CLEAN WATER

AMPLE WATER

QUALITY SERVICE

2022

WATER QUALITY REPORT

Bedford Regional Water Authority

ABOUT THIS REPORT

On July 1, 2013 the Bedford Regional Water Authority (BRWA) was formed from the former utility department of the Town of Bedford and the Bedford County Public Service Authority. The BRWA now offers a larger regional approach to meeting the communities' water and wastewater needs.

The BRWA supplies customers in the Forest, New London, Boonsboro, Smith Mountain Lake, Bedford, and Stewartsville areas with an annual water quality report. This provides you with information about the source of your water, what it contains and how it compares to the standards set by regulatory agencies based on data collected during calendar year 2022 or the most recent testing period.

Source water assessments of our systems were conducted between 2002 and 2020 by the Virginia Department of Health (VDH). The wells and intakes were determined to be of high susceptibility to contamination using the criteria developed by the state in its approved Source Water Assessment Program.

The assessment report consists of maps showing the source water assessment area, an inventory of known land use activities of concern, and documentation of any known contamination within the last 5 years. Please contact us at 540-586-7679 to receive a copy of this report.

The Water Operations Department of the BRWA is pleased to deliver safe drinking water. Once again, the BRWA was in full compliance with all state and federal monitoring and reporting requirements.

Bedford Regional Water Authority

REACHING OUT TO THE BEDFORD REGIONAL WATER AUTHORITY

If you have any questions about this report or would like additional information concerning your drinking water please contact William (W.T.) Swain, Water Operations Manager by phoning 540.586.7679 ext. 154 or by emailing w.swain@brwa.com.

BOARD OF DIRECTORS

The BRWA's Board of Directors, appointed by the member localities, governs the BRWA. Representatives from the BRWA's service area include Mr. Robert Flynn, Mr. Michael Moldenhauer, Mr. Jay Gray, Mr. Kevin Mele, Mr. Rusty Mansel, Mr. Doanld Barger, and Mr. John Sharp.

Board meetings are held on the third Tuesday of each month at 1723 Falling Creek Road, Bedford, VA 24523. Board meetings are open to the public.

CUSTOMER SERVICE

Our customer service representatives are available Monday - Friday from 8:30am - 5pm and can be reached by phoning 540.586.7679 ext.4 or by emailing customerservice@brwa.com.

If you have a water or sewer emergency after hours, call us at 540.586.7679 ext. 9

1723 Falling Creek Rd. • Bedford, VA 24523
www.brwa.com

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TESTING YOUR WATER

In order to ensure that tap water is safe to drink, the Environmental Protection Agency (EPA) prescribes regulations which 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. All 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 water poses a health risk.

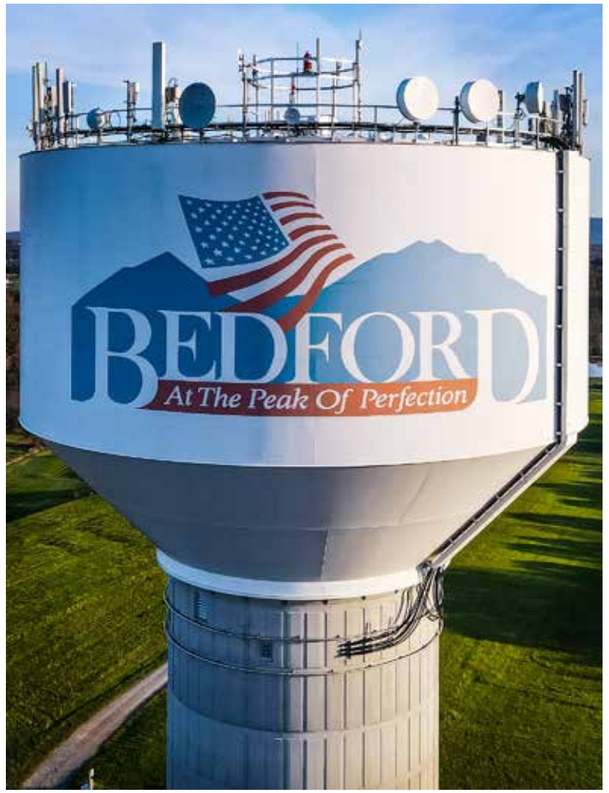
More information about drinking water is available through these sources:

Virginia Department of Health: (Bedford area)
540.586.7952

Virginia Department of Health: (Lynchburg area)
434.477.5900

Center for Disease Control and Prevention:
1.800.311.3435 404.639.3311 or 404.639.3312 (TTY)

EPA Safe Drinking Water Hotline:
800.426.4791



HOW ARE THE STANDARDS SET?

The U.S. Environmental Protection Agency (EPA) sets maximum contaminant levels (MCLs) at very stringent levels. In developing the standards, the EPA assumes that the average adult drinks 2 liters of water each day throughout a 70-year life span. The 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-one-million chance of having the described health effect for other contaminants.

The tables of data on pages 12 - 19 summarize water-testing results from 2020 or the most recent reporting year for both regulated and non-regulated substances. Many other primary and secondary contaminants have been analyzed but were either below the instrument's detection limits or below the MCLs.

The BRWA constantly monitors its water supplies for various contaminants to meet all regulatory requirements. Many contaminants or parameters are monitored daily but others are required monthly, quarterly, annually, triannually or longer. The total Trihalomethanes (TTHMs) and Haloacetic acids (HAA5s) were calculated using locational running annual averages.

CRYPTOSPORIDIUM & GIARDIA

Cryptosporidium and Giardia are microscopic organisms that can cause fever, diarrhea, cramps and other gastrointestinal symptoms when ingested. The organisms come from animal and human wastes and are eliminated through water filtration and disinfection.

Though the presence of these organisms is not regulated by the state or federal government, the BRWA has tested for these organisms and has never detected a viable indication of either in the treated drinking water.

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 of 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 microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

CAUSES OF DISCOLORED WATER?

Fluctuation in water pressure within water systems, such as when water mains break or fire hydrants are used or flushed, can occasionally cause drinking water to be discolored. This discoloration is caused by sediments in pipes mixing with clear water. The sediments occur naturally from the oxidation of iron in pipes.

While discolored water is ordinarily safe to drink, it is best to flush any discolored water from pipes by turning on cold-water faucets in your home or business. Avoid turning on hot-water faucets so the discolored water is not drawn into water heaters.

If you notice evidence of a water main break or leaking fire hydrant, please call (540) 586-7679.

WHAT IS MY WATER HARDNESS?

As water naturally flows over rocks and through the soil, it picks up minerals. The more calcium and magnesium present, the harder your water. While water hardness doesn't pose any safety risks, you may notice increased mineral build-up or soap residue with harder water. Hardness can be expressed as PPM - parts per million or GPG - grains per gallon.

PPM	GPG	Rating
0 - 75	0 - 4.3	Soft
76 - 150	4.4 - 8.7	Moderately Hard
151 - 300	8.8 - 17.5	Hard
over 300	17.6 +	Very Hard

LEAD & COPPER TESTING

Quality water begins at the source. It is important that the Bedford Regional Water Authority knows and understands the water chemistry from each source, closely monitors the treatment process and recognizes certain pipe materials that the water can flow through. This is of utmost importance in regards to lead and copper.

