



# County of Brunswick Water Quality Report–2009

## DID YOU KNOW?

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). 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, 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* and other microbiological contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

## Sources of Drinking Water

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, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. 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.

## Distribution System

The Public Utilities Maintenance Department would like to let you know that we are here to serve you with any of your water needs 24 hours a day. If you plan to dig and are not sure who to call, we can help. We have all the numbers you will need to contact other utilities for locates. If you have any water quality issues or feel that your meter is not working, please contact our office at (910) 253-2860; we will be glad to work with you to solve any water issues. If you have questions about your backflow device or need it inspected, we can help -- please call (910) 253-2683.

## Interesting Facts:

Total Brunswick County Water System Capacity: 30 MGD  
The Greatest One Day System Demand of the Year for 2009 was 22.96 MGD, July 4<sup>th</sup>.

## Contact Us...

**Emergencies during business hours**  
**(910) 253-2860**  
**BILLING OFFICE (910) 253-2655**  
EMERGENCIES – AFTER HOURS  
AFTER 4 p.m. & BEFORE 7:30 a.m.:  
211 WTP – (910) 454-0512;  
Northwest WTP – (910) 371-3490

Last year, we conducted more than 500 tests for over 80 drinking water contaminants. This brochure is a snapshot of the quality of the water that we provided last year. Included are details about where your water comes from, what it contains, and how it compares to Environmental Protection Agency (EPA) and state standards. We are committed to providing you with information because informed customers are our best allies. For more information about your water, please call (910) 371-3490 and ask for Glenn Walker or Jeremy Sexton at (910) 253-5797.

## Water Treatment Division

Our water comes from two sources, the Cape Fear River and groundwater from the Castle Hayne Aquifer. The Northwest Water Treatment Plant in Leland treats the water from the Cape Fear River. Our second source is utilized by the 211 Water Treatment Plant in Southport. Fourteen (14) different groundwater wells are tapped into the Castle Hayne Aquifer approximately 175 ft. below the ground's surface.

## The NC Source Water Assessment Program (SWAP)

The North Carolina Department of Environment and Natural Resources (DENR), Public Water Supply (PWS) Section, Source Water Assessment Program (SWAP) conducted assessments for all drinking water sources across North Carolina. The purpose of the assessments was to determine the susceptibility of each drinking water source (well or surface water intake) to Potential Contaminant Sources (PCSs). The results of the assessment are available in SWAP Assessment Reports that include maps, background information and a relative susceptibility rating of Higher, Moderate, or Lower.

The relative susceptibility rating of each source for Brunswick County was determined by combining the contaminant rating (number and location of PCSs within the assessment area) and the inherent vulnerability rating (i.e., characteristics or existing conditions of the well or watershed and its delineated assessment area). The assessment findings as of March 2009 are summarized in the table below.

### Susceptibility of Sources to Potential Contaminant Sources (PCSs)

Source Name	Susceptibility Rating
Cape Fear River	Moderate
Well # 1,2,3,5,6,8,11,12,12a,15,16,17,18, & 19	Moderate

The complete SWAP Assessment Report for the Brunswick County Water System may be viewed on the Web at: <http://www.deh.enr.state.nc.us/pws/swap>. To obtain a printed copy of this report please contact the Source Water Assessment staff by phone at (919) 715-2633. It is important to understand that a susceptibility rating of "higher" does not imply poor water quality, only the systems' potential to become contaminated by PCSs in the assessment area.

## Northwest Water Treatment Plant

2009 proved challenging as we had to deal with taste and odor issues, and a pipe seal failure that caused a turbidity violation. The taste and odor issues have been related to an algae bloom in our water supply, the Cape Fear



River. To address this, enhancements to our chemical feed systems are being made in order to combat the taste and odor compounds as they enter the treatment process. The faulty pipe seal called a Link Seal failed due to poor installation by a contractor. A new Link Seal was installed under the guidance of a factory representative by Northwest WTP maintenance staff and we have seen no problems since.



## 211 Water Treatment Plant

The 211 Water Treatment Plant Staff continues to provide quality water service to the areas of Southport, Oak Island, and St. James Plantation. New wells have been installed and have increased the treatment capacity of the 211 WTP.

