



2017 Water Quality Report

Wythe County East and Wythe County West
Water Systems

Wythe County Water Department

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This Annual Drinking Water Quality Report for calendar year 2017 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) 223-4501.

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:

■ Wythe County East

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.

■ Wythe County West

The source of your drinking water is surface water from Reed Creek and the New River. Water from the New River is purchased from the New River Regional Water Authority and transmitted throughout much of the county. Water from Reed Creek is purchased from the Town of Wytheville. The water in the Wythe County West system is a mixture of the two water sources. A ground water well in Speedwell is also used to supplement the supply.

Source Water Assessment

A New River *Source Water Assessment* of our system was conducted in 2002 by Oliver, Inc. The rest of our sources were assessed in 2002 and 2003 by 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. Immunocompromised 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 healthcare 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 30 seconds to two minutes 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 2016, the New River Regional Water Authority 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, and 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 2017, the average Cryptosporidium concentration was 0.083 oocysts per liter for the 100 milliliter 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 current performance of the treatment plant, we anticipate meeting the future 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, 2017. 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 (ug/l):** 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.
- **Level 1 assessment** - a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system
- **Level 2 assessment** - a very detailed study of the waterworks to identify potential problems and determine (if possible) why an *E. coli*/PMCL violation has occurred and/ or why total coliform bacteria have been found in our water system on multiple occasions.

Water Quality Results

Wythe County East							
Regulated Contaminants (Units)	MCLG	MCL	Level Detected	Violation	Range Detected	Date of Sample	Typical Source of Contamination
Nitrate (ppm)	10	10	0.57	N	0.46 - 0.57	2017	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Fluoride (ppm)	4	4	0.67	N	ND - 0.67	2017	Water additive which promotes strong teeth
Barium (ppm)	2	2	0.233	N	0.017 - 0.233	2017	Discharge of drilling waste; Discharge from metal refineries; Erosion of natural deposits
Alpha Emitters (pCi/l)	0	15	4.6	N	ND - 4.6	2015 & 2016	Erosion of natural deposits
Combined Radium (pCi/l)	0	5	2.8	N	ND - 2.8	2015 & 2016	Erosion of natural deposits
Chlorine (ppm)	MRDLG = 4	MRDL = 4	1.55	N	0.20 - 2.1	2017	Water additive used to control microbes
Total Organic Carbon	NA	TT, met when ≥1	1.15	N	1.00 - 1.87	2017	Naturally present in the environment
Haloacetic Acids (ppb)	NA	60	37	N	17 - 55	2017	By-product of drinking water disinfection
TTHMs (Total Trihalomethanes) (ppb)	NA	80	54	N	15 - 80	2017	By-product of drinking water disinfection
Turbidity (NTU)	NA	TT, 1 NTU Max	0.10	N	0.03 - 0.10	2017	Soil runoff
		TT, ≤0.3 NTU 95% of the time	100%	N	NA		
Lead and Copper Contaminant (Units)	MCLG	Action Level	90th Percentile	Date of Sample	# of Sites Exceeding AL	Typical Source of Contamination	
Lead (ppb)	0	AL = 15	6	09/22/15	0	Corrosion of household plumbing system; Erosion of natural deposits	
Copper (ppm)	1.3	AL = 1.3	0.30	09/22/15	0	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives	
Wythe County West							
Regulated Contaminants (Units)	MCLG	MCL	Level Detected	Violation	Range Detected	Date of Sample	Typical Source of Contamination
Nitrate (ppm)	10	10	.61	N	0.29 - 0.61	2017	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Fluoride (ppm)	4	4	0.71	N	ND - 0.71	2017	Water additive which promotes strong teeth
Barium (ppm)	2	2	0.063	N	0.017 - 0.063	2017	Discharge of drilling waste; Discharge from metal refineries; Erosion of natural deposits
Chlorine (ppm)	MRDLG = 4	MRDL = 4	1.43	N	0.80 - 2.20	2017	Water additive used to control microbes
Alpha Emitters (pCi/l)	0	15	0.4	N	ND - 0.4	2016	Erosion of natural deposits
Total Organic Carbon	NA	TT, met when ≥1	1.00	N	1.00 - 2.59	2017	Naturally present in the environment
Haloacetic Acids (ppb)	NA	60	62	Y	35 - 73	2017	By-product of drinking water disinfection
TTHMs (Total Trihalomethanes) (ppb)	NA	80	60	N	16 - 88	2017	By-product of drinking water disinfection
Turbidity	NA	TT, 1 NTU Max	0.10	N	0.03- 0.10	2017	Soil runoff
		TT, ≤0.3 NTU 95% of the time	100%	N			
Lead and Copper Contaminant (Units)	MCLG	Action Level	90th Percentile	Date of Sample	# of Sites Exceeding AL	Typical Source of Contamination	
Lead (ppb)	0	AL = 15	2.9	07/26/17	0	Corrosion of household plumbing system; Erosion of natural deposits	
Copper (ppm)	1.3	AL = 1.3	0.15	07/26/17	0	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives	

VIOLATION INFORMATION

During 2nd qtr of 2017 Wythe County West exceeded the 60 ppb primary maximum contaminant level (PMCL) for haloacetic acids within our distribution system. The concentration of haloacetic acids found was 62 ppb. Haloacetic Acids are by-products of drinking water disinfection. Some people who drinking water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer. We have increased flushing throughout the distribution system and modified the operation of our distribution system which has reduced the haloacetic acids within acceptable range. Per notification from VDH on 5/23/2018 we have returned to compliance with the HAA5 max contaminant level requirements of the Waterworks Regulations. There were no violations for Wythe County East.

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.