



# 2016 WATER QUALITY REPORT

Frederick County Sanitation Authority  
Post Office Box 1877  
Winchester Virginia 22604

315 Tasker Road (I-81, Exit 310) Drive through window and 24-hour drop box for your convenience

## *Safe Water at Your Service*

**We are pleased to report that your drinking water meets all State and Federal Requirements administered by the Virginia Department of Health (VDH) Office of Water Programs.** This report summarizes the quality of water provided to our customers for calendar year 2016. It reflects the efforts of our employees to supply safe drinking water. Included are details about the source of your water, what it contains, and how it meets the standards set by state and federal regulatory agencies.

Although this information has always been available to anyone requesting it, the Authority is furnishing this report in accordance with requirements of the United States Environmental Protection Agency. Additional information is available at the Authority's office to address any special needs, concerns or questions. The Authority has attempted to accomplish this in a cost conscious and informative manner while meeting the guidelines.

## *Testing Your Water*

**During 2016, the Authority's laboratories at the Diehl and Anderson Water Filtration Plants ran more than 60,000 process tests to insure your drinking water meets the Virginia Department of Health and the United States Environmental Protection Agency standards.**

## *Violations*

**The Frederick County Sanitation Authority is in full compliance with all water quality, monitoring, and reporting requirements and no violations occurred during calendar year 2016.**

## *Frederick County's Water Sources*

**34%** of the treated water provided by the Frederick County Sanitation Authority is taken from the **Stephens City quarries**, and **28%** is taken from the **Clearbrook quarries**. The water is classified as a surface water source. The water taken from the quarries is treated at the James H. Diehl Water Filtration Plant and the James T. Anderson Water Filtration Plant. The process consists of chemical addition, flocculation, sedimentation, filtration to remove turbidity, chlorination to disinfect the water, and fluoride is added to help prevent tooth decay. **38%** of the water provided in 2016 was **purchased from the City of Winchester**. This water is drawn from the North Fork of the Shenandoah River, a surface water source. The waters from these three sources are blended in the Sanitation Authority's system and distributed to our customers. The Authority has 4.50 million gallons of storage, plus 4.35 million gallons in clearwell/finished water tanks at the water plants.

## *Special Information for Immuno-Compromised*

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 persons and infants can be particularly at risk from infections.

These people should seek advice about drinking water from their healthcare providers. The Environmental Protection Agency and the Centers for Disease Control guidelines on appropriate means to

lessen the risk of infections by Cryptosporidium and other microbiological contaminants are available from the EPA's Safe Drinking Water Hotline at 800-426-4791 or their website <http://water.epa.gov/drink/hotline/index.cfm> or the Centers for Disease Control at 800-232-4636 or their website <http://www.cdc.gov/parasites/water.html>.

## *Source Water Assessments*

Source water assessments for the Frederick County Sanitation Authority have been completed by the Virginia Department of Health. These assessments determined that the Authority's water sources, the Stephens City and Clearbrook quarries as well as the North Fork of the Shenandoah River, may be susceptible to contamination because they are surface water sources exposed to a wide array of contaminants at varying concentrations. Changing hydrologic, hydraulic and atmospheric conditions promote migration of contaminants from land use activities of concern within the assessment area. More information may be obtained by contacting the Authority at 540-868-1061.

## *Maximum Contaminant Levels (MCL)*

Maximum Contaminant Levels (MCL) are set at very stringent levels by the U.S. Environmental Protection Agency. In developing the standards, EPA assumes that 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 for a one-in-ten-thousand to one-in-a-million chance of having the described health effect for other contaminants.

## *Quality of Your Drinking Water*

Your drinking water is routinely monitored according to Federal and State Regulations for a variety of contaminants. The table on the page 4 shows the results of our monitoring for the period January 1 to December 31, 2016.

Most of the results in the table are from testing done in 2016. However, the Virginia Department of Health allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though accurate, is more than one year old. We constantly monitor for various contaminants in the water supply to meet all regulatory requirements. The table lists only those contaminants that had some level of detection. Many other contaminants have been analyzed but were not present or were below the detection limits of the lab equipment.