**Terms & abbreviations used in the table below:**

- **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, when exceeded, triggers treatment or other requirements which a water system must follow.
- **N/A:** not applicable • **nd:** not detectable at testing limit • **ppb:** parts per billion or micrograms per liter • **ppm:** parts per million or milligrams per liter • **pCi/l:** Pico-curies per liter (a measure of radiation)

Brunswick County Public Utilities Consumer Confidence Report Data						
Water Quality Results For 2009						
Listed below are the results of water quality sampling performed from January 1, 2009, to December 31, 2009.						
Questions and Comments: Contact Glenn Walker, Water Treatment Plant Superintendent, 910-371-3490 or gwalker@brunswick.net						
Substances	EPA's MCL	EPA's MCLG	Brunswick County Amount Detected	Range Low High	Violation Y/N	Source of Contaminant
Turbidity	Treatment Technique	N/A	0.053ntu	Percent of samples below 0.3ntu	Y	Soil Runoff
			Maximum 11.025ntu	99.7%		
Raw Water TOC	Treatment Technique	N/A	7.5ppm	5.5 10.5	N	Naturally Present in the Environment
Finish Water TOC		N/A	3.9ppm	3.2 4.4		
Total Organic Carbon (TOC)	Treatment Technique	N/A	Removal Efficiency Average 54.3%	43% - 71%	Y	
INORGANIC CHEMICALS			Brunswick County Amount Detected	Range Low High	Violation Y/N	
Chlorite	1.0ppm	0.8ppm	Average 0.71ppm	0.36 1.08	N	By-product of Disinfection
Chlorine Dioxide	0.8ppm	0.8ppm	Average 0.17ppm	0.1 0.50	N	Water Additive Used to Control Microbes
Fluoride	4ppm	4ppm	Average 0.96ppm	0.14 1.17	N	Water Additive which Promotes Strong Teeth
Nitrate	10ppm	10ppm	No Detection	N/A	N	By-product of Disinfection
Sulfate	250ppm	N/A	16.1ppm	N/A	N	Part of the Treatment Process, Erosion of Natural Deposits
Orthophosphate	17ppm	N/A	Average 2.49ppm	1.70 3.10	N	Water Additive Used to Control Corrosion
Lead and Copper	Action Level (AL)	MCLG	Brunswick County Amount Detected	# of Samples above the AL	Exceedance of the Action Level?	
Copper 90th percentile 01/09/08-5/23/08	1.3ppm	1.3ppm	90% of samples are ≤0.0797ppm	0	N	Corrosion of Household Plumbing
Lead 90th percentile 01/09/08-5/23/08	0.015ppm	0ppm	90% of samples are ≤0.003ppm	2	N	Corrosion of Household Plumbing
ORGANIC CHEMICALS	EPA's MCL		Brunswick County Amount Detected	Range Low High	Violation Y/N	
Monochloramine	4ppm	4ppm	Average Minimum 2.66ppm	0.89 3.78	N	Water Additive Used to Control Microbes
Total Trihalomethanes	80ppb	N/A	Average 7.8ppb	1.0 39.0	N	By-product of Disinfection
Total Haloacetic Acids	60ppb	N/A	Average 13.0ppb	2.0 29.0	N	By-product of Disinfection
<b>PESTICIDES, VOLATILE, &amp; SYNTHETIC ORGANIC CHEMICALS in the Cape Fear River</b>		<b>There Were No Pesticides, Volatile or Synthetic Organic Chemicals Detected in the Cape Fear River for the 2009 Sample Period</b>				
RADIONUCLIDES						
Beta 1/07/00	10 pCi/l	0	2.48 pCi/l	N/A	N	Erosion of Natural Deposits
UNREGULATED CONTAMINANTS						
Sodium	Non Regulated	N/A	23.5ppm		N/A	Part of the Treatment Process, Erosion of Natural Deposits
CRYPTOSPORIDIUM	EPA's MCL		Brunswick County Amount Detected	Range Low High	Violation Y/N	
Cape Fear River 2008	N/A		0.210 oocyst	0.0 0.210	N	Naturally Present in the Environment Sampling Study Ended 12/2008