Copper is a nutritionally essential element, but at elevated levels, it can cause gastrointestinal difficulties such as nausea and diarrhea. Elevated levels of lead, if present, can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily associated with materials and components in service lines and home plumbing.

The BRWA maintains over 500 miles of pipes up to and including the lines going to the customer's water meter. Pipe materials in our system can be cast iron, ductile iron or PVC. The BRWA does not know of any lead pipes in its distribution system and cannot control the variety of materials used in plumbing components. However, customers, especially those in older homes, may have lead plumbing in their homes or pipes that were joined with lead solder. If necessary, the BRWA also treats water with corrosion control substances or adjusts the pH of the water so that pipes in our distribution system and customers' pipes within their homes are protected.

The BRWA provides high quality drinking water to its customers but is not responsible for the variety of materials used in plumbing components. When water has been sitting in your pipes for an extended amount of time, you can minimize potential lead exposure by flushing your tap for 30 seconds to 2 minutes or until it becomes cold or reaches a steady temperature before using it for either 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.

TERMS USED IN THIS WATER QUALITY REPORT

Action Level (AL): The concentration of a contaminant that triggers treatment or other requirements that a water system must follow.

Combined Radium: Radium 226 + Radium 228.

E. coli: Bacteria from human and animal fecal waste.

HAA5s: Haloacetic acids.

Level 1 Assesment: 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.

LRAA: Locational Running Annual Average.

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLG 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 (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.

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

mg/L: Milligrams per liter, also referred to as parts per million.

ND: Analyte was not detected or was below the method detection limit of the laboratory's instrumentation.

NTUs: Nephelometric Turbidity Units; a measure of turbidity.

P/A: Present or Absent.

pCi/L: Picocuries per liter is a measure of the radioactivity in water.

ppm: One part per million, also referred to as mg/L.

ppb: One part per billion, also referred to as µg/L.

TTHMs: Total Trihalomethanes.

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

Turbidity: Turbidity has no health effects. However, it can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps,diarrhea and associated headaches.

µg/L: Micrograms per liter, also referred to as parts per billion.

µmhos/cm: Micromhos per centimeter; a measure of conductivity.

Substance	Source of Substance
Alkalinity	Measurement of naturally occurring carbonates
Aluminum	Naturally occuring in the environment; product of industrial processes
Arsenic	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
Barium	Discharge from drilling wastes; discharge from metal refineries; erosion of natural deposits
Chlorate	By-product of treating drinking water with chlorine dioxide
Chlorine	Required disinfectant added during treatment process to eliminate bacteria
Chlorite	By-product of treating drinking water with chlorine dioxide
Chromium	Discharge from steel and pulp mills; erosion of natural deposits
Conductivity	Physical property of water
Copper	Corrosion of household plumbing systems; erosion of natural deposits
Corrosivity	Physical property of water that occurs when water reacts with metal
Ethylbenzene	Discharge from petroleum refineries
Fecal Coliforms	Human and animal waste
Fluoride	Erosion of natural deposits; water additive which promotes strong teeth; discharge from aluminum and fertilizer factories
Gross Alpha	Erosion of natural deposits
Gross Beta	Decay of natural and man-made deposits
HAA5s	By-product of drinking water chlorination
HAA6BR	By-product of drinking water chlorination
HAA9	By-product of drinking water chlorination
Hardness	Measurement of naturally occurring hardness metals
Iron	Naturally occurring in the environment
Lead	Natural/industrial deposits, plumbing solder, brass alloy in faucets
Manganese	Naturally occurring in the environment
Orthophosphate (as P)	Corrosion inhibitor added during treatment process
Radium 226/228	Erosion of natural deposits
Sodium	Naturally occurring in the environment; byproduct of chemical addition at water plants
TTHMs	By-product of drinking water chlorination; byproduct of chemical addition at water plants
Thallium	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories
Total Coliforms	Naturally present in the environment
Total Nitrate & Nitrite (as N)	Run-off from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Xylene	Discharge from petroleum factories; discharge from chemical factory
Zinc	Naturally occurring in the environment

GENERAL INFORMATION

The sources of drinking water (both tap and bottled water) include rivers, lakes, 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 can pick up substances resulting from the presence of animals or from human activity. Water from surface sources is treated to make it drinkable while groundwater may or may not require any treatment.

Other substances within source waters may be naturally occurring substances, or may come from:

• Microbial substances, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife;

• Inorganic substances, 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 substances, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems; and

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

USING WATER WISELY

Using water wisely in times of drought is crucial; however, it is always of utmost importance to use our most valuable resource wisely.

• Fix leaks in faucets, toilet tanks and outside spigots. A leaky toilet can easily waste up to 200 gallons of water per day.

• Use full loads in your washing machine and dishwasher to maximize efficiency.

• Do not overwater your lawn. Watering your lawn or garden before 10 AM or after 7 PM when temperatures are cooler minimizes evaporation and maintains the soils moisture for a longer amount of time. If you water your lawn, keep in mind that it only needs 1 to 1.5 inches of water every week or two.

• Turn off the water while brushing your teeth to save over two gallons of water.

• Taking shorter showers saves water. Shorten your shower to five minutes to save over 15 gallons of water.

• Have a leak? Fix it and let us know right away. If your meter records a continuous high flow of consumption, we'll notify you about a potential leak.

WATER QUALITY BEGINS AND ENDS WITH YOU

Water that enters our storm drains often flows directly to our local streams and rivers. Do your part to help protect our waterways:

• Always recycle or dispose of household hazardous wastes properly.

• Don't pour motor oil, antifreeze or other toxic materials down storm drains, which ultimately return to our waterways.

• Don't flush paint thinners, insect sprays, herbicides and other harmful chemicals down the toilet or put them down the sink.

KEEPING MEDICATIONS OUT OF OUR WATER SUPPLY

Pharmaceuticals also pose a risk to entering the waterways through the practice of improper disposal methods, such as flushing unused or expired medications down the toilet.

You can help keep unused pharmaceuticals out of the water supply by paying attention to how you dispose of unused medications. Look for take-back programs that may be established near you. The Drug Enforcement Agency (DEA) sponsors national take-back programs in coordination with State and local law enforcement agencies. National take-back programs provide opportunities for the public to surrender expired, unwanted or unused pharmaceuticals and other medications to law enforcement officers for proper disposal. To find out about future takeback events, visit DEA's website at https://www.deadiversion.usdoj.gov/drug_disposal/takeback/.

Call us at 540.586.7679 or email communications@brwa.com to get a schedule of the counties Household Hazardous Materials Drop-off Events and where you can dispose of these materials safely without polluting your drinking water supply.

Follow these steps to dispose of medicines in the household trash

MIX
Mix medicines (do not crush tablets or capsules) **with an unpalatable substance** such as dirt, kitty litter, or used coffee grounds;

PLACE
Place the mixture **in a container** such as a sealed plastic bag;

THROW
Throw the container in your **household trash container**;

SCRATCH OUT
Scratch out all personal information on the prescription label of your empty pill bottle or empty medicine packaging.

