

## West Knox Utility Annual Drinking Water Report for 2009

West Knox Utility District is pleased to present this year's Annual Water Quality Report. The information contained in the table covers the period from January 1, 2009 through December 31, 2009. This report shows that your drinking water, like all drinking water (including bottled water) contains small amounts of some contaminants. It is important to remember that the presence of these contaminants does not necessarily pose a health risk. The United States Environmental Protection Agency (EPA) and the Tennessee Department of Environment and Conservation (TDEC) have established limits on these contaminants. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Hotline at: 1-800-426-4791.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, 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:

- 1.) Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- 2.) 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.
- 3.) Pesticides and herbicides, which may come from a variety of sources such as agricultural, urban stormwater runoff, and residential areas.
- 4.) 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.
- 5.) Radioactive contaminants, which can be naturally-occurring or be 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.

Presently West Knox Utility District operates two surface water treatment plants both located on the Clinch River on Melton Hill Lake. Our goal is to protect our water from contaminants and we are working with the State to determine the vulnerability of our water source to *potential* contamination. The Tennessee Department of Environment and Conservation (TDEC) has prepared a Source Water Assessment Program (SWAP) Report for the untreated water sources serving this water system. The SWAP report assesses the susceptibility of untreated water sources to *potential* contamination.

To ensure safe drinking water, all public water systems treat and routinely test their water. Water sources have been rated as reasonably susceptible (high), moderately susceptible (moderate) or slightly susceptible (low), based on geologic factors and human activities in the vicinity of the water source. The WKUD Water System sources are rated as reasonably susceptible to potential contamination. An explanation of Tennessee's Source Water Assessment Program, the Source Water Assessment summaries, susceptibility scorings and the overall TDEC report to EPA can be viewed online at: [www.state.tn.us/environment/dws/dwassess.shtml](http://www.state.tn.us/environment/dws/dwassess.shtml) or you may contact the Water System to obtain copies of specific assessments.

As you can see by the table our system had no violations. We're proud that your drinking water meets or exceeds all Federal and State requirements. We have learned through our monitoring and testing that some contaminants have been detected. The EPA has determined that your water **IS SAFE** at these levels.

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 the 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 microbial contaminants are available from the Safe Drinking Water Hotline at: 1-800-426-4791.

We want all of our customers to be informed about their water and utility. If you want to learn more please attend any of our regularly scheduled meetings. They are held on the 4th Thursday of each month at 9:00 a.m. at the West Knox Utility District office located at 2328 Lovell Road, Knoxville, Tennessee. You may also contact West Knox Utility District as listed below:

West Knox Utility District  
P.O. Box 51370  
Knoxville, TN 37950-1370

Main Office: 865-690-2521  
Main Office Fax: 865-531-1960  
Water Plant: 865-690-4403  
Email: [www.wkud.com](http://www.wkud.com)



# West Knox Utility District Water Quality Report 2009

# Terms & Definitions

**Below Detectable Limits (BDL)** - Laboratory analysis indicates that the contaminant is not present in a detectable quantity.

**Parts per million (ppm) or Milligrams per liter (mg/L)** - one part per million corresponds to one minute in two years of 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 years, or a single penny in \$10,000,000.

**Parts per trillion (ppt) or Nanograms per liter (nanograms/L)** - one part per trillion corresponds to one minute in 2,000,000 years or one penny in \$10,000,000,000,000.

**Parts per quadrillion (ppq) or Picograms per liter (picograms/L)** - one part per quadrillion corresponds to one minute in 2,000,000,000 years or one penny in \$10,000,000,000,000.

**Picocuries per liter (pCi/L)** - picocuries per liter is a measure of the radioactivity in water.

**Millirems per year (mrem/yr)** - measure of radiation absorbed by the body.

**Million Fibers per Liter (MFL)** - million fibers per liter is a measure of the asbestos fibers that are no longer than 10 micrometers.

**Nephelometric Turbidity Unit (NTU)** - nephelometric turbidity unit is a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person. Turbidity does not present any risk to your health. West Knox Utility District monitors turbidity because it is a good indicator that our filtration system is functioning properly.

**Variations & Exemptions (V&E)** - State or EPA permission not to meet a MCL or a treatment technique under certain conditions. The State of Tennessee does not allow variations and exemptions.

**Action Level** - The concentration of a contaminant, which, if exceeded, triggers treatment or other requirements that a water system must follow.

**Treatment Technique (TT)** - A treatment technique is a required process intended to reduce the level of a contaminant in drinking water.

**Maximum Contaminant Level (MCL)** - The "maximum allowed" is the highest level of a contaminant that is allowed in drinking water. MCL's are set as close to the MCLG's as feasible using the best available treatment technology.

**Maximum Containment Level Goal (MCLG)** - The goal is the level of contaminant in drinking water, which below there is no known or expected risk to health. MCLG's allow for a margin of safety.

