

## COLUMBIA WATER: QUALITY ON TAP SINCE 1835

The United States Environmental Protection Agency (EPA) and the South Carolina Department of Health and Environmental Control (SCDHEC) have established strict quality standards for drinking water. These standards are designed to protect consumers against disease-causing bacteria and other harmful substances. EPA requires public water systems to send their customers an annual report containing information about their drinking water quality and compliance with the standards. The City of Columbia is pleased to present the information contained in this report to you and hope that it will be both informative and helpful in making personal health-based decisions regarding your drinking water consumption. We welcome your comments and questions. We may be reached during normal business hours by calling 803-545-3400. You are also welcome to attend regularly scheduled meetings of City Council that are generally held the first and third Wednesdays of each month at City Hall, 1737 Main Street at 10:00 a.m. Contact the Public Relations Department at 803-545-3020 for time and location or visit [www.columbiasc.net](http://www.columbiasc.net).

### WHERE DOES COLUMBIA'S WATER COME FROM?

The City of Columbia operates two water treatment plants, one of which draws water from the Broad River Diversion Canal (Canal) and the other from Lake Murray (Lake). The two plants together produce an average of 60 million gallons of water per day that is furnished to approximately 375,000 people in Richland and Lexington Counties through more than 2,350 miles of underground pipeline. Generally, the Lake Murray Plant serves the area west of Broad River and the area north of Interstate 20, and the Columbia Canal Plant serves the remaining area. The system is designed, however, so that sustainable water can be sup-

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### CONSERVE COLUMBIA

Although water is one of our most critical resources, it is often misused and abused. The City of Columbia is dedicated to providing an adequate supply of clean drinking water for both current and future generations. You can do your part too. Our new educational campaign, Conserve Columbia, is a great way to learn more about your water and how you can make a positive difference.

You may not realize that only tap water keeps us healthy, fights fires, supports our economy, and provides us with a high quality of life to enjoy. Each of us can help ensure that we continue to have these benefits for many years to come by practicing water conservation in our everyday activities.

Water conservation is no longer related to only drought; it is necessary as a way of life all year. It is simple, inexpensive, and most importantly our personal responsibility. Please remind yourself the next time you turn on the tap!

### DISPOSING OF PHARMACEUTICALS AND PERSONAL CARE PRODUCTS WHAT YOU NEED TO KNOW

#### The Facts...

The first priority of the water community is protecting public health. As part of that commitment, water professionals have been researching the occurrence of personal care products and pharmaceutical compounds in drinking water supplies for more than 30 years.

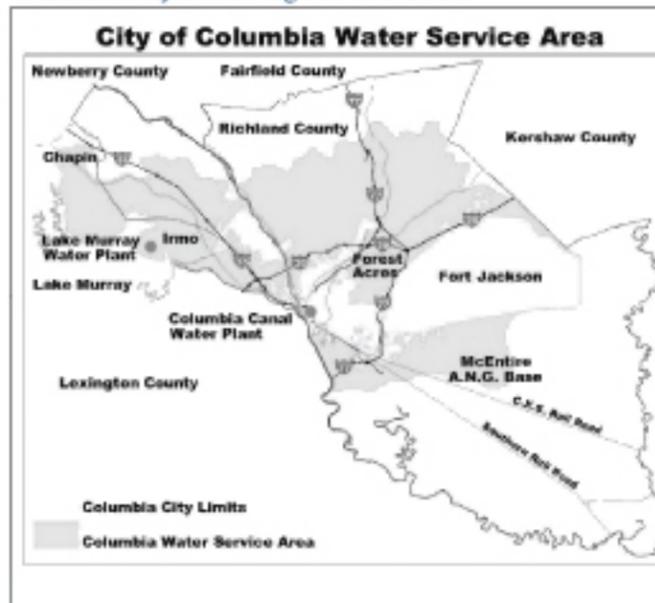
Today's advanced water monitoring technology allows scientists to detect more substances, including pharmaceuticals and personal care products, at lower levels than ever before. To date, however, research throughout the world has not demonstrated an impact on human health from pharmaceuticals in drinking water at the trace levels at which they have been found. People regularly consume or expose themselves to products containing these compounds in much higher concentrations through medicines, food and beverage and other sources. While

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plied to the entire service area by either plant.

The City uses a series of treatment techniques to produce potable (drinkable) water. As water is pumped into the treatment plants, intake areas screen out floating debris such as plants and fish. Aluminum sulfate (alum) and other polymers are rapidly mixed into the water to help particles in the water cling together (coagulate) and form heavier particles, referred to as floc. The water mixture is then gently circulated so that the coagulating particles continue to merge into larger floc particles. These floc particles pass into a sedimentation basin where they settle to the bottom and are eventually disposed of. Filtration removes any remaining particles. The water passes through filters containing layers of sand, gravel and anthracite coal. Small floc particles cling to filter material as water passes through. After all particles have been removed, a small amount of chlorine is added to the water to keep bacteria from developing as it travels to your home or business. A small amount of fluoride is also added to the water to assist in preventing tooth decay.

