

Aquifer Storage and Recovery

Achieving water supply sustainability is a costly goal for many communities which are increasingly challenged by population growth, declining groundwater levels, contaminated aquifers, concerns regarding water supply security, and declining streamflows.

Aquifer Storage Recovery (ASR) provides a cost-effective solution to many of the world's water management needs, storing water during times of flood or when water quality is good, and recovering it later during times of drought or when water quality from the source may be poor. Large water volumes are stored deep underground, reducing or eliminating the need to construct large and expensive surface reservoirs.

The aquifer essentially functions as a "water bank."

Deposits are made in times of surplus, typically during the rainy season, and withdrawals occur when available water falls short of demand.

ASR is a unique technology, comprising elements of geology, hydraulics, hydrology, geochemistry, engineering design, water treatment, economics and other disciplines to achieve a reliable, sustainable supply of water of acceptable quality.

ASR is proven, cost-effective, and beneficial to the environment and is currently being applied at about 69 sites in the United States, plus

other sites in Canada, England, Australia, South Africa and Israel. Many more sites are under development.

Orangeburg DPU's ASR project entails two wells. ASR Well #1 is 895 feet deep and ASR Well #2 is 478 feet deep. The wells are designed to store between 500 to 800 million gallons in the two different aquifers. Operating both wells can allow for an approximate recovery rate of 6 million gallons of drinking water per day during times of extreme drought or poor river water quality.



Department of Public Utilities

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How To Contact Us:

Please call the Water Division at
Phone: 803-268-4404 or Fax: 803-531-3803
or visit our website at: www.orbgdpu.com

**The water supplied to you by YOUR
Department of Public Utilities meets and
exceeds all drinking water requirements.**



SC Section
American Water Works
Association



Este reporte contiene informacion acerca de su agua potable. Si usted desea copia de este reporte en espanol, favor de llamar a Servicio del Cliente at 268-4186.



2010 Water Quality Report



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, or wildlife.

Inorganic contaminants, such as salts and metals, which can be naturally occurring, may 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, urban stormwater runoff, and residential uses.

Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and may also come from gas stations, urban stormwater runoff and septic systems.

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

Why are there contaminants in the water?

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 the water poses a health risk. The sources of drinking water (both tap 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 human activity. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (800-426-4791).

DPU Water System

Source:	North Fork Edisto River
Number of Services:	>20,000
Population Served:	>60,000
Distribution Pipe:	600 miles
Fire Hydrants:	>1,500

Special Concerns

Some people may be more vulnerable to the 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 provider. 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).

Since 1993, the Department of Public Utilities has sampled once a quarter for *giardia* and *cryptosporidium* using current analytical methods. These organisms have **never been detected** in our finished water.

Where Does My Water Come From?

The Department of Public Utilities obtains its raw water from the North Fork Edisto River. The high quality and abundant quantity provides for future community and economic development. Our water treatment plant processes an average of 8 million gallons per day (MGD) and has the capability to treat 30 MGD.



A Source Water Assessment was performed by SCDHEC and results are available by visiting the web site www.scdhec.net/eqc/water.html/srcwtr.html or by calling Mr. Odom at 803-268-4404.

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. Food and Drug Administration regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