PREVENTING BACKFLOW & CROSS-CONNECTION

The BRWA utilizes pressurized water distribution systems that are designed to carry water in a certain direction – from the BRWA's distribution system to the consumer. If the water system loses pressure, such as during a water main break, system maintenance or fire hydrant usage/testing, the flow of the water may be reversed.

If a consumer has made a cross-connection or an actual or potential connection between the distribution system and a source of contamination or pollutant, these substances can backflow into the public water system and create a risk to public health.

There are multiple methods and devices known to help prevent backflow from occurring. Some examples include air gaps, barometric loops, vacuum breakers, double check valve assemblies and reduced pressure principle devices.

HOW YOU CAN HELP PROTECT YOUR DRINKING WATER

The BRWA encourages all of our customers to assist us with identifying potential areas where backflow can occur.

Remove any cross-connections you find or install backflow prevention devices (available at hardware stores) where needed.

If necessary, contact the BRWA to schedule a free assessment with our staff to assist you find and remove any potential cross-connection sources.

If you have a backflow prevention device installed by a certified plumber, have it tested annually or after any repairs.

Questions about backflow prevention?
Email us at communications@brwa.com
or call us at 540.586.7679.

SMOKE TESTING

The BRWA periodically performs smoke testing of sanitary sewers. These tests involve blowing harmless, simulated smoke into the sanitary sewer system.

The purpose of smoke testing is to find potential sources of unwanted rainwater (inflow) and groundwater (infiltration) in the sanitary sewer system that could lead to high flows during storms and snow melt events. Storm water and ground water entering the sanitary sewer places an unnecessary burden on the pipes and sewage treatment facilities.

Smoke testing aids in locating the following:

- Buildings that have downspouts, cellar, yard or basement drains, and sump pumps connected to the public sewer system
- Points of groundwater or surface water intrusion into the sewer
- Any cross connection between sanitary and storm drains
- Defective sewer connections that could allow sewer gases into a building

If you have questions about Bedford Regional Water Authority's smoke testing procedure, please call 540.586.7679

HOW TO FIND AND FIX A LEAKY TOILET

Since most toilet leaks don't create a mess, they often go undetected and unaddressed. Water leaks from the back tank into the bowl and straight down the drain. A moderate toilet leak can waste about thousands of gallons of water a month!

Signs of a toilet leak

If your toilet starts running randomly when it hasn't been flushed, you have a leak. If uncertain, try putting a couple of drops of food coloring in the back tank. If the water in the bowl turns colors without you flushing, your toilet is leaking.

Most common causes of a toilet leak

High water level in the toilet tank: when the water level is too high, water pours down into the overflow tube and straight into the toilet bowl.

Loose toilet flappers: the flapper is that plastic piece that fits over the valve that leads into the toilet bowl. This causes water to leak into the toilet bowl between flushes.

I have a leak, now what?

Make sure the lift chain is free of kinks and that there isn't any mineral buildup that may stop valves from sealing properly. Use the adjustment screw on the overflow pipe to lower the water level in the tank. Most overflow pipes have a line on them to indicate where the water level needs to be. If valves or the plunger ball isn't properly sealing, replace them. Parts are available at your local hardware store to replace these items.

LEARN MORE

CLASSROOM PRESENTATIONS

The BRWA's outreach staff is pleased to offer free Standards of Learning (SOL) correlated lessons to students in our service area.

These hands-on programs help students grasp concepts such as the water cycle, watersheds and the amazing properties of water. Students in the upper grades learn about the wastewater treatment process and future careers in the water and wastewater industry. Interested in bringing the BRWA into your classroom? Email us at communications@brwa.com to schedule a visit.

GUEST SPEAKERS

Interested in having a speaker talk to your civic league or community group? We'd be happy to talk to your group about your water source, how we treat your water and improvements we are making to the water and wastewater infrastructure. Contact us at communications@brwa.com for scheduling and information.

TOURS

Tours of our treatment facilities and reservoirs are offered for students, civic and community groups. You will be amazed to learn what goes on behind the faucet as we treat and deliver the highest quality drinking water to our customers. We'd love to show you how we treat your water. To request a visit, please call 540.586.7679 or email communications@brwa.com

FROG PROGRAM

Sewage collection lines get clogged by items that are flushed down toilets and drains, especially **Fats, Rags, Oil and Grease** (**FROG**) that get caught and stop up the sewer. In addition to costly repairs, sewer back-ups are messy, foul-smelling and pose a serious public health threat.

As our community continues to grow, so do the demands on public infrastructure. Sewer lines, pump stations, and small grinder pumps are a few examples of the things that the BRWA must provide increased maintenance to in order to combat damages and overflows caused by FROG.

As FROG is disposed of down the toilet or drain it begins to accumulate inside the sewer collection system. As the materials continue to build up, it restricts the flow within the system until it clogs it entirely. This ultimately leads to the damaging of pumps in lift stations, damages to sewage treatment facilities, and sewage spills or overflows.

These items can also contaminate the treated water that is discharged into the rivers, streams, and groundwater. When overflows occur due to FROG, sewage can find its way into the environment. This can lead to problems such as habitat degradation, hypoxia, and algal blooms. By properly disposing of FROG you can have a significant impact not only on your own home's plumbing and the BRWA's sewer system but the environment as well.

Email us at communications@brwa.com to learn more.

EMERGENCY CONTACT

Get alerted about emergencies and other important community news by signing up for Everbridge, an automated callout system. This system enables the sharing of critical information quickly in a variety of situations, such as severe weather, road closures, missing persons and evacuations of buildings or neighborhoods.

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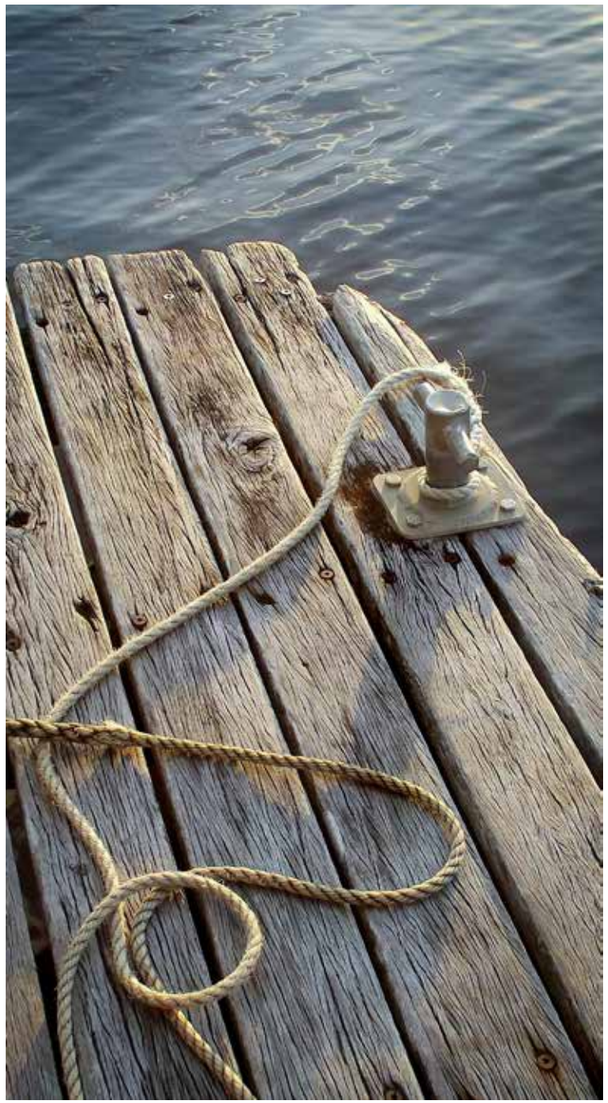
If you would like to receive emergency notifications, please visit: https://member.everbridge.net/index/8928077367236 97/#/signup

