



2011 Water Quality Report

Wythe County Water Department

340 South Sixth Street
Wytheville, VA 24382
(276) 223-6021
Fax (276) 223-6030
www.wytheco.org

This Annual Drinking Water Quality Report for calendar year 2011 is designed to inform you about your drinking water quality. Our goal is to provide you with a safe and dependable supply of drinking water and we want you to understand the efforts we make to protect your water supply. The quality of your drinking water must meet state and federal requirements administered by the Virginia Department of Health (VDH). If you have questions about this report, please contact our office at (276) 223-6021

If you want additional information about any aspect of your drinking water or want to know how to participate in decisions that may affect the quality of your drinking water, you may contact our office or come to a board meeting. The Wythe County Board of Supervisors meet the second and fourth Tuesday of each month. The meeting times are 7 p.m. and 9 a.m. respectively. You may also check our website for meeting information at www.wytheco.org.

Water Sources

Your water comes from one or more of the following sources:

■ Ft Chiswell, Max Meadows, Ivanhoe, Grahams Forge areas (Main System)

The sources of your drinking water are surface water and groundwater. The surface water source is New River treated by the New River Regional Water and Reed Creek treated by the Wytheville water treatment plant. The ground water sources consist of wells located in the Max Meadows and Ft. Chiswell communities.

■ Speedwell System

The source of your drinking water is groundwater by two wells. One well which supplies the Speedwell Water Treatment plant removes iron and manganese. The Speedwell Water Treatment Plant also provides chlorination. The second well is equipped only with chlorination.

Source Water Assessment

A *source water assessment* of our system was conducted in 2002 by the Virginia Department of Health. The wells and river sources were determined to be of high susceptibility to contamination using the criteria developed by the state in its approved Source Water Assessment Program.

The assessment report consists of maps showing the source water assessment area, an inventory of known land use activities of concern, and documentation of any known contamination within the last five years. The report is available by contacting the Wythe County Water Department.

Contaminants in Drinking Water

Drinking water, including bottled drinking 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 can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791) or the EPA's website (www.epa.gov/drink).

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 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 microbiological contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

Potential Sources of Contamination

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. Water can pick up substances resulting from the presence of animals or from human activity. 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 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 byproducts 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.

In order to ensure tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

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. Wythe County 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 15 to 30 seconds or until it becomes cold or reaches a steady temperature 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>.

Cryptosporidium

In March 2010, the Town of Wytheville began monitoring for *Cryptosporidium* in the source water (before treatment) as required by EPA's Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR). *Cryptosporidium* is a microscopic parasite found in surface water throughout the United States. Ingestion of *cryptosporidium* may cause cryptosporidiosis, an abdominal infection. Although filtration removes *Cryptosporidium*, the most commonly-used filtration methods cannot guarantee 100 percent removal. Under the LT2ESWTR, the average *Cryptosporidium* concentration determines if additional treatment measures are needed. Twenty-four samples are required for analysis over a two year period. During 2011, the average *Cryptosporidium* concentration was 0.025 oocysts per liter for the 10 samples collected. While our monitoring indicates the presence of these organisms in our source water (before treatment), the current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. Based on the *Cryptosporidium* monitoring results so far and the consistent performance of the treatment plant, we anticipate surpassing any future treatment requirements of the LT2ESWTR.

Key Terms & Definitions

Contaminants in your drinking water are routinely monitored according to Federal and State regulations. The tables show the results of our monitoring for the period of January 1 to December 31, 2011. In the table and elsewhere in this report you will find many terms and abbreviations you might not be familiar with. The following definitions are provided to help you better understand these terms:

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

■ **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 addition of a disinfectant is necessary for control of microbial contaminants.

■ **Maximum Residual Disinfectant Level Goal (MRDLG):** the level of 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):** nephelometric turbidity unit is a measure of the clarity, or cloudiness, of water. Turbidity in excess of 5 NTU is just noticeable to the average person. Turbidity is monitored because it is a good indicator of the effectiveness of our filtration system.

■ **Non-detects (ND):** lab analysis indicates that the contaminant is not present

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

Measuring Units

■ **Parts per million (ppm) or Milligrams per liter (mg/l):** 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:** 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 a single penny in \$10,000,000,000.