## *Water Hardness*

**The water provided by the Sanitation Authority is hard** at an average of 317 ppm or 18.54 grains (1 grain = 17.118 ppm) and can be expected to cause calcium buildup and glassware spotting. This is an aesthetic problem, but it has no harmful health effects. Water hardness is not regulated by the Virginia Department of Health (VDH). **Hard water is the opposite of corrosive water (as seen in Flint, Michigan). The Authority's water tends to coat pipes, rather than leach heavy metals or other harmful substances out of them.**

## *Water Conservation Message...*

The region's rainfall during 2016 was slightly below average. The Authority recommends all customers conserve water, especially during the hottest periods of the summer when demands are the greatest. Should conditions become serious, voluntary conservation measures will be implemented and in the event of a water emergency, the Sanitation Authority will impose mandatory water restrictions as outlined in the Authority's Water Conservation policy. For more information or a copy of the policy, telephone 540-868-1061, or visit our website at [www.fcsa-water.com](http://www.fcsa-water.com).

## *Lead and Copper*

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.

The Frederick County Sanitation Authority is responsible for providing high quality drinking water, but cannot control the variety of materials used in private plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap 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>.

## *Only Tap Water Delivers*

As your water provider, we're constantly monitoring the condition of our water distribution infrastructure. We repair what we can and replace what we must. It's a significant expense, but it's an investment worth making.

Our tap water delivers more than just safe drinking water. It delivers public health protection, support for the economy, and the quality of life we enjoy. Our job is to ensure that your water keeps flowing not only today but well into the future. It's all part of the commitment to serve you and everyone in our community.

## *Customer Participation*

If you are interested in learning more about the Frederick County Sanitation Authority and water quality or participating in the decision making process, there are a number of opportunities available. Inquiries about water quality or about public participation and policy decisions can be made by calling the Authority at 540-868-1061. The Frederick County Sanitation Authority board meets at 5:00 p.m. the third Tuesday of each month at the Authority's headquarters, 315 Tasker Road, Stephens City VA. Board sessions are open to the public.

**United States Environmental Protection Agency's Safe Drinking  
Water Hotline: 800-426-4791**

**Visit the Frederick County Sanitation Authority  
Website at [www.fcsa-water.com](http://www.fcsa-water.com)**

# Treated Water Quality Monitoring Results

The table below lists only those water substances that had some level of detection. More than 100 substances were sampled for, but were not present or were below the detection limits. All drinking water, including bottled drinking water, may reasonably be expected to contain at least small amounts of some substances. The presence of contaminants does not necessarily indicate the 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 at 800-426-4791 or visiting their website at <http://water.epa.gov/drink/hotline/index.cfm>.

Substance Tested for	Ideal Goals	Highest Level Allowed	Highest Level Detected			Sources of Contamination
	EPA's MCLG	EPA's MCL	Water Sources			
			Diehl Plant	Anderson Plant	Miller Plant	

