

# 2008 ANNUAL DRINKING WATER QUALITY REPORT

Commissioners of Public Works



This report includes data collected from January 1 to December 31, 2007

We're pleased to present to you this year's Annual Drinking Water Quality Report. This report is designed to inform you about the quality water and services we deliver to you every day. Our constant goal is to provide you with a safe and dependable supply of drinking water. We want you to understand the efforts we make to continually improve the water treatment process and protect our water resources. We are committed to ensuring the quality of your water.

## Where does your water come from?

Our surface water source is Lake Greenwood, which is located in the Saluda River Basin of South Carolina. The W.R. Wise Water Treatment Plant is located on Lake Greenwood at 202 Water Plant Road, off Puckett's Ferry Road. The South Carolina Department of Health & Environmental Control (SCDHEC) prepared the Source Water Assessment Plan for our water source. This plan is available for your review at [www.scdhec.gov/water/html/srcewtr.html](http://www.scdhec.gov/water/html/srcewtr.html). If you do not have internet access, please contact Water Plant Superintendent at Greenwood CPW at 864-953-2411 to make arrangements to review this document.

## Source Water Assessment Summary

This report contains the completed groundwater susceptibility assessment for the Greenwood CPW, System No. 2410001. The system includes public supply intakes S24101. The system is located in Greenwood, SC and serves a primary population of 42,618. The system is located in the Saluda-Edisto basin. Of the 781 potential contamination sources (PCSS) in this initial inventory, 506 PCSS had more than one category of contaminants. The inventory includes 418 PCSS with volatile organic compounds (VOCs), 528 PCSS with petroleum products, 405 PCSS with metals, 176 PCSS with nitrates, 94 PCSS with pesticides/herbicides, 89 PCSS with pathogens, no PCSS with radionuclides, and no PCSS with undetermined contaminants. The susceptibility analysis determined 185 PCSS with a high susceptibility ranking, 459 PCSS with a moderate susceptibility ranking, and 137 PCSS with low susceptibility ranking.

## How is your water treated?

The water from Lake Greenwood is pumped from the lake via two raw water intakes located in the lake. Powdered Activated Carbon is added seasonally for taste & odor control. Several disinfectants, free chlorine, chlorine dioxide and chloramines, can be added throughout the year



for pathogen inactivation and oxidation of trace metals with minimum disinfection byproduct formation. Alum is added to remove the turbidity (particles) from the water and 25% sodium hydroxide is added for pH control. The water is then allowed to settle through the sedimentation basins. The water is then filtered through conventional dual media filter beds made up of anthracite coal and sand for the final step in the process. After the filtration step, additional chlorine is added along with ammonia to form chloramines as the final disinfectant for the distribution system. Lime is added for final pH control and fluoride is added as a tooth decay preventative.

## What's New in 2007?

In 2007, High Service Pump Station #1 has been upgraded with new electrical equipment for starting and running the pumps responsible for pumping water into the distribution system. The cost of this upgrade was \$442,000.00 and will ensure reliable service for the next 20 years.

Our new chemical feed systems installed in 2006 at a cost of 2.3 million dollars are still proving to be very cost effective in the treatment of the water. To date, we have saved approximately \$24,000.00 in chemical usage and flushing activities relating to disinfection and pH control. Under current regulatory criteria, these chemical feed systems should sustain water quality efforts for the next 20 years.

In 2008, CPW is planning to install new mixing systems in 3 elevated storage tanks at a cost of \$315,000.00 for improved mixing of the water to ensure proper disinfection in the tanks and distribution system. Replacement equipment for improved mixing of the process water through the water treatment plant is planned at a cost of

\$662,000.00. This project will ensure proper mixing and settling of particles that are being removed from the water for the next 20 years.

Greenwood CPW is very proactive and committed in improving the water quality to its customers. As regulations change and the demand for safer drinking water increases, Greenwood CPW will continue seeking ways to better improve water quality, not only just meeting the regulations by which it operates, but going beyond the current limits to meet the goals of having little or no contaminants in the finished product, ensuring a safer future for generations to come!

