2025

Drinking Water Quality Report

RSA

Rapidan Service Authority

Madison

PWSID #6113200

2025 Drinking Water Quality Report

Rapidan Service Authority (RSA) is pleased to present to you the 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 White Oak Run. A source water assessment of White Oak Run was completed by the Virginia Department of Health in May 2020 and may be obtained by contacting RSA. While the source water was determined to be highly susceptible to contamination using the criteria developed by the state, no known contamination was discovered during the period of review. The assessment report consists of maps showing the source water assessment areas and an inventory of known land use activities of concern.

Water from White Oak Run 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. Sodium Carbonate is used to adjust pH and prevent corrosion in the distribution system. Finally, chlorine (Sodium Hypochlorite) is added 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, but it can also 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 the counties we serve – Orange and Madison. 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.
- *Contaminant:* Any physical, chemical, biological, or radiological substance or matter in water.
- *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.

WATER QUALITY RESULTS

Detected Contaminant	Sampling Year	Violation	Level Detected/ Range	Units	MCLG	MCL	Likely Source of Contamination
Microbiological Contaminants							
E-coli Bacteria	2025	No	0	Presence or absence	0	Routine and repeat samples are total coliform positive and one is E-coli positive	May be present in the environment due to human or animal fecal waste
Cryptosporidium *Detected in 6/24 tests*	2020-2021	No	11/2020: 0.09 12/2020: 0.09 1/2021: 0.09 6/2021: 0.09 7/2021: 0.18 3/2021: 0.09	Oocysts per Liter	N/A	N/A	Naturally present in the environment
Chemical & Radiological Contaminants							
Barium	2025	No	0.015	ppm	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Fluoride	2025	No	<0.10	ppm	4	4	Erosion of natural deposits. OR Water additive which promotes strong teeth.
Nitrite + Nitrate	2025	No	0.5	ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.
Combined Radium	2024	No	0.911	pCi/L	0	5	Erosion of natural deposits
Gross Alpha	2024	No	-0.254 +/- 0.75	pCi/L	0	15	Erosion of natural deposits of certain minerals that are radioactive and may emit a form of radiation known as alpha radiation.
Gross Beta	2024	No	0.263	pCi/L	0	50	Decay of natural and man-made deposits of certain minerals that are radioactive and may emit forms of radiation known as photons and beta radiation
Turbidity % samples ≤0.3 NTU	2025	No	0.29 100%	NTU %	N/A N/A	At least 95% of all measured turbidity values during a single month must be below 0.3 NTU.	Soil runoff
Xylenes	2025	No	<0.0005	ppm	10	10	Discharge from petroleum factories; discharge from chemical factories

Disinfection By-Products, Precursors & Residuals

Chlorine	2025	No	0.52 (0.09 – 1.24)	ppm	MRDLG =4	MRDL =4	Water additive used to control microbes
Total Organic Carbon	2025	No	RAA 1.00	Removal Ratio	N/A	TT	Naturally occurring in the environment. No direct health effects but can interact with chemical disinfectants to form disinfection byproducts.
Haloacetic Acids	2025	No	43 (36-46)	ppb	N/A	60	By-product of drinking water chlorination
Total Trihalomethanes	2025	No	58 (54-65)	ppb	N/A	80	By-product of drinking water chlorination

Lead & Copper Contaminants		**AL Exceeded?**	**Results of 90th% Value**	**Units**	**MCLG**	**Action Level**	**# of Sample Sites Exceed AL**	**Likely Source of Contamination**
Copper	2025	No	0.097 - 0.118	ppm	1.3	1.3	0	Corrosion of household plumbing systems; erosion of natural deposits.
Lead	2025	No	1.1 - 3.0	ppb	0	15	1	Corrosion of household plumbing systems; erosion of natural deposits.

Other Results (Unregulated Parameters) of Customer Interest

Parameter	**Year**	**Result**	**Unit**	**EPA Secondary Standard**	**Basis of Interest or Concern**
Iron	2025	0.012	ppm	0.3	Iron may cause red/orange staining of plumbing fixtures, appliances, clothing, or other surfaces.
Manganese	2025	0.0071	ppm	0.05	Manganese may cause black/brown staining of plumbing fixtures, appliances, clothing, or other surfaces.
pH	2025	7.6 – 7.9 (monthly averages)	S.U.	6.5 -8.5	pH measures how acidic or alkaline (basic) a substance is, on a scale of 0 to 14. Low pH water may be corrosive, and high pH water may cause mineral deposit accumulation in plumbing. A slightly alkaline pH is ideal.
Sodium	2025	13.0	ppm	N/A	Some people must track their nutritional sodium intake closely for health purposes. There is no MCL for Sodium, but this information may be important for individuals following a sodium-restricted diet.
Total Dissolved Solids (TDS)	2025	62.0	ppm	500	TDS measures the total amount of dissolved organic and inorganic material in water, including minerals, salts, metals, etc. Water with TDS over 500 may have an objectionable taste. Likewise, water with very low TDS (under 50) may yield a “flat” taste due to low mineral content.
Total Hardness (as $CACO_3$)	2025	46	ppm	N/A	This is equivalent to 2.7 grains per gallon, considered to be “soft” water, not requiring additional softening.

The MCL for Beta emitters is 4 mrem/year, which is a unit of total cumulative yearly burden to the human body by Beta emitters. This is not measured directly in the lab like other water samples, so EPA has designated 50 pCi/L as a level of concern. If at least 50 pCi/L Beta is detected, further testing of Beta emitters is required, in order to determine if the level of a consumer's exposure is at risk of exceeding 4 mrem/year. See www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations for specific language.

Violation Information

We were in full compliance with all water quality parameters, and no violations occurred during the calendar year in 2025.

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 White Oak Run intake from 2020 through 2021. 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 people with cancer undergoing chemotherapy, people 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/ Centers for Disease Control and Prevention 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

Lead can cause serious health effects in people of all ages, especially pregnant people, infants (both formula-fed and breastfed), and young children Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. RSA is responsible for providing high quality drinking water and removing lead pipes, but cannot control the variety of materials used in plumbing components in your home. Because lead levels may vary over time, lead exposure is possible even when your tap sampling results do not detect lead at one point in time. You share the responsibility for protecting yourself and your family from the lead in your home plumbing. You can take responsibility by identifying and removing lead materials within your home plumbing and taking steps to reduce your family's risk. Before drinking tap water, flush your pipes for several minutes by running your tap, taking a shower, doing laundry or a load of dishes. You can also use a filter certified by an American National Standards Institute accredited certifier to reduce lead in drinking water. Follow the instructions provided with the filter to ensure the filter is used properly. Use only cold water for drinking, cooking, and making baby formula. Boiling water does not remove lead from water. If you are

concerned about lead in your water and wish to have your water tested, contact RSA at (540) 972-2133. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available at http://www.epa.gov/safewater/lead.

Exposure to lead in drinking water can cause serious health effects in all age groups. Infants and children can have decreases in IQ and attention span. Lead exposure can lead to new learning and behavior problems or exacerbate existing learning and behavior problems. The children of women who are exposed to lead before or during pregnancy can have increased risk of these adverse health effects. Adults can have increased risks of heart disease, high blood pressure, kidney or nervous system problems.

In accordance with the Environmental Protection Agency's Lead and Copper Rule Revisions (LCRR), RSA has prepared an inventory of service line materials. A copy of the inventory can be obtained by contacting the RSA office at (540) 972-2133.

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 (540) 972-2133 if you have questions regarding your water system.