2022

Drinking Water Quality Report

Greene

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2022 Drinking Water Quality Report

Rapidan Service Authority (RSA) is pleased to present to you the 2022 Annual Water Quality Report. This report is designed to inform you, the customer, about the quality of water and services delivered to you every day. RSA's goal is to always provide you with a safe and dependable supply of drinking water. We want you to understand the efforts made to continually improve the water treatment process and protect our water resources. RSA is committed to ensuring the quality of your water.

Your Drinking Water

The sources of drinking water (both tap water and bottled water) include rivers, lakes or reservoirs, 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.

Substances (referred to as contaminants) in source water may include: (i) microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife; (ii) 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; (iii) pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses; (iv) 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; and (v) radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.

Your drinking water comes from the Rapidan River. A source water assessment of the Rapidan River was completed by the Virginia Department of Health in May 2002 and may be obtained by contacting RSA. While all surface water sources are vulnerable to contamination due to changing atmospheric conditions and land use activities, no known contamination was discovered during the period of review.

Water from the Rapidan River is treated by RSA to not only meet State and Federal regulations, but also to be aesthetically pleasing for customers. Treatment includes coagulation (using Aluminum Sulfate), flocculation, sedimentation, and filtration. Following filtration, Sodium Carbonate is added to increase pH. Sodium Fluoride is added to help promote strong teeth and prevent tooth decay. Next, Orthophosphate is added to control corrosion in the distribution system. Finally, Chlorine is used to disinfect the water before heading to your tap. For more information on the treatment process, visit rapidan.org/water-treatment-process.

Protecting Your Water

Rapidan Service Authority employees are working around the clock to provide top quality water to every tap. We ask that all our customers help us protect and conserve our water sources, which are the heart of our community, our way of life, and our children's future. We also want to remind all of our customers to be aware of possible cross connections to the potable water system. A cross connection is a link between the potable water system and any non-potable source and can affect not only your home, it can affect the entire potable water supply. **If you think you have the possibility of a cross connection, please contact RSA immediately**.

In our continuing efforts to maintain a safe and dependable water supply it may be necessary to make improvements in your water system. The costs of these improvements may be reflected in the rate structure. Rate adjustments may be necessary in order to address these improvements, and must be approved by the RSA Board of Members following a public hearing.

RSA wants its valued customers to be informed about their water utility. If you have concerns to share with our Board, you may attend any of our regularly scheduled meetings. They are held, as needed, on the third Thursday of the month at 2:00 P.M. in various locations in the counties we serve - Orange, Madison, and Greene. Visit rapidan.org/calendar-of-events for more details on meeting dates and locations.

If you have any questions about this report or your water utility, please contact **David Jarrell at (434) 985-7811.**

Definitions

To ensure that tap water is safe to drink, EPA prescribes regulations that limit the amount of certain contaminants in the water provided by waterworks. The U.S. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water which must provide the same protection for public health. RSA routinely monitors for contaminants in the drinking water, in accordance with Federal and State regulations. The table on the next two pages shows the results of testing for the most recent monitoring period. In this table you will find terms and abbreviations you might not be familiar with. To help you better understand these terms we have provided the following definitions:

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

- *Level 1 Assessment:* A Level 1 Assessment is 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 Level 2 Assessment is a very detailed study of the water system to identify potential problems and determine, if possible, why an E-coli MCL violation has occurred and / or why total coliform bacteria have been found in our water system on multiple occasions.

- *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 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.

- *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

- *Nephelometric Turbidity Unit (NTU)*: a measure of the clarity of water. Turbidity in excess of 5 NTUs is just noticeable to the average person.

- *Non-Detects (ND)*: laboratory analysis indicates that the constituent is not present.

- *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.

- *Picocuries per liter (pCi/l):* a measure of radioactivity.

- *Treatment Technique (TT):* A treatment technique is a required process intended to reduce the level of a contaminant in drinking water.

- *Ultraviolet (UV):* A treatment method to disinfect water using ultraviolet light.

Turbidity[1]

Contaminant / Unit of Measurement	MCLG	MCL	Highest Level Found, Combined FN water	Lowest Monthly % <0.3 NTU	Violation	Date of Sample	Typical Source of Contamination
Turbidity NTU	NA	TT[2]	0.41	97.9%	No	Daily 2022	Soil Runoff

[1] Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of water quality and the effectiveness of the filtration process.

[2] Turbidity TT = 1 NTU Max; ≤ 0.3 NTU in at least 95% of all samples tested.

