Charleston Water System

Clean Water for Life

2005 Water Quality Report

What's in Your Water?

Important information about your tap water

Did you know...

Charleston's tap water costs less than a penny per gallon, and is just as safe to drink as bottled water, which can cost more than a dollar per gallon.

Do you know where your tap water comes from, how it's treated, and how it compares to bottled water? Knowing the answers to these questions can help you make informed decisions about your drinking water, which is why state and federal regulations require all water utilities to produce an annual water quality report. In this report, you will find water quality sampling results that show Charleston's water met or surpassed all required standards in 2005.

The Commissioners of Public Works (CPW) is now Charleston Water System!
www.charlestonwater.com

About Charleston Water System

Charleston Water is a publicly owned water and wastewater utility. We provide safe, clean drinking water to more than 400,000 people in parts of Charleston, Berkeley, and Dorchester Counties of South Carolina.

In addition to our 100,000 water accounts, we also provide water to other utilities in the area, including Mt. Pleasant Waterworks, the Town of Sullivan's Island, Isle of Palms Water and Sewer Commission, Town of Folly Beach, City of Lincolnville, St. John's Water Company, Dorchester County Public Works, and Dorchester Water Authority.

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 EPA's Safe Drinking Water Hotline at 1-800-426-4791.

Where your water comes from

Our water is treated at the Hanahan Water Treatment Plant, which uses surface water from the Edisto River and the Bushy Park Reservoir. We disinfect the treated water with trace amounts of chlorine, then add trace amounts of ammonia to form chloramines, which protect against harmful bacteria in the water distribution system. We also add fluoride at levels recommended by the American Dental Association to help prevent tooth decay in children.

Charleston Water System has received numerous awards for excellence in water distribution and treatment, and we are proud to be a member of the Partnership for Safe Water—a voluntary program for utilities committed to improving drinking water beyond what's required by law.

What's in Your Tap Water?

There is no such thing as "pure" water. As it moves through the water cycle, water picks up minerals, plant matter, and man-made contaminants that eventually end up in lakes and streams, where many cities get their drinking water.

While the water treatment process removes many of these compounds, it's impossible to remove them all. The compounds found in our water were all at safe levels, meaning they were below the limits set by the US Environmental Protection Agency (US EPA). Descriptions of those compounds, the concentration detected in our water, and the limit EPA has set for each are listed in the table on the next page. The compounds fall into several different catagories:

Biological compounds, such as viruses and bacteria, which may come from septic systems, agricultural livestock operations, and wildlife.
Inorganic compounds, such as salts and metals, which can be naturally occurring or result from storm water 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, runoff, and residential uses.
Organic compounds, including synthetic and volatile organics, which are by-products of industrial processes and petroleum production, and can also come from gas stations, runoff, and septic systems.
Radioactive materials, which can be naturally occurring or be the result of oil and gas production and mining activities.
To make sure tap water is safe to drink, the US EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for compounds in bottled water.

Definitions for Water Quality Table

Maximum Contaminant Level Goal (MCLG)
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.

Maximum Contaminant Level (MCL)
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.

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

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

Maximum Residual Disinfectant Level (MRDL)
The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfectant Level Goal (MRDLG)
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 disinfectants to control microbial contamination.

Water Quality Lab Results, 2005

Constituent	Maximum Contaminant Level (MCL) set by EPA	Maximum Containment Level Goal (MCLG)	Actual Level in Charleston's water 2005	Possible sources in water
Biological Compounds and Physical Characteristics				
Total coliform bacteria A group of bacteria whose presence in water indicates possible contamination with soil or waste from warm-blooded animals.	Number of positive samples must not exceed 5% of monthly samples taken.	Zero positive samples	2.1 % highest percentage of positive monthly samples	Naturally present in the environment
Turbidity A measure of the amount of suspended particles in the water (cloudiness); an indicator of overall water quality and filtration effectiveness.	Requires a specific treatment technique (TT). 95% of monthly samples must be less than 0.3 NTU (nephelometric turbidity units).	None	0.50 NTU highest level detected. The lowest monthly % of samples meeting the limit was 98.1%.	Soil runoff
Inorganic Compounds				
Copper A metal widely used in household plumbing that may corrode into water.	90% of samples must be less than the 1.3 ppm action level (AL)	1.3 ppm	0.05 ppm* (no samples exceeded the action level)	Corrosion of household plumbing materials
Lead A metal no longer used in water pipes, but may be present in plumbing fixtures or old pipes; may corrode into water.	90% of samples must be less than the 15 ppb action level (AL)	0	4 ppb* (no samples exceeded the action level)	Corrosion of household plumbing materials
Nitrate/Nitrogen Nitrates and nitrites are nitrogen-oxygen chemicals that can become a source of pollution in the form of unwanted nutrients.	10 ppm	10 ppm	0.15 ppm	Runoff from fertilizers
Fluoride A chemical that is naturally occurring in some water sources, particularly ground water. It is also added to drinking water to help prevent tooth decay.	4 ppm	4 ppm	1.1 ppm in finished water.	Added to prevent tooth decay
Disinfectants				
Chlorine Dioxide A disinfection agent added in small amounts to disinfect against bacteria.	800 ppb MRDL	800 ppb MRDLG	The range was <100 ppb to 190 ppb. The yearly average was <100 ppb.	Added to protect against bacteria
Chloramine residual A compound of chlorine and ammonia that is added in small amounts to treated water to disinfect against bacteria.	4 ppm MRDL	4 ppm MRDLG	Highest Quarterly Average=2.6 ppm. (Range: 2.0 - 2.7 ppm)	Added to protect against bacteria
Disinfection Byproducts				
Total Trihalomethanes (THMs) A group of chemicals formed when chlorine used to disinfect drinking water reacts with naturally occurring organic and inorganic matter in water.	Running annual Average (RAA) must be less than 80 ppb	None	RAA= 33 ppb (Range: 7-101 ppb)	Byproduct of disinfection
Total Haloacetic acids (HAAs) A group of chemicals formed when chlorine used to disinfect drinking water reacts with naturally occurring organic and inorganic matter in water.	Running annual Average (RAA) must be less than 60 ppb	None	RAA=20 ppb (Range: 10-39 ppb)	Byproduct of disinfection
Chlorite A byproduct formed when chlorine dioxide is used to disinfect water.	1 ppm	0.80 ppm	Range: 0.30 to 0.64 ppm.	Byproduct of disinfection
Organic Compounds				
Total Organic Carbon (TOC) The measure of organic substances in a waterway, mostly from naturally occurring sources such as plant material. TOC has no health effects, but it provides a medium for the formation of disinfection byproducts.	No MCL; EPA requires a specific treatment technique (TT)	None	TOC Values (1.9 to 3.0 ppm). 64% TOC removal (45% is required). Range of removal was 51% to 68%. TOC samples taken on a daily basis.	Naturally present in the environment
Unregulated Compounds				
Sodium The salt level in water.	None	None	11 ppm*	Naturally occurring and/or by product of treatment
Cryptosporidium A parasite spread through human and animal waste that causes gastrointestinal illness. People with weakened immune systems are more likely to suffer severe symptoms than healthy individuals.	No MCL; EPA requires specific treatment technique (TT)	None	Zero *Cryptosporidium* oocysts per 1 liter of water	Naturally present in the environment from human & animal sources
Giardia A parasite that causes gastrointestinal illness. People with weakened immune systems are more likely to suffer severe symptoms than healthy individuals.	No MCL: EPA requires specific treatment technique (TT)	None	0.1 *Giardia* cyst per 1 liter of water	Naturally present in the environment from human & animal sources

