2012 WATER QUALITY REPORT

GreenvilleWater

Greenville, South Carolina

PROVIDING HIGH QUALITY DRINKING WATER

Greenville Water is pleased to present our 2012 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 purified, 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 2012, Greenville Water and SCDHEC collected more than 28,000 samples during the treatment process and in the distribution system, and more than 95,000 water quality tests were performed. Our quality water reaches our customers through approximately 2,900 miles of pipeline. This Water Quality Report demonstrates our success in meeting standards to provide the safest and best tasting water to you.

WHERE DOES MY WATER COME FROM?

Greenville Water draws water from three sources: **Table Rock Reservoir, Poinsett Reservoir,** and **Lake Keowee.**

Table Rock and Poinsett 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 unhabited, pristine lands. The properties are further protected by a Conservation Easement with The Nature Conservancy. Lake Keowee is owned by Duke Energy. Greenville Water has an agreement with Duke to withdraw an average daily demand of 90 million gallons per day (MGD). Table Rock and Poinsett have the availability to deliver up to 32 and 60 MGD, respectively.

SCDHEC conducted a Source Water Assessment on Greenville's three water sources. The document is available at www.scdhec.net/water or by calling (803) 898-4300. No sources of contamination were found in either the North Saluda or Table Rock watersheds. One hundred forty-five potential contaminant sources were found in the 377 square mile watershed of Lake Keowee. Greenville Water has not detected any contaminants in the finished drinking water from the Lake Keowee source.

HOW IS MY WATER TREATED?

All water supplied by Greenville Water is filtered. The Adkins Filter Plant, a conventional filtration plant with a treatment capacity of 90 MGD, draws water from Lake Keowee. This plant uses coagulation, sedimentation, filtration 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 a polyphosphate is added for corrosion control. Fluoride is provided to prevent tooth decay.

A state-of-the-art filter plant was placed in service in July 2000, to provide filtration for water drawn from the Table Rock and Poinsett 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 are similar to those at the Adkins Plant.

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

"BEST OF THE BEST" TASTING WATER

In 2011, Greenville Water was voted the "Best of the Best" Tasting Water in North America. To earn this honor, Greenville Water competed against more than 20 regional winners from water-tasting competitions across North America. Greenville Water was eligible to compete at the American Water Works Association's (AWWA) Annual Conference and Exposition in Washington, DC after qualifying at the South Carolina Environmental Conference, winning the state-level Best Tasting Water Contest.

PARTNERSHIP FOR SAFE WATER RECOGNITION

To ensure that customers receive the highest quality drinking water, Greenville Water has voluntarily established stricter standards than required by SCDHEC. This AWWA initiative, designed to optimize the treatment process and reduce potential sources of contamination, earned Greenville Water the 2011 Partnership for Safe Water Director's Award.

AWOP ACHIEVEMENT

The Area Wide Optimization Program (AWOP) was established by SCDHEC to encourage water treatment facilities to strive for excellence. In 2011, Greenville Water's Stovall and Adkins Water Treatment Plants received this prestigious award, as they have for the past ten years.

The tables below list all the regulated drinking water contaminants that were detected during the 2012 Calendar year, except where noted. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk. Unless otherwise noted, the tables contain data from testing done January 1-December 31, 2012.

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 triggers treatment or other requirement which a water system must follow.

ppm (Parts per Million):
This is the same as Milligrams per Liter, or one penny out of ten thousand dollars.

ppb (Parts per Billion):
This is the same as Micrograms per Liter, or one penny out of ten million dollars.

NA (Not Applicable):
Does Not Apply.

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 maximum permissible level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap without an unacceptable possibility of adverse health effects. MRDLs are enforceable standards.

MRDLG (Maximum Residual Disinfectant Level Goal):
The maximum level of a disinfectant in drinking water at which no known or anticipated adverse effect on the health of persons would occur and that allows for an adequate margin of safety. MRDLGs are nonenforceable public health goals.

RAA (Running Annual Average):
The average concentration at a particular location for four consecutive quarters.

