

2022



GreenvilleWater  
Quality Water. Sustainable Future.

# Water Quality Report





## COMMISSIONERS OF PUBLIC WORKS

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## CONTACT US

### Jeff Boss

Interim Chief Executive Officer  
(864) 241-6005  
jboss@greenvillewater.com

### Jeff Phillips

Director of Water Resources  
(864) 241-7833  
jphillips@greenvillewater.com

### Customer Service

(864) 241-6000

### Engineering

(864) 241-6100

### Laboratory

(864) 241-7838

## COMMISSION MEETINGS

Unless otherwise noted, Greenville Water Commission meetings are held on the first Tuesday of each month at 8:15 a.m. Meeting agendas, minutes and schedule are posted online at [www.greenvillewater.com](http://www.greenvillewater.com).

## Providing High Quality Drinking Water

Greenville Water is pleased to present our 2022 Water Quality Report. Each year, the team at Greenville Water works diligently to protect our watersheds, ensure our treatment practices are highly effective, and provide you, our customers, with drinking water that meets and exceeds all federal and state drinking water standards. Once again, we are happy to report that Greenville Water meets all of the strict drinking water standards established by the Environmental Protection Agency (EPA) and the South Carolina Department of Health and Environmental Control (SCDHEC). In order to protect its customers, Greenville Water and SCDHEC collected 27,887 samples and performed 113,930 tests during 2022. Greenville Water ensures your water quality by testing water samples collected during the treatment process and as the water is delivered to customers through 3,091 miles of pipeline. The 2022 Water Quality Report indicates that our drinking water meets all federal and state drinking water standards.

## Where Does My Drinking Water Come From?

Greenville Water draws water from three sources: Table Rock Reservoir, North Saluda Reservoir and Lake Keowee. Table Rock and North Saluda Reservoirs are both located in the foothills of the Blue Ridge Mountains in northern Greenville County. Greenville Water owns 100 percent of both watersheds. Greenville Water regularly patrols and carefully maintains these uninhabited, pristine lands. The properties are further protected by a Conservation Easement with The Nature Conservancy. Lake Keowee is owned by Duke Energy. In 2013, Greenville Water obtained two South Carolina Surface Water Withdrawal permits, one for the Stovall Treatment Plant and one for the Adkins Treatment Plant. The Stovall Treatment Plant has two supply sources, Table Rock Reservoir (2,077 million gallons per month [MGM]) and North Saluda Reservoir (1,860 MGM). The Adkins Treatment Plant has one supply source, Lake Keowee (4,650 MGM).

## Source Water Protection is Important

To raise awareness about the ways in which water pollution can impact your drinking water, SCDHEC has identified potential sources of contamination for each drinking water source in the state.

More information on source water assessment can be found at: <https://scdhec.gov/environment/your-water-coast/source-water-protection> and Greenville Water's Source Water Assessment can be reviewed upon request.

# Abbreviations

<b>AL</b>	Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.	<b>NA/ND</b>	Not Applicable: Does not apply. Ranges are not applicable for sampling conducted by SCDHEC. Not Detected: Not detected or below detection limits.
<b>LRAA</b>	Locational Running Annual Average: The highest average concentration for four consecutive quarters at all sampling locations.	<b>NR</b>	Monitoring not required, but recommended.
<b>MCL</b>	Maximum Contaminant Level: 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.	<b>NTU</b>	Nephelometric Turbidity Units: Units of measure to indicate water clarity.
<b>MCLG</b>	Maximum Contaminant Level Goal: 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.	<b>ppb</b>	Parts per billion: This is the same as micrograms per liter, or one penny out of \$10,000,000.
<b>MRDL</b>	Maximum Residual Disinfectant Level: The highest level of a disinfectant allowed in drinking water without an unacceptable possibility of adverse health effects. There is convincing evidence that addition of a disinfectant is necessary for the control of microbial contaminants.	<b>ppm</b>	Parts per million: This is the same as milligrams per liter, or one penny out of \$10,000.
<b>MRDLG</b>	Maximum Residual Disinfectant Level Goal: 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 the disinfectants to control microbial contaminants.	<b>ppt</b>	Parts per trillion: This is the same as nanograms per liter, or one penny out of \$10,000,000,000.
		<b>SU</b>	Standard Units: Unit of measure to indicate water acid/base scale (pH).
		<b>TT</b>	Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water.
		<b>Turbidity</b>	Measure of water clarity and filtration effectiveness.