## How is your water tested?

The Greenwood Commissioners of Public Works routinely monitors for contaminants in your drinking water according to Federal and State laws in our modern, state certified laboratories. The South Carolina Department of Health and Environmental Control (DHEC) monitors for most of the contaminants listed in the following tables. The tables show the results of our monitoring for the period of January 1st to December 31st, 2007 with exceptions noted.

## Who do you call?

If you have any questions about this report or concerning your water quality, please contact the Superintendent of the W.R. Wise Water Treatment Plant and Laboratory at 864-953-2411. We want our valued customers to be informed about their water utility. You can visit our web site at [www.greenwoodcpw.com](http://www.greenwoodcpw.com) or contact us via email at [dtuck@greenwoodcpw.com](mailto:dtuck@greenwoodcpw.com) for more information. You are invited to attend any of our regularly scheduled meetings. They are held on the second & fourth Thursday of each month at 10:00 a.m. at Greenwood CPW, 121 Court Ave., Greenwood, SC.

## Affiliations and Awards

Greenwood CPW is a utility member of the American Water Works Association, [www.awwa.org](http://www.awwa.org). Treatment plant operators and distribution system operators of Greenwood CPW are also members of the SC Section of the AWWA, [www.scawwa.org](http://www.scawwa.org), and the Water Environment Association of SC (WEASC), [www.weasc.org](http://www.weasc.org), two state level organizations that promote professionalism in the water industry.

Greenwood CPW is also a member of the Partnership for Safe Water (PSW), [www.awwa.org/science/partnership/](http://www.awwa.org/science/partnership/). The PSW is

a national partnership including the American Water Works Association (AWWA), the Environmental Protection Agency (EPA) and water utility companies from across the nation whose primary focus is to encourage optimization of water treatment facilities. By optimizing water treatment facilities, the water quality goals of the PSW program go above and beyond the federal and state regulatory limits (MCLs).

For the seventh straight year Greenwood CPW's W.R. Wise Water Treatment Plant has received the Director's Award from the PSW for having successfully completed the ongoing water treatment optimization goals of the PSW program!

Also in 2007 the W.R. Wise Water Treatment Plant received the "Excellence in Water Treatment" award from the Partnership for Safe Water for the second straight year. The W.R. Wise Water Treatment Plant became only the fourth water treatment plant in the nation ever to receive this award. Reaching the "Excellence in Water Treatment" level of performance is a very significant achievement that demonstrates CPW's steadfast commitment to superior water quality for our customers. The performance requirements in the PSW are stringent, but are something CPW wanted to meet for the benefit of our customers.

We are happy to report that the CPW Water System received the highest possible score from SC DHEC in its most recent annual inspection in January 2008.

We at the Greenwood Commissioners of Public Works work around the clock to provide top quality water to every tap. We ask that all our customers help us protect our water sources, which are the heart of our community, our way of life and our children's future.



## Where Do Contaminants Come From?

Typical sources of drinking water include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the land or underground, it can pick up substances or contaminants such as microbes, inorganic and organic chemicals, and radioactive substances that will be suspended or dissolved in the water. Water from lakes and rivers must be treated to reduce harmful organisms and other substances to safe levels.

Regulated Substances Detected in CPW Finished Drinking Water						
(Samples taken at the W.R. Wise Water Treatment Plant)						
Substance	MCLG	MCL	Level Detected	Unit Measurement	Violation?	Typical Source
Nitrate/Nitrite	10	10	0.046	ppm	NO	Runoff from fertilizer use; leaching from septic tanks; sewerage; erosion of natural deposits
Turbidity*	0	TT = 1 NTU	Max. 0.18	NTU	NO	SOIL RUNOFF
		TT = Percent of samples below 0.3 NTU	100	NTU	NO	SOIL RUNOFF

\*Turbidity compliance is based on treatment technique (TT) of removing turbidity to levels below 0.30 NTU in 95% of samples collected. Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system. Nitrates - As a precaution we always notify physicians and health care providers in the area if there is ever a higher than normal level of nitrates in the water supply.

