



County of Brunswick Water Quality Report–2013

IMPORTANT PHONE
NUMBERS

BILLING QUESTIONS

(910) 253-2655

**WATER
EMERGENCIES**

8:00 a.m. to 4:30 p.m.

(910) 253-2657

AFTER HOURS

4:30 p.m. to 8:00 a.m.

Northwest WTP
(910) 371-3490

211 WTP
(910) 454-0512

EPA SAFE
DRINKING WATER
HOTLINE
1-800-426-4791

SOURCE WATER
ASSESSMENT

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WATER QUALITY

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PUBLIC NOTICES &
CONSERVATION
TIPS

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FROM THE DIRECTOR

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) 253-2657; 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.

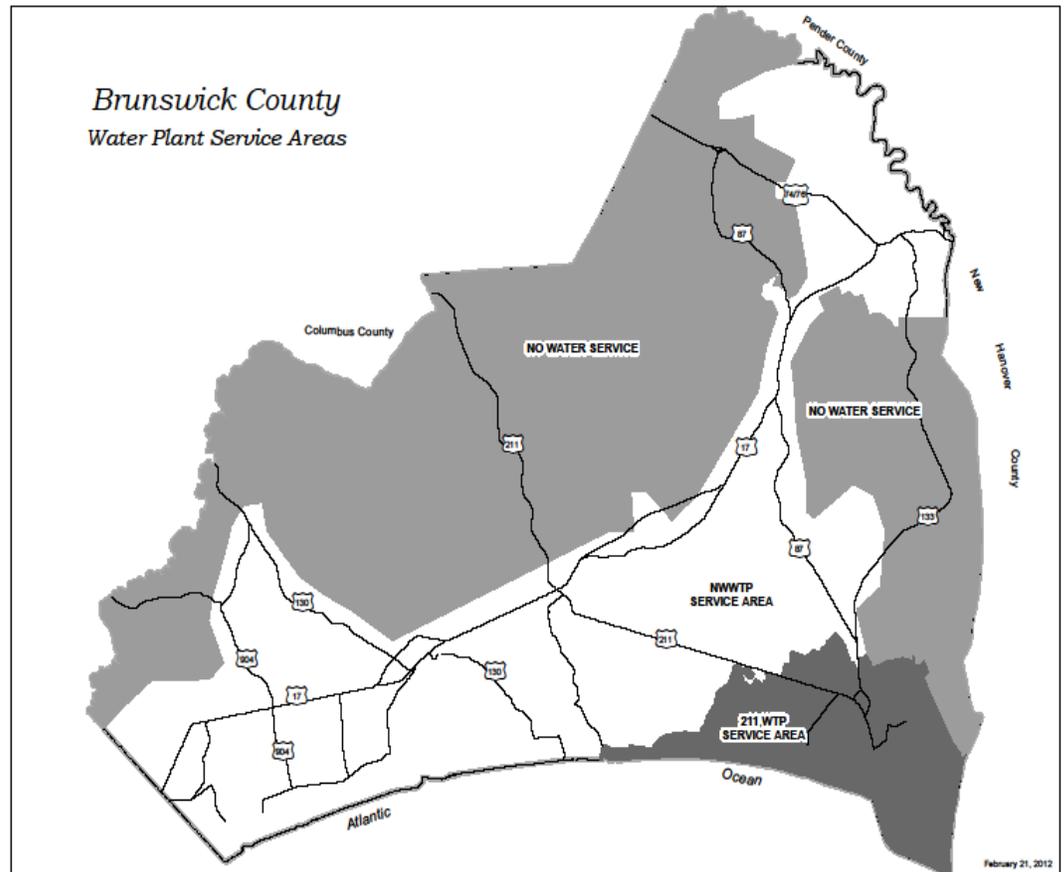
Interesting Facts:

Total Brunswick County Water System Capacity: 30 MGD

The Greatest One Day System Demand of the Year for 2013 was 20.39 MGD, on August 9, 2013

Find Your Service Area

This year we have three data tables on pages 3 & 4, each of which represents the water quality coming from our two water treatment plants and the distribution system. Citizens in Northwest and Leland and all the way down HWY 17 to Carolina Shores receive water from the Northwest WTP (NWWTP) and citizens in the area of HWY 211 near the towns of St. James, Southport, and Oak Island primarily receive water from the 211 WTP.



Path: G:\Projects\Consumer Confidence Map\MapREV_Feb_2012.mxd

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.

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 # 1,2,3,5,6a,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 by typing the following address into your browser: http://swap.ncwater.org/swap_app/pdfreports/0410045_2_19_2010_17_22.PDF

To obtain a printed copy of this report please contact the Source Water Assessment Staff by phone at (919) 707-9098. 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.

Water Treatment Division

Our water comes from two sources, the Cape Fear River, which is pumped to us by the Lower Cape Fear Water and Sewer Authority, and groundwater from the Castle Hayne Aquifer. The Northwest Water Treatment Plant in the Leland area treats the water from the Cape Fear River and 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.

Northwest Water Treatment Plant

Northwest WTP had a challenging year treating the great Cape Fear River. Record rainfalls in the months of June, July, and August reduced water system demand by 20% but did cause raw water quality to deteriorate. However, vigilance by water treatment plant staff maintained exceptional treatment throughout the high demand period.

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.

