



## Consumer Confidence Report

We at KUB are proud that every day we provide the community with high quality, safe drinking water. We have an excellent water quality record and are committed to maintaining it through stringent monitoring and testing.

Our state-of-the-art Water Quality Laboratory performs approximately 100,000 tests each year – many more than the law requires – and checks for more than 150 contaminants to ensure KUB’s drinking water and waterways are safe.

To ensure your water system is sustainable and maintains its excellent quality, KUB works to renew the more than 1,400 miles of pipe and dozens of pump stations and storage facilities that carry and deliver water to our community. Our Century II system replacement and maintenance program was put in place to address aging infrastructure, an issue that utilities nation-wide currently face. KUB replaces 1 percent of our water system each year with pipe that has an average life of 100 years.



The investment KUB places in our community’s health and future is well worth the replacement program cost. We’re proud of the fact that we continue to improve our infrastructure while providing water at a great value – less than a penny per gallon.

I hope you will take some time to look through this Water Quality Report and find yourself confident in the reliability and quality of your water.

If you have questions, please call KUB at 524-2911.

Thank you,

Gabriel J. Bolas  
KUB President and CEO

## Drinking Water Sources

Sources of drinking water (tap and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. Our source is surface water from the Tennessee River, which supplies the Mark B. Whitaker Water Plant.

As water travels over land or through the ground, it dissolves naturally occurring minerals and, sometimes, radioactive material. It can pick up substances resulting from human activity or the presence of animals.

- Contaminants that may be 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 occur naturally 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, which are by-products 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.

KUB works with the Tennessee Department of Environment and Conservation (TDEC) to protect our water from contaminants. TDEC has a Source Water Assessment Program (SWAP) Report that assesses the susceptibility of untreated water sources to potential contamination. The SWAP rates sources as reasonably susceptible (high), moderately susceptible (moderate), or slightly susceptible (low) based on geologic factors and human activities near the water source.

KUB’s water source is rated reasonably susceptible to potential contamination. To ensure safe drinking water, all public water systems treat and routinely test their water. An explanation of the SWAP, Source Water Assessment summaries, susceptibility scorings, and the overall TDEC report to EPA can be viewed online at <https://www.tn.gov/environment/program-areas/wr-water-resources/water-quality/source-water-assessment.html>, or you may contact KUB for copies of specific assessments.

## Protecting Our Source Water

Each of us can add to source water pollution without even knowing it. Here are ways you can help protect our source water and the environment:

- Recycle unwanted automotive products, cleaning products, pesticides, lawn chemicals, etc. Knoxville and Knox County residents can take waste to the Household Hazardous Waste Facility at 1033 Elm Street. Visit [www.knoxvilletn.gov](http://www.knoxvilletn.gov) and search for the facility for more information.
- Never flush unused medicine down drains or toilets. Take it to collection sites or events or the permanent drop box at the Knoxville Police Department Safety Building, 800 Howard Baker Jr. Avenue. For more information, please go to [www.kub.org](http://www.kub.org), and search for Water Quality, then click on Water Quality and follow the Help Protect Our Waterways link.
- Take a proactive role to contribute to the reduction of plastics in our community by properly disposing of plastics, recycling, participating in local trash pick-up efforts, and discouraging littering.

## Protecting Our Drinking Water

State and federal regulations require KUB to operate a Cross-Connection Control Program (CCCP) to protect our community’s drinking water from possible contamination. Anything customers attach to plumbing that may introduce contaminants is a potential cross-connection. If water pipes lose pressure, water from homes or businesses with cross-connections may contaminate our drinking water.

To prevent that, all customers with potential cross-connections must install, test, and maintain backflow prevention devices. Customers may need a device if they use chemicals or processing equipment, have an alternative water source, or have irrigation systems or fire protection systems.

Unprotected cross-connections can introduce public health risks. Therefore, KUB must ensure properties with risks have properly working backflow devices to ensure water quality and compliance.

For more information, visit [www.kub.org](http://www.kub.org) and search for cross-connection. If you have questions or think that you may have a cross-connection, please call KUB at 524-2911.



