2015 Water Quality Report

Quality Water | Sustainable Future

PROVIDING HIGH QUALITY DRINKING WATER

Greenville Water is pleased to present our 2015 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 safe drinking water. 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 over 36,000 samples and performed more than 100,000 tests for parameters during 2015. Greenville Water ensures your water quality by testing water samples collected during the treatment process and as the water is delivered to customers through approximately 3000 miles of pipeline. The Water Quality Report indicates that our water is safe to drink.

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 three South Carolina Surface Water Withdrawal permits: 4,650 million gallons per month (MGM) for Lake Keowee, 2,077 MGM for Table Rock Reservoir and 1,860 MGM for North Saluda Reservoir. To raise awareness about the importance of preventing water pollution, SC Department of Health and Environmental Control has identified the potential sources of contamination for each drinking water source in the state. More information on source water assessment can be found at: www.scdhec.gov/HomeAndEnvironment/Water/SourceWaterProtection/ and Greenville Water's Source Water Assessment can be obtained upon request.

"BEST OF THE BEST"

VOTED BEST TASTING WATER IN NORTH AMERICA

HOW IS MY WATER TREATED?

All water supplied to you is thoroughly treated and disinfected. The Adkins Filter Plant, a conventional filtration plant with a current capacity of 90 MGD, draws water from Lake Keowee. This plant uses coagulation, filtration, sedimentation and disinfection to treat the water. Alum is used in the coagulation step along with small amounts of sodium hydroxide for pH adjustment. Chlorine, combined with ammonia, is used for disinfection to protect against water-borne diseases and an ortho/polyphosphate blend is added for corrosion control. Fluoride is provided to prevent tooth decay.

The Stovall Filter Plant was placed in service in July 2000, to provide filtration for all water drawn from the Table Rock and North Saluda Reservoirs. This 75 MGD plant is one of the largest in the United States to use Dissolved Air Flotation (DAF) in the treatment process. The Stovall Plant uses an innovative flotation process for particle removal rather than sedimentation. The remaining processes and chemicals used for water treatment are similar to those at the Adkins Treatment Facility.

All treatment plants are maintained and monitored by State Certified Environmental Systems Operators who are thoroughly trained to make routine chemical and physical tests for treatment control.

PRIMARY DRINKING WATER STANDARDS - REGULATED SUBSTANCES DETECTED IN 2015

INORGANIC COMPOUNDS							
Parameter	Unit	MCL	MCLG	Range	Hightest Level Detected	Possible Sources	Violation
Fluoride	ppm	4	4			Drinking water additive *Flouride added during treatment to prevent tooth decay*	
Stovall Plant				NA	0.57		NO
Adkins Plant				NA	0.57		NO
Distribution System				0.36-0.86	0.86		NO
Nitrate/Nitrite (as nitrogen)	ppm	10	10				
Stovall Plant				NA	0.029	Erosion of natural deposits; fertilizer runoff, By-products of nitrification	NO
Adkins Plant				NA	0.064		NO
Distribution System				ND - 0.30	0.30		NO
ORGANIC COMPOUNDS							
TOC (Total Organic Carbon)			Average Percent Removal		Range		
Stovall Plant (samples collected monthly)			TT: 42%		33 - 56%	Occurs naturally in the enviroment	NO*
Adkins Plant (samples collected monthly)			TT: 15%		0-21%		NO*

*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%.

DISINFECTANTS AND BYPRODUCTS	Unit	MRDL	MRDLG	Range	Average	Possible Sources	Violation
Chloramine	ppm	4	4	0.90-2.90	2.35	Water disinfectant	NO
Total Trihalomethanes	ppb	80	0	7.7- 16.0	LRAA = 12.10	By-products of disinfection	NO
Total Haloacetic Acids	ppb	60	0	7.8-16.4	LRAA = 13.45	By-products of disinfection	NO

MICROBIAL AND PHYSICAL CHARACTERISTICS

Parameter	Units	MCL	Results	Possible Sources	Violation
Total Coliform	% positive per month	Less than 5% positive per month	0.33% maximum	Common in the environment; human and animal waste	NO
Turbidity		95% of samples below MCL	100% of samples below MCL		
Stovall Plant	NTU	< 0.3	Maximum=0.06; Average= 0.04	Soil Runoff	NO
Adkins Plant	NTU	< 0.3	Maximum= 0.06; Average= 0.04		NO
Distribution System	NTU	NA	Maximum= 1.4; Average=0.12		NA

Terms and Abbreviations

MCL (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.

MCLG (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.

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

SU (Standard Units): Unit of measure to indicate water acid/base scale (pH).

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

ppm (parts per million): This is the same as milligrams per liter, or one penny out of $10,000.

ppb (parts per billion): This is the same as micrograms per liter, or one penny out of $10,000,000

NA (Not Applicable): Does not apply. Ranges are not applicable for sampling conducted by SC DHEC.

