

MANCHESTER WATER & SEWER DEPARTMENT: 2013 WATER QUALITY REPORT

CUSTOMER COMMITMENT

The MWSD and DRUC are committed to producing safe and reliable water for all of our customers' needs. The MWSD and DRUC are proud to report that the water produced by the DRUC filtration plant met all federal and state standards for drinking water during 2012. In fact, the MWSD and DRUC have never violated any USEPA or State standard or regulation since it was formed in 1976.

The Commission is also very proud of the 99.6% average score achieved on inspections by the Tennessee Division of Water Supply over the last 20 years. The MWSD and DRUC both employ a full time staff to manage, operate and monitor both source and product water quality including environmental engineers, biologists/chemists and certified water treatment plant and distribution system operators. Thousands of tests are conducted each month on water samples at the treatment plant and throughout the distribution systems to ensure that the water remains safe and pure at all times. Over the past ten years, the DRUC has invested over \$15,000,000 in state-of-the-art technology and upgrades to the treatment facilities, improving both water quality and reliability. The DRUC also operates a State certified laboratory at the water treatment plant, analyzing water samples for the utilities as well as the general public.

REQUIRED INFORMATION FROM THE US EPA

All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. 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). The sources of drinking water (both bottled water and tap water) include rivers, lakes, streams, reservoirs, ponds, 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.

Contaminants that may be present in source water: 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, 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 chemicals, which are byproducts of industrial processes and petroleum production, and also come from gas stations, urban stormwater runoff and septic tanks. Radioactive contaminants, which can be naturally-occurring or 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. FDA regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

VULNERABLE POPULATIONS

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 food preparation, sanitation and handling of infants or pets as well as drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbiological contaminants are available from the Safe Drinking Water Hotline toll free at (800-426-4791) or on the Internet at www.epa.gov/ogwdw.

ATENCIÓN

Este informe contiene información muy importante. Tradúzcalo o hable con alguien que lo entienda bien.

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UTILITY INFORMATION

The Manchester Water and Sewer Department distributes drinking water supplied by the Duck River Utility Commission. The DRUC is a regional water authority that provides ultra-pure and plentiful water to 60,000 people in Manchester, Tullahoma and portions of the surrounding counties. The DRUC is a government agency formed in 1976 and operates a state-of-the-art water filtration plant and other water supply facilities. The DRUC system is operated twenty-four hours a day by State certified personnel producing up to ten million gallons of pure water each day. Certified employees of the MWSD operate and maintain the distribution system, tanks and pumping stations.

WATER SOURCE

The DRUC water treatment plant withdraws surface water from Normandy Reservoir, constructed by TVA in 1976, which is filled by flow from the Duck River. The DRUC, TVA and the Tennessee Department of Environment and Conservation (TDEC) are actively working to protect the reservoir from sources of pollution and assess vulnerability to potential contamination. The DRUC has prepared a Source Water Assessment Program (SWAP) report that assesses the susceptibility of Normandy Reservoir to *potential* contamination and it has been rated as reasonably susceptible (moderate) based on geological factors and human activities in the vicinity of the reservoir. An explanation of Tennessee's Source Water Assessment Program, the Source Water Assessment summaries, susceptibility scoring and the overall TDEC report to the USEPA can be viewed online at www.state.tn.us/environment/dws/dwassess.shtml or you may contact the DRUC or TDEC at 1-888-891-TDEC to obtain copies of specific assessments. In addition, the DRUC has implemented a number of security measures, including 24-hour surveillance and alarms at our facilities to protect against vandalism and other forms of attack.

THE TREATMENT PROCESS

The DRUC water treatment plant utilizes advanced water treatment technology to remove both particulate matter and dissolved compounds from the water before it is disinfected and pumped to the MWSD distribution system. The reservoir water entering the facility is first oxidized and disinfected by the injection of chlorine dioxide. Traditional pretreatment with gaseous chlorine was discontinued in 1988 in favor of chlorine dioxide that does NOT create certain regulated byproducts. After oxidation and disinfection, particulate matter is coagulated using polyaluminum chloride. The coagulant causes the particles in the water to stick to each other, increasing the overall size and weight of the particles. The water then moves into settling basins where these new larger particles sink to the bottom and are removed. The clarified water then travels into the filtration building where the water is vacuumed through hollow fiber ultrafiltration membranes and then flows through eight huge granular activated carbon contactors. These new filters are designed to remove any remaining particulate matter, even particles smaller than bacteria or viruses. The GAC contactors absorb any remaining organic compounds that could cause objectionable tastes and odors. After charcoal filtration, the water is pH neutralized and a chlorine disinfectant residual is added before the water is pumped to the distribution system. Fluoride is also added to prevent tooth decay at the State required level of one part per million.

