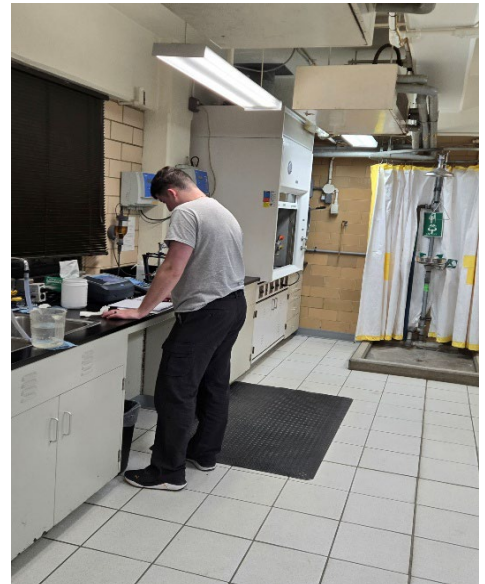


City of Staunton, Virginia DRINKING WATER QUALITY REPORT 2024



Great Water Takes Great People



THE BOTTOM LINE

If you read nothing else in this report, you should read this: Staunton's drinking water is extremely clean, far exceeding all state and federal quality standards.



FROM THE DIRECTOR

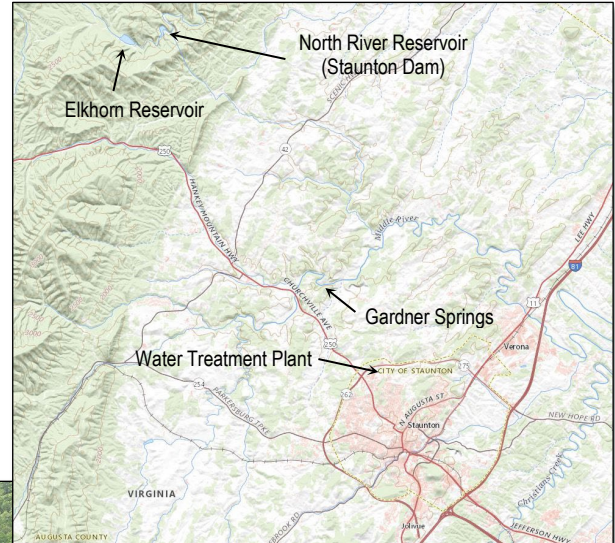


The Staunton Public Works Department is proud to treat and deliver your drinking water. For the 21th consecutive year, the Water Treatment Plant was recognized by the Virginia Department of Health (VDH) Office of Drinking Water Virginia Optimization Program (VOP). This program recognizes those waterworks that provide quality water that exceeds minimum regulatory standards, and who operate their water systems in an exemplary manner. This is also noteworthy, as it is the first time that our Water Treatment Plant has ever achieved the Gold VOP award three years in a row. This is all thanks to the efforts of our highly skilled and trained Water Treatment Plant Operators. They staff the Water Treatment Plant 24 hours a day 365 days a year to ensure that the water running into your homes and businesses is of the highest quality. The following report is favorable because of their hard work and dedication.

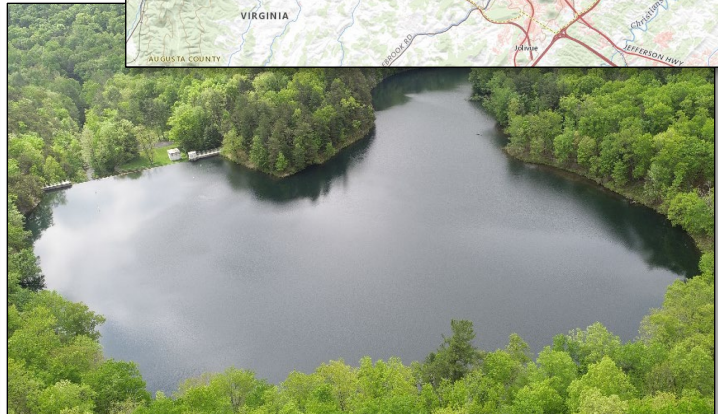
Dave Irvin, P.E.
Director of Public Works

WHERE DOES YOUR WATER COME FROM?

The City of Staunton's highly-skilled and dedicated staff uses state-of-the-art equipment to provide the best possible drinking water. But the real secret to our amazing drinking water is the remarkable quality of our water sources.



Elkhorn Reservoir



North River Reservoir (Staunton Dam)

The first is a pair of reservoirs on the North River within the George Washington National Forest, northwest of the City. Together, the Elkhorn Reservoir and North River Reservoir (also known as Staunton Dam) can store up to 368 million gallons of water. Water from these reservoirs flows entirely by gravity (no pumps or energy required!) through twelve miles of pipe to the Staunton Water Treatment Plant on Craigmont Road. The Forest Service strictly controls development and activities around the reservoirs to protect them from pollution and other contamination.

