

Water Quality Data

What does this chart mean?

MCLG - Maximum Contaminant Level Goal 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.

MCL - Maximum Contaminant Level is the highest level of a contaminant that is allowed in drinking water. Maximum Contaminant Levels are set at very stringent levels. MCLs are set as close to the MCLGs as feasible using the best available treatment technology. To understand the possible health effects described for many regulated constituents, a person would have to drink 2 liters of water every day at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect.

MRDL - Maximum Residual Disinfectant Level is 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 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.

AL - Action Level or the concentration of a contaminant which, when exceeded, triggers treatment or other requirements which a water system must follow.

Non-Detects (ND) - laboratory analysis indicates that the contaminant is not present.

Parts per million (ppm) or Milligrams per liter (mg/l) – explained as a relation to time and money as one part per million corresponds to one minute in two years or a single penny in \$10,000.

Parts per billion (ppb) or Micrograms per liter - explained as a relation to time and money as one part per billion corresponds to one minute in 2,000 years, or a single penny in \$10,000,000.

Picocuries per liter (pci/l) - picocuries per liter is a measure of the radioactivity in water.

Million Fibers per Liter (MFL) - million fibers per liter is a measure of the presence of asbestos fibers that are 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.

TT - Treatment Technique or a required process intended to reduce the level of a contaminant in drinking water.

N/A - Not Applicable

Avg. - Average

BDL – Below Detection Level

Columbia Water System

Water Quality Report

2009



Is my drinking water safe?

Yes, our water meets all of EPA's health standards. We have conducted numerous tests for over 81 contaminants that may be in drinking water. As you'll see in the chart on the back, we only detected 13 of these contaminants. We found all of these contaminants at safe levels.

What is the source of my water?

Your water comes from a surface water source called the Duck River. Our goal is to protect our water from contaminants and we are working with the State of Tennessee 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 water sources serving this water system. The SWAP Report assesses the susceptibility of public water supplies to *potential* contamination. Water sources have been rated as reasonably susceptible (high), moderately susceptible (moderate), or slightly susceptible (low) based on geological factors and human activities in the vicinity of the water source. The Columbia Water System source rated as slightly 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 or you may contact Columbia Water System or TDEC at 1-888-891-TDEC to obtain copies of specific assessments.

Most of the data presented in this table is from testing done between January and December of 2009.

Contaminant	Violation Y/N	Level Detected	Range of Detections	Date of Sample	Unit Measurement	MCLG	MCL	Likely Source of Contamination
Total Coliform Bacteria	No	0				0	presence of coliform bacteria in 5% of monthly samples	Naturally present in the environment
Turbidity ***	No	.19	.030-.068	2009	NTU	N/A	TT 100% of samples meet std.	Soil runoff
Copper *	No	90 th %= 0.14	.0026-1.0	11-14-2007	ppm	1.3	AL=1.3 No sites exceed action level.	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Cyanide	No	.0052		05-17-2006	ppm	.2	.2	Discharge from steel/metal factories; discharge from plastic and fertilizer factories
Fluoride	No	.886 Avg.	.094-1.1	2009	ppm	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
³ Lead *	No	90 th %=< .0016	.5-7.6	11-14-2007	ppb	0	AL=15 No sites exceed action level.	Corrosion of household plumbing systems; erosion of natural deposits
² Nitrate (as Nitrogen)	No	.72		07-16-2009	ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Sodium	No	3.3		05-20-2009	ppm	N/A	N/A	Erosion of natural deposits; used in water treatment
HAA Haloacetic Acid	No	38.7 Avg.	11.4-64	2009	ppb	0	60	By-product of drinking water chlorination
TTHM [Total trihalomethanes]	No	45.5 Avg.	11.1-112	2009	ppb	0	80	By-product of drinking water chlorination
Atrazine	No	.43		07-16-2009	ppb	3	3	Runoff from herbicide used on row crops
Total Organic Carbon **	No	1.988 Avg.	1.02-3.54	2009	ppm	TT	TT	Naturally present in the environment.
Chlorine	No	3.47	1.0-3.47	2009	ppm	4	4	Water additive used to control microbes.

