

# 2018 Water Quality Report

*Photo taken by Jason Pauley*





## Message from the Director

The Stafford County Department of Public Works Utilities Operation Division is pleased to present this year's Water Quality Report. This information summarizes the results of thousands of tests taken during the 2018 calendar year, ensuring the water we provide to you meets all requirements of the Virginia Department of Health and the Environmental Protection Agency. The Department provided an average over 9.4 million gallons of water per day in 2018, through more than 709 miles of water line, to serve more than 113,000 valued customers.

As Stafford County continues to grow, so does our Department. We are excited to share some of the recent changes we have implemented:

- 1.) In May of 2018, the Department of Utilities was merged into the Department of Public Works. This merger has brought about greater efficiencies in our Customer & Development Review Service teams as well as our Capital Construction team.
- 2.) We have begun a proactive 3R (Repair, Rehabilitate, & Replace) program for key water and sewer infrastructure throughout the County. The intent of this program is to maximize the lifespan of the existing infrastructure and minimize long-term replacement costs.
- 3.) Added key personnel to improve our ability to monitor FOG (Fats, Oils and Grease) that is placed into our system in an effort to reduce expensive line blockages and treatment costs.
- 4.) Implemented an innovative uni-directional flushing program to systematically flush our water mains, ensuring our customers continue to receive the highest, quality water with minimal impacts.

These efforts are all done with an eye to the future to ensure we are preparing for what is next and with a focus on efficiency in order to minimize costs. Our commitment to you, our customer and community, is evident with every call we take and the thousands of tests we perform to provide the clean water you've come to expect from us. This report summarizes the great value available for you, our customer, every time you reach for your tap.

*Jason D Towery*

Director  
Department of Public Works

## Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised individuals, such as those undergoing chemotherapy, organ transplant recipients, those with HIV/AIDS or other immune system disorders, and some elderly people and infants can be particularly at risk from infections. If you feel you are at risk, please seek advice about drinking tap water from your 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 (800) 426-4791.

## We Want To Hear From You

Today, we face many water-related issues including protection of our water resources, timely renewal and replacement of aging pipes, planning to meet current and future water needs, and upgrades to our treatment facilities to meet increasingly stringent water quality requirements. We ask for and value your input as these issues are discussed. Please attend meetings of the Board of Supervisors and the Utilities Commission in the George L. Gordon, Jr., Government Center, to stay informed on important issues. Please visit us online at [www.staffordcountyva.gov](http://www.staffordcountyva.gov) for meeting dates and times. You can also call us at 311 or 540-658-8630 for more information.



## Definitions

**AL, Action Level:** the concentration of a contaminant that, if exceeded triggers treatment or other requirements that an owner shall follow.

**Level 1 assessment** - a study of the waterworks to identify potential problems and determine, if possible, why total coliform bacteria have been found in our waterworks.

**MCL, Maximum Contaminant Level:** 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.

**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 a 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 Units:** a measurement of the clarity of water.

