

# TULLAHOMA UTILITIES AUTHORITY

## 2018 WATER QUALITY REPORT

### Utility Information

We are once again proud to present to you our annual water quality report. This edition covers all testing completed January 1 through December 31, 2017. Over the years, we have dedicated ourselves to delivering drinking water that meets all state and federal drinking water standards. As new challenges to drinking water safety emerge, we remain vigilant in meeting the challenges of source water protection, water conservation, and community education while continuing to serve the needs of all our water customers.

Residents of Tullahoma and the surrounding area consume more than one billion gallons of water each year. Currently, TUA serves more than 10,000 water customers. The system maintains 265 miles of water mains and eight elevated water storage tanks.

### Water Source

The Tullahoma Utilities Authority's water is supplied by the Duck River Utility Commission (DRUC) which treats surface water from Normandy Reservoir. The reservoir was constructed by TVA in 1976 and is filled by flow from the upper Duck River basin and has a flood storage capacity of 62,400 acre-feet. 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 <http://www.tn.gov/environment/article/wr-wq-source-water-assessment> 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 their 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 TUA 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 the 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. It then flows through eight huge granular activated carbon contactors (GAC). These ultrafiltration membranes 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 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 CDC/ADA recommended level of 0.7 parts per million.

### Customer Commitment

TUA is committed to delivering safe and reliable water for all of our customers' needs. TUA and the DRUC are proud to report that the water produced by the DRUC filtration plant met all federal and state standards for drinking water during 2016. In fact, TUA and the DRUC have never violated any USEPA or State standard or regulation since it was formed in 1976.

TUA and the 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 twenty years, the DRUC has invested over \$17,000,000 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 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 storm water 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 storm water 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 storm water runoff and septic systems; and 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. The Food and Drug Administration (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 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).

### Information and Involvement

For more information about this report or other water quality questions, contact Scott Young, Water and Wastewater Systems Vice President at (931) 455-4515. The Tullahoma Utilities Authority meets on the fourth Tuesday of every month at 5:30 pm at the TUA offices at 901 S. Jackson Street, Tullahoma, Tennessee. The Public is always welcome to participate.

# 2017 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 TUA 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 – Required Reporting

The following water quality analyses 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 below the U. S. EPA limits and do not pose a health risk to the general public.

Substance (Units)	EPA Limit (MCL)	TUA Maximum	TUA Range	EPA Goal (MCLG)	Possible Source of the Contaminant
Microbial – Total Coliform	TT*	None	None	N/A	Naturally present in the environment
During the past year the Tullahoma Utilities Authority met all treatment techniques and monitoring and reporting requirements. No assessments or corrective actions were required.					
Fecal Coliform & E. Coli (#Positive)	0	0	0	0	Human and animal fecal waste
Total Organic Carbon (ppm)*	TT*	2.3	0.0 – 2.3	N/A	Naturally present in the environment
Turbidity (NTU)*	TT*	0.15	0.01 - 0.15	N/A	Turbidity does not present any risk to your health and is measured to assess the effectiveness of the filtration system.
<b>Inorganic Compounds</b>			<b>Substances of mineral origin</b>		
Chlorine (ppm)	MRDL = 4	2.00	0.42 – 2.00	MRDLG = 4	Water additive used to control microbes
Chlorine Dioxide (ppb)	800	24	0 - 24	800	Water additive used to control microbes
Chlorite (ppm)	1	0.97	0.00 - 0.97	0.80	Byproduct of drinking water chlorination
Fluoride (ppm)	4	0.89	0.36 - 0.89	4	Added to prevent tooth decay, natural erosion
Nitrate (ppm)	10	0.8	0.8	10	Agricultural runoff, natural erosion, sewage discharge
Copper (ppm)	AL = 1.3	0.16	None of 30 samples exceeded action limit	1.3	Corrosion of household plumbing, - 2017 Data
Lead (ppb)	AL = 15	2	Three of 30 samples exceeded action limit	0	Corrosion of household plumbing, - 2017 Data
<b>Organic Compounds</b>			<b>Natural or synthetic carbon based compounds</b>		
Haloacetic Acids Total (ppb)	60	44	31 - 58	0	Byproduct of drinking water disinfection
Trihalomethanes Total (ppb)	80	50	28 - 55	0	Byproduct of drinking water disinfection

### Unregulated Substances

Substance (Units)	Average	TUA Range	Possible Source of the Contaminant
Sodium (ppm)	6.3	6.3	Natural erosion, component of water additives

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.

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. **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. \* The Treatment Technique requirements for Total Coliform, 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. TUA 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 <http://www.epa.gov/safewater/lead>. No lead has ever been detected in samples of the water from the Reservoir or leaving DRUC Water Filtration 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 water distributed to customers. These tests are strictly the results of testing on raw, untreated water from Normandy Reservoir.

**Cryptosporidium Oocysts:** From 2014 through 2016, the DRUC initiated testing on reservoir water for this common organism found in nature, mostly as a result of the presence of wildlife and livestock animals. These monthly sampling events did not detect any oocysts. These test results are excellent and indicate that there is no 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 previously completed this required testing in 2004 – 2006 and 2014 through 2016. Cryptosporidium is a microbial parasite which is found in surface waters throughout the United States. **No cryptosporidium oocysts were ever 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).

### Contamination from Cross-connections

Cross connections that contaminate drinking water distribution lines are a major concern. A cross-connection is formed at any point where a drinking water line connects to equipment, or plumbing systems containing chemicals, or to water sources of questionable quality. Cross-connection contamination can occur when the pressure in the equipment or system is greater than the pressure inside the drinking water line (back pressure). Contamination can also occur when the pressure in the drinking water line drops due to fairly routine occurrences (main breaks, heavy water demand) causing contaminants to be sucked out from the equipment and into the drinking water line (backsiphonage).

Outside water taps and garden hoses tend to be the most common sources of cross-connection contamination at home. The garden hose creates a hazard when submerged in water or when attached to a chemical sprayer. Garden hoses that are left lying on the ground may be contaminated by fertilizers, cesspools, or garden chemicals. Community water supplies are continually jeopardized by cross-connections unless appropriate valves, known as backflow prevention devices, are installed and maintained. We have surveyed all industrial, commercial, and institutional facilities in our service area to make sure that all potential cross-connections are identified and eliminated or protected by a backflow preventer. We also inspect and test each backflow preventer to make sure that it is providing maximum protection. If anyone wishes to have a cross-connection survey completed at their home, please call TUA at (931) 455-4515.

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