## How Much Is That?



### Parts Per Million (ppm)

1 drop in a hot tub = 1 ppm



### Parts Per Billion (ppb)

1 drop in an Olympic size swimming pool = 1 ppb



### Parts Per Trillion (ppt)

1 drop in a 6-acre lake = 1 ppt

## NEED WATER FOR COMMUNITY EVENTS? GREENVILLE WATER HAS THE SOLUTION!

Greenville Water provides drinking water for outdoor community events held in our service area. We do this as a public service to support the community and share information about tap water.

The Quench Buggy and Water Buffalo are designed to dispense 400 gallons of clean, refreshing tap water into cups or reusable bottles. It is an environmentally friendly way to serve water at your event!

Just as important, we can also provide Hand Wash Stations for outdoor events. Our staff will deliver the stations, fill them with water and stock the station with paper towels and soap. We have five stations available.

To view guidelines and reserve the Quench Buggy, Water Buffalo and/or Hand Wash Stations for your event, please visit [www.greenvillewater.com/community-outreach](http://www.greenvillewater.com/community-outreach).



# Sample Results

## Inorganic Compounds

### Fluoride (ppm)

Stovall WTP	Ideal Goal (MCLG)	4
<b>0.7*</b>	Highest Level Allowed (MCL)	4
Adkins WTP	<i>Distribution System**</i>	
<b>0.6*</b>	Range	0.5 - 0.8
✓ No Violation	Average	0.6

**How it gets in the water:** Added to promote strong teeth and prevent tooth decay.

### Nitrate (measured as Nitrogen) (ppm)

Stovall WTP	Ideal Goal (MCLG)	10
<b>ND*</b>	Highest Level Allowed (MCL)	10
Adkins WTP	<i>Distribution System**</i>	
<b>0.06*</b>	Range	0.02 - 0.52
✓ No Violation	Average	0.07

**How it gets in the water:** Natural deposit erosion, fertilizer runoff, or by-products of nitrification.

\*Results obtained by SCDHEC. \*\*Results obtained by Greenville Water's certified laboratory in 2022.

Average fluoride levels detected by Greenville Water's certified laboratory during 2022 were 0.6 ppm (Stovall and Adkins Water Treatment Plants).

### Unregulated Compounds

### Sodium (ppm)

**6.2** ✓ No Violation

Ideal Goal (MCLG)	Highest Level Allowed (MCL)	Lowest Amount Detected	Highest Amount Detected
NA	NA	5.6	6.2

**How it gets in the water:** Occurs naturally in the environment.

## Disinfection

### Chloramine (ppm)

Average	Ideal Goal (MRDLG)	4
<b>2.3</b>	Highest Level Allowed (MRDL)	4
✓ No Violation	Lowest Amount Detected	0.05
	Highest Amount Detected	3.3

**How it gets in the water:** Added to kill bacteria or viruses.

## Organic Compounds

### Total Organic Carbon (TOC)

(average % removal) (TT)

Stovall WTP	Adkins WTP
<b>24</b>	<b>15</b>
✓ No Violation*	
Stovall % Removal Range	0 - 33
Adkins % Removal Range	0.9 - 48

**How it gets in the water:** Occurs naturally in the environment.

\*Due to low raw water TOC levels, Adkins and Stovall plants remain in compliance even when the percent removal is less than the required 35% removal.



# Sample Results

## Organic Compounds

### Total Trihalomethanes (ppb)

LRAA*	Ideal Goal (MCLG)	0
<b>12.7</b>	Highest Level Allowed (MCL)	80
✓ No Violation	Lowest Amount Detected	8.3
	Highest Amount Detected	14.4

**How it gets in the water:** By-products of disinfection.

### Total Haloacetic Acids (ppb)

LRAA*	Ideal Goal (MCLG)	0
<b>12.0</b>	Highest Level Allowed (MCL)	60
✓ No Violation	Lowest Amount Detected	1.3
	Highest Amount Detected	15.3

**How it gets in the water:** By-products of disinfection.

\*LRAA (Locational Running Annual Average): The highest average concentration for four consecutive quarters at all sampling locations.

