THE PLACE TO BE.

CHRISTIANSBURG VA

2021 DRINKING WATER QUALITY REPORT



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A NOTE FROM THE TOWN MANAGER



Every year, our water systems undergo extensive testing to ensure our drinking water is safe. The results of these tests, performed during the 2021 calendar year, demonstrate that our drinking water is safe and meets all federal and state requirements.

It is important to me that residents are fully informed about the quality of their drinking water. This report covers test results, general information about the drinking water and drinking water treatment plant, and additional resources the public may find useful.

If you have further questions, please contact the Town's Engineering Director Mike Kelley at 540-382-6120.

Sincerely,

Randy Wingfield, Town Manager

TREATMENT PLANT INFORMATION



Above: Residents tour the sedimentation basins at the NRV Regional Water Authority's treatment plant.

The NRV Regional Water Authority (NRVRWA) owns and operates a water treatment plant capable of processing 12.4 million gallons per day, as well as two raw water pump stations located near the New River. The NRVRWA is a bulk supplier and provides finished water to the Town of Blacksburg, Town of Christiansburg, Virginia Tech and Montgomery County. This means the NRVRWA services an estimated population of 70,000.

The original raw water intake and water treatment plant were constructed in 1957 with a capacity of 4.1 million gallons per day. In 1968, the water treatment plant capacity was expanded to 10 million gallons per day, and a raw water booster pump station was also constructed. In 1977, the water treatment plant capacity was again expanded to its current capacity of 12.4 million gallons per day, and a new raw water intake was added. Minimal upgrades and improvements have taken place since 1977, with the majority of work being routine maintenance and replacement.

The NRVRWA completed a comprehensive evaluation of its existing raw water pumping facilities and the water treatment plant in 2016. The evaluation concluded that the facilities required a number of upgrades to maintain a safe work environment, improve efficiency and continue providing high quality water to customers. The raw water pumping facilities and water treatment plant began major renovations in 2020 that will take more than two years to complete. These renovations will enable the Authority to continue to provide high quality water to its customers for years to come.

The NRVRWA has completed two projects that expanded service to its members. These projects provide redundant feeds to members, so in the event of a malfunction or failure of critical infrastructure, there are alternate routes and systems to deliver water to NRVRWA members.

ABOUT YOUR WATER

Christiansburg is a member of the NRV Regional Water Authority (NRVRWA), which provides the Town of Christiansburg with drinking water sourced from the New River. The NRVRWA treats surface water obtained from the New River using conventional treatment methods such as coagulation, flocculation, sedimentation, filtration and, finally, disinfection. The water is pumped from the treatment system through a network of pipes to storage tanks, where it is then distributed to your tap. The Town of Christiansburg operates and maintains four pump stations, four water storage tanks and 150 miles of water main lines. On average, the Town delivers over 2.3 million gallons of drinking water to residences and businesses each day.

In order to ensure that tap water is safe to drink, the Environmental Protection Agency (EPA) prescribes regulations that limit the amount of certain contaminants in water provided by public systems. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells.

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 the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline at 800-426-4791.

Possible contaminants include:

- *Microbial Contaminants*, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations or 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 runoff, and septic systems.

- *Radioactive Contaminants*, which can be naturally occurring, or the result of oil and gas production and mining activities.



HEALTH INFORMATION

Vulnerability to Contaminants

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. 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, the elderly and infants can be particularly at risk for infections. These people should seek advice about drinking water from their healthcare providers.

A source water assessment was conducted in 2002 that determined the New River to be highly susceptible to contamination. This is common of other water systems in Virginia when the source is from surface waters. Information from this report may be obtained through the NRVRWA (**www.nrvwater.org**).

Lead in Homes

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 Town of Christiansburg is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. If your water has been sitting for several hours, you can minimize the potential for lead exposure by running your tap for 30 seconds to 2 minutes before using water for drinking and cooking.

If you are concerned about lead in your water, you may 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 at 800-426-4791 or at **tinyurl.com/EPALeadInWater**.



SAMPLING RESULTS

The NRV Regional Water Authority and the Town of Christiansburg routinely monitor contaminants in your drinking water according to federal and state laws. The tables below list all of the drinking water contaminants that are applicable for the calendar year of this report.

The presence of contaminants in the water does not necessarily indicate that the water poses a health risk. Unless otherwise noted, the data presented in this table is from testing done in the calendar year of the report. The EPA or the state requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not change.

