Water Quality Summary Table

Inorganic and Disinfection By-Product Monitoring				
Parameter	**MCLG or MRDLG**	**MCL or MRDL**	**Range or Level Detected**	**Likely Source in Drinking Water**
Barium	N/A	2000 ppb	24 ppb	Discharge of drilling wastes, metal refineries; erosion of natural deposits
Nitrate	10 ppm	10 ppm	0.49 ppm	Runoff from fertilizer use; leaching from septic tanks; sewage; erosion of natural deposits
Fluoride	4 ppm	4 ppm	0.20 - 0.94 ppm (avg 0.65)	Erosion of natural deposits; water additive, which promotes strong teeth; discharge from fertilizer and aluminum factories
Sodium	N/A	N/A	11 ppm	Used in treatment process
Total Organic Carbon (Source)[1]	N/A	TT	1.6 - 2.3 ppm (avg 1.8)	Naturally present in the environment
Total Organic Carbon (Tap)[1]	N/A	TT	0.9 - 1.2 ppm (avg 1.0)	Naturally present in the environment
Total Trihalomethanes (THM)	N/A	80 ppb	Max individual site RAA: 62 ppb[2] (1st quarter) Individual site range: 21 to 107 ppb[3]	By-product of drinking water chlorination
Haloacetic Acids (HAA)	N/A	60 ppb	Max individual site RAA: 34 ppb[2] (4th quarter) Individual site range: 16 to 44 ppb	By-product of drinking water chlorination
Chlorite	0.8 ppm	1 ppm	0.05 - 0.08 ppm (avg 0.05)	By-product of drinking water disinfection
Chlorine Dioxide	MRDLG = 0.8 ppm	MRDL = 0.8 ppm	0.10 - 0.19 ppm (avg 0.10)	Water additive used to control microbes
Chlorine	MRDLG = 4ppm	MRDL = 4 ppm	0.2 - 2.9 ppm (avg 1.7)	Water additive used to control microbes
Microbial and Turbidity Monitoring				
Total Coliform	0%	5%	0 - 1%[4]	Naturally present in the environment
Fecal Coliform and E. Coli	0	0	0	Human and animal fecal waste
Turbidity[5]	N/A	TT	0.03 - 0.10 NTU	Soil runoff
Lead and Copper Monitoring Results: 2010				
Parameter	**MCLG**	**MCL**	**90th Percentile Level**	**Likely Source in Drinking Water**
Copper	1.3 ppm	AL=1.3 ppm	0.198 ppm	Customer plumbing and service connection
Lead[6]	0 ppb	AL=15 ppb	1.9 ppb	Customer plumbing and service connection

[1] KUB met the Treatment Technique requirement for Total Organic Carbon.

[2] Compliance is determined by calculating a Running Annual Average (RAA) of all the sample results obtained quarterly at required sampling sites. The range includes the highest and lowest results obtained from monitoring across our distribution system.

[3] 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] Highest monthly percentage (September 2013, 2 of 196 samples taken).

[5] No Turbidity violations were incurred during 2013. We met the treatment technique for turbidity with 100 percent of monthly samples below the turbidity limit of 0.3 NTU. Turbidity is a measure of the cloudiness of the water. KUB monitors turbidity because it is a good indicator of the effectiveness of our filtration system.

[6] During the 2013 lead and copper testing, 1 of 65 households sampled contained concentrations that exceeded the action level. 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.

Additional Monitoring Data

Parameter	Average Level Detected
Alkalinity	64 ppm
Aluminum	15 ppb
Chloride	10 ppm
Hardness	81 ppm
Iron	6 ppb
Manganese	1 ppb
pH	7.2 Standard Units
Sulfate	21 ppm
Total Dissolved Solids	130 ppm
Zinc	93 ppb

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. These tables include the results for any parameter that was detectable.

Unregulated Monitoring Data

Parameter	Range or Level Detected
Chlorate	36 - 46 ppb (avg 40)
Chromium-6	0.031 - 0.12 ppb (avg 0.075)
Strontium	72 - 87 ppb (avg 78)
Vanadium	0.20 - 0.21 ppb (avg 0.20)
1,4-Dioxane	0.17 ppb

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 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.

Picocuries per liter (pCi/l): a measure of the radioactivity in water.

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.

WQRY14M3

KUB WATER QUALITY REPORT 2013

www.kub.org • 524-2911 (Espanol: oprima el numero 8)

Consumer Confidence Report

For nearly 75 years, KUB has provided a safe, reliable, and abundant supply of drinking water to help our community grow and thrive. We are proud of our history of service and our excellent water quality record, and we work hard every day to continue that tradition.

To help ensure your water is safe, KUB's modern Water Quality Laboratory annually performs about 100,000 tests—many more than required. We also check for over 150 contaminants to help protect our drinking water and waterways.

While we focus on water quality, we can't forget the more than 1,400 miles of pipe and dozens of pump stations and storage facilities that help deliver water to our community. As other water systems nationwide struggle to replace aging infrastructure, KUB is successfully renewing our system under Century II, our system replacement and maintenance program. KUB replaces 1 percent of our water system per year with pipe that has an average life of 100 years, which keeps us on a sustainable cycle.

Century II
KUB Investing for Another 100 Years

Replacement projects are expensive, but the investment in our community's health and future is worth it. And KUB's water is still a great value at one-half cent per gallon.

I hope you find this Water Quality Report useful. We want you to be confident you'll get a reliable supply of safe water every time you turn on your tap. If you have questions, please call KUB at 524-2911.

Thank you,

Mintha Roach

Mintha Roach
KUB Chief Executive Officer

Drinking Water Sources

The sources of drinking water (tap and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. Our water 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 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 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 http://www.tn.gov/environment/water/water-supply_source-assessment.shtml, or you may contact KUB to obtain 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.

- Take unwanted automotive products, cleaning products, pesticides, paint, lawn chemicals, etc. to a recycling center. Residents of Knoxville and Knox County can take waste to the Household Hazardous Waste Facility at 1033 Elm Street. For more information visit cityofknoxville.org/solidwaste/hazwaste.asp.
- Never flush unused medications down the drain or toilet. Instead, take them to collection sites or events or to the permanent drop box at the Knoxville Police Department Safety Building, 800 Howard Baker Jr. Avenue. For more information, see www.kub.org, Hot Topics Index, Unwanted Medicine Disposal.

Cross Connections

KUB routinely looks for cross connections between a customer's service and the public water system to protect water quality. Undetected cross connections can introduce contaminants into the water system. Customers with a cross connection must install a back flow device to help prevent contamination.

For residential customers, cross connections can occur where lawn irrigation systems, fire protection systems, pools, saunas, hot tubs, fountains, auxiliary intakes (e.g., wells, ponds, streams), and home water treatment systems exist. Chemicals or stagnant water from those installations can potentially enter the public water system. If you have a potential cross connection or have any questions regarding cross connections, please contact KUB or visit kub.org.

KUB's Guide to Safe Drinking Water

For more information about KUB's water system and treatment process, see our guide online at www.kub.org. [Look for Drinking Water Guide under the Hot Topics Index on the home page.] The guide also has tips on protecting our source water and answers to some common water questions.

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 provided by 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**.

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 traduscalo o hable con alguien que lo entienda bien. Para mas información en español, llame a KUB al numero de teléfono **524-2911 y oprima el numero 8.**