Abbreviations ***ppm*** Parts per million (mg/l) ***ppb*** Parts per billion (ug/l) ***NTU*** Nephelometric Turbidity Units ***PCU*** Platinum cobalt units ***umhos/cm*** micromohs/centimeter ***C*** centigrade ***RAA*** running annual average

**Test results for copper, lead, and sodium are 2003 results. Annual Testing is not required for these compounds*

Protecting our Environment

At Charleston Water, preventing pollution and taking steps to improve our environment is an important part of our mission. We've implemented an Environmental Management System, or EMS, that helps us track activities that may impact the environment and come up with control methods to reduce or eliminate those impacts. Our EMS program helped us earn certification under ISO 14001—the international standard for excellence in environmental management. We were the first water and wastewater utility in the nation to earn this certification, which is encouraged by EPA because it helps utilities improve operations.
Visit www.charlestonwater.com to learn more.

A message from the US Environmental Protection Agency

The US EPA has implemented regulations to ensure that water sold by public water systems contains no harmful contaminants. Charleston Water System meets or exceeds the water quality standards set forth by these regulatory bodies, but the EPA requires utilities to include the following advisory statement:

"Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with HIV/AIDS or other immune system disorders, persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, some elderly and some infants can be particularly at risk from infections. These people should seek advice from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791)."

Additional Water Quality Information

These water quality results are not health related, but can affect the aesthetics of drinking water, such as taste, odor, hardness, etc. The EPA has established secondary standards for some of these parameters, which are non-enforceable, recommended guidelines.

Compound/Water Measurement	Charleston's Water (average in 2005)	Highest level recommended by EPA
Secondary Standards		
Chloride	18 ppm	250 ppm
Color	4 PCU	15 PCU
Iron	0.10 ppm	1.3 ppm
Manganese	<0.05 ppm	0.05 ppm
Total Dissolved Solids (TDS)	109 ppm	500 ppm
General Water Information		
Alkalinity	26 ppm	No EPA standards for these measurements
Conductivity	195 umhos/cm	
Hardness	60 ppm	
Ortho-phosphate	1.4 ppm	
Silica	7.8 ppm	
Temperature	21 °C	

Source Water Assessment

An important part of the water treatment process is identifying the contaminants that may be present in our source water. To that end, the SC Department of Health and Environmental Control (SCDHEC) has implemented a Source Water Assessment and Protection Program (SWAP), which lists all the *potential* sources of contamination for each watershed in the state. For the Saluda-Edisto and Catawba River basins, where Charleston Water draws water for treatment, SCDHEC's report identifies 462 entities, including gas stations, industries, farms, etc., that *could* affect our source water quality. SCDHEC, as well as other regulatory agencies, routinely monitor the watershed, and our lab continuously monitors the water in the Edisto River and Bushy Park Reservoir prior to treatment. You can download the complete Source Water Assessment for Charleston Water System by visiting DHEC's website at www.scdhec.net/water/html/srcewtr.html.

Get involved!

Charleston Water System is governed by a board of elected Commissioners, which meets monthly. These meetings are open to the public, and citizen participation is welcomed. Meetings are typically held the fourth Tuesday of every month at 9 a.m. at 103 St. Philip Street.

Contact Us

For more information about this report, contact our Customer Service Department at (843) 727-6800. We also have information available on our web site at www.charlestonwater.com, or you may e-mail us at info@charlestoncpw.com.

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Este informe contiene información muy importante sobre su agua beber. Tradúzcalo ó hable con alguien que lo entienda bien.