Regulated Contaminants*

Contaminants (units)	MCLG or MRDLG	MCL, TT or MRDL	Level Detected	Range (lowest - highest)	Violation	Typical Sources
Nitrite and Nitrate[1] (ppm)	10	10	0.85	N/A	No	Runoff from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
Haloacetic acids [HHA5] (ppm)	N/A	60	30	9.8 - 43	No	Byproduct of drinking water disinfection
Total Trihalomethanes [TTHM] (ppm)	N/A	80	36	9.3 - 61	No	Byproduct of drinking water disinfection
Total organic carbon (removal ratio)	N/A	TT in compliance if ≥ 1.0	1	1	No	Naturally present in the environment
Barium[2] (ppm)	2	2	0.023	N/A	No	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Chlorine (ppm)	4	4	3.16	0.60 - 3.90	No	Water additive to control microbes
Turbidity (NTU)[3]	N/A	TT, 1 NTU max TT, ≤ 0.3 (95% of the time)	0.18, 100% of the time	0.08 - 0.18	No	Soil runoff
Fluoride[4] (ppm)	4	4	0.60	N/A	No	Erosion of natural deposits; discharge from fertilizer and aluminum factories

*These tables only show those contaminants that were detected in the water.
[1] Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.
[2] Some people who drink water containing barium in excess of the MCL over many years could experience an increase in their blood pressure.
[3] Turbidity is a measure of the cloudiness of water. We monitor it because it is a good indicator of the effectiveness of our filtration system. The EPA requires that we report the highest single turbidity result measured during the year.
[4] Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Children may get mottled teeth.

Lead & Copper Contaminants*

Contaminants (units)	MCLG	Action Level	Amount Detected (90th Percentile)	Sample Date	Violation	Sites above action level	Typical sources
Copper (mg/L)	1.3	1.3	0.0531	Aug. 2020	No	0	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead[5] (ppb)	0	15	<2[6]	Aug. 2020	No	0	Corrosion of household plumbing systems, erosion of natural deposits

*These tables only show those contaminants that were detected in the water.
[5] The Town of Christiansburg participates in lead and copper monitoring every three years with the Town of Blacksburg and Belview distribution systems.
[6] The 90th percentile was below the detection limit of 2 ppb.

SAMPLING RESULTS CONT.

Unregulated Contaminants*

Contaminant (unit)	Level Detected	Sample Date	Typical Sources
Sodium[1]	10.5 mg/L	March 2021	Naturally occurring; Addition of treatment chemicals/processes

*These tables only show those contaminants that were detected in the water.

[1] For individuals on a very low sodium diet (500 mg/day), EPA recommends not to drink water that exceeds 20 mg/L. Should you have a health concern, contact your healthcare provider.

Sodium is an essential element required for normal body function, including nerve impulse transmission, fluid regulations and muscle contraction and relaxation. However, in excess amounts, sodium increases individual risk of hypertension, heart disease and stroke. One of the chief sources of sodium is the consumption of salt; therefore, salt restrictions are often recommended as a first line of treatment for individuals suffering from these conditions.

Definitions

The following definitions may assist in understanding the results tables.