* 0 sites out of 60 sites sampled exceeded the copper or lead action levels.

** We met the treatment technique for Total Organic Carbon in 2009.

*** We met the treatment technique for Turbidity with 99% of monthly samples below the Turbidity limit of 0.3 NTU.

Other information

Due to all water containing dissolved contaminants, occasionally your water may exhibit slight discoloration. We strive to maintain the standards to prevent this. We at Columbia Water System work around the clock to provide top quality water to every tap. We ask that all our customers help us protect our water sources, which are the heart of our community, our way of life and our children's future. 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. The following contaminants may be present in source water:

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 organic chemicals, which are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems.

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.

How can I get involved?

Our Board of Public Utilities meets on the fourth Monday of every month at 201 Pickens Lane. Please feel free to participate in these meetings.

Why are there contaminants in my water?

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. Community water systems are required to disclose the detection of contaminants; however, bottled water companies are not required to comply with this regulation. 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).

Is our water system meeting other rules that govern our operations?

The State and EPA require us to test and report on our water on a regular basis to ensure its safety. We have met all of these requirements. We want you to know that we pay attention to all the rules.

Do I need to take special precautions?

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 for infections. These people should seek advice about not only their drinking water, but food preparation, personal hygiene, and precautions in handling infants and pets 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 (800-426-4791).



Health Effects

Microbiological Contaminants:

Total Coliform - Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems.

Turbidity - Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.

Inorganic Contaminants:

Copper - Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's disease should consult their personal doctor.

Cyanide - Some people who drink water containing cyanide well in excess of the MCL over many years could experience nerve damage or problems with their thyroid.

Fluoride - Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Children may get mottled teeth.

Lead - Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.

Nitrate - Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.

Atrazine - Some people who drink water containing atrazine well in excess of the MCL over many years could experience problems with their cardiovascular system or reproductive difficulties.

Chlorine - Some people who use water containing chlorine well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people, who drink water containing chlorine well in excess of the MRDL, could experience stomach discomfort.

Cryptosporidium - Federal Regulations now require all surface water systems serving more than 10,000 people to sample their source water for cryptosporidium. Cryptosporidium is a microbial parasite which is found in surface water throughout the U.S. Monitoring of source water indicated the presence of cryptosporidium in five out of twenty-four samples tested in 2004 and 2005. **No cryptosporidium was detected in our finished water samples.** Although cryptosporidium can be removed by filtration, most commonly used filtration methods cannot guarantee 100 percent removal. Our system currently provides treatment which is designed to remove 99.9 percent of cryptosporidium. **EPA 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. Immune-compromised individuals are encouraged to consult their doctor regarding appropriate precautions to prevent infection. For more information on cryptosporidium, contact the Safe Drinking Water Hotline (1-800-426-4791).

Sodium - Sodium levels in drinking water from most public water systems are unlikely to be a significant contribution to adverse health effects.

TTHMs [Total Trihalomethanes] - 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.

HAA [Haloacetic Acids] - Some people who drink water containing HAA's, in excess of the MCL over many years may have an increased risk of getting cancer.

TOC [Total Organic Carbon] - TOC has no health effects; however total organic carbon provides a medium for the formation of disinfection by-products. These by-products include trihalomethanes (THM's), and haloacetic acids (HAA's). Drinking water containing these by-products in excess of the MCL may lead to adverse health effects, liver or kidney problems, or nervous system effects, and may lead to an increased risk of getting cancer.

Other Information

¹EPA is reviewing the drinking water standard for arsenic because of special concerns that it may not be stringent enough. Arsenic is a naturally occurring mineral known to cause cancer in humans at high concentrations.

²Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant you should ask advice from your health care provider.

³If 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. Columbia Water System 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 (1-800-426-4791), or at <http://www.epa.gov/safewater/lead>.

For more information about your drinking water, please call Kelly Powell at 388-4833 Ext. 7646.