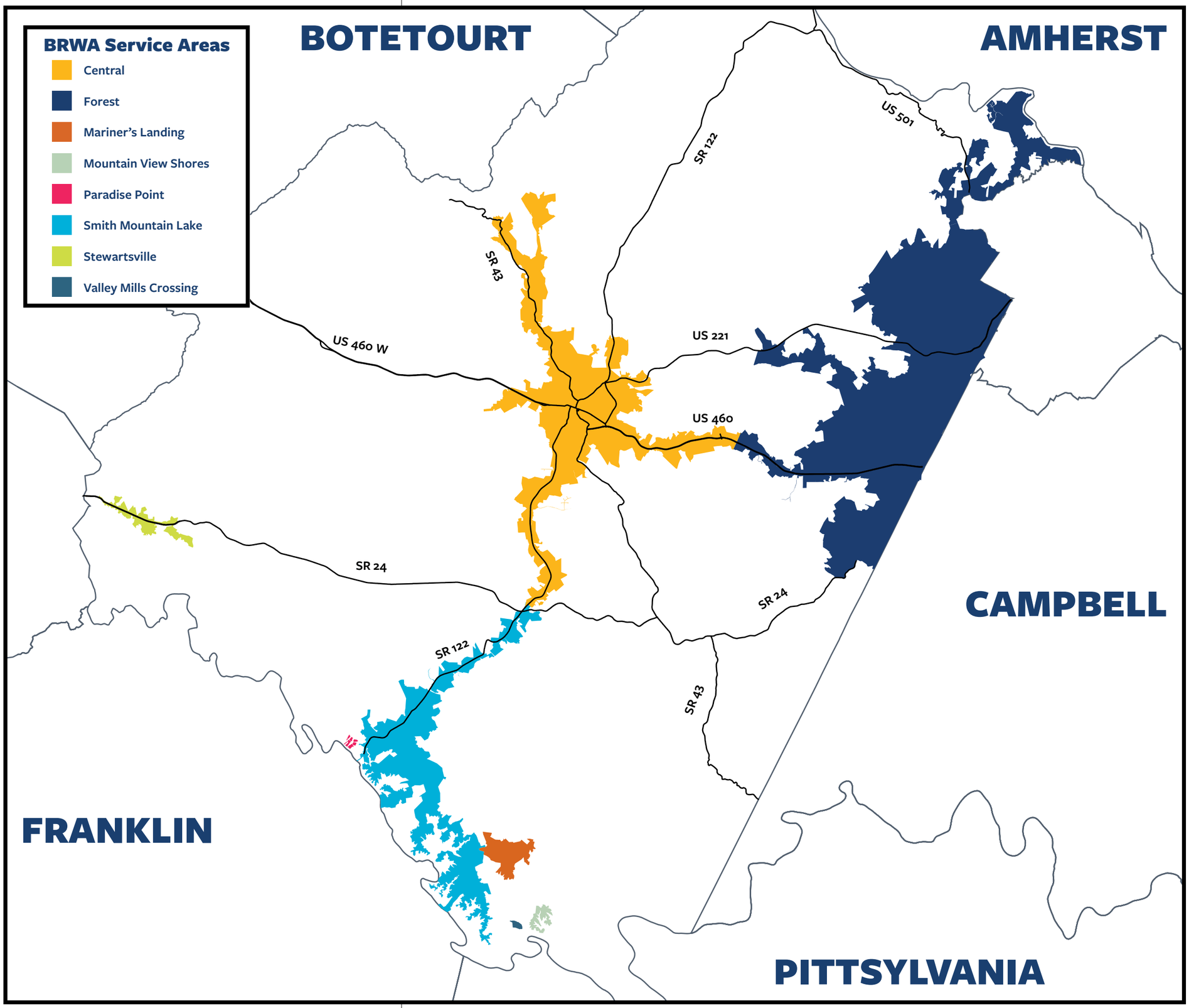
DRINKING WATER SYSTEMS IN BEDFORD COUNTY

Having successful partnerships with both Lynchburg Water Resources and the Western Virginia Water Authority (WVWA), the Bedford Regional Water Authority is capable of providing water to residents and businesses over a vast area. These relationships provide access to millions of gallons of treated drinking water to be distributed to customers over a large geographical area.

In conjunction with our partners, the BRWA utilizes five surface water sources and multiple wells to provide drinking water throughout the Piedmont Region.

Having such an abundant supply of water bolsters the community's defense against drought and other emergencies. Thus, protecting both public health and the environment.





STEWARTSVILLE SERVICE AREA

The BRWA purchases the water for Stewartsville from the Western Virginia Water Authority. The primary source of drinking water in this area is the Carvins Cove Reservoir.

The Carvins Cove Reservoir is a surface water source nestled within Carvins Cove Natural Reserve, a 12.672-acre watershed near Hollins University in Botetourt County. In addition to receiving water from the watershed, the reservoir is fed from two underground tunnels that carry overflow from Tinker and Catawba Creeks. This surface water source covers 630 acres and stores 6.42-billion gallons of water at full pond.

How is it treated?

Water is withdrawn from the reservoir, oxygenated and treated with chlorine dioxide to oxidize dissolved organic matter, iron and manganese. Water is then aerated to remove unwanted dissolved gases and to oxidize dissolved metals. Next, ferric chloride is used as a coagulant to remove turbitity and organic matter prior to filtration. Finally, fluoride is added to promote strong teeth, sodium hydroxide is added to adjust the pH and reduce corrosivity, zinc ortho-phosphate is used as a corrosion inhibitor, and chlorine is added to provide disinfection.

Where does it serve?

Carvins Cove Reservoir provides water to a large demographic ranging from portions of the City of Roanoke and northern / northeastern Roanoke County to the Botetourt area around Exit 150 to Tinkerview and Greenfield.

Data presented as (range) Average.
PWSID# 5019795

Waterfall at Carvins Cove taken in 1926.

Did you know?

The first settlement on to be built on the 12,000 acres at the base of Mt. Tinker was by a man named William Carvin in July of 1746. He received a land grant for 150 acres along Carvins creek. Some of this land was devoted to Hollins University, while the rest of the land behind the dam would come to be known as the Happy Valley community. During this time Carvins Cove was not a part of Roanoke County, but a part of Botetourt County, in the city of Hollins. It stayed in the Carvin family's hands until November of 1926 when then Roanoke announced that the Virginia company would build a 80 foot dam, costing nearly $700,000 to impound six billion gallons of water for the city.