**Northwest WTP monitored for Cryptosporidium** (a protozoan) monthly and detected oocysts (egg-like structure) in two samples out of twelve in the Cape Fear River raw water supply. Cryptosporidium is a microbial parasite which is found in surface water throughout the U.S. Although Cryptosporidium can be removed by filtration, the most commonly used filtration methods cannot guarantee 100 percent removal. Our monitoring of the source water indicates the presence of these organisms. Current test methods do not enable us to determine if the organisms are dead or if they are capable of causing disease. The Northwest WTP takes precautions to kill and remove Cryptosporidium oocysts by using Chlorine Dioxide as a pre-oxidant disinfectant in our raw water supply line and then again applying Chlorine Dioxide just after filtration. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals are able to overcome the disease within a few weeks. However, immuno-compromised people have more difficulty and are at greater risk of developing severe, life-threatening illness. Immunocompromised individuals are encouraged to consult their doctor regarding appropriate precautions to take to prevent infection. Cryptosporidium must be ingested for it to cause disease, and it may be spread through means other than drinking water.

**The EPA and Brunswick County Want You to Know About Potential Household Lead Contamination**

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 building materials and components associated with service lines and home plumbing. Brunswick County Public Utilities 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>.



# Brunswick County Water Quality Report 2009 Continued:

Our Utility Operations Board meets on the second Monday of each month at 5:30 p.m. in the Parks & Recreation/ Mental Health Building. Please feel free to participate in these meetings.

## Public Notices for 2009

**We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not our drinking water meets health standards. During December 1<sup>st</sup> – 31<sup>st</sup>, 2008, we did not complete all monitoring for TTHM-IDSE and HAA5-IDSE and on June 1<sup>st</sup> -30<sup>th</sup>, 2009, we did not complete all monitoring for TOC and Alkalinity, and therefore cannot be sure of the quality of our drinking water during that time.**

TTHM & HAA5 samples were taken at 15 of the 16 required sampling sites for December 2008 but one site was inadvertently overlooked. Water Quality sampling for TOC was performed per Standard Methods in June but was not analyzed by a certified laboratory as required by the NC Public Water Supply Section, therefore causing this monitoring violation. There is nothing that you need to do at this time. All sample results before and following the missed samples were reported to be in compliance with drinking water standards. Since July 1st, 2009, the water system has returned to compliance and corrective actions have been taken to add additional sample schedule reviews by supervisor(s) within the division.

**(TTHM) - Total Trihalomethanes** - include Chloroform, Bromoform, Bromodichloromethane, and Chlorodibromomethane.

**(HAA5)- Haloacetic Acids** - include Monochloroacetic Acid, Dichloroacetic Acid, Trichloroacetic Acid, Monobromoacetic Acid, Dibromoacetic Acid.

**(TOC) - Total Organic Carbon** - includes testing for Alkalinity, Dissolved Organic Carbon (DOC), Total Organic Carbon (TOC) and Ultraviolet Absorption 254 (UV254). Source water samples must be tested for both TOC and Alkalinity. Treated water samples must be tested for TOC. Source water samples and treated water samples must be collected on the same day.

For more information please contact: Brunswick County Public Utilities, Jerry Pierce at P. O. Box 249 Bolivia, NC 28422 or at (910) 253-2657.

**Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.**

## Customer Tips

Citizens on HWY 211 who have County water service primarily receive water from the 211 WTP. Citizens from the Town of Northwest to Sunset Beach receive water from the Northwest WTP.

## Water Quality in the Home

Remove and flush faucet aerators regularly. This helps to keep debris such as pipe solder and sediment from clogging aerator screens, as well as provide the best quality water possible.

## Ways You Can Conserve Water!

Brunswick County Public Utilities asks that you use water wisely. By following the recommendations outlined below, you may be able to reduce the amount of water you use.

• **REDUCE IRRIGATION FREQUENCY**

For established lawns, daily irrigation is not required. Irrigate only when there is no moisture in the root zone.

• **IRRIGATE DURING OFF PEAK HOURS**

Peak demand for water is between 5:00 a.m. to 10:00 a.m. and 4:00 p.m. to 7:00 p.m. If irrigation is necessary, irrigate during off peak times. This will help to ensure proper water pressure for more efficient irrigating.

• **WHEN PURCHASING NEW OR REPLACEMENT APPLIANCES AND FAUCETS**

Look for the Energy Star compliant symbol and the EPA's Water Wise symbol. These ensure the appliances are both energy and water efficient.