Inorganic Contaminants

Contaminant / Unit of Measurement	MCLG	MCL	Level Found (Range)	Violation	Date of Sample	Typical Source of Contamination
Barium ppm	2	2	0.0135	No	2022	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Fluoride ppm	4	4	0.72 (0.41-1.08)	No	Daily 2022	Erosion of natural deposits; Discharge from fertilizer and aluminum factories; Water additive which promotes strong teeth
Nitrate/Nitrite ppm	10	10	0.51	No	2022	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Sodium* ppm	-	-	14.8	No	2022	Erosion of natural deposits; de-icing salt runoff; water softeners

*Sodium - There is presently no established standard for sodium in drinking water. An EPA advisory recommends water containing 30 to 60 mg/L should not be used as drinking water due to esthetics such as taste and color. Water containing more than 20 mg/L should not be used by persons whose physician has placed them on severely restricted sodium diets.

Note: Compliance result for fluoride is from the annual inorganics sample. Range of results includes monthly split sample lab results.

Lead and Copper

Contaminant / Unit of Measurement	MCLG	MCL	90th Percentile; # Samples > AL	AL Exceedance	Date of Sample	Typical Source of Contamination
Lead ppb	0	AL=15	<2.5 No samples exceeded the AL.	No	2022	Corrosion of household plumbing systems; Erosion of natural deposits
Copper ppm	1.3	AL=1.3	0.0322 No samples exceeded the AL.	No	2022	Corrosion of household plumbing systems; Erosion of natural deposits

Note – Corrosion control was added to the water treatment system in 2021.

Total Organic Carbon

Contaminant / Unit of Measurement	MCLG	MCL	Average Removal Ratio	Violation	Date of Sample	Typical Source of Contamination
Total Organic Carbon	NA	TT	1.00	No	Quarterly	Naturally present in the environment

Disinfection Byproducts

Contaminant/Unit of Measurement	MCLG	MCL	Level Found Average (Range)	Violation	Date of Sample	Typical Source of Contamination
Haloacetic Acids (HAA5) ppb	NA	60	29 (10-42)	No	Quarterly 2022	By-product of drinking water disinfection
Total Trihalomethanes (TTHM) ppb	NA	80	37 (10-77)	No	Quarterly 2022	By-product of drinking water disinfection

Disinfection Residual

Disinfectant/Unit of Measurement	MRDLG	MRDL	Level Found (Range)	Violation	Date of Sample	Typical Source of Contamination
Chlorine ppm	4	4	1.61 (1.21 – 1.86)	No	2022	By-product of drinking water chlorination

Radiological Contaminants

Contaminant / Unit of Measurement	MCLG	MCL	Level Found	Violation	Date of Sample	Typical Source of Contamination
Beta emitters pCi/L	0	50**	1.2	No	2019	Decay of natural and man-made deposits
Combined Radium pCi/L	0	5	0.2	No	2019	Erosion of natural deposits
Alpha emitters pCi/L	0	15	0.4	No	2019	Erosion of natural deposits
Uranium ppb	0	30	0.2	No	2019	Erosion of natural deposits

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

Microbiological – At least seven bacteriological samples are collected from the distribution system each month.

Contaminant	Unit of Measurement	MCLG	MCL	Highest Level Found	Violation	Date of Sample(s)	Typical Source of Contamination
Total Coliform Bacteria (1)	presence or absence	0	presence of coliform bacteria in >1 sample per month	0	No	Monthly 2022	Naturally present in the environment
Cryptosporidium (2), Pre-treatment raw water	oocysts/L or absence	NA	NA	0.46 oocysts per L	No	2019	Naturally present in the environment

(1) Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially-harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the waterworks.

(2) Cyptosporidium was found in the raw untreated source water in 6 out of 24 samples.

Violation Information

We were in full compliance with all water quality parameters, and no violations occurred during the calendar year in 2022.

Additional Health Information

Cryptosporidium is a microbial pathogen found commonly in surface water throughout the U.S. Although filtration removes cryptosporidium, the most commonly-used filtration methods cannot guarantee 100 percent removal. Additionally, current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. Ingestion of cryptosporidium may cause cryptosporidiosis, an abdominal infection. Cryptosporidium must be ingested to cause disease, and it may be spread through means other than drinking water. RSA conducted 24 monthly tests for Cryptosporidium at RSA's intake in Greene. Due to the relatively low levels detected, the EPA has determined that RSA's existing treatment methods are sufficient.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that 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 (800-426-4791).

MCL's are set at very stringent levels by the U.S. Environmental Protection Agency. In developing the standards, EPA assumes that the average adult drinks 2 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.

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).

Lead Education Statement

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/building plumbing. RSA 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 before using water for drinking or cooking. If you are concerned about lead in your water, then 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 (800-426-4791).

The waterworks owners prepared this Drinking Water Quality Report with the assistance and approval of the Virginia Department of Health (VDH). Please call our office at (434) 985-7811 if you have questions regarding your water system.