**2009 Recipient of the
SC American Water Works Association's
Best Tasting Drinking Water Award.**



2010 Water Quality Data

	Substance	Number of Tests	MCL	MCLG	Detected Level	Range	Major Sources	Meets EPA Standards	
Inorganics	Fluoride (as tested by DHEC) (PPM)	1	4	4	1.1	1.1	Water additive which promotes strong teeth; Erosion of natural deposits; Discharge from fertilizer and aluminum factories.	Yes	
	Fluoride (as tested by our DHEC certified laboratory) (PPM)	730	4	4	0.98	0.6 – 1.24	Water additive which promotes strong teeth; Erosion of natural deposits; Discharge from fertilizer and aluminum factories.	Yes	
	Nitrate (PPM)	1	10	10	0.31	0.31	Run-off from fertilizer use; Leaching from septic tank sewage; Erosion from natural deposits.	Yes	
Volatile Organics	Total Trihalomethanes (PPB)	4	80	N/A	RAA 17	10 – 23.1	By-product of drinking water disinfection.	Yes	
	Haloacetic Acids (PPB)	4	60	N/A	RAA 39	3.6– 65	By-product of drinking water disinfection.	Yes	
Microbiological	Fecal Coliform/ E. coli (P/A)	1509	A routine sample and a repeat sample are total coliform positive and one is also fecal coliform or E. coli positive.		0	0	N/A	Human and animal fecal waste.	Yes
	Total Coliform (P/A)	1509	Presence of coliform bacteria in >= 5% of monthly samples.		0	1.0%	0.0-4.5%	Human and animal fecal waste.	Yes
	Turbidity (NTU)	2190	TT = 1 TT = 95% of samples <0.3		0	0.08 100%	0.05 – 0.31 100%	Soil runoff.	Yes
Disinfection By-Products	Residual Chlorine (PPM)	1509	MRDL = 4	MRDL = 4	2.03	0.3 – 3.2	Water additive used to control microbes.	Yes	
	Total Organic Carbon (PPM)	12	TT	Required % removal 46.25%	Actual % removal 67.6%	Actual % removal range 61.6 – 77.3%	Naturally present in the environment.	Yes	
Other	Thallium	1	2.0	0.5	0.82	0.82	Discharge from electronics, glass and leaching from ore-processing sites; drug factories.	Yes	

2008 Lead and Copper Data

Substance	Number of Tests	Action Level	MCLG	Detected Level	Range	Number of Sites Above Action Level	Major Sources	Meets EPA Standards
Lead* (PPB)	30	AL = 15	0	0.0	N/A	1	Corrosion of household plumbing systems.	Yes
Copper* (PPM)	30	AL = 1.3	0	0.059	ND – 0.13	0	Corrosion of household plumbing systems. Erosion of natural deposits	Yes

* Lead and Copper samples are only required once every three years on the reduced monitoring plan. Samples were collected in 2008 and are scheduled to be collected again in the summer of 2011.

Working Together to Provide Clean, Safe Drinking Water To You

Many do not realize the number of people or the amount of work that is required to treat and deliver high quality drinking water to our customer's homes and businesses twenty-four hours per day, seven days per week. In the Orangeburg area, our personnel work hard to maintain the continuous delivery of safe, great tasting water to its residents. The Water Division consists of three categories of dedicated employees:

The Water Division Office Personnel: These individuals work together to handle customer requests and the design and implementation of new line

extensions and new meter services. They also handle all customer complaints, the mapping and GIS of our entire distribution system, and the dispatching of the water crews to fill work order requests.

The Water Division Distribution Crew: These individuals work together to install, repair, and maintain all water distribution lines, meters, meter boxes,

fire hydrants and valves in the system to ensure that the water is delivered and available for normal and peak (ie fire) demands. They respond to main line breaks and customer complaints in the system.



The Water Treatment Plant Personnel: These individuals work together to treat the North Fork Edisto River water to produce drinking water that meets and exceeds stringent state and federal drinking water standards. They maintain all equipment at the water treatment plant as well as at three raw water pumping stations, three booster pumping stations and nine elevated storage tanks located throughout the distribution system. They perform numerous analyses on drinking water from the beginning of the water treatment process to the end customers tap to ensure the best quality possible.

How Do I Read This Table?

The table contains the name of each substance, the highest level allowed by regulation (MCL), the ideal goals for public health (MCLG), the amount detected, the usual sources of such substances, and a key to units of measurement.

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.

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.

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 disinfectant allowed in the drinking water.

Maximum Residual Disinfectant Level Goal (MRDLG): The level of a drinking water disinfectant below which there is no known or expected risk to health.

Key to Tables

- MCL = Maximum Contaminant Level
- MCLG = Maximum Contaminant Level Goal
- MRDL = Maximum Residual Disinfectant Level
- N/A = Not Applicable
- ND = Not Detected
- NTU = Nephelometric Turbidity Unit
- P/A = Presence Absence
- PPB = Parts per Billion
- PPM = Parts per Million
- RAA = Running Annual Average

LEAD IN DRINKING WATER GET IN THE KNOW!

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. Orangeburg DPU 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, treatment 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>.