Did you know?

In the late 1800's and early 1900's, Staunton's water came from a series of springs in Gypsy Hill Park. It was pumped up to a storage tank on Reservoir Hill. The tank is gone (although the name remains), but the springs are still in the park, and they still produce water. Both the Duck Pond and Lake Tams are filled with Gypsy Hill spring water!



Gardner Springs

Staunton's other source of water is Gardner Springs, a natural spring on the banks of the Middle River just east of Churchville. The spring can produce over four million gallons of water each day, which is pumped three miles to the Water Treatment Plant. If needed, the City can also access water from the Middle River, using the pumps at Gardner Springs, but that was not needed in 2024. Construction is nearing completion on a new and improved pump station at Gardner Springs that will make this water source more reliable and resilient in the future.



WHAT IS IN YOUR WATER?

Before we treat it, your water can contain bacteria, minerals, metals, and chemicals. Even after we treat it, the water is still not pure. It does not have any bacteria, but it may contain small amounts of metals and minerals. But you can drink water with tiny amounts of metals and minerals without getting sick. In fact, small amounts of minerals give water its taste, and some (like fluoride) provide health benefits. Scientists at the Environmental Protection Agency and the Virginia Health Department's Office of Drinking Water are constantly reviewing and revising the drinking water standards, so you don't need to worry about the quality of your drinking water.

We've included detailed test results later in the report, but here are the things we are testing for:

Turbidity: Turbidity is just a fancy way to say how clear the water is. Soil runoff is the primary cause of turbidity problems.

Bacteria: Bacteria are naturally present everywhere in the environment, but we go to great lengths to keep it out of your drinking water.

About fluoride

Like many water systems, Staunton adds fluoride during the water treatment process, closely following the guidelines of the American Dental Association, the Centers for Disease Control, the National Institute of Health, and the Virginia Department of Health. Fluoride is the active ingredient in toothpaste, and promotes good dental health.

In March 2023, we suspended fluoridation in order to install new, updated equipment. When that work is complete, fluoridation will resume.

What about lead?

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 City of Staunton 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. 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. If you are concerned about lead in your water and wish to have your water tested, contact the City of Staunton water treatment plant at 540-332-3961. 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.

Inorganic Contaminants: These include nitrates, which are also present in natural deposits, but can also come from fertilizer run-off or septic systems. They also include barium, another naturally occurring element that can also be the result of mining and metal processing. Fluoride, which can dissolve into water from natural deposits in the ground, is also in this group.

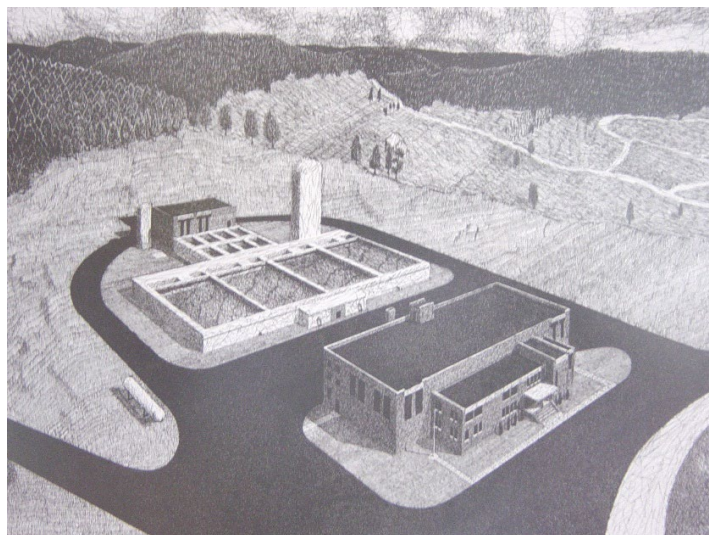
Radiological Contaminants: This is a measure of radioactivity in the water, which can come from both natural and man-made deposits.

Lead & Copper: These are two inorganic contaminants that have their own special testing requirements. While both elements can be found in the natural environment, their special consideration is due to their presence in water distribution and plumbing features.

How "hard" is your drinking water (and what does that mean, anyway)?

"Hardness" is a measure of minerals, mostly calcium and magnesium, dissolved in water. Water with a lot of dissolved minerals is called "hard" and water with very little is referred to as "soft". Hardness is measured in parts per million (ppm). Water with less than 60 ppm is considered "soft" and water with more than 120 ppm is "hard". Your drinking water is a mix of spring water (which tends to be harder) and surface water (that tends to be softer), and normally runs around 110 ppm, making it "moderately hard".