Coliform Bacteria Measurement in the Distribution System						
Substance	MCLG	MCL	Level Detected	Unit Measurement	Violation?	Typical Source
Total Coliform	0	Four or more samples/month	0	PIA	NO	Naturally present in the environment

Other Substances Monitored in the Finished Water					
(Samples taken at the W.R. Wise Water Treatment Plant)					
Substance	MCLG	MCL	Average Level Detected	Violation	Typical Sources
Fluoride	4	4	0.71	NO	Water Additive promoting strong teeth
Sodium	NA	NA	18	NO	Naturally Occurring
pH	NA	6.5 - 9.0	8.2	NO	Naturally Occurring; adjusted using liquid lime in the finished water

Lead & Copper Compliance in the Distribution System								
Contaminant	Detected level	Range of Detection	Goal (MCLG)	Highest Level Allowed (MCL)	Unit of Measure	Violation Y/N	Year	Possible Source
Copper, Free	90th % = 0.039 0>AL	ND-0.07	1.3	AL=1.3	PPM	N	2005	Corrosion of household plumbing. Erosion of natural deposits.
Lead	90th % = 4 1>AL	ND-32	0	AL=15	PPB	N	2005	Corrosion of household plumbing. Erosion of natural deposits.

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. Greenwood CPW 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 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/>.

Disinfection By-Products Measured in the Distribution System							
Substance	MCLG	MCL	Level Detected	Unit Measurement	Range of Levels Found	Violation	Likely Source of Contamination
Total Trihalomethanes	0	80	30.0 Running Annual Avg.	ppb	12.9 - 42.6	NO	By-Product of drinking water chlorination
Total Haloacetic Acids	0	60	25.0 Running Annual Avg.	ppb	6.7 - 66.0	NO	By-Product of drinking water chlorination

Total Organic Carbon (TOC) Monitoring & Removal in Treated Water								
Substance	MCL	Average Treated Water Level	Unit Measurement	Required Removal Ratio	Actual Removal Ratio	Range of TOC Levels Found	Violation	Likely Source of Contamination
TOC	TT	1.57	ppm	>1.00	1.172	1.21 - 2.18	NO	Naturally Occurring

Disinfectant Residuals Measured in the Distribution System							
Substance	MRDLG	MRDL	Max. Ortlly. Avg.	Unit Measurement	Range of Levels Found	Violation?	Typical Source
Chloramines	4	4	2.88	ppm	2.69 - 2.91	NO	Disinfectant additive to control microbes

## Additional Information from EPA

It's important to remember that the presence of contaminants does not necessarily pose a health risk. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791 or log on to EPA's Website [www.epa.gov](http://www.epa.gov)

In order to ensure that tap water is safe to drink, EPA and the Department prescribe 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 shall provide the same protection for public health.

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 from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate actions to lessen the risk of infection by cryptosporidium and other microbiological contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

## Terms and Abbreviations

- Non-Detects (ND)** - laboratory analysis indicates that the constituent is not present.
- Parts per million (ppm) or Milligrams per liter (mg/l)** - one part per million corresponds to one minute in two years or a single penny in \$10,000.
- Parts per billion (ppb) or Micrograms per liter** - one part per billion corresponds to one minute in 2,000 years, or a single penny in \$10,000,000.
- PIA** - Presence or absence of total coliform bacteria
- Nephelometric Turbidity Unit (NTU)** - nephelometric turbidity unit is a measure of the clarity of water.
- Action Level** - the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
- Treatment Technique (TT)** - A treatment technique is a required process intended to reduce the level of a contaminant in drinking water.
- Maximum Contaminant Level** - The "Maximum Allowed" (MCL) is 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.
- Maximum Contaminant Level Goal** - The "Goal" (MCLG) is 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.
- MRDL** - Maximum Residual Disinfectant Level is the highest level of a disinfectant that is allowed in finished drinking water.
- MRDLG** - Maximum Residual Disinfectant Level Goal is the level of a disinfectant in drinking water below which there is no known or expected risk to health. MRDLG allows for a margin of safety.

