrate our 75th anniversary, please accept our sincerest thanks and appreciation for your continued patronage. If you have any questions or concerns please call our offices and let us know how we can be of service.

DISTRICT NEWS

MR. RICHARD ODOM is retiring in July 2015 from his post as President of the MSUD Board of Commissioners. Mr. Odom was appointed to the Board in 1977, and became President in 1985. During his tenure, aided by his fellow Commissioners and District Employees, the District made significant improvements to its infrastructure to enhance water quality, service

A SINCERE "THANK YOU" TO MR. RICHARD ODOM FOR HIS 38 YEARS OF SERVICE AS A TRUE MAN OF VISION IN THE COMMUNITY.

pressures, and the availability of public water for development. Ongoing improvements to the water treatment facilities, the installation of over 1,790 additional public fire hydrants, the construction of multiple water storage tanks, and rehabilitation of existing tanks were undertaken during these years. The District has seen an increase in water connections by 7,000 to a record 19,133, serving approximately 70,000 members of our community. An Automated Meter Replacement Program began in 2012 to meet EPA and AWWA Standards for the reduction of lead and copper in drinking water and to improve accountability in water losses and revenue. This year a Flood/Disaster Remediation Project was completed at the Water Treatment Plant. The District extends its sincere thanks to Mr. Odom and good wishes for his future.

NEW COMMISSIONER

Mr. Jim Forkum has been newly appointed to the MSUD Board of Commissioners, effective August 1, 2015. We look forward to working with Mr. Forkum as he joins our present MSUD Board of Commissioner Members, Mr. John T. Wade and Timothy M. Garrett as we continue to serve our customers.

CUSTOMER SERVICE UPGRADES

The District is proud to announce its recent utility billing software upgrade to Authority Utility, a robust billing and collections system provided by Civica CMI. Customers have the option to receive their bills via email and access their account to view or pay bills, check usage details, and more by logging into a new online portal on the MSUD Website (<u>www.msud.net</u>) or by calling (615) 868-3201 for our automated phone system.



HOW DO I CONTACT MSUD?

FOR BILLING AND ACCOUNT INFORMATION: 615-868-3201, MONDAY – FRIDAY, 7:30-4:00; OR VISIT WWW.MSUD.NET

FOR EMERGENCIES AND TO REPORT A LEAK ON THE STREET: **24HR/DAY CALL 615-865-1636**

QUESTIONS ABOUT THIS REPORT OR WATER QUALITY? 615-865-1636

EN ESPAÑOL:

Este informe contiene información muy importante. Tradúcelo ó hable con alguien que lo entienda bien.

HOW CAN I GET INVOLVED?

The District's Board of Commissioners meets each month at the Business Office, 108 W. Webster St, Madison, TN. These meetings are open to the public. Call for specific dates and times. Decisions by the Board of Commissioners on customer complaints brought before the Board of Commissioners under the District's customer complaint policy may be reviewed by the Utility Management Review Board of the Tennessee Department of Environment and Conservation pursuant to Section 7-82-702(7) of the Tennessee Code Annotated.



THE WATER WE DRINK

Have you ever been curious about where your tap water comes from? Or how water is treated to make it drinkable? Or how water gets to your home? And is it safe? The primary goal of this report is to answer those very questions in our effort to provide our customers with confidence in the water you drink and use every day.

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 and can be viewed online at http://www.tn.gov/environment/dws/dwassess.shtml

CONTAMINANTS IN BOTTLE AND TAP

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. Community water systems are required to disclose the detection of contaminants; however, bottled water companies are not required to comply with this regulation. 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 (800-426-4791) or visit http://water.epa.gov/drink/

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.

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 (1-800-426-4791).

WATER TREATMENT PROCESS



The MSUD Treatment Plant treats an average of 8 million gallons a day and has a maximum capacity of nearly double that. Water treatment transforms raw surface water (river water) into safe drinking water. Water treatment involves two types of processes: physical removal of solids (mainly minerals and organic particulates) and chemical disinfection (killing/inactivating microorganisms).

PRE-OXIDANT:

Permanganate is added to immobilize heavy metals and organic chemical compounds. It also offers mild disinfectant properties.

COAGULATION:

This is the chemical process of rapidly mixing "coagulants" with river water. Most particles in source water have negative charges causing them to repel each other, much like the negative ends of two magnets. Coagulation changes the negative charges to neutral. The aluminum based polymer coagulants do an excellent job of neutralizing sediments and organic material.

FLOCCULATION:

Coagulated water is slowly mixed causing the neutral particles (the sediments and suspended organic material) to collide and clump together to form floc. The floc particles continue to clump together forming larger and larger clumps trapping most of the sediment and suspended organic material. The floc now looks like snowflakes suspended in the water. Powdered carbon is added after flocculation and before sedimentation to absorb obnoxious tastes and odors. The carbon will settle out in the next process.