**pCi/L, Picocuries per liter:** measure of radio activity

**ppm, Parts per million:** measure of concentration equal to 1 cent in \$10,000 or about 1 minute in 694 days.

**ppb, Parts per billion:** measure of concentration equal to 1 cent in \$10 million or about 1 minute in 1,902 years.

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

## Regulated Substances Table 2018, PWSID #6179100

Regulated Contaminants (samples taken from the water distribution system)							
Parameter	Your Water Quality	Range of Results	Units	MCL	MCLG	In Compliance? Yes/No	Source
Haloacetic Acids (HAA5s)	<b>43</b> (highest 4-qtr. compliance avg.)	<b>16 - 66</b> (for individual sample sites)	ppb	Average of 4 quarters ≤ 60 ppb	None	Yes	Byproduct of drinking water disinfection
Trihalomethanes (TTHMs)	<b>58</b> (highest 4-qtr. compliance avg.)	<b>25 - 83</b> (for individual sample sites)	ppb	Average of 4 quarters ≤ 80 ppb	None	Yes	Byproduct of drinking water disinfection
Fluoride	<b>1.70</b>	<b>0.11 - 1.70</b>	ppm	4	4	Yes	Added to water to promote strong teeth
Nitrate + Nitrite	<b>0.24</b>	<DL - 0.24 2 tests performed	ppm	10	10	Yes	Erosion of natural deposits, fertilizer runoff
Barium	<b>0.018</b>	<DL - 0.018 2 tests performed	ppm	2	2	Yes	Erosion of natural deposits
Total Organic Carbon (TOC)	The running annual average of quarterly TOC percent removals ranged from 1.23 to 1.46		None	Treatment Technique: Running annual avg. of quarterly TOC % removals must be ≥ 1.0		Yes	Naturally present in the environment
Chlorine (samples taken from the water distribution system)							
Parameter	Highest 12-Month Running Annual Average	Range of Results (individual sites)	Units	MRDL	MRDLG	In Compliance? Yes/No	Source
Chloramines	<b>3.3</b>	<b>0.02 - 4.2</b>	ppm	4.0	4.0	Yes	Added as water disinfectant
Metals (samples taken from the customer's tap)							
Parameter	Action Level	MCLG	Test Results	Number of sampling locations above the EPA Action Level	In Compliance? Yes/No	Source	
Lead	90% of all test results must be 15 ppb or less	15 ppb	Results from 2018 <QL to 3.0 ppb; 100% of the 100 samples taken were 15 ppb or less, 90% were 1.8 ppb or less	0	Yes	Corrosion in household plumbing systems	
Copper	90% of all test results must be 1.3 ppm or less	1.3 ppm	Results from 2018 <QL to 0.17 ppm; 100% of the 100 samples were 1.3 ppm or less, 90% were 0.07 ppm or less	0	Yes	Corrosion in household plumbing systems	
Turbidity (samples taken from filtered water at the treatment facility)							
Parameter	MCL		Units	Max. Detected	Lowest Percentage of Monthly Samples Meeting Limit	In Compliance? Yes/No	Source
Turbidity	Treatment Technique (TT) - at least 95% of all samples taken each month must be 0.3 NTU or less; 1 NTU maximum		NTU	<b>0.37</b>	99% of samples during June 2018 were less than 0.3 NTU	Yes	Soil erosion from runoff

1. Tests were performed for an additional 109 possible contaminants which were NOT DETECTED.
2. Lead, copper, and total coliforms are reported to the Health Dept. on a County-wide basis.
3. Lead and copper results are from 2018. Monitoring for lead and copper is done every three years because our results in the past have been satisfactory.
4. Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration systems.





## Lead in Home Plumbing

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. Stafford County Utilities is responsible for providing high quality drinking water. We have no lead service lines, but we 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, 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 EPA's Safe Drinking Water Hotline at 1-800-426-4791 (TTY 711) or at <http://www.epa.gov/safewater/lead>.

## Source Water Assessments

In 2002, the Virginia Department of Health (VDH) conducted an assessment of our water reservoir at Smith Lake to determine how susceptible it is to contamination. An assessment of Lake Mooney and the Rappahannock River was completed in early 2019. Since there are industrial, commercial, agricultural and residential land uses in our watersheds and our sources are open to the environment, they are susceptible to contamination. Although we operate state-of-the-art treatment facilities to a standard that ensures protection of public health, we ask for your help to properly dispose of trash, waste oil, antifreeze, and other hazardous materials and minimize application of fertilizer and pesticides so that they do not enter streams, storm drains, and other water bodies. You can report illegal dumping to the Stafford County Sheriff's Office at 540-658-4400. A copy of the Smith Lake and the Lake Mooney assessment is available by calling us at the number listed above.

## Potential Sources of Water Contaminants

Lake Mooney and Smith Lake reservoirs are the sources of public water in Stafford County. More than 86 square miles of land drain into these reservoirs. Most of the water in Lake Mooney is pumped from the Rappahannock River. As the water travels over 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 include:

- **Microbial contaminants** such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wild life;
- **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 storm water runoff and residential uses;
- **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 storm water runoff and septic systems; or
- **Radioactive contaminants** which can be naturally occurring or can be the result of oil and gas production and mining activities.

To ensure that tap water is safe to drink, EPA prescribes regulations that 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.

Drinking water, including bottled water, may contain small amounts of some of these contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. We must test the water to ensure that any contaminants present are below the maximum levels set by EPA. We test for color, iron, manganese, turbidity, organics and other materials. We add fluoride to promote healthy teeth, and the water is disinfected to protect against waterborne disease. You can obtain additional information and learn about potential health effects by calling the Environmental Protection Agency's Safe Drinking Water Hotline at (800) 426-4791.

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