## Water Safety Regulations

To ensure tap water is safe to drink, EPA and the Tennessee Department of Environment and Conservation (TDEC) prescribe regulations that limit the amount of certain contaminants in water from public water systems. The U.S. Food and Drug Administration (FDA) establishes regulations and limits for contaminants in bottled water, which must provide the same level of protection for public health.

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. For more information about contaminants and potential health effects, call the EPA’s Safe Drinking Water Hotline at 1-800-426-4791.

## Information for Consumers at Risk

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised people, such as people with cancer undergoing chemotherapy, people 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. Those people should seek advice about drinking water from their health care providers.

EPA/Centers for Disease Control and Prevention guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbiological contaminants are available from the EPA’s Safe Drinking Water Hotline, 1-800-426-4791.

## Contact Information:

For more information about contaminants and potential health effects, call the **EPA’s Safe Drinking Water Hotline at 1-800-426-4791**. If you have questions about KUB’s water or this report, contact **KUB at 524-2911** or visit our website at [www.kub.org](http://www.kub.org).

KUB’s Board meets monthly in open public session. Please feel free to participate in the meetings. Information on regularly scheduled meetings can be obtained on our website or by calling KUB.

## Información en Español:

Esta información es muy importante. Por favor tradúscalo o hable con alguien que lo entienda bien. Para más información en español, llame a KUB al número de teléfono **524-2911** y oprima el número 2.

## Water Quality Summary Table

Inorganic and Disinfection By-Product Monitoring				
Parameter	Range or Level Detected	MCLG or MRDLG	MCL or MRDL	Likely Source in Drinking Water
Barium	21 ppb	N/A	2000 ppb	Discharge of drilling wastes and metal refineries; erosion of natural deposits
Nitrate	0.67 ppm	10 ppm	10 ppm	Runoff from fertilizer use; leaching from septic tanks; sewage; erosion of natural deposits
Fluoride	0.40 - 0.68 ppm (avg. 0.60 ppm)	4 ppm	4 ppm	Erosion of natural deposits; water additive, which promotes strong teeth; discharge from fertilizer and aluminum factories
Sodium	11 ppm	N/A	N/A	Used in treatment process
Total Organic Carbon (Source) <sup>1</sup>	1.8 - 4.3 ppm (avg 2.2 ppm)	N/A	TT	Naturally present in the environment
Total Organic Carbon (Tap) <sup>1</sup>	1.0- 1.5 ppm (avg 1.2 ppm)	N/A	TT	Naturally present in the environment
Total Trihalomethanes (THM)	Maximum LRAA: 56 ppb <sup>2</sup> Individual site range: 20 to 83 ppb <sup>3</sup>	N/A	80 ppb	Byproduct of drinking water chlorination
Haloacetic Acids (HAA)	Maximum LRAA: 45 ppb <sup>2</sup> Individual site range: 16 to 71 ppb <sup>4</sup>	N/A	60 ppb	Byproduct of drinking water chlorination
Chlorite	0.02 - 0.06 ppm (avg 0.02 ppm)	0.8 ppm	1 ppm	Byproduct of drinking water disinfection
Chlorine Dioxide	0.10 ppm	MRDLG = 0.8 ppm	MRDL = 0.8 ppm	Water additive used to control microbes
Chlorine	0.5 - 2.8 ppm (avg 1.6)	MRDLG = 4 ppm	MRDL = 4 ppm	Water additive used to control microbes
Microbial and Turbidity Monitoring				
Parameter	Range or Level Detected	MCLG	MCL	Likely Source in Drinking Water
Total Coliform	0 - 1.3% <sup>5</sup>	N/A	TT	Naturally present in the environment
Turbidity <sup>6</sup>	0.03 - 0.15 NTU	N/A	TT	Soil Runoff
Lead and Copper Monitoring				
Parameter	Range or Level Detected	MCLG	MCL	Likely Source in Drinking Water
Copper	0.228 ppm	1.3 ppm	AL=1.3 ppm	Customer plumbing and service connection
Lead <sup>7</sup>	1.6 ppb	0 ppb	AL=15 ppb	Customer plumbing and service connection

<sup>1</sup> KUB met the Treatment Technique requirement for Total Organic Carbon.

<sup>2</sup> Compliance is determined by calculating quarterly Locational Running Annual Averages (LRAAs) at all the required sampling sites. The range includes the highest and lowest results obtained from monitoring sites across our distribution system in 2018.