SEDIMENTATION:

The floc particles are heavier than water. As the water enters the sedimentation basins the mixing is stopped, allowing the particles to sink to the bottom. The clear water is collected from the top of the basins and sent on to be filtered. This process removes nearly all the chemical material added to the water thus far as well as the bulk of the sediment, organic matter, heavy metals, and microorganisms.

PRIMARY DISINFECTION:

Small amounts of chlorine are added to inactivate viruses, bacteria, and other microorganisms and maintain filter performance. Chlorine also serves as an oxidant to immobilize any metals that may have made it through the previous steps.

FILTRATION:

Water is passed through deep filtration beds to produce water that is crystal clear. Extremely small particles are removed during this process. MSUD produces water with turbidities (cloudiness) significantly better than drinking water standards.

SECONDARY DISINFECTION / FINISHING:

Finished (filtered) water is once again disinfected to destroy harmful bacteria and viruses. An additional amount, known as a chlorine residual, is applied to protect treated water from recontamination as it travels through the distribution system. MSUD also adds a corrosion inhibitor (phosphate) and fluoride to promote healthy teeth and bones.

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.

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. MSUD's water treatment processes are designed to reduce any such substances to levels well below any health concerns. Food and Drug Administration regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

If you decided to use your own treatment system, like a point-of-use filter or whole home treatment system, it is important to maintain these systems as recommended by the manufacturer. Improper use of these filtration systems could pose a serious health threat to your family.

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. Madison Suburban Utility District is responsible for providing high quality drinking water, but cannot control the variety of materials used in household 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 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 http://water.epa.gov/drink/contaminants/basicinformation/lead.cfm.

MONITORING YOUR WATER QUALITY

Every year we monitor the presence of over 100 compounds in your water, before, during, and after treatment. Reported on the next 2 pages are only the compounds we have detected, and are monitored under the Primary Drinking Water Standard established by EPA. For more information on the Safe Drinking Water Act and current standards visit http://water.epa.gov/lawsregs/rulesregs/sdwa/



WATER QUALITY RESULTS REGULATED CONTAMINANTS

MONITORED AT THE TREATMENT PLANT

Contaminant	Violation	Date Collected	Level Detected	Unit of Measure	Range	MCL	MCLG	Likely Sources of Contaminants
Barium	No	7/9/12	0.03	ppm	n/a	2	n/a	Discharge of drilling waste or metal refineries; erosion of natural deposits
Nitrate	No	2/24/14	0.48	ppm	n/a	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Sodium	No	7/7/14	7.6	ppm	n/a	n/a	n/a	Erosion of natural deposits; used in water treatment
Turbidity ¹	No	Daily	0.18	NTU	0.007- 0.180	TT	n/a	Soil runoff
Total Organic Carbon ²	No	Monthly	39% removed*			TT	TT	Naturally present in the environment
*(25% required)	a	A	· · · · ·		-		<u>.</u>	<u>^</u>

MONITORED AROUND THE DISTRICT

Contaminant	Violation	Date Collected	Level Detected	Unit of Measure	Range	MCL	MCLG	Likely Sources of Contaminants
Fluoride	No	quarterly	0.60	ppm	0.51-0.67	4.0	4.0	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Total Trihalomethanes ³	No	quarterly	45 highest LRAA	ppb	10-71	80	n/a	By-product of drinking water chlorination
Total Haloacetic Acids	No	quarterly	43 highest LRAA	ppb	11-59	60	n/a	By-product of drinking water chlorination
Total Coliform Bacteria	No	daily	1.4%	n/a	n/a	presence of coliform bacteria in 5% of monthly samples	0	Naturally present in the environment

Contaminant	Violation	Date Collected	Level Detected	Unit of Measure	Range	MRDL	MRDLG	Likely Sources of Contaminants
Chlorine	No	daily	1.44	ppm	0.04-2.40	4.0	4.0	Water additive used to control microbes

MONITORED AT THE CUSTOMER'S TAP

Contaminant	Violation	Date Collected	Level Detected	Unit of Measure	Range	MCL	MCLG	Likely Sources of Contaminants	
Copper ⁴	n/a	2014	0.26	ppm	0.01-0.42	AL=1.3	1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives	
Lead ⁵	n/a	2014	0.5	ppb	BDL-3.9	AL=15	0	Corrosion of household plumbing systems, erosion of natural deposits	
*Lavel detected is 90th perceptile of 20 households sampled in 2014									

*Level detected is 90th percentile of 30 households sampled in 2014.