The SCDHEC has completed a comprehensive water assessment report on the Broad River Diversion Canal (also referred to as the Columbia Canal) and Lake Murray. This Source Water Assessment report is available and can be reviewed at 1136 Washington Street or by contacting 803-545-3400.



research hasn't demonstrated human health impacts at these levels, the water community continues to pay close attention to scientific developments in this area.

#### How should I dispose of unused medicines?

The best and most cost-effective way to ensure safe water at the tap is to keep our source waters clean. As a society, we should encourage policies that protect source water from contaminants introduced by human activity. You can help by refraining from flushing unused medications down the toilet or sink. Instead, find out if your pharmacy accepts unused or unneeded prescription drugs for disposal. Over-the-counter medications should be taken out of their original containers, mixed with coffee grounds or kitty litter in a sealable bag, and then put in the trash.

### FOR MORE INFORMATION

You may call 803-545-3400 for all water quality related questions or concerns Monday through Friday between the hours of 8:30 a.m. and 5:00 p.m. or 803-733-8336 at all other times.

City of Columbia	
Water Quality Complaints(8:30 a.m. - 5:00 p.m.)	803-545-3400
after hours:	
Columbia Canal WTP	803-733-8336
Lake Murray WTP	803-781-2181
Water Distribution	803-545-3900
Service Problems (all hours)	803-545-3900
Water Bills (8:30 a.m. - 5:00 p.m.)	803-545-3300

S.C. Dept. of Health and Environmental Control	
Bureau of Water	803-898-4300
Division of Health Hazard Evaluation	803-898-3432
Environmental Community Health Office	888-849-7241

Drinking Water Hotline	800-426-4791
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National Lead Information Clearinghouse	800-424-5323
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Consumer Product Safety Commission	800-638-2772
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[www.columbiasc.net](http://www.columbiasc.net)

*Esté informe contiene información muy importante sobre el agua que usted toma. Tradúscalo o hable con un amigo quien lo entienda bien.*

## HOW TO USE YOUR WATER WISELY!

### OUTDOORS

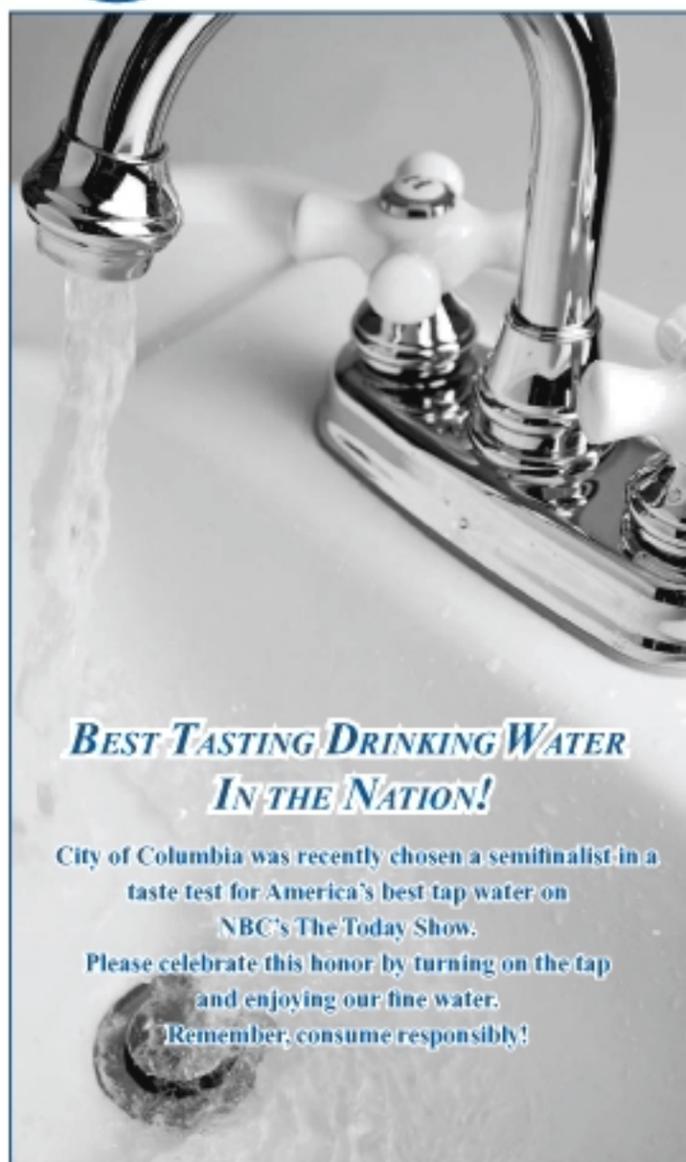
- Design your landscape with native plants and reduce grass covered areas.
- Use sprinklers that produce droplets rather than mist and include rain shut-off devices.
- Water during the coolest part of the day.
- Use soaker hoses or trickle irrigation for trees and shrubs.
- Install covers on pools and spas to reduce evaporation and check for leaks around pumps.
- Use a broom instead of a hose to clean off driveways and sidewalks.
- Cut grass at least three inches high to shade roots, making it more drought-tolerant.
- Mulch to retain water. Spread leaves, lawn clippings, or landscaping tarps around plants. Mulching also controls weeds that compete with garden plants for water.
- Wash your car less often or at a car wash that cleans and recycles the water. If you do wash your car at home, use a bucket of diluted biodegradable soap rather than running a hose.