<sup>3</sup> 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.

<sup>4</sup> Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.

<sup>5</sup> Highest monthly percentage (August 2018, 2 of 156 samples taken).

<sup>6</sup> No treatment technique turbidity violations were incurred during 2018. We 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 of the water. KUB continuously monitors turbidity in numerous locations throughout the treatment process because it is a good indicator of the effectiveness of our filtration system. A short interruption with one of the individual filter turbidity meters occurred on 12/3/18 and resulted in a monitoring violation. During the time of this short interruption we cannot be sure of the quality of water coming from this individual filter. However at no time during this equipment interruption did the combined filter turbidity not meet water quality standards. We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not your drinking water meets health standards. There is nothing you need to do at this time. We have since upgraded our monitoring equipment to reduce the chances of a reoccurrence. For more information, please contact KUB at 524-2911 or PO Box 59017 Knoxville, TN 37950. Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

<sup>7</sup> One of fifty households sampled contained concentrations that exceeded the lead action level in 2016. 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. Knoxville Utilities Board 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 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 the EPA Safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>.

<sup>8</sup> KUB's drinking water meets all existing standards for safe water. In addition to the required testing, KUB tests for over 80 additional parameters. Most of the substances tested for were not found in our water. This table includes the results for additional parameters that were detectable.

### Additional Monitoring Data<sup>8</sup>

Parameter	Average Level Detected
Alkalinity	66 ppm
Aluminum	0.018 ppm
Calcium	22 ppm
Chloride	16 ppm
Hardness	84 ppm
Iron	0.006 ppm
Manganese	0.001 ppm
Orthophosphate	1.0 ppm
pH	7.2 Standard Units
Sulfate	12 ppm
Total Dissolved Solids	100 ppm
Zinc	0.093 ppm

## Keep the Lead Out: Reduce Potential Lead Exposure From Your Plumbing

Did you know your home's plumbing may affect the quality of water coming from your tap? Concerns about lead in drinking water primarily come from the corrosion, or wearing away, of materials in household plumbing that contain lead. Older homes (pre-1930) are more likely to have plumbing and fixtures containing lead. Even newer homes, however, can have lead solder or fixtures with lead. To control corrosion and reduce the risk of lead from customers' plumbing, KUB continues to use a safe corrosion inhibitor that meets strict standards for use in drinking water. KUB also routinely monitors water quality to ensure effective corrosion control. Those efforts greatly reduce corrosion and ensure that KUB's water will continue to comply with all regulatory standards for lead. For information on lead in drinking water, testing methods, and steps you can take to minimize exposure, call KUB (524-2911) or the EPA's Safe Drinking Water Hotline (1-800-426-4791).

### Terms and Definitions

**Action Level (AL):** the concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

**Below Detection Limit (BDL):** means that laboratory analysis indicates the contaminant is not present above the method's detection capability.

**Contaminant:** any physical, chemical, biological, or radiological substance or matter in water, which may or may not be harmful depending on the concentration.

**Cross Connection:** a physical connection between the public water system and another water supply or service that could contaminate the public water supply.

**Maximum Contaminant Level (MCL):** 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.

**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 adding a disinfectant is necessary for the control of microbial contaminants.

**Maximum Residual Disinfectant Level Goal (MRDLG):** below this level of a drinking water disinfectant, there is no known or expected risk to health. MRDLGs do not reflect the benefits of using disinfectants to control microbial contaminants.

**Nephelometric Turbidity Unit (NTU):** a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

**Treatment Technique (TT):** a required process intended to reduce the level of a contaminant in drinking water.

**Note:** To make the following common scientific measures of substances in water easier to understand, we have related them to examples.

**Parts per million (ppm) or milligrams per liter (mg/l)** One part per million is equivalent to one minute in two years or a single penny in \$10,000.

**Parts per billion (ppb) or micrograms per liter (ug/l)** One part per billion corresponds to one minute in 2,000 years or a single penny in \$10,000,000.

# KUB WATER QUALITY REPORT 2018

*Straight from the tap to you: Safe, affordable, high-quality water.*



KUB: 524-2911 (Español oprima el numero 2)  
[www.kub.org](http://www.kub.org)