## The following contaminants were analyzed and were NOT found in your water

**Primary Inorganic Substances:**  
antimony, arsenic, barium, beryllium, cadmium, chromium, mercury, nickel, selenium, thallium.

**Synthetic Organic Compounds:**  
2,4-D, 2,4,5-TP (Silvex), alachlor(Lasso), aldicarb, aldicarb sulfide, aldicarb sulfone, aldrin, atrazine, benzo(a)pyrene, butachlor, carbofuran, carbaryl, chlordane, di (2-ethylhexyl) adipate, d bromochloropropane, di (2-ethylhexyl) phthalate, dalapon, Dicamba, 1,1,1,2-Tetrachloroethane, 1,1,2,2-Tetrachloroethane, dieldrin, dinoseb, diquat, endrin, ethylene dibromide (EDB), glyphosate (Round Up), heptachlor, heptachlor epoxide, hexachlorobenzene, hexachlorocyclopentadiene, 3-hydroxycarbofuran, lindane (gamma-BHC), methomyl, methoxychlor, metribuzin (Sencor), metolachlor (Dual), oxamyl (vydate), PCBs (polychlorinated biphenyls), pentachlorophenol, picloram (Tordon), propachlor, simazine, toxaphene, MTBE (methyl-tert-butyl ethano).

**Volatile Synthetic Organic Compounds:**  
1,1-Dichloroethane, 1,1-Dichloropropene, 1,2,3-Trichlorobenzene, 1,2,3-Trichloropropane, 1,2,4-Trimethylbenzene, 1,2-Dichlorobenzene, 1,3,5-Trimethylbenzene, 1,3-Dichlorobenzene, 1,3-Dichloropropane, 1,4-Dichlorobenzene, 2,2-dichloropropane, 2-Chlorotoluene, 4-Chlorotoluene, Bromobenzene, Bromochloromethane, Bromomethane, Chlorobenzene Chloroethane, Chloromethane, Dibromomethane, Dichlorodifluoromethane, Hexachlorobutadiene, Isopropylbenzene, Methylene chloride, Naphthalene, n-Butylbenzene, n-Propylbenzene, p-Isopropyltoluene, sec-Butyl benzene, tert-butylbenzene, trans-1,3-Dichloropropene, Trichlorofluoromethane, Vinyl Chloride, Benzene, Carbon tetrachloride, 1,2-Dichloroethane, Trichloroethylene, 1,1-dichloroethylene, cis-1,2-dichloroethylene, trans-1,2-dichloroethylene, 1,2-dichloropropane, ethylbenzene, styrene, trichloroethylene, 1,1,1-trichlorobenzene, 1,1,2-trichloroethane, toluene, xylenes (Total).

**Microbiologicals:**  
Fecal coliform bacteria

## What do the Tables Mean?

As you can see by these tables, our system had no violations. We're proud that your drinking water meets or exceeds all Federal and State requirements. We have learned through our monitoring and testing that some constituents have been detected. The EPA has determined that your water IS SAFE at these levels.

## Additional Information from CPW

In our continuing efforts to maintain a safe and dependable water supply it may be necessary to make improvements in your water system. The costs of these improvements may be reflected in the rate structure.

**Please call CPW Customer Service at 864-942-8100 if you have any questions about the rates.**

Feel free to call for a tour of the **W.R. Wise Water Treatment Plant** at 202 Water Plant Road. With advanced notice, we welcome school and civic groups to tour the plant Monday - Friday, except holidays, 9:00 a.m. to 3:00 p.m., weather permitting.

**Please call the water treatment plant superintendent at 864-953-2411 for appointments.**