Being devastated by the great depression and a significant drought in 1936, The Virginia Company sold its holdings to Roanoke Water Works for just $1 dollar. By 1946, the dam reached its full capacity filling the pond, now known as Carvins Cove.

Fast forwarding to 2014, the Western Virginia Water Authority purchases the last remaining privately held piece of real estate in the watershed to protect the reservoir from potential runoff.

Substance	Units	Ideal Goals (EPA's MCLG)	Highest Level Allowed (EPA's MCL)	Violation	Date of Sample	Stewartville System Data (range) Average
Lead and Copper Testing						
Copper	ppm	1.3	AL = 1.3	no	June - Sep. 2020	0 samples exceded AL (0.02-0.089) 90th percentile = 0.08
Disinfection Byproducts						
HAA5s	ppb	0	60	no	Quarterly	(1.7 - 6) 3 - highest
TTHMs	ppb	0	80	no	Quarterly	(39 - 54) 46 - highest
Chlorine	ppm	N/A	4	no	Monthly	(0.1 - 0.64 mg/l) 0.64 - highest

Microbiological Substances	Units	EPA's MCLG	Highest Level Allowed - EPA's MCL	Violation	Date of Sample	Level Detected
Total Coliforms	P/A	0	Presence of coliform in more than 1 monthly sample	no	Monthly	0

SMITH MOUNTAIN LAKE SERVICE AREA

The BRWA has a successful working relationship with the Western Virginia Water Authority (WVWA) to provide treated drinking water from the Smith Mountain Lake Water Treatment Plant to customers in the Westlake Area Water System and to Bedford County customers from Moneta to Forest. This facility, which opened in May 2017, was designed to meet both utilities' joint water needs through the year 2060 as recommended by the Regional Long Range Water Supply Plan.

How is it treated?

Water from Smith Mountain Lake is screened through 500 micron woven mesh stainless steel strainers to remove fine silt and then pumped to the treatment facility. The membrane plant has 216 modules that each have 10,000 membrane filter strands to provide the unique water treatment capability. The membranes can filter out particles larger than 0.02 microns. After filtration, the water is treated with sodium hypochlorite, a required disinfectant to eliminate bacteria and fluoride for dental health.

Where does it serve?

Being a regional facility, the Smith Mountain Lake water treatment plant serves customers within Moneta and Franklin County, following north up the 122 corridor to the Town of Bedford and east to New London extending into the Forest area.

Data presented as (range) Average.
PWSID#5019400

* A sample collected in February 2022 indicated the sodium in the treated water is 9.3 mg/L. This is below the EPA recommended optimal level of less than 20 mg/L for sodium in drinking water, which is established for those individuals on a "strict" sodium intake diet.

► As part of a large study by the Virginia Department of Health's unregulated contaminants monitoring program, the treated drinking water from the SML Water Treatment Facility was tested for polyfluoroalkyl substances (PFAS) compounds. One compound, GenX (chemical name: hexafluoropropylene oxide-dimer acid which is frequently abbreviated HFPO-DA) was detected in the amount of 5 ppt. Although the 5 ppt sample result is below the 10 ppt Lifetime Drinking Water Health Advisory, the BRWA and WVWA wanted to make you aware of this test data.

On April 21, 1964, water had reached 145 feet deep and rising up the face of Smith Mountain Dam.

Did you know?

Smith Mountain Lake reached "full pond" for the first time – that's 795 feet just below the spillway at the Smith Mountain dam, a level officially recorded on March 7, 1966. This project tamed the Roanoke River and formed two lakes — Smith Mountain Lake and Leesville Lake.

The project ultimately flooded thousands of acres, mostly rural farmland, and involved hundreds of workers to accomplish an engineering feat whose dam centerpiece towers 225 feet and is wedged into the gorge of its namesake mountain.

Substance	Units	Ideal Goals (EPA's MCLG)	Highest Level Allowed (EPA's MCL)	Violation	Date of Sample	Smith Mtn. Lake System Data (range) Average
Regulated Substances						
Barium	ppm	2	2	no	Feb. 2022	0.03
Fluoride	ppm	4	4	no	Jan. - Dec. 2022	(0.09 - 1.15) 0.61
Total Nitrate & Nitrite (N)	ppm	10	10	no	Feb. 2022	0.29
Turbidity	NTU	TT	0.3	no	Daily	0.28 100% < 0.5 (0.06 - 0.28)
Disinfection Byproducts						
Chlorine	ppm	N/A	4	no	Monthly	(0.2 - 1.7 mg/l) 1.7 - highest
Radioactive Substances						
Gross Alpha	pCi/L	0	15	no	July 2021	0.8
Combined Radium	pCi/L	0	5	no	July 2021	0.8
Unregulated and Secondary Substances						
Sodium	ppm	N/A	N/A	no	*Feb. 2022	9.35

Microbiological Substances	Units	EPA's MCLG	Highest Level Allowed - EPA's MCL	Violation	Date of Sample	Level Detected
Total Coliforms	P/A	0	Presence of coliform in more than 1 monthly sample	no	Monthly	0

CENTRAL SERVICE AREA

Customers within the New London and Forest areas may be supplied with water from Smith Mountain Lake or the Pedlar Reservoir, with additional supplies coming from the James River during periods of greater demand. The town of Bedford's primary source of drinking water is the Stoney Creek Reservoir accompanied by Smith Mountain Lake.

How is it treated?

Water from both the Pedlar Reservoir and the James River are currently treated at the College Hill Water Treatment Plant, located in Lynchburg City and the Abert Water Treatment Plant, located in Bedford County. The water system includes seven primary pressure zones with several additional small zones, two water treatment plants, nine water storage tanks, and several pump stations. Overall treatment capacity is 14-million gallons a day.

Water from the Stoney Creek Reservoir is fed through a series of waterlines to the Central Water Treatment Plant on Turkey Mountain where it is treated using a conventional sand filtration system. An aluminum-based polymer is added to the raw lake water along with lime. Once mixed, the chemicals cause microscopic contaminants in the water to clump together. Larger particles will then settle out in two large settling basins while the clear water then flows through the sand filters. Once filtered, the water is treated with sodium carbonate for pH adjustment, phosphate for corrosion control, chlorine for disinfection, and fluoride for dental health.

Where does it serve?

Having a partnership with Lynchburg Water Resources, the BRWA is capable of providing water to a vast area consisting of the town of Bedford, Forest, New London, and Boonsboro areas.

Data presented as (range) Average.
PWSID# 5019052

Pedlar Reservoir was constructed in 1904 and is capable of holding 1 billion gallons of water.

Did you know?

The original designer of the dam is unknown but was initially constructed in 1904 and was raised in 1926, 1931, and 1964.