**CCR Units** - CCR Units express the MCL in whole numbers. For example ppb are used to eliminate fractions of ppm. (I.E. 0.050 ppm = 50 ppb)

**MRDL** - 'Maximum Residual Disinfectant Level' - the highest level of 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' - The level of drinking water disinfectant below which there is no known or expected risk to health. MRDLG's do not reflect the benefits of the use of disinfectants to control microbial contaminants.

1 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 increased risk of getting cancer.

2 Cryptosporidium is a microbial parasite which is found in surface water throughout the U.S. Although Cryptosporidium can be removed by filtration, the most commonly used filtration methods cannot guarantee 100 percent removal. Monitoring of our source water indicated the presence of cryptosporidium in 4 out of 18 samples tested. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals are able to overcome the disease within a few weeks. However, immuno-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 at: 1-800-426-4791.

# Water Quality Summary

Contaminant	MCLG	MCL	Level Found	Range of Detections	Violations	Sample Date	Typical Source of Contaminant
Total Coliform Bacteria	0	N/A	4.93%-November 4/Month	0-4 col. Positive 12 total/year(2009)	N	60+/month	Naturally Present In The Environment
Fecal Coliform & E. Coli	0	N/A	0	0-0	N	60+/month	Human & animal fecal waste
Turbidity	N/A	TT- 95% <0.3 NTU	.16 ntu Plant A .13ntu Plant B	.04-0.16 ntu Plant A .04-.13 ntu Plant B	N	Continuous	Soil Run-Off
Sodium	N/A	N/A	15 ppm Plant A 13 ppm Plant B	15 ppm Plant A 13 ppm Plant B	N N	1-06-2009 1-06-2009	Erosion of Natural Deposits
Sulfate	N/A	250 ppm	30 ppm Plant A 29 ppm Plant B	30 ppm Plant A 29 ppm Plant B	N N	11-11-2008 11-11-2008	Erosion Of Natural Deposits
Barium	2 ppm	2ppm	0.038 ppm Plant A 0.038 ppm Plant B	0.038 ppm Plant A 0.038 ppm Plant B	N N	11-11-2008 11-11-2008	Discharge of Drilling Waste. Discharge from Metal Refineries
Copper (0 out of 30 sites exceeded Cu action level)	1.3 ppm	AL=1.3 ppm	90th Percentile = 0.021 ppm	.BDL-0.053 ppm	N	June 2008	Corrosion of household plumbing systems; Erosion of natural deposits; leaching from wood preservatives.
Flouride							Erosion of Natural Deposits; Water additive which promotes strong teeth; Discharge from fertilizer & aluminum factories.
Plant A	4 ppm	4 ppm	2.52 ppm	.63- 2.52 ppm	N	Daily	
Plant B	4 ppm	4 ppm	1.27 ppm	.86- 1.27 ppm	N	Daily	
Lead * <u>3</u> (0 out of 30 sites exceeded Pb action level)	0	AL=.015 ppm	90th Percentile = 0.0013 ppm	BDL-.0041 ppm	N	June 2008	Corrosion of household systems.
Nitrate	10	10 ppm	0.12 Plant A ppm	0.12 Plant A	N	7/06/2009	Run-off from fertilizer use;
	10	10 ppm	0.68 Plant B ppm	0.68 Plant B	N	7/06/2009	
TTHM's * <u>1</u> (Total Trihalomethanes)	0	80 ppb	51 ppb Plant A	19-89 ppb Plant A	N	Quarterly	Byproduct of Drinking Water Chlorination.
	0	80 ppb	49 ppb Plant B	19-89 ppb Plant B	N		
HAA5's * <u>2</u> (Total Haloacetic Acids)	0	60 ppb	27 ppb Plant A	10-50 ppb Plant A	N	Quarterly	Byproduct of Drinking Water Chlorination
	0	60 ppb	24 ppb Plant B	9-50 ppb Plant B	N		
FOC's Total Organic Carbon (WKUD met the treatment technique for Total Organic Carbon)	0	N/A	1.40 ppm Plant A	1.10-1.90 ppm - A	N	Monthly	Naturally present in the environment.
	0	N/A	1.20 ppm Plant B	0.90-1.80 ppm- B	N		
Chlorine	MRDL	MRDLG					Disinfection
Plant A	<4	4	2.40 ppm	1.0-3.4 ppm	N	Continues	
Plant B	<4	4	2.40 ppm	1.0-3.4 ppm	N		
Cryptosporidium	0	0	0.1 Oocyst/L	0-1 / 10L	N	Monthly	Microbial parasite found in surface water throughout the U.S.
Plant A	0	0	0.1 Oocyst/L	0-1 / 10L			
Plant B	0	0					

3. 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. West Knox Utility District 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, testing 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>."