### INDOORS

- Install a water-efficient showerhead (<2.5 gal/min).
- Take a 5-minute shower rather than a bath.
- Turn off water while brushing teeth and shaving.
- Wash only full loads of laundry and replace old washing machines with water- and energy-efficient models.
- Scrape rather than rinse dishes before loading into the dishwasher.
- Check your toilet for "silent" leaks by placing a little food coloring in the tank and seeing if it leaks into the bowl.
- Don't pour water down the drain if you can use it for other projects such as watering plants or cleaning.
- When you buy a new toilet, choose a low flow model (1.6 gallons or less per flush).
- Avoid using the toilet as a trash basket for facial tissues and similar items. Each flush uses 5 to 7 gallons of water.
- Teach children to turn off faucets tightly.



City of Columbia Water Works  
Columbia, South Carolina  
2007 Water Quality Report  
Public Water System 4010001



### BEST TASTING DRINKING WATER IN THE NATION!

City of Columbia was recently chosen a semifinalist in a taste test for America's best tap water on NBC's The Today Show.

Please celebrate this honor by turning on the tap and enjoying our fine water.

Remember, consume responsibly!

A Publication of the City of Columbia's  
Department of Utilities and Engineering

## WHAT'S IN COLUMBIA'S DRINKING WATER?

The City's DHEC-certified laboratory performs more than 200,000 analyses each year to insure that the water the City supplies to its customers meets all EPA and DHEC standards at all stages of the treatment process and at hundreds of points throughout more than 2,350 miles of pipeline that make up the City's distribution system. The City also conducts voluntary testing for microbial contaminants. In 2004, the City joined the Partnership for Safe Water, a group that encourages water suppliers to enhance their water system's ability to prevent entry of microbial contaminants and to implement any actions that are appropriate in accomplishing this goal. The City's drinking water met all state and federal requirements during 2007, and is considered safe to drink. The substances listed below were detected in the City's water supply during 2007 or during the most recent sampling period if sampling was not required during 2007.