Substance	Units	Ideal Goals (EPA's MCLG)	Highest Level Allowed (EPA's MCL)	Violation	Date of Sample	Town of Bedford System Data (Range) Average
Regulated Substances						
Barium	ppm	2	2	no	Aug. & Dec. 2022	(0.019 - 0.051) 0.051
Fluoride	ppm	4	4	no	Jan. - Dec. 2022	(0.21 - 0.97) 0.73
Total Nitrate & Nitrite (N)	ppm	10	10	no	Aug. 2022	0.031
Turbidity	NTU	TT	0.3	no	Daily	0.19 100% < 0.3
Radioactive Substances						
Gross Alpha	pCi/L	0	15	no	May 2020	<0.33
Combined Radium	pCi/L	0	5	no	May 2020	0.2
Lead and Copper Testing						
Lead	ppb	0	AL = 15	no	June - Sep. 2020	0 sample exceded AL (ND - 15) 90th percentile = 5.1
Copper	ppm	1.3	AL = 1.3	no	June - Sep. 2020	1 sample exceded AL (ND - 1.43) 90th percentile = 0.162
Disinfection Byproducts						
HAA5s	ppb	0	60	no	Quarterly	(16 - 42) 43 - highest
TTHMs	ppb	0	80	no	Quarterly	(19 - 55) 59 - highest
Chlorine	ppm	N/A	4	no	Monthly	(0.2 - 1.9 mg/l) 1.9 - highest
Organic Carbon (Total)	ppm	TT	TT	no	Monthly	(1.0 - 1.84) 1.07
Unregulated and Secondary Substances						
Sodium	ppm	N/A	N/A	no	*Aug. & Dec. 2022	(5.8 - 10.0) 10.0

Microbiological Substances	Units	EPA's MCLG	Highest Level Allowed - EPA's MCL	Violation	Date of Sample	Level Detected
Total Coliforms	P/A	0	Presence of coliform in more than 1 monthly sample	no	**Dec. 2022	2

Why was the UCMR developed?

The 1996 Safe Drinking Water Act (SDWA) amendments require that once every five years the EPA issue a new list of no more than 30 unregulated contaminants to be monitored by public water systems (PWSs).

What is unregulated contaminant monitoring (UCMR4)?

Unregulated contaminants are those for which the EPA has not established drinking water standards. As such, there is no MCLG or MCL established for the following unregulated contaminants.

The UCMR program provides the EPA and other interested parties with nationally representative data on the occurrence of particular contaminants in drinking water, the number of people potentially being exposed and an estimate of the levels of that exposure.

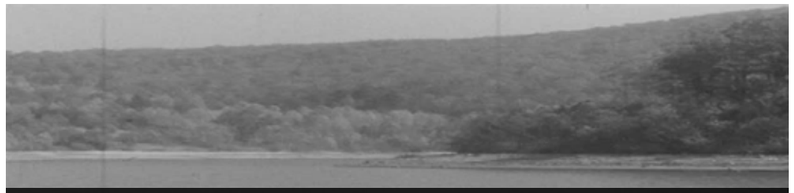
In accordance with SDWA, EPA takes into consideration the occurrence data from UCMR 4 and other sources, along with the peer reviewed health effects assessments, to aid in determining where certain contaminants occur and whether the Agency should consider regulating those contaminants in the future.

The following substances were tested in the combined water systems - Forest Central, Central Water, Smith Mountain Lake during the 2018-2019 calendar year as part of the unregulated contaminant monitoring.

General information is available on the UCMR web page or by calling the Safe Drinking Water Hotline at 1.800.426.4791

* A sample collected in August 2022 indicated the sodium in the treated water is 10.0 mg/L. This is below the EPA recommended optimal level of less than 20 mg/L for sodium in drinking water, which is established for those individuals on a "strict" sodium intake diet.

** Level 1 Assessment requirements - not due to an E'coli MCL violation. During the past year, we were required to conduct one Level 1 assessment for our waterworks, due to the presence of total coliform bacteria in two bacteriological samples collected in December 2022 monitoring period. There was one corrective action. The corrective action and the level one assessment were both completed in 2022 for our water system.



Stoney Creek from the upstream side of the spillway. October 21, 1963.

Did you know?

Originally built in 1954, rehabilitation and reconstruction of the Stoney Creek Dam began in 2011.

This immense project called for a budget of nearly seven million dollars and consisted of erecting new sidewalls, parapet walls, cut-off walls, spillway crest, and chute slab overlay (approximately 2,900 CY of reinforced concrete); overtopping protection on the downstream side of the existing dam embankment consisting of 10,000 CY of roller-compacted concrete; sand blanket drain; stone trench drains including 2,500 LF of PVC perforated and solid pipe; 20,000 cubic yards of excavation and backfill; rip rap channels; water line relocation; sheet piling; pressure injected grout; piezometers.

Every year the Virginia Lakes and Watersheds Association, in conjunction with Virginia Department of Conservation and Recreation, Dam Safety and Floodplains, present awards to dams around the Commonwealth that meet all State and Federal Dam Safety.

The rehabilitation and reconstruction of the Stoney Creek Dam was completed in the Spring of 2012 and has since been named "Most Improved Dam" by Virginia Lakes and Watersheds Association Dam Safety Committee.

Substance	Units	Ideal Goals (EPA's MCLG)	Highest Level Allowed (EPA's MCL)	Violation	Date of Sample	Town of Bedford System Data (Range) Average
Unregulated and Secondary Substances						
HAA6BR	ppb	N/A	N/A	no	Feb. - May 2019	(1.7 - 5.3) 3.9
HAA9	ppb	N/A	N/A	no	Feb. - May 2019	(25 - 54) 43
Manganese	ppb	N/A	N/A	no	Feb. - May 2019	(ND - 2.9) 0.75
Organic Carbon (Total)	ppm	N/A	N/A	no	Feb. - May 2019	(0.68 - 2.2) 1.5

COMMUNITY WELL SYSTEMS

MOUNTAIN VIEW SHORES

The BRWA also owns an independent water system located within the Mountain View Shores subdivision that uses three wells as its source. The BRWA maintains the aforementioned distribution system that serves many within this localized community.

How is it treated?

Water serving the Mountain View Shores subdivision is sourced from three groundwater wells and is distributed throughout the community from a 100,000-gallon water tank via distribution piping.

Water from these wells is filtered using greensand pressure filters and treated with chlorine, soda ash, permanganate, and a blended phosphate product prior to entering the distribution system.

Where does it serve?

These three groundwater wells serve all of those living within any of the four sections of the Mountain View Shores subdivision or from the intersection of Trading Post Road and Capewood Drive south.

Data presented as (range) Average.
Mountain View Shores
PWSID# 5019685

* A sample collected in October 2022 indicated the sodium in the treated water is 79 mg/L. This is above the EPA recommended optimal level of less than 20 mg/L for sodium in drinking water, which is established for those individuals on a "strict" sodium intake diet.

Dr. William Thurman's store and post office was situated between Stone Mountain and Huddleston.

Did you know?
The community known as Updike became Huddleston in 1910, in honor of an extremely wealthy industrialist, Henry Huttleston Rogers.