1. Turbidity is a measure of the cloudiness of the water. We monitor it because it's a good indicator of the effectiveness of our filtration system. We met the treatment technique for turbidity with 99% of daily samples below the limit of 0.15 NTU. 2. We met the treatment technique requirement for total organic carbon removal. 3. While your drinking water meets EPA's standard for trihalomethanes, it does contain low levels. 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. 4 Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over a relatively short amount of disease should consult their personal doctor. 5. Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested and flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the Safe Drinking Water Hotline (1-800-426-4791). Infants and children who drink water containing lead in excess of the action level open. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.

REGULATED VS UNREGULATED

The District is committed to protecting public health. To help advance the science of drinking water, we have been collecting data for the EPA. Collecting information about the occurrence of these compounds in water supplies is the first step in the EPA's efforts to determine whether they should be regulated. The presence of a compound does not necessarily equate to a health risk. We will closely monitor both the concentrations of these compounds and the EPA's health studies and will keep you informed of any developments. Should the EPA determine that regulation is warranted, we will take whatever steps are necessary to protect the health of our customers. For more information on the Unregulated Contaminant Monitoring Rule visit http://water.epa.gov/lawsregs/rulesregs/sdwa/ucmr/

WATER QUALITY RESULTS UNREGULATED CONTAMINANTS

MONITORED AT THE TREATMENT PLANT

Contaminant	Date Collected	Level Detected	Unit of Measure	Range	MCL	MCLG	Likely Sources of Contaminants	
Chloroform	8/18/14	12.2	ppb	n/a	unreg	gulated	By-product of drinking water chlorination	
Bromodichloromethane	8/18/14	4.3	ppb	n/a	unreg	gulated	By-product of drinking water chlorination	
Chlorodibromomethane	8/18/14	0.93	ppb	n/a	unreg	gulated	By-product of drinking water chlorination	
Strontium	quarterly	110	ppb	100-120	unreg	gulated	Discharge of drilling waste or metal refineries; erosion of natural deposits	
Chromium, hexavalent	quarterly	0.07	ppb	0.06-0.08	unregulated		Discharge of drilling waste or metal refineries; erosion of natural deposits	

MONITORED AROUND THE DISTRICT

Contaminant	Date Collected	Level Detected	Unit of Measure	Range	MCL	MCLG	Likely Sources of Contaminants
Strontium	quarterly	99	ppb	98-100	unregulated		Discharge of drilling waste or metal refineries; erosion of natural deposits
Chromium, hexavalent	quarterly	0.08	ppb	0.08	unregulated		Discharge of drilling waste or metal refineries; erosion of natural deposits

WHAT DO THESE TABLES MEAN?

- AL Action Level, or the concentration of a contaminant which, when exceeded, triggers treatment or other requirements which a water system must follow.
- BDL Below Detection Level laboratory analysis indicates that the contaminant is not present at a level that can be detected.
- MCL Maximum Contaminant Level, or 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.
- LRAA Locational Running Annual Average, the arithmetic average calculated from the current and previous 3 quarters measurements.
- MCLG Maximum Contaminant Level Goal, or 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.
- 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.

- NTU Nephelometric Turbidity Unit, nephelometric turbidity unit is a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.
- ppb parts per billion or ug/L, micrograms per liter - explained as a relation to time and money as one part per billion corresponds to one minute in 2,000 years, or a single penny in \$10,000,000.
- ppm parts per million or mg/L, milligrams per liter - explained as a relation to time and money as one part per million corresponds to one minute in two years or a single penny in \$10,000.
- TT Treatment Technique, or a required process intended to reduce the level of a contaminant in drinking water.



THANK YOU

Thank you for allowing us to continue to provide your family with quality drinking water. We ask that all our customers help us protect our water sources, which are the heart of our community. If you notice something unusual or out of the ordinary, please contact us. As always, we welcome your questions and concerns.

Please share this publication with others who may use MSUD water and may not have received this notice, such as those in apartment buildings or community living.

This Report is available electronically at our website: http://msud.net/ madison/madccr2015.pdf. You may also email waterplant@msud.net or call 615-865-1636 to request a copy be mailed.

PROTECTING OUR WATER

The best and most cost-effective way to ensure safe water at the tap is to keep our source waters clean. Dispose of used and old paint and motor oil at designated drop-off locations. These chemicals, if allowed to leach into the ground and pavement, eventually make their way to the river and into our drinking water.



THINK BEFORE YOU FLUSH!

Flushing unused or expired medicines can be harmful to your drinking water. Properly disposing of unused or expired medication helps protect you and the environment. Keep medications out of Tennessee's waterways by disposing in one of our permanent pharmaceutical take back bins. There are nearly 100 take back bins located across the state, to find a convenient location please visit: <u>www.tn.gov/environment/sustainable-practices-unwanted-prescriptions.shtml.</u>

Dispose Locally at: Metro Police Department • Madison Precinct 400 Myatt Dr, Madison, TN Monday - Friday: 8:00 am - 4:00 pm