Hardness isn't really a quality issue (both hard and soft water are perfectly safe to drink), but it can be a nuisance. Hard water can interfere with soaps and detergents. It can also reduce the efficiency of water heaters, coffee makers and other appliances. Staunton's drinking water isn't hard enough to create widespread issues, but if your personal preference is for softer water, water softening systems are available.

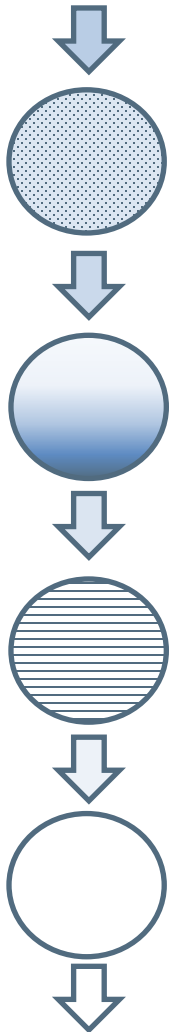


HOW IS YOUR WATER TREATED?

Disinfection Contaminants: Disinfection is an important part of the treatment process, but it can create unwanted by-products. Organic carbon in the water can react with the chlorine we use as a disinfectant to produce undesirable chemicals called trihalomethanes and haloacetic acids. We test for both of these substances, as well as the organic carbon that contributes to them. Finally, we test for the leftover chlorine in the water. We want the water to have just enough chlorine to keep it clean after it leaves the water treatment plant until it gets to you, but not enough to impact the quality of the water.

There are four basic steps in water treatment:

Source Water



Thickening: The water that comes into the plant from our natural water sources is put in large mixing basins. Safe chemicals are then added to make the tiny particles suspended in the water clump together, creating much larger particles. This process is called flocculation or coagulation, which are just other ways of saying thickening.

Settling: The larger particles are too heavy to stay suspended in the water. Over time, they fall (settle) to the bottom of the mixing basin, where they are removed.

Filtering: The water that comes off the top of the mixing basin is filtered through layers of fine sand and charcoal to remove even smaller pollutants.

Cleaning: The water coming out of the filters is very clear, but it may still contain some bacteria or viruses. Chlorine is added to disinfect (clean) the water. Fluoride, the same thing that is in your toothpaste, can also be added to help prevent tooth decay.

Drinking Water

Before looking at all the test data, there are a number of terms it would be helpful to know:

Non-detect (ND) - lab analysis indicates that the contaminant is not present.

Parts per million (ppm) or Milligrams per liter (mg/l) - corresponds to one drop in a hot tub.

Parts per billion (ppb) - corresponds to one drop in an Olympic-size swimming pool

Parts per trillion (ppt) - corresponds to one drop in a six-acre lake

Picocuries per liter (pCi/L) - a measure of radioactivity in water.

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

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

Running Annual Average (RAA) - the average of analytical results for samples taken during the previous four calendar quarters.

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

Maximum Contaminant Level, or MCL - the highest level of a contaminant that is allowed in drinking water.

Maximum Contaminant Level Goal, or MCLG - the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are the “ideal standard”.

Variances and exemptions - state or EPA permission not to meet an MCL or a treatment technique under certain conditions.

How do they know how much is OK to drink?

The Environmental Protection Agency sets the allowable limits for all contaminants in drinking water. The limits are set so that a person who drinks two liters of water every day for seventy years will have a very low lifetime risk of health issues from contaminants in the water (one-in-ten-thousand to one-in-a-million, depending on the severity of the health issue). These limits are constantly reviewed and adjusted to reflect the latest science and research. There are established limits for a large number of contaminants, and while our report only lists the ones that were found, we do test for them all.

THE DETAILED TEST RESULTS

Unless otherwise indicated, all tests were conducted in 2022

Microbiological Contaminants							
What are we looking for?	The ideal goal (MCLG)	The highest level allowed (MCL)	What did we find?	Were there any violations?	When did we check?	Where does it come from?	Does it meet Regulatory Standards?
Turbidity (Clarity)	NA	0.3 NTU	100% of samples were < 0.3 NTU Max : 0.168 NTU	No	Daily	Soil runoff.	YES
		95% of monthly samples must be < 0.3 NTU					
Total Coliform Bacteria	0	Presence of coliform bacteria in less than 5% of the monthly samples	0	No	Monthly	Naturally present in the environment.	YES
Inorganic Contaminants							
What are we looking for?	The ideal goal (MCLG)	The highest level allowed (MCL)	What did we find?	Were there any violations?	When did we check?	Where does it come from?	Does it meet Regulatory Standards?
Fluoride	4 ppm	4 ppm	<0.2 ppm	No	Daily when actively fluoridating.	Erosion of natural deposits; discharge from fertilizer and aluminum factories.	YES
Nitrate	10 ppm	10 ppm	0.87 ppm	No	January	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.	YES
Barium	2 ppm	2 ppm	0.0202 ppm	No	January	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits.	YES
Radiological Contaminants (Sampled every 6 years)							
What are we looking for?	The ideal goal (MCLG)	The highest level allowed (MCL)	What did we find?	Were there any violations?	When did we check?	Where does it come from?	Does it meet Regulatory Standards?
Combined Radium	0 pCi/L	5 pCi/L	1.395 pCi/L	No	January 2022	Erosion of natural deposits.	YES
Alpha Emitters	0 pCi/L	15 pCi/L	0.264 pCi/L	No	January 2022	Erosion of natural deposits.	YES
Gross Beta	0 pCi/L	50 pCi/L	0.035 pCi/L	No	January 2022	Decay of natural and man-made deposits.	YES