Substance	Units	Ideal Goals (EPA'S MCLG)	Highest Level Allowed (EPA's MCL)	Violation	Date of Sample	Mountain View Shores System Data Level Found / (Range) Average
Regulated Substances						
Total Nitrate & Nitrite (N)	ppm	10	10	no	Oct. 2022	0.64
Fluoride	ppm	4	4	no	Oct. 2022	ND
Barium	ppm	2	2	no	Oct. 2022	0.0014
Arsenic	ppb	0	10	No	Oct. 2022	1.4
Chromium	ppb	100	100	No	Oct. 2022	2.7
Lead and Copper Testing						
Lead	ppb	0	AL = 15	no	June - Sep. 2022	0 samples exceded AL (0.33 - 6.2) 90th percentile = 3.8
Copper	ppm	1.3	AL = 1.3	no	June - Sep. 2022	1 sample exceded AL (0.077 - 1.49) 90th percentile = 1.2
Disinfection Byproducts						
HAA5s	ppb	0	60	no	Oct. 2022	ND
TTHMs	ppb	0	80	no	Oct. 2022	4
Chlorine	ppm	N/A	4	no	Monthly	(0.43 - 1.56 mg/l) 1.56 - highest
Radioactive Substance						
Gross Alpha	pCi/L	0	15	no	Feb. 2018	0.14
Combined Radium	pCi/L	0	5	no	Feb. 2018	1.9
Unregualted and Secondary Substances						
Sodium	ppm	N/A	N/A	no	*Oct. 2022	79 mg/l

Microbiological Substances	Units	EPA's MCLG	Highest Level Allowed - EPA's MCL	Violation	Date of Sample (Mountain View Shores)	Level Detected
Total Coliforms	P/A	0	Presence of coliform in more than 1 monthly sample	no	Monthly	0

VALLEY MILLS CROSSING

The BRWA also owns an independent water system located within the Valley Mills Crossing subdivision that uses one well as its source. The BRWA maintains this distribution system that serves those who reside within the Valley Mills Crossing subdivision.

How is it treated?

Water serving the Valley Mills Crossing subdivision is sourced from one groundwater well and is distributed throughout the community via a 15,000-gallon water tank and distribution piping.

Water from this groundwater well is disinfected with chlorine prior to entering the distribution system.

Where does it serve?

This groundwater well serves all of those living within the Valley Mills Crossing subdivision or from the intersection of Saunders Point Road and Mill Lake Road west.

Data presented as (range) Average.
Valley Mills Crossing
PWSID#5019875

* A sample collected in October 2021 indicated the sodium in the treated water is 9.4 mg/L. This meets the EPA recommended optimal level of less than 20 mg/L for sodium in drinking water, which is established for those individuals on a "strict" sodium intake diet.

Substance	Units	Ideal Goals (EPA'S MCLG)	Highest Level Allowed (EPA's MCL)	Violation	Date of Sample	Valley Mills Crossing System Data Level Found / (Range) Average
Regulated Substances						
Total Nitrate & Nitrite (N)	ppm	10	10	no	Oct. 2022	0.92
Barium	ppm	2	2	no	Oct. 2021	0.032
Lead and Copper Testing						
Lead	ppb	0	AL = 15	no	June - Sep. 2020	0 sample exceded AL 90th percentile = 7.4 ppb
Copper	ppm	1.3	AL = 1.3	no	June - Sep. 2020	0 sample exceded AL 90th percentile = 0.086 ppm
Disinfection Byproducts						
HAA5s	ppb	0	60	no	Aug. 2022	2.7
TTHMs	ppb	0	80	no	Aug. 2022	3.1
Chlorine	ppm	N/A	4	no	Monthly	(0.33 - 1.41 mg/l) 0.69
Radioactive Substance						
Gross Alpha	pCi/L	0	15	no	April 2017	0.18
Combined Radium	pCi/L	0	5	no	April 2017	1.4
Unregualted and Secondary Substances						
Sodium	ppm	N/A	N/A	no	*Oct. 2021	9.4

PARADISE POINT

Having gained ownership of this water system in 2021, the BRWA now serves those who reside within the Mariner's Landing subdivision with water from the Smith Mountain Lake Water Treatment Facility.

Data presented as (range) Average.
Paradise Point
PWSID#5019735

** A sample collected in May 2020 indicated the sodium in the treated water is 22.8 mg/L. This exceeds the EPA recommended optimal level of less than 20 mg/L for sodium in drinking water, which is established for those individuals on a "strict" sodium intake diet.

Substance	Units	Ideal Goals (EPA'S MCLG)	Highest Level Allowed (EPA's MCL)	Violation	Date of Sample	Paradise Point System Data Level Found / (Range) Average
Regulated Substances						
Total Nitrate & Nitrite (N)	ppm	10	10	no	Feb. 2022	2.64
Barium	ppm	2	2	no	May 2020	0.076
Lead and Copper Testing						
Lead	ppb	0	AL = 15	no	June - Sep. 2021	0 sample exceded AL 90th percentile = 0 ppb
Copper	ppm	1.3	AL = 1.3	no	June - Sep. 2021	0 sample exceded AL 90th percentile = 0.568 ppm
Disinfection Byproducts						
Chlorine	ppm	N/A	4	no	Monthly	(0.2 - 1.2 mg/l) 1.2
Radioactive Substance						
Gross Alpha	pCi/L	0	15	no	March 2019	ND
Combined Radium	pCi/L	0	5	no	March 2019	0.2
Unregualted and Secondary Substances						
Sodium	ppm	N/A	N/A	no	**May 2020	22.8

Microbiological Substances	Units	EPA's MCLG	Highest Level Allowed - EPA's MCL	Violation	Date of Sample (Valley Mills Crossing)	Date of Sample (Paradise Point)	Level Detected
Total Coliforms	P/A	0	Presence of coliform in more than 1 monthly sample	no	Monthly	Monthly	0

PARTNERING ORGANIZATION WATER DATA

City of Lynchburg 2022 Calendar Year Data (or most recent testing period)						
Substance	**Units**	**Ideal Goals (EPA'S MCLG)**	**Highest Level Allowed (EPA's MCL)**	**Violation**	**Date of Sample**	**City of Lynchburg System Data (Range) Average**
Regulated Substances						
Total Nitrate & Nitrite (N)	ppm	10	10	no	2022	(0.11 - 0.12) 0.12
Turbidity	NTU	TT	0.3	no	2022	0.09 highest 100% < 0.3
Fluoride	ppm	4	4	no	2022	(0.07 - 0.83) 0.67
Lead and Copper Testing						
Lead	ppb	0	AL = 15	no	2021	0 samples exceeded AL 90th percentile = 2 ppb
Copper	ppb	1.3	AL = 1.3	no	2021	0 samples exceeded AL 90th percentile = 31 ppb
Disinfection Byproducts						
HAA5s	ppb	0	60	no	2022	(12 - 35) 33.8 highest AVE
TTHMs	ppb	0	80	no	2022	(13.2 - 78.2) 48.8 highest AVE
Chlorine	ppm	N/A	4	no	2022	(0.25 - 2.06 mg/l) 1.35 highest AVE
Organic Carbon (Total)	ppm	TT	TT	no	2022	(0.72 - 1.13) 0.88 highest AVE
Radioactive Substance						
Radium - 228	pCi/L	0	5	no	2021	(0 - 0.3) 0.3

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants.