## Regulated at the Water Filtration Plant

				Violation		Violation		Violation	
<b>Turbidity</b>	N/A	TT, 1 NTU Max, 0.3 95% Of The Time	Max Day 0.13 NTU 100% <0.3 NTU	No	Max Day 0.12 NTU 100% <0.3 NTU	No	Max Day 0.33 NTU 100% <0.3 NTU	No	Soil runoff
<b>Beta/Photon Emitters</b>	0	50 pCi/L*	2.7 pCi/L	No	2.9 pCi/L	No	4.1 pCi/L	No	Decay of natural and man-made deposits
<b>Alpha Emitters</b>	0	15 pCi/L	2.0 pCi/L	No	None Detected	No	None Detected	No	Erosion of natural deposits
<b>Fluoride</b>	4 ppm	4 ppm	0.79 ppm Highest Monthly Avg. Range 0.41 - 1.05 ppm	No	0.78 ppm Highest Monthly Avg. Range 0.51 - 1.12 ppm	No	0.51 ppm Highest Monthly Avg Range 0.0 - 0.86 ppm	No	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories.
<b>Nitrate (as Nitrogen)</b>	10 ppm	10 ppm	1.98 ppm	No	2.84 ppm	No	1.70 ppm	No	Runoff from fertilizer use; leaching from septic tanks; sewage; Erosion of natural deposits
<b>Barium</b>	2 ppm	2 ppm	0.067 ppm	No	0.067 ppm	No	0.026 ppm	No	Erosion of natural deposits, discharge from metal refineries, discharge of drilling wastes
<b>Total Organic Carbon</b>	N/A	TT	1.00 Avg. for Yr. 1.00 - 1.00 Range Ratio of Actual to Required Removal	No	1.00 Avg. for Yr. 1.00 - 1.00 Range Ratio of Actual to Required Removal	No	1.50 Avg. for Yr. 1.00 - 3.40 Range Ratio of Actual to Required Removal	No	Naturally present in environment

## Regulated at the Customer's Tap

	A L	Frederick County Sanitation Authority			City of Winchester				
		90 <sup>th</sup> Percentile Detection	Total Exceeding AL	Violation	90 <sup>th</sup> Percentile Detection	Total Exceeding AL	Violation		
<b>Lead</b>	0	15 ppb	2.0 ppb	0	No	<0.001 ppb	0	No	Corrosion of household plumbing systems, Erosions of natural deposits.
<b>Copper</b>	0	1.3 ppm	0.160 ppm	0	No	0.258 ppm	0	No	Corrosion of household plumbing systems; Erosion of natural deposits; leaching from wood preservatives

## Regulated in the Distribution System

				Violation		Violation	
<b>Total Coliform Bacteria</b>	0	One Positive Per Month	None Detected	No	None Detected	No	Naturally present in environment
<b>Total Trihalomethanes (TTHM)</b>	N/A	80 ppb Average For Year	24.3 ppb Average for Year Range 8.5 - 43.0 ppb	No	44.0 ppb Average for Year Range 30.8 - 44.8 ppb	No	By-product of drinking water chlorination
<b>Haloacetic Acids (HAA5)</b>	N/A	60 ppb Average For Year	18.1 ppb Average for Year Range 7.8 - 35.0 ppb	No	43.8 ppb Average for Year Range 26.7 - 43.8 ppb	No	By-product of drinking water chlorination
<b>Chlorine</b>	MRDLG	MRDL	2.27 ppm Average for Year Range 1.3 - 3.0 ppm	No	1.94 ppm Average for Year Range 0.6 - 3.20 ppm	No	By-product of drinking water chlorination
	4 ppm	4ppm					

\* The MCL for beta particles is 4mrem/year. EPA considers 50pCi/L to be the level of concern for beta particles.

Definitions:

In the table above 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.

- MCL Maximum Contaminant Level - the highest level of contaminant that is allowed in drinking water. MCLs are set as close to the MCLG as feasible using the best available treatment technology.
- MCLG Maximum Contaminant Level Goal - 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.
- 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 control of microbial contaminants.
- MRDLG - Maximum Residual Disinfectant Level Goal - 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.
- NTU - Nephelometric Turbidity Unit - A measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.
- mrem/year - Millirems per year - A measure of radium absorbed by the body.
- pCi/L - Pico-curie per liter - A measure of radioactivity in water.
- ppm - Parts per million - One part per million corresponds to 1 drop in 16 gallons.
- ppb - Parts per billion - One part per billion corresponds to 1 drop in 15,750 gallons.
- AL - Action Level - The concentration of a contaminant that triggers treatment or other requirements which a water system must follow. Action levels are reported at the 90<sup>th</sup> percentile for homes at the greatest risk.
- TT - Treatment Technique - A required process intended to reduce the level of contaminant in drinking water.
- N/A - Not Applicable.