Substance	Highest Level Allowed (MCL)	Detected Level	Range of Detection	Goal (MCLG)	Violation	Year Sampled	Possible Sources
<b>Inorganic Compounds</b>							
Lead	15 ppb (action level)	4 ppb	Two of 50 sites sampled exceeded action level.	0	none	2005	Corrosion of household plumbing systems and naturally occurring in the environment. 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 line and home plumbing. The City of Columbia 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 <a href="http://www.epa.gov/safewater/lead">http://www.epa.gov/safewater/lead</a> .
Copper	1.3 ppm (action level)	0.094 ppm	No sites exceeded action level.	0	none	2005	Corrosion of household plumbing systems and naturally occurring in the environment.
Fluoride	4 ppm	0.980 ppm	0.80 - 0.98 ppm	4 ppm	none	2007	Naturally occurring in the environment by erosion of natural deposits and added at the treatment plant as an aid in preventing tooth decay.
Nitrate/Nitrite (as Nitrogen)	10 ppm	0.230 ppm	0.088 - 0.230 ppm	10 ppm	none	2007	Runoff from fertilizer use, leaching from septic tanks, sewage, and erosion of natural deposits.
Chlorite (Lake)	1 ppm	0.580 ppm	0.153 - 0.580 ppm	0.8 ppm	none	2007	By-product of drinking water chlorination.
(Canal)	1 ppm	0.657 ppm	0.347 - 0.657 ppm	0.8 ppm	none	2007	
<b>Organic Compounds</b>							
Total Trihalomethanes	80 ppb	30 ppb (average)	17.47 - 53.90 ppb	0	none	2007	By-product of drinking water chlorination formed when chlorine reacts with organic matter.
Haloacetic Acids	60 ppb	38 ppb (average)	24.34 - 64.69 ppb	0	none	2007	By-product of drinking water chlorination formed when chlorine reacts with organic matter.
Total organic carbon (Lake)	TT	44.60% removal (35% required)	37.40% - 50.50% removal	N/A	none	2007	Naturally occurring in the environment.
(Canal)	TT	44.22% removal (36% required)	34.80% - 64.30% removal	N/A	none	2007	
<b>Microorganisms</b>							
Turbidity (Lake)	<0.3 NTU Treatment Technique	0.17 NTU Highest single measurement 100% Lowest monthly % meeting standard		N/A	none	2007	Naturally occurring in the environment.
(Canal)	<0.3 NTU Treatment Technique	1.20 NTU Highest single measurement 99.73% Lowest monthly % meeting standard		N/A	Yes*	2007	
Total Coliform Bacteria	Presence of bacteria in <5% of samples	1.95% Highest monthly % positive	N/A	0	none	2007	Naturally occurring in the environment.
<b>Disinfectants</b>							
	<b>Maximum Residual Disinfectant Level (MRDL)</b>			<b>Goal (MRDLG)</b>			
Chloramine	4 ppm	2.7 ppm (highest quarterly average)	2.3 - 2.9 ppm	4 ppm	none	2007	Water additive to control microbial growth.
Chlorine Dioxide (Lake)	800 ppb	162 ppb	0 - 162 ppb	800 ppb	none	2007	Water additive to control microbial growth.
(Canal)	800 ppb	194 ppb	0 - 194 ppb	800 ppb	none		
<b>Additional City Samples</b>							
	<b>Highest Level Allowed (MCL)</b>	<b>Annual Monthly Average</b>	<b>Goal (MCLG)</b>				
Fluoride (Lake)	4 ppm	0.90 ppm	4 ppm		none	2007	Naturally occurring in the environment by erosion of natural deposits and added at the treatment plant as an aid in preventing tooth decay.
(Canal)	4 ppm	0.93 ppm	4 ppm		none	2007	

\* On May 28, 2007, the Canal Water Treatment Facility experienced a brief filtered water turbidity exceedance due to malfunctions with chemical feed equipment for aluminum sulfate, a chemical used to reduce turbidity. The South Carolina Department of Health and Environmental Control was notified and we sent a notice informing affected customers of the increased turbidity level. We maintained our multiple barrier treatment approach and ensured that no public health risks resulted from this unfortunate excursion by testing for coliform bacteria in both the untreated and treated water as well as inspecting and cleaning the filters. No coliform bacteria were detected in the treated water and as a result of immediate corrective actions, the filtered water turbidity level quickly decreased and has remained below the standard of less than 1.0 NTU since May 29, 2007.

### What do these terms and symbols mean?

**Action level**-A limit (not MCL) that applies to contaminants, such as lead and copper, that enter the water after treatment. Action levels may trigger special monitoring, public education or treatment techniques.

**Detected Level**-Concentration of a substance detected in a water sample. The detected levels specified in the above tables are the highest levels detected if multiple samples were collected, except for Total Organic Carbon (TOC) or unless specified otherwise. For TOC, the specified removal rate is the rate required by the SCDHEC, based on data reported by the City.

**MCL (Maximum Contaminant Level)**-The EPA's regulation limit for the highest allowable amount of a substance in drinking water.

**MCLG (Maximum Contaminant Level Goal)**-The EPA's target level for a contaminant below which there are no known or suspected health effects. The MCLG is not necessarily a level achievable with currently available treatment techniques.

**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.

**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. MRDLG's are nonenforceable public health goals.

**N/A**-Not applicable, does not apply.

**NTU (Nephelometric Turbidity Unit)**-Units used to indicate water clarity.

**ppb (parts per billion)**-One part in a billion parts (equivalent to one penny in \$10,000,000)

**ppm (parts per million)**-One part in a million parts (equivalent to one penny in \$10,000)

**RAA (running annual average)**-An average of the four quarters in a calendar year.

**TT (treatment technique)**-A required process intended to reduce the level of a contaminant in drinking water.

**90th Percentile**-The "action level" for lead and copper for a water system that serves more than 100,000 people.

< Less than

> Greater than

### THE EPA REQUIRES THAT ALL ANNUAL WATER QUALITY REPORTS CONTAIN THE FOLLOWING:

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 (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 stormwater 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, stormwater 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 stormwater runoff and septic systems.

\*Radioactive contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities.

In order to insure that tap water is safe to drink, the EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Federal Drug Administration (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. 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 means to lessen the risk of infection by Cryptosporidium are available from the Safe Drinking Water Hotline (800-426-4791). Testing since 1994 has revealed no signs of Cryptosporidium in Columbia's treated water.