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

Water Quality Results

Main System

(New River and Reed Creek, Ft Chiswell and Max Meadows wells)

Contaminant (Units)	MCLG	MCL	Level Detected	Violation	Range Detected	Date of Sample	Typical Source of Contamination
Nitrate (ppm)	10	10	0.82	N	0.29 - .82	2011	Runoff from fertilizer use; Leaching from septic tanks,
Fluoride (ppm)	4	4	0.99	N	ND - .99	2011	Water additive which promotes strong teeth
Barium (ppm)	2	2	0.224	N	0.19 - 0.224	2011	Discharge of drilling waste; Discharge from metal refineries; Erosion of natural deposits
Alpha Emitters (pCi/l)	0	15	1	N	ND - 1	2009 & 2010	Erosion of natural deposits
Combined Radium (pCi/l)	0	5	2.1	N	ND - 2.1	2009 & 2010	Erosion of natural deposits
Chlorine (ppm)	MRDLG = 4	MRDL = 4	1.07	N	0.2 - 1.8	2011	Water additive used to control microbes
Total Organic Carbon	NA	TT, met when ≥1	1.02	N	1.02 - 1.12	2011	Naturally present in the environment
Halocetic Acids (ppb)	NA	60	39	N	8 - 56	2011	By-product of drinking water disinfection
TTHMs (Total Trihalomethanes) (ppb)	NA	80	41	N	1 - 86	2011	By-product of drinking water disinfection
Turbidity (NTU)	NA	TT, 1 NTU Max	0.27	N	0.04 - 0.27	2010	Soil runoff
		TT, ≤0.3 NTU	100%	N	NA		
Contaminant (Units)	MCLG	Action Level	90th Percentile	Date of Sample	# of Sites Exceeding AL	Typical Source of Contamination	
Lead (ppb)	0	AL = 15	7.22	6/14/2010	2	Corrosion of household plumbing system; Erosion of	
Copper (ppm)	1.3	AL = 1.3	0.4702	6/14/2010	0	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives	

Speedwell

Contaminant (Units)	MCLG	MCL	Level Detected	Violation	Range Detected	Date of Sample	Typical Source of Contamination
Nitrate (ppm)	10	10	0.32	N	0.31 - 0.32	2011	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Fluoride (ppm)	NA	NA	NA	NA	NA	NA	Water additive which promotes strong teeth
Barium (ppm)	2	2	0.216	N	0.058 - 0.216	2010	Discharge of drilling waste; Discharge from metal refineries; Erosion of natural deposits
Combined Radium (pCi/l)	0	5	0.8	N	ND - 0.8	2010	Erosion of natural deposits
Chlorine (ppm)	MRDLG = 4	MRDL = 4	1.16	N	0.80 - 1.80	2011	Water additive used to control microbes
Halocetic Acids (ppb)	NA	60	8.1	N	ND - 8.1	2009	By-product of drinking water disinfection
TTHMs (Total Trihalomethanes) (ppb)	NA	80	2.8	N	1 - 2.8	2009	By-product of drinking water disinfection
Contaminant (Units)	MCLG	Action Level	90th Percentile	Date of Sample	# of Sites Exceeding AL	Typical Source of Contamination	
Lead (ppb)	0	AL = 1.3	0.343	9/29/2009	0	Corrosion of household plumbing system; Erosion of	
Copper (ppm)	0	AL = 15	3.3	9/29/2009	0	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives	

MCL's

MCL's are set at very stringent levels by the U.S. Environmental Protection Agency. In developing the standards EPA assumes the average adult drinks two liters of water each day throughout a 70-year life span. EPA generally sets MCLs at levels that will result in no adverse health effects for some contaminants or a one-in-ten-thousand to one-in-a-million chance of having the described health effect for other contaminants.

Speedwell Violation Information

During the month of May 2011, we failed to collect the proper number of samples for bacteriological examination and chlorine concentration. One sample was required and none was submitted for analysis. We collected the required sample in June 2011 for bacteriological and chlorine analysis and have taken steps to collect all routine samples according to our schedule. The health effects as a result of not sampling are unknown.