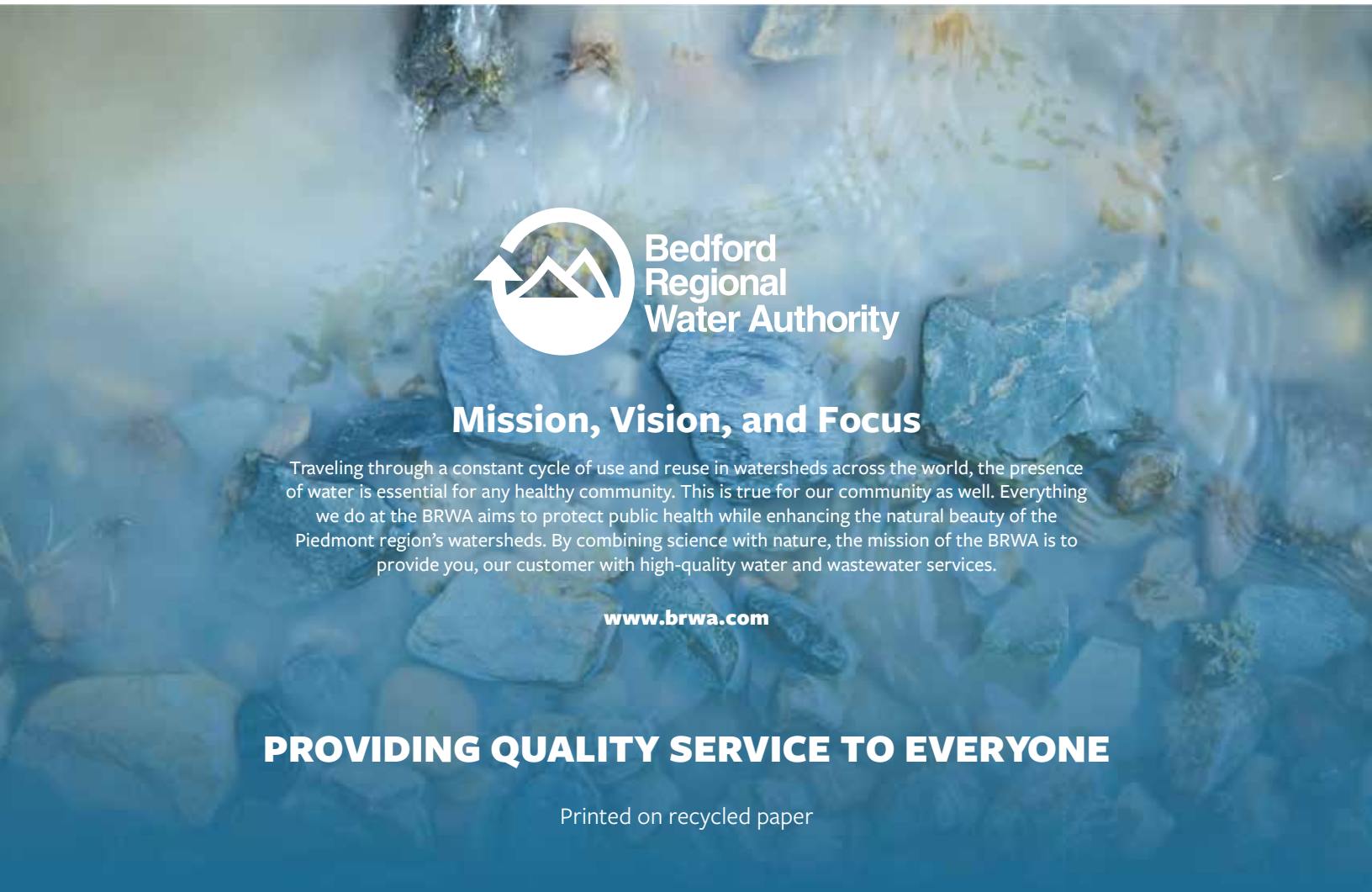
In order to ensure that tap water is safe to drink, EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration regulations establish limits for contaminants in bottled water which must provide the same protection for public health. 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 U.S. Environmental Protection Agency's (USEPA's) Safe Drinking Water Hotline (1-800-426-4791).

Substance	Units	Ideal Goals (EPA's MCLG)	Highest Level Allowed (EPA's MCL)	Violation	Date of Sample	City of Lynchburg System Data (Range) Average
Unregulated and Secondary Substances						
Sodium	ppm	N/A	N/A	no	2022	(6.24 - 7.24)
Aluminum	ppm	N/A	N/A	no	2022	(0.0 - 0.3)

Western Virginia Water Authority 2022 Calendar Year Data (or most recent testing period)					
Substance	**Units**	**Ideal Goals (EPA'S MCLG)**	**Highest Level Allowed (EPA's MCL)**	**Violation**	**Carvins Cove Level Found / (Range) Average**
Regulated Substances					
Barium	ppm	2	2	no	0.04
Fluoride	ppm	4	4	no	0.76
Total Nitrate & Nitrite (N)	ppm	10	10	no	ND
Organic Carbon (Total)	ppm	TT	N/A	no	(1.3 - 1.8) 1.5
Turbidity	NTU	TT	0.3	no	99.8% / 0.6 maximum
Lead and Copper Testing					
Lead	ppb	0	AL = 15	no	0 of 52 samples exceeded AL 90th percentile = 1.51 ppb
Copper	ppm	1.3	AL = 1.3	no	0 of 52 samples exceeded AL 90th percentile = 0.3 ppm
Disinfection Byproducts					
HAA5s	ppb	0	60	no	(ND - 66) site range (10 - 48) LRAA range
TTHMs	ppb	0	80	yes	(ND - 74) site range (11 - 58) LRAA range
Chlorine	ppm	N/A	4	no	(0.03 - 1.65) 0.83
Radioactive Substance					
Gross Alpha	pCi/L	0	15	no	0.7
Gross Beta	pCi/L	0	50	no	1.7
Combined Radium	pCi/L	0	5	no	0.7
Unregulated and Secondary Substances					
Alkalinity	ppm	N/A	N/A	N/A	170
Conductivity	µmhos/cm	N/A	N/A	N/A	92.5
Hardness (Total)	ppm	N/A	N/A	N/A	26
Iron	ppm	N/A	0.3	N/A	ND
Manganese	ppm	N/A	0.05	N/A	0.00022
Orthophos-phate (P)	ppm	N/A	N/A	N/A	0.14
pH	pH units	N/A	6.5 - 8.5	N/A	6.8
Sodium	ppm	N/A	N/A	N/A	6.6
Zinc	ppm	N/A	5	N/A	0.0027
Microbiological Substances					
E.coli	P/A	0	A routine and a repeat sample are total coliform positive, and one is also fecal coliform or E. coli positive	no	0

BEDFORD REGIONAL WATER AUTHORITY
1723 Falling Creek Road
Bedford, VA 24523



Bedford Regional Water Authority

Mission, Vision, and Focus

Traveling through a constant cycle of use and reuse in watersheds across the world, the presence of water is essential for any healthy community. This is true for our community as well. Everything we do at the BRWA aims to protect public health while enhancing the natural beauty of the Piedmont region's watersheds. By combining science with nature, the mission of the BRWA is to provide you, our customer with high-quality water and wastewater services.

www.brwa.com

PROVIDING QUALITY SERVICE TO EVERYONE

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