## Microbial & Physical Characteristics

### Total Coliform (% positive per month)

**0-0.33**

✓ No Violation

Highest Level Allowed (MCL) < 5% positive per month

**How it gets in the water:** Occurs naturally in the environment, human and animal waste.

### Turbidity\* (NTU)

Stovall WTP**	Highest Level Allowed (MCL)	95% < 0.3
<b>0.04</b>	Stovall Highest Amount Detected	0.06
Adkins WTP**	Adkins Highest Amount Detected	0.06
<b>0.04</b>	Distribution System Average	0.15
100% of samples at both plants < 0.3		
✓ No Violation		

**How it gets in the water:** Soil runoff.

\*Turbidity is a measure of water clarity and a good indicator that the treatment process is removing tiny particles.

\*\*Results obtained by SCDHEC.

As part of the Unregulated Contaminant Monitoring Rule, Greenville Water tested the finished water at both the Adkins and Stovall Water Treatment Plants for six per- and polyfluoroalkyl substances (PFAS) in 2014, and none were detected. As a follow up, in 2019, 2021 and 2022 Greenville Water again tested for 39 PFAS compounds at our Table Rock and North Saluda Reservoirs and at Lake Keowee and none of the substances were detected.

# Sample Results

## Lead and Copper Rule (Samples Taken 2021)

### Lead (ppb)

(sampled at customer's kitchen tap)

Households Exceeding AL	Ideal Goal (MCLG)	0
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1\*

90 <sup>th</sup> Percentile	0
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✓ No Violation	Action Level	15
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**How it gets in the water:** Corrosion of household plumbing.

### Copper (ppm)

(sampled at customer's kitchen tap)

Households Exceeding AL	Ideal Goal (MCLG)	1.3
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0

90 <sup>th</sup> Percentile	0.088
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✓ No Violation	Action Level	1.3
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**How it gets in the water:** Corrosion of household plumbing.

*Lead & Copper: 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. Greenville Water is responsible for providing high-quality drinking water, but cannot control the variety of materials used in private household plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to two minutes before using water for drinking or cooking. If you are concerned about lead in your drinking water, you may wish to have the water inside your home 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 [www.epa.gov/safewater/lead](http://www.epa.gov/safewater/lead).*

*\*A repeat sample collected at this site had no lead detected.*

## IMPORTANT INFORMATION FROM THE EPA

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 water poses a health risk.

The sources of drinking water (both tap water 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 radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.
- Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban storm runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.

Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (800-426-4791).

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. 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, 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 or other microbial contaminants are also available from the EPA's Safe Drinking Water Hotline (800-426-4791).

## WHAT IF I HAVE QUESTIONS?

If you would like more information about water treatment techniques or about our water quality, contact Greenville Water's Laboratory at (864) 241-7838. You can also visit our website at [www.greenvillewater.com](http://www.greenvillewater.com) or contact us by email at [laboratory@greenvillewater.com](mailto:laboratory@greenvillewater.com).

## HELPFUL LINKS

### [The Safe Drinking Water Act](https://www.epa.gov/sdwa)

<https://www.epa.gov/sdwa>

### [Requirements of the Water Quality Report](https://www.epa.gov/ccr/consumer-confidence-report-rule-quick-reference-guide)

*Also known as the Consumer Confidence Report*

<https://www.epa.gov/ccr/consumer-confidence-report-rule-quick-reference-guide>

### [CDC Guide to Understanding your CCR](https://www.cdc.gov/healthywater/drinking/public/understanding_ccr.html)

[https://www.cdc.gov/healthywater/drinking/public/understanding\\_ccr.html](https://www.cdc.gov/healthywater/drinking/public/understanding_ccr.html)

### [Information on Lead in Drinking Water](https://www.epa.gov/ground-water-and-drinking-water/basic-information-about-lead-drinking-water)

<https://www.epa.gov/ground-water-and-drinking-water/basic-information-about-lead-drinking-water>



## How We Clean the Water

Water found in nature contains substances such as minerals, salts and metals, while viruses and bacteria can be introduced into water from farm animals, septic systems, or wild animals.