Lead & Copper							
What are we looking for?	The ideal goal (MCLG)	The highest level allowed (MCL)	What did we find?	Were there any violations?	When did we check?	Where does it come from?	Does it meet Regulatory Standards?
Copper	0	1.3 ppm	0.142 ppm average Range : 0.0038 ppm to 0.215 ppm	No	June-August 2023	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.	YES
Lead	0	15 ppb	2.2 ppb average Range: 0.092 ppb to 8 ppb	No	June-August 2023	Corrosion of household plumbing systems; erosion of natural deposits.	YES

Disinfection By-products							
What are we looking for?	The ideal goal (MCLG)	The highest level allowed (MCL)	What did we find?	Were there any violations?	When did we check?	Where does it come from?	Does it meet Regulatory Standards?
Total Trihalomethanes (TTHM's)	NA	80 ppb	17 ppb Range: 9 ppb to 29 ppb	No	Quarterly	By-product of drinking water chlorination.	YES
Haloacetic Acids (HAA5's)	NA	60 ppb	12 ppb Range: 7 ppb to 20 ppb	No	Quarterly	By-product of drinking water chlorination.	YES

Disinfection By-Products Precursors							
What are we looking for?	The ideal goal (MCLG)	The highest level allowed (MCL)	What did we find?	Were there any violations?	When did we check?	Where does it come from?	Does it meet Regulatory Standards?
Total Organic Carbon (TOC's)	NA	TT	Percent Removal 25% - 100%	No	Quarterly	Naturally present in the environment.	YES

Disinfectant Residual Contaminants							
What are we looking for?	The ideal goal (MCLG)	The highest level allowed (MCL)	What did we find?	Were there any violations?	When did we check?	Where does it come from?	Does it meet Regulatory Standards?
Chlorine	4 ppm	4 ppm	RAA: 1.4 ppm 0.91 ppm to 1.97 ppm	No	Monthly	Drinking water disinfection	YES
Sodium	N/A	N/A	3.46 ppm	N/A	January	Erosion of natural deposits, de-icing salt runoff, and water softeners.	No Regulatory Standard Information Only
Chromium	100 ppb	100 ppb	2.6 ppb	No	January	Discharge from steel and pulp mills; erosion of natural deposits.	YES
Selenium	50 ppb	50 ppb	3.4 ppb	No	January	Discharge from petroleum refineries; erosion of natural deposits; discharge from mines.	YES



WANT TO KNOW MORE?

If you have any questions about water treatment, feel free to contact Montana Welcher, Water Plant Supervisor at 540.332.3961, or welchemk@ci.staunton.va.us

You can find more information about drinking water at these sites:

The Safe Drinking Water Act:
<https://www.epa.gov/sdwa>

CDC Guide to Understanding your Water Quality Report:
https://www.cdc.gov/healthywater/drinking/public/understanding_ccr.html

Requirements of the Water Quality Report:
https://www.epa.gov/sites/production/files/2014-05/documents/guide_qrg_ccr_2011.pdf

Information on Lead in Drinking Water
<https://www.epa.gov/ground-water-and-drinking-water/basic-information-about-lead-drinking-water>

Staunton's water is part the Lewis Creek, Middle River, Shenandoah River, Potomac River, and Chesapeake Bay watersheds. If you'd like to get involved with water quality efforts, here are some organizations you can contact:

Lewis Creek Advisory Committee
<https://www.ci.staunton.va.us/board-commissions#LCC>

Friends of the Middle River
<https://www.friendsofthemiddleriver.org/water-quality-monitoring-overview>

Potomac Conservancy
<https://potomac.org/lands>



*Water Treatment Plant Supervisor
Montana Welcher*

Come see for yourself!

Interested groups or individuals are welcome to visit the Water Treatment Plant. The plant is an active industrial site, so we can't allow "drop in" visits, but you can contact the plant at 540.332.3896 to schedule a tour. Come see where your water comes from and meet the people who make it happen!