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.

Cross Connections

KUB routinely conducts inspections for cross connections between a customer’s service and the public water system to protect water quality. 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. The use of chemicals in these installations, or the presence of stagnant water, can contaminate the public water source if a backflow occurs. If you have a potential cross connection or have any questions regarding cross connections, please contact KUB.

Drinking Water Sources

The sources of drinking water (both 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 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:

• 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 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.
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To ensure that tap water is safe to drink, EPA and TDEC 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.

Contact Information

For more information about

• Contaminants and potential health effects, call the EPA’s Safe Drinking Water Hotline at 1-800-426-4791.
• KUB’s water or this report, contact KUB’s Customer Information Center at 524-2911 or visit our Web site at www.kub.org.

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Information en Español

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(865) 524-2911 • www.kub.org

The quality is clear.

Terms & Definitions

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

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

Maximum Contaminant Level (MCL) is 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) is 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) is 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.

Maximum Residual Disinfectant Level Goal (MRDLG) is 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.

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

Non-Detects (ND) means that laboratory analysis indicates the contaminant is not present above the method’s detection capability.

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

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

Consumer Confidence Report

An amendment to the Safe Drinking Water Act in 1996 required that water suppliers publish and furnish customers with a Consumer Confidence Report (CCR) every year beginning in 1999. The Knoxville Utilities Board (KUB) began publishing an annual Water Quality Report more than ten years before this requirement.

KUB performs many more tests than federal and state laws and the Environmental Protection Agency (EPA) require to provide our customers with safe, high-quality drinking water. KUB has always met or exceeded federal and state water quality standards, and we look forward to continuing that tradition in the future.

As you will see from the data in the tables included in this brochure, our system had no water quality monitoring violations. Although monitoring did detect the presence of some contaminants in small quantities, none exceeded the acceptable levels established by the EPA. 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 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.

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The quality is clear.
**Microbiological Contaminants**

<table>
<thead>
<tr>
<th>Contaminant</th>
<th>Violation</th>
<th>Maximum Level Detected</th>
<th>Unit</th>
<th>MCLG</th>
<th>MCL</th>
<th>Likely Source of Contamination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fecal Coliform and E. Coli</td>
<td>N</td>
<td>0</td>
<td>% pos</td>
<td>0</td>
<td>0</td>
<td>Human and animal fecal waste</td>
</tr>
<tr>
<td>Total Coliform†</td>
<td>N</td>
<td>1.5</td>
<td>% pos</td>
<td>0</td>
<td>5</td>
<td>Naturally present in the environment</td>
</tr>
<tr>
<td>Turbidity‡</td>
<td>N</td>
<td>0.16</td>
<td>NTU</td>
<td>N/A</td>
<td>TT</td>
<td>Soil runoff</td>
</tr>
</tbody>
</table>

**Radioactive Contaminants**

<table>
<thead>
<tr>
<th>Contaminant</th>
<th>Violation</th>
<th>Maximum Level Detected</th>
<th>Unit</th>
<th>MCLG</th>
<th>MCL</th>
<th>Likely Source of Contamination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alpha Emitters</td>
<td>N</td>
<td>&lt;2.0</td>
<td>pCi/l</td>
<td>0</td>
<td>15</td>
<td>Erosion of natural deposits</td>
</tr>
<tr>
<td>Beta/Photon Emitters§</td>
<td>N</td>
<td>2.7</td>
<td>pCi/l</td>
<td>0</td>
<td>50</td>
<td>Decay of natural and man-made deposits</td>
</tr>
<tr>
<td>Combined Radium</td>
<td>N</td>
<td>&lt;1.25</td>
<td>pCi/l</td>
<td>0</td>
<td>5</td>
<td>Erosion of natural deposits</td>
</tr>
</tbody>
</table>

**Inorganic Contaminants**

<table>
<thead>
<tr>
<th>Contaminant</th>
<th>Violation</th>
<th>Maximum Level Detected</th>
<th>Unit</th>
<th>MCLG</th>
<th>MCL</th>
<th>Likely Source of Contamination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barium</td>
<td>N</td>
<td>22</td>
<td>ppb</td>
<td>0</td>
<td>2000</td>
<td>Discharge of drilling wastes and metal refiners; erosion of natural deposits</td>
</tr>
<tr>
<td>Nitrate (as Nitrogen)</td>
<td>N</td>
<td>0.5</td>
<td>ppm</td>
<td>10</td>
<td>10</td>
<td>Runoff from fertilizer use; leaching from septic tanks; sewage; erosion of natural deposits</td>
</tr>
<tr>
<td>Fluoride</td>
<td>N</td>
<td>1.2</td>
<td>ppm</td>
<td>4</td>
<td>4</td>
<td>Erosion of natural deposits; water additive, which promotes strong teeth; discharge from fertilizer and aluminum factories</td>
</tr>
</tbody>
</table>

**Volatile Organic Contaminants**

<table>
<thead>
<tr>
<th>Contaminant</th>
<th>Violation</th>
<th>Maximum Level Detected</th>
<th>Unit</th>
<th>MCLG</th>
<th>MCL</th>
<th>Likely Source of Contamination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trichloromethane (THM)</td>
<td>N</td>
<td>Max Quarter RAA: 49 ppb (4th quarter) – Individual site range: 33–76 ppb</td>
<td>ppb</td>
<td>N/A</td>
<td>80</td>
<td>By-product of drinking water chlorination</td>
</tr>
<tr>
<td>Haloacetic Acids (HAA)</td>
<td>N</td>
<td>Max Quarter RAA: 30 ppb (4th quarter) – Individual site range: 16–43 ppb</td>
<td>ppb</td>
<td>N/A</td>
<td>60</td>
<td>By-product of drinking water chlorination</td>
</tr>
</tbody>
</table>