While Greenville Water's private reservoirs are protected from outside development and toxic chemical waste, we continue to monitor and treat the water diligently to ensure the highest quality water is distributed to the Upstate through our two award-winning water treatment plants.

The Witty Adkins Treatment Plant, a conventional filtration plant with a current capacity of 90 million gallons per day (MGD), draws water from Lake Keowee. The L.B. Stovall Treatment Plant provides filtration for all water drawn from the Table Rock and North Saluda Reservoirs with a capacity of 75 MGD. Stovall is one of the largest plants in the United States to use an innovative flotation process for particle removal (see Step 2 below).

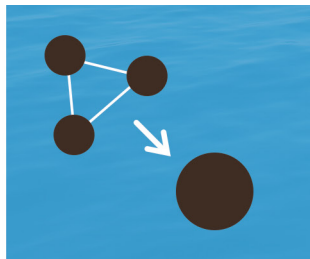
All treatment plants are maintained and monitored by State Certified Environmental Systems Operators who are thoroughly trained to perform routine chemical and physical testing for water treatment.



Water that comes from your faucet is much more regulated than bottled water from stores and vending machines. Bottled water is tested less frequently than water from your tap water provider and stored in plastic containers that can leach toxic chemicals. There is no required testing for plastic bottles leaching toxins into the water, or testing for possible bacteria that might form in water bottles.

The Safe Drinking Water Act requires that public tap water providers conduct comprehensive water quality testing by certified laboratories, in addition to providing annual water quality reports to water customers. Greenville Water goes above and beyond state and federal requirements to ensure that your water is protected and monitored from source to tap — and it tastes great, too!

## The Stovall and Adkins Water Treatment Plants use two approved methods of treating the water:

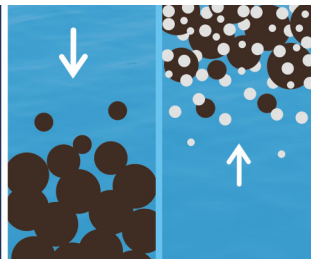


### STEP 1: COAGULATION

The water we collect from nature is mixed with alum to coagulate dirt to form larger particles, along with small amounts of sodium hydroxide for pH adjustment.

### STEP 2: SEDIMENTATION OR DISSOLVED AIR FLOTATION (DAF)

Adkins uses settling, meaning that over time the larger particles fall to the bottom where they are removed. Stovall, however, uses DAF to float the particles to the surface using pressurized air bubbles, where they are then scraped off from the top of the water.

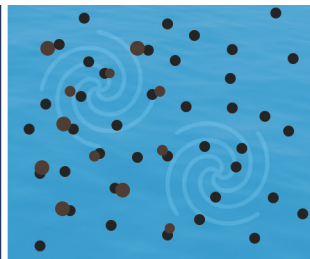


### STEP 3: FILTRATION

The remaining water flows through filters made of layers of fine materials, like sand or coal. These layers stop even smaller particles of contaminants from getting through, and only very clear water is left.

### STEP 4: DISINFECTION

We add a small amount of chlorine combined with ammonia — known as chloramines — to protect against water-borne diseases.



### STEP 5: OTHER CHEMICAL ADDITIONS

Fluoride — the same thing in your toothpaste — is added at the last step in accordance with EPA guidelines to help prevent tooth decay. An ortho/ polyphosphate blend is added to protect the pipes from corrosion as the water travels to your home.





Superior quality water,  
sustainably sourced from 30,000  
acres of protected watershed.

**That's why Greenville  
trusts the tap.**



Learn more at  
[greenvillewater.com/trust-the-tap](http://greenvillewater.com/trust-the-tap)



GreenvilleWater

407 West Broad Street  
Greenville, SC 29601

(864) 241-6000

[greenvillewater.com](http://greenvillewater.com)

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@greenvillewatersc