INFORMATION AND INVOLVEMENT

The Manchester Water Department encourages public participation in our decisions. Regular board meetings are held at 3:00 pm on the first Thursday following the first Tuesday of each month at the MWSD Warehouse at 736 W. High Street, Manchester, Tennessee. For more information on water quality or this report contact the Manchester Water Department at (931)728-1273 or DRUC at (931) 455-6458 or at www.druc.org or by email at manager@druc.org.

MANCHESTER WATER AND SEWER DEPARTMENT

2012 WATER QUALITY DATA

QUALITY ASSURANCE

In order to ensure that tap water is safe, the U.S. Environmental Protection Agency prescribes regulations that require utilities to monitor regularly for numerous substances in the water it produces. An independent laboratory certified by the EPA and the State of Tennessee performs this testing. All testing is conducted in compliance with current regulations. **The water supplied to MWSD by the DRUC has never exceeded the limits for any regulated compound or substance as established by the State of Tennessee or U. S. EPA.**

TEST RESULTS – NONE DETECTED: Analysis is routinely performed for the following list of substances. **NONE** were detected in the water.

PRIMARY ORGANICS	VOLATILE ORGANICS	VOLATILE ORGANICS	INORGANICS	SYNTHETIC ORGANICS	SYNTHETIC ORGANICS
Alachlor	Bromobenzene	Dichloropropane	Arsenic	Carbofuran	Metolachlor
Aldicarb	Bromochloromethane	Dichloropropene	Antimony	Chlordane	Metribuzin
Benzene	Bromodichloromethane	Ethylbenzene	Beryllium	Dalapon	Oxamyl
CarbonTetrachloride	Bromomethane	Fluorotrichloromethane	Cadmium	Dicamba	PCB 1016
Dichloroethane	Butylbenzene	Hexachloro-1,3-butadiene	Chromium	Dieldrin	PCB 1221
Dichloroethylene	Chlorobenzene	Isopropylbenzene	Cyanide	Dinoseb	PCB 1232
Endrin	Chlorodibromomethane	p-Isopropyltoluene	Mercury	Di(2-ethylhexyl)adipate	PCB 1242
Lindane	Chloroethane	Naphthalene	Nickel	Di(2-ethylhexyl)phthalate	PCB 1248
Methoxychlor	Chloromethane	n-Propylbenzene	Selenium	2,3,7,8-TCDD (Dioxin)	PCB 1254
Paradichlorobenzene	o-Chlorotoluene	Styrene	Thallium	Endothall	PCB 1260
Toxaphene	p-Chlorotoluene	Tetrachloroethane	SYNTHETIC ORGANICS	Ethylene dibromide	Pentachlorophenol
Trichloroethane	Dibromomethane	Tetrachloroethylene		Aldicarb	Glyphosate
Trichloroethylene	m-Dichlorobenzene	Toluene	Aldicarb Sulfone	Heptachlor	Propachlor
VinylChloride	o-Dichlorobenzene	Trichlorobenzene	Aldicarb Sulfoxide	Heptachlorepoxide	Simazine
2,4-D	Dichlorodifluoromethane	Trichloroethane	Aldrin	Hexachlorobenzene	RADIONUCLIDES
2,4,5-TP (Silvex)	Dichloroethane	Trichloropropane	Butachlor	Hexachlorocyclopentadiene	
ASBESTOS	Dichloroethylene	Trimethylbenzene	Benzo(a)pyrene	3-Hydroxycarbofuran	Radium 226
	Asbestos Fibers	Dichloromethane	Xylene	Methomyl	

TEST RESULTS – REQUIRED REPORTING OR DETECTED COMPOUNDS

The following water quality analysis and testing information is required reporting or are substances that were detected in the drinking water. All of the substances that were detected are present at levels well below the U. S. EPA limits and do not pose a health risk to the general public.