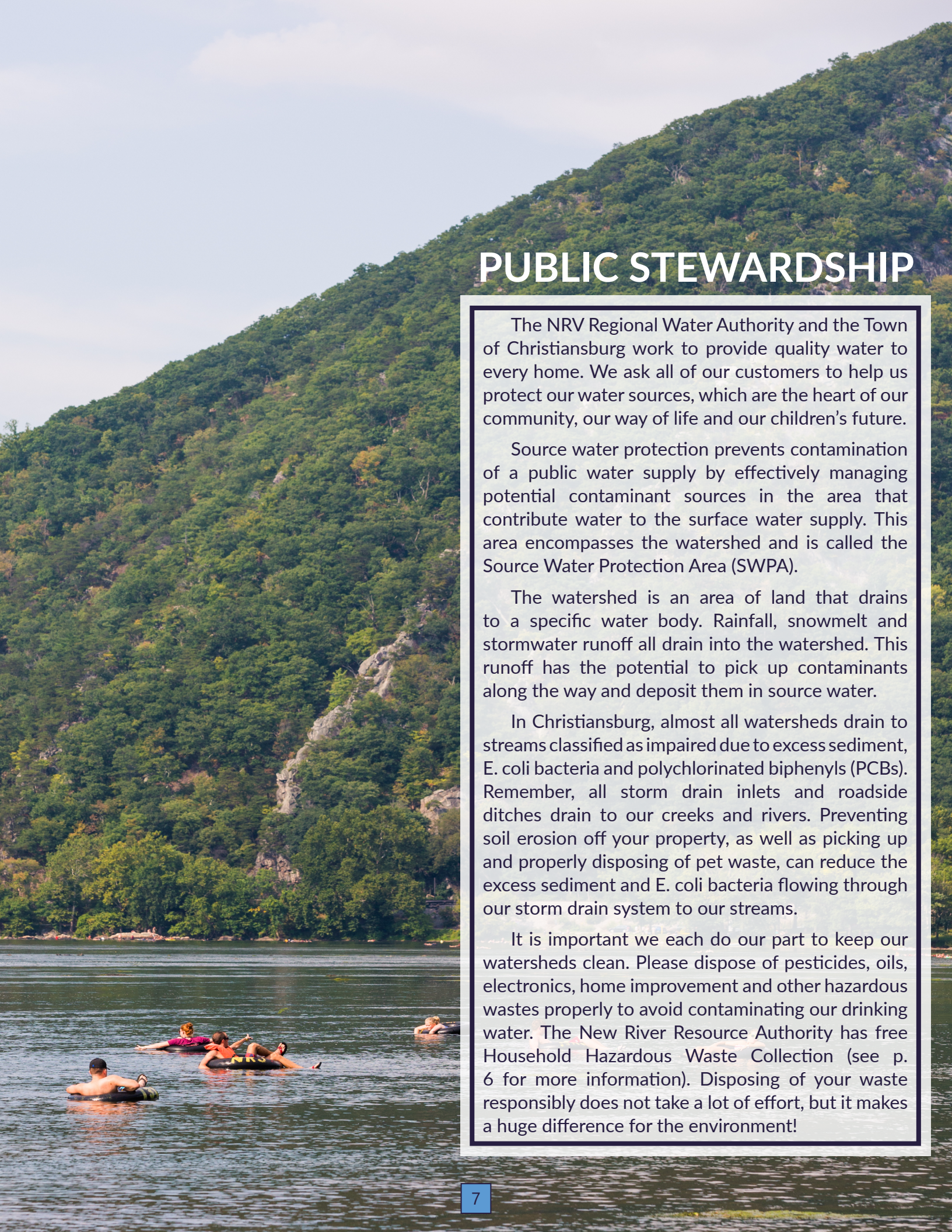
- ***Maximum Contaminant Level Goal*** **(*MCLG*)** is the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
- ***Maximum Contaminant Level*** **(*MCL*)** is the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
- ***Maximum Residual Disinfectant Level Goal*** **(*MRDLG*)** is 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.
- ***Maximum Residual Disinfectant Level*** **(*MRDL*)** is 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.
- ***Treatment Technique*** **(*TT*)** is a required process intended to reduce the level of a contaminant in drinking water.
- ***Violation*** means that the level of a contaminant or disinfectant in your drinking water has exceeded the maximum level allowed by the EPA.
- ***Action Level*** means the concentration of a contaminant that, if exceeded, triggers treatment or other requirements that an owner shall follow.
- ***PPB (parts per billion)*** means one part substance per billion parts water (or micrograms per liter).
- ***PPM (parts per million)*** means one part substance per million parts water (or milligrams per liter).

Additional Resources

- **Attend an NRV Regional Water Authority meeting.** Community members are welcome to attend NRVRWA meetings, which are held virtually at 4 p.m. every third Wednesday of the month. Please contact Caleb Taylor at 540-639-2575 to participate in a meeting.
- **Take a tour of the water treatment plant.** To schedule a tour, please contact Executive Director Caleb Taylor at 540-639-2575.
- **Dispose of household hazardous waste.** Please dispose of these items at one of the New River Resource Authority's Household Hazardous Waste Collection events. Learn more by calling 540-674-1677 or visiting www.newriverresourceauthority.org.
- **Learn more.** If you have questions about this report, please contact the Engineering Department at 540-382-6120. For more information about water in the New River Valley, please visit www.nrvwater.org.

The EPA (www.epa.gov/Your-Drinking-Water) and the Centers for Disease Control and Prevention (www.cdc.gov/healthywater/drinking) websites offer a substantial amount of information on many issues related to water resources, water conservation and public health.

The Virginia Health Department's Office of Drinking Water (www.vdh.virginia.gov/ODW) provides current information on water issues in Virginia, including valuable information about our watershed.



PUBLIC STEWARDSHIP

The NRV Regional Water Authority and the Town of Christiansburg work to provide quality water to every home. We ask all of our customers to help us protect our water sources, which are the heart of our community, our way of life and our children's future.

Source water protection prevents contamination of a public water supply by effectively managing potential contaminant sources in the area that contribute water to the surface water supply. This area encompasses the watershed and is called the Source Water Protection Area (SWPA).

The watershed is an area of land that drains to a specific water body. Rainfall, snowmelt and stormwater runoff all drain into the watershed. This runoff has the potential to pick up contaminants along the way and deposit them in source water.

In Christiansburg, almost all watersheds drain to streams classified as impaired due to excess sediment, E. coli bacteria and polychlorinated biphenyls (PCBs). Remember, all storm drain inlets and roadside ditches drain to our creeks and rivers. Preventing soil erosion off your property, as well as picking up and properly disposing of pet waste, can reduce the excess sediment and E. coli bacteria flowing through our storm drain system to our streams.

It is important we each do our part to keep our watersheds clean. Please dispose of pesticides, oils, electronics, home improvement and other hazardous wastes properly to avoid contaminating our drinking water. The New River Resource Authority has free Household Hazardous Waste Collection (see p. 6 for more information). Disposing of your waste responsibly does not take a lot of effort, but it makes a huge difference for the environment!