PRIMARY DRINKING WATER STANDARDS – ALL DATA FROM 2012

Parameter	Unit	MCL	MCLG	Range	Highest Level Detected	Possible Sources	Violation
INORGANIC COMPOUNDS							
Fluoride	ppm	4	4			Drinking water additive Fluoride added during treatment to prevent tooth decay	
Stovall Plant (DHEC Data)				NA	0.69		NO
Adkins Plant (DHEC Data)				NA	0.70		NO
Distribution System (GW Data)				0.60 - 0.89	Avg. = 0.71		NO
Nitrate/Nitrite (as nitrogen)	ppm	10	10				
Stovall Plant (DHEC Data)				NA	ND	Erosion of natural deposits; fertilizer runoff, By-products of nitrification	NO
Adkins Plant (DHEC Data)				NA	0.056		NO
Distribution System (GW Data)				ND - 0.36	Avg. = 0.04		
ORGANIC COMPOUNDS							
Total Trihalomethanes					RAA = 11.8		NO
Stage 1 Sites	ppb	80	0	12.9 - 19.0		By-products of disinfection	
Stage 2 Sites	ppb	80	0	7.8 - 17.0		By-products of disinfection	
Total Haloacetic Acids					RAA = 13.3		NO
Stage 1 Sites	ppb	60	0	16.0 - 21.0		By-products of disinfection	
Stage 2 Sites	ppb	60	0	4.9 - 19.7		By-products of disinfection	
TOC (Total Organic Carbon)				**Percent Removal**	**Range**		
Stovall Plant (samples collected monthly)		TT	N/A	50% (35% required)	42 - 58%	Occurs naturally in the environment	NO
Adkins Plant (samples collected monthly)		TT	N/A	16% (35% required)	14 - 21%		NO*

**Due to low raw water TOC levels, Adkins and Stovall plants are in compliance.*

Parameter	Unit	MRDL	MRDLG	Range	Highest Level Detected	Possible Sources	Violation
DISINFECTANTS							
Chloramine	ppm	4	4	0.70 - 2.8	Avg. = 2.3	Water additive to control microbes	NO

MICROBIAL & PHYSICAL CHARACTERISTICS

Parameter	Units	MCL	Results	Possible Sources	Violation
Total Coliform	% positive per month	Less than 5%	0.64% Maximum	Common in the environment; human and animal waste	NO
Turbidity*		95% of samples	100% of plant samples are below MCL	100% of plant samples are below MCL	
Stovall Plant	NTU	< 0.3	Maximum = 0.06; Average = 0.03	Soil runoff	NO
Adkins Plant	NTU	< 0.3	Maximum = 0.09; Average = 0.05	Soil runoff	NO
Distribution System	NTU	NA	Average = 0.11		NA

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

LEAD & COPPER RULE

Parameter	Units	Action Level (AL)	90th Percentile Value	Sample Sites Exceeding Action Level	Possible Sources	Violation
DATA IS FROM SUMMER 2012						
Lead - Customer's plumbing	ppb	15	0.0	1	Corrosion of household plumbing	NO
Copper - Customer's plumbing	ppm	1.3	0.067	0	Corrosion of household plumbing	NO

Lead & Copper Information: 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 two minutes before using water for drinking or cooking. If you are concerned about lead in your drinking water, you may want to consider having 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 **www.epa.gov/safewater/lead**.

UNREGULATED CONTAMINANT MONITORING RULE 2 (UCMR2) (2010)

Parameter	Units	Average	Range	Sources
N-Nitrosodimethylamine (NDMA)				
Stovall Plant	ppb	ND		
Adkins Plant	ppb	0.0030	0.0022 - 0.0039	By-product of Chloramination
Distribution System	ppb	0.0034	0.0029 - 0.0039	

FINISHED WATER SECONDARY STANDARDS

Parameter	Units	MCL	Range	Average	Possible Sources
Chloride	ppm	250	2.6 - 8.9	4.6	Soil runoff
Color	color	15	ND - 3	ND	Naturally-occurring
Iron	ppb	300	ND	ND	Soil runoff, pipe material
Manganese	ppb	50	ND	ND	Soil runoff
pH	SU	6.5 - 8.5	7.0 - 8.4	7.6	Controlled at treatment plant
Solids (Total Dissolved)	ppm	500	28 - 52	36	Soil runoff
Zinc	ppm	5	ND	ND	Drinking water additive
Sulfate	ppm	250	4.4 - 6.2	5.0	Drinking water additive
Aluminum	ppm	0.05 - 0.20	ND	ND	Drinking water additive
Silver	ppm	0.10	ND	ND	Some home water treatment filters mining operations

In 2012, Greenville Water collected monthly samples for *Cryptosporidium* and *Giardia* at North Saluda (Poinsett) Reservoir, Table Rock Reservoir, Lake Keowee, Stovall Plant Finished Water and Adkins Plant Finished Water. *Cryptosporidium* and *Giardia* were not found in any of the samples.

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 visit our website at www.greenvillewater.com or contact us by email at laboratory@greenvillewater.com.

Este informe contiene informacion importante sobre la calidad del agua en su comunidad. Hable por favor con alguien que puede traducirlo para usted.

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.
- Pesticides and herbicides, which may come from a variety of sources such as agriculture, storm water runoff, and residential uses.
- Organic chemical contaminants, including synthetic and volatile organics, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff and septic systems.
- Radioactive contaminants, which can be naturally-occurring or the result of oil and gas production and mining activities.

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 people, 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 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.

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 to its customers, 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:

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

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COMMISSION MEETINGS:

Unless otherwise noted, Greenville Water Commission meetings are held on the 1st Tuesday of each month at 8:30 am. Meeting agendas, minutes and full schedule are posted online at **www.greenvillewater.com**.

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