ND (Not Detected): Not detected or below detection limits.

NTU (Nephelometric Turbidity Units): Units of measure to indicate water clarity.

MRDL (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 control of microbial contaminants.

MRDLG (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.

LRAA (Locational Running Annual Average): The highest average concentration for 4 consecutive quarters at all sampling locations.

Turbidity: measure of water clarity and filtration effectiveness.



LEAD AND COPPER RULE

Parameter	Units	Action Level (AL)	90th Percentile Value	Sample Sites Exceeding Action Level	Possible Sources	Violation
Lead- Customer's Plumbing	ppb	15	0.0	0	Corrosion of household plumbing	NO
Copper- Customer's Plumbing	ppm	1.3	0.051	0	Corrosion of household plumbing	NO

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 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 2 minutes before using water for drinking or cooking. If you are concerned about lead in your drinking 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.

UNREGULATED CONTAMINANT MONITORING RULE 3 (UCMR3)

Parameter	Units	Average	Range	Sources
Vanadium				Naturally-occurring elemental metal
Stovall Plant	ppb	<0.2	ND-0.2	
Adkins Plant	ppb	0.27	0.23-0.35	
Distribution System	ppb	<0.2	ND-0.26	
Strontium				Naturally-occurring element
Stovall Plant	ppb	10.2	9.3-11.0	
Adkins Plant	ppb	10.1	8.7-11.0	
Distribution System	ppb	13.4	11.0-17.0	
Chlorate				By-product of Disinfection
Stovall Plant	ppb	<20	ND-37	
Adkins Plant	ppb	<20	ND-35	
Distribution System	ppb	<20	ND-40	
Total Chromium				Naturally-occurring element
Stovall Plant	ppb	<0.2	ND-0.20	
Adkins Plant	ppb	<0.2	ND	
Distribution System	ppb	<0.2	ND-0.30	
4-androstene-3,17-dione				Estrogenic hormone naturally produced in the human body.
Stovall Plant	ppb	<0.0003	ND-0.0006	
Adkins Plant	ppb	<0.0003	ND	
Hexavalent Chromium				Naturally-occurring element
Stovall Plant	ppb	0.044	0.035-0.056	
Adkins Plant	ppb	0.057	0.054-0.06	
Distribution System	ppb	0.052	0.041-0.064	

Unregulated contaminants are those that do not have a drinking water standard set by EPA. EPA is required every five years by the Safe Drinking Water Act to identify a list of potential contaminants, make a rule for water systems to test for them, and then make a decision whether regulation is necessary. As part of the Unregulated Contaminant Monitoring Rule 3 (UCMR3), SCDHEC tested Greenville Water's treated and distribution system water quarterly for unregulated contaminants.

FINISHED WATER SECONDARY STANDARDS

Parameter	Units	MCL	Average	Range	Sources
Chloride	ppm	250	4.7	3.1-6.7	Soil runoff
iron	ppb	300	ND	ND-0.05	Soil runoff, pipe material
Manganese	ppb	50	ND	ND	Soil runoff
pH	SU	6.5-8.5	7.7	6.7-8.5	Controlled at treatment plant
Totally Dissolved Solids	ppm	500	37	20-52	Soil runoff
Zinc	ppm	5	ND	ND	Drinking water additive
Sulfate	ppm	250	5.0	4.0-6.1	Drinking water additive
Aluminum	ppm	0.05-0.20	ND	ND	Drinking water additive

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. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (800.426.4791).

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.

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. FDA 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/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium or other microbial contaminants are available from the Safe Drinking Water Hotline (800.426.4791).

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.

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) 241-7836. You can visit our website at www. greenvillewater.com or contact us by email at laboratory@greenvillewater.com.

GREENVILLE WATER

Greenville Water provides service to nearly 500,000 residents of the Upstate region of South Carolina. Recognizing that water service is critical to the health and well-being of its customers and for the growth and economic vitality of the community, Greenville Water ensures the reliable delivery of high-quality water through careful stewardship of its resources. Greenville Water is committed to providing exceptional service and utilizing safe and effective methods for providing water, while adhering to and surpassing health and safety standards. Governed by an elected Commission of Public Works, Greenville Water is the state's largest water utility.

Commissioners of Public Works

Phillip A. Kilgore - Chair
James W. Bannister - Vice Chair
Debra M. Sofield - Commissioner
Knox White - Mayor, City of Greenville; Ex-Officio Member
J. David Sudduth - Councilman, City of Greenville; Ex-Officio Member

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Engineering
(864) 241-6100

Laboratory
(864) 241-7836

Commission Meetings

Unless otherwise noted, Greenville Water Commission meetings are held on the 1st Tuesday of each month at 8:15am. Meeting agendas, minutes and schedule are posted online at www.greenvillewater.com.

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SUSTAINABLE FUTURE

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