Substance (units)	EPA Limit (MCL)	MWSD Maximum	MWSD Range	EPA Goal (MCLG)	Possible Source of the Contaminant
Microbial Contaminants					
Total Coliform (# Positive)	< 2	0	0	0	Very small organisms such as bacteria
Fecal Coliform & E. Coli (# Positive)	0	0	0	0	Naturally present in the environment
Total Organic Carbon (ppm)*	TT*	2.2	1.1 - 2.2	N/A	Human and animal fecal waste
Turbidity (NTU)*	TT*	0.07	0.02 - 0.07	N/A	Naturally present in the environment
Combined Radium (pCi/l)	5	1.5	1.5	0	Turbidity does not present any risk to your health and is measured to assess the effectiveness of the filtration system.
Inorganic Compounds					
Chlorine (ppm)	MRDL = 4	2.18	0.37 – 2.18	MRDLG = 4	Erosion of natural soil deposits
Chlorine Dioxide (ppb)	800	200	0 - 200	800	Substances of mineral origin
Chlorite (ppm)	1	0.14	0.00 - 0.14	0.80	Water additive used to control microbes
Fluoride (ppm)	4	0.73	0.64 - 0.73	4	Water additive used to control microbes
Nitrate (ppm)	10	0.5	0.5	10	Byproduct of drinking water chlorination
Sodium (ppm)	N/A	2.6	2.6	N/A	Added to prevent tooth decay, natural erosion
Copper (ppm)	AL = 1.3	0.21	0.00 - 0.45	1.3	Agricultural runoff, natural erosion, sewage discharge
Lead (ppb)	AL = 15	9	0 - 47	0	Natural erosion, component of water additives
Organic Compounds					
Haloacetic Acids Total (ppb)	60	42	21 – 31	0	Natural or synthetic carbon based compounds
Trihalomethanes Total (ppb)	80	43	26 - 40	0	Byproduct of drinking water disinfection

DEFINITIONS: **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. **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, or 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, or 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 the disinfectants to control microbial contaminants. **AL:** Action Level, or the concentration of a contaminant which, if exceeded, triggers treatment or other requirement which a water system must follow. **TT:** Treatment Technique, or a required process intended to reduce the level of a contaminant in drinking water. **BDL:** Below the Detection Limit. **ppb:** Parts per billion or micrograms per liter (explained in terms of money as one penny in \$10,000,000.00. **ppm:** parts per million or milligrams per liter (explained in terms of money as one penny in \$10,000.00. **pCi/L:** picocuries per liter. **NTU:** Nephelometric Turbidity Unit; Turbidity is a measure of the clarity of the water. Turbidity in excess of 5 NTU becomes just noticeable to the average person. * The Treatment Technique requirements for both Turbidity and Total Organic Carbon were met throughout the year.

USEPA NOTICE ON LEAD: 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. 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 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, test methods and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at www.epa.gov/safewater/lead. **THERE IS NO LEAD IN THE WATER PRODUCED BY THE DRUC WATER TREATMENT PLANT.**

SOURCE WATER MONITORING TEST RESULTS: The DRUC water source, Normandy Reservoir, is very clean and the DRUC encounters no difficulty in treating the water to EPA and State of Tennessee standards. The DRUC routinely monitors the reservoir water for various contaminants and any indication of potential pollution. Prevention of pollution of our water source is one of our highest priorities. Below is a summary of recent source water testing in cooperation with other agencies including the USEPA, State of Tennessee and Tennessee Valley Authority. **NONE** of these contaminants have ever been found in the treated water distributed to customers. These tests are strictly the results of testing on raw untreated water from Normandy Reservoir.

CRYPTOSPORIDIUM OOCYSTS: From 2003 to 2005, the DRUC completed 24 months of testing on **reservoir water** for this common organism that can be found in nature, mostly as a result of the presence of wildlife and livestock animals. During only 5 of the 24 monthly sampling events were oocysts detected. Those five samples ranged from 1 to 17 oocysts/liter of reservoir water. The test results are very low indicating little contamination of the reservoir from livestock or wildlife. NOTE: Federal regulations now require all surface water systems serving more than 10,000 people to sample for Cryptosporidium. The DRUC had already completed this required testing. Cryptosporidium is a microbial parasite which is found in surface waters throughout the United States. **No cryptosporidium oocysts were detected in any drinking water samples.** Cryptosporidium is effectively removed by filtration and the DRUC system currently provides treatment which is designed to remove cryptosporidium. The USEPA has determined that the presence of cryptosporidium at the concentration level reported in our source water is insignificant, based on the level of treatment we currently provide. Symptoms of cryptosporidium infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals are able to overcome the disease within a few weeks. However, immune-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. For more information on Cryptosporidium, contact the Safe Drinking Water Hotline (800-426-4791).