**Other Contaminants§**

<table>
<thead>
<tr>
<th>Contaminant</th>
<th>Violation</th>
<th>Maximum Level Detected</th>
<th>Unit</th>
<th>MCLG</th>
<th>MCL</th>
<th>Likely Source of Contamination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum</td>
<td>N</td>
<td>20</td>
<td>ppb</td>
<td>N/A</td>
<td>N/A</td>
<td>Erosion of natural deposits; residue from some surface water treatment processes</td>
</tr>
<tr>
<td>Chloride</td>
<td>N</td>
<td>10</td>
<td>ppm</td>
<td>N/A</td>
<td>N/A</td>
<td>Runoff, leaching from natural deposits</td>
</tr>
<tr>
<td>Sodium</td>
<td>N</td>
<td>13</td>
<td>ppm</td>
<td>N/A</td>
<td>N/A</td>
<td>Used in treatment process</td>
</tr>
<tr>
<td>Sulfate</td>
<td>N</td>
<td>20</td>
<td>ppm</td>
<td>N/A</td>
<td>N/A</td>
<td>Substances that form ions when in water</td>
</tr>
<tr>
<td>Total Dissolved Solids</td>
<td>N</td>
<td>110</td>
<td>ppm</td>
<td>N/A</td>
<td>N/A</td>
<td>Runoff, leaching from natural deposits</td>
</tr>
<tr>
<td>Zinc</td>
<td>N</td>
<td>86</td>
<td>ppb</td>
<td>N/A</td>
<td>N/A</td>
<td>Naturally present in the environment</td>
</tr>
</tbody>
</table>

**Lead and Copper Study • 2007 Test Results**

<table>
<thead>
<tr>
<th>Contaminant</th>
<th>Violation</th>
<th>Maximum Level Detected</th>
<th>Unit</th>
<th>MCLG</th>
<th>MCL</th>
<th>Likely Source of Contamination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper</td>
<td>N</td>
<td>0.171</td>
<td>ppm</td>
<td>1.3</td>
<td>AL=1.3</td>
<td>Customer plumbing and service connection</td>
</tr>
<tr>
<td>Lead§</td>
<td>N</td>
<td>3.1</td>
<td>ppb</td>
<td>0</td>
<td>AL=15</td>
<td>Customer plumbing and service connection</td>
</tr>
</tbody>
</table>

**Cryptosporidium • 2006-2007 Test Results**

<table>
<thead>
<tr>
<th>Source Water Monitoring</th>
<th>Violation</th>
<th>Maximum Level Detected</th>
<th>Unit</th>
<th>MCLG</th>
<th>MCL</th>
<th>Likely Source of Contamination</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>0.016</td>
<td>oocyst/L</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

**Disinfection By-Products**

<table>
<thead>
<tr>
<th>Contaminant</th>
<th>Violation</th>
<th>Range and/or Maximum Level Detected at Entry Point</th>
<th>Maximum Level Detected in Distribution System</th>
<th>Unit</th>
<th>MRDLG or MCLG</th>
<th>MRDL or MCL</th>
<th>Likely Source of Contamination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlorine Dioxide</td>
<td>N</td>
<td>0–504</td>
<td>N/A</td>
<td>ppb</td>
<td>MRDLG=800</td>
<td>MRDL=800</td>
<td>Water additive used to control microbes</td>
</tr>
<tr>
<td>Chlorite</td>
<td>N</td>
<td>0–0.25</td>
<td>0.09</td>
<td>ppm</td>
<td>0.8</td>
<td>1</td>
<td>By-product of drinking water disinfection</td>
</tr>
<tr>
<td>Total Organic Carbon (Source)†</td>
<td>N</td>
<td>1.5–4.3 (avg 2.2)</td>
<td>N/A</td>
<td>ppm</td>
<td>N/A</td>
<td>TT</td>
<td>Naturally present in the environment</td>
</tr>
<tr>
<td>Total Organic Carbon (Tap)†</td>
<td>N</td>
<td>1.1–2.6 (avg 1.5)</td>
<td>N/A</td>
<td>ppm</td>
<td>N/A</td>
<td>TT</td>
<td>Naturally present in the environment</td>
</tr>
<tr>
<td>Chlorine</td>
<td>N</td>
<td>1.6–3.4 (avg 2.2)</td>
<td>0.3–2.8</td>
<td>ppm</td>
<td>MRDLG=4</td>
<td>MRDL=4</td>
<td>Water additive used to control microbes</td>
</tr>
</tbody>
</table>

†Highest monthly percentage (September 2009, three of 201 samples taken). ‡No turbidity violations were incurred in 2009. 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. EPA considers 50 pCi/l to be the level of concern for beta particles. §Compliance is determined by calculating a Running Annual Average (RAA) of all the sample results obtained quarterly at required sampling sites. In conjunction with the above listed drinking water monitoring results, KUB analyzed in excess of 100 additional contaminants during 2009 with no results above detectable levels. During the 2007 tri-annual lead and copper testing, two out of 79 households sampled contained concentrations exceeding 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, 1-800-426-4791 or at http://www.epa.gov/safewater/lead.