The 211 WTP has added new staff. Please welcome Greg Ketcham and Tim Leary. Congratulations to Seth Stroud as he has attained his B-Well certification.

Customer Input

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

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) • **MGD:** million gallons a day

Water Quality Results For 2013							
Listed below are the results of water quality sampling performed from January 1, 2013, to December 31, 2013.							
Questions and Comments: Contact Glenn Walker, Water Treatment Plant Superintendent, 910-371-3490 or gwalker@brunswickco.net							
Northwest Water Treatment Plant Analysis							
REGULATED ORGANIC CHEMICALS	EPA's MCL	EPA's MCLG	Brunswick County Amount Detected	Range Low High		Violation Y/N	Source of Contaminant
Turbidity	Treatment Technique Limit of 1.0ntu	N/A	Average 0.060ntu	Percent of samples < 0.3ntu		N	Soil Runoff
			Maximum 0.434ntu	99.99%			
Raw Water TOC	Treatment Technique 45% Removal Efficiency	N/A	Average 8.14 ppm	5.3	15.4	N	Naturally Present in the Environment
Finish Water TOC		N/A	Average 3.4 ppm	2.9	4.2		
Total Organic Carbon (TOC)		N/A	Removal Efficiency Average 55.1 %	44% - 75%			
REGULATED INORGANIC CHEMICALS			Brunswick County Amount Detected	Range Low High		Violation Y/N	
Chlorite	1.0ppm	0.8ppm	Average 0.78ppm	0.55	0.99	N	By-product of Disinfection
Chlorine Dioxide	0.8ppm	0.8ppm	Average < 0.1ppm	0.0	0.48	N	Water Additive Used to Control Microbes
Fluoride	4ppm	4ppm	Average 0.65ppm	0.04	1.03	N	Water Additive which Promotes Strong Teeth
Orthophosphate	17ppm	N/A	Average 1.43ppm	1.1	2.1	N	Water Additive Used to Control Corrosion
Total Chlorine	4ppm	4ppm	Average Minimum 2.65ppm	0.01	3.72	N	
Monochloramine Disinfectant Residual	4ppm	4ppm	3.01ppm	2.10	3.38	N	Water Additive Used to Control Microbes
UNREGULATED SUBSTANCES			Brunswick County Amount Detected	Range Low High		Violation Y/N	
Hardness	Non Regulated	N/A	Average 28.99ppm	19	36	N	Part of the Treatment Process, Erosion of Natural Deposits
Iron	Non Regulated	N/A	Average 0.006ppm	0	0.06	N	Part of the Treatment Process, Erosion of Natural Deposits
Manganese	Non Regulated	N/A	Average 0.005ppm	0	0.04	N	Part of the Treatment Process, Erosion of Natural Deposits
Free Ammonia	Non Regulated	N/A	Average 0.11ppm	0.03	0.26		Water Additive Used to Control Microbes
Sodium	Non Regulated	N/A	28.3ppm	N/A		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, immunocompromised 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.

HWY 211 Groundwater Treatment Plant Analysis

Questions and Comments: Contact Jeremy Sexton, Water Treatment Plant Superintendent, 910-454-0512 or jsexton@brunswick.net

	EPA's MCL	EPA's MCLG	Brunswick County Amount Detected	Range Low	High	Violation Y/N	Source of Contaminant
UNREGULATED SUBSTANCES							
Turbidity	Non Regulated	N/A	Average 0.29 ntu	0.1	4.2	N	Part of the Treatment Process, Erosion of Natural Deposits
pH	Non Regulated	N/A	-----	6.7	8.4	N	Part of the Treatment Process
CO2	Non Regulated	N/A	6.8ppm	4	16	N	Part of the Treatment Process
Alkalinity	Non Regulated	N/A	36.8ppm	25	87	N	Part of the Treatment Process, Erosion of Natural Deposits
Hardness	Non Regulated	N/A	78.4ppm	61	156	N	Part of the Treatment Process, Erosion of Natural Deposits
Iron	Non Regulated	N/A	0ppm	0	0.2	N	Part of the Treatment Process, Erosion of Natural Deposits
Chloride	Non Regulated	N/A	21.6ppm	15	28	N	Part of the Treatment Process, Erosion of Natural Deposits
Free Ammonia	Non Regulated	N/A	0.1ppm	0	0.53	N	Water Additive Used to Control Microbes
REGULATED INORGANIC CHEMICALS			Brunswick County Amount Detected	Range Low	High	Violation Y/N	Source of Contaminant
Fluoride	4ppm	4ppm	0.71ppm	0.13	1.1	N	Water Additive Used to Promote Strong Teeth
Orthophosphate	17ppm	N/A	1.15ppm	0.5	2.7	N	Water Additive Used to Control Corrosion
Total Chlorine	4ppm	4ppm	2.7ppm	2.1	3.7	N	Water Additive Used to Control Microbes
Monochloramine	4ppm	4ppm	2.8ppm	1.8	3.3	N	Water Additive Used to Control Microbes

Distribution System Analysis

LEAD AND COPPER	Action Level (AL)	MCLG	Brunswick County Amount Detected	# of Samples above the AL	Exceedence of the Action Level? Y/N	
Copper 90th percentile 6/1/11 - 9/30/11	1.3ppm	1.3ppm	90% of samples are ≤0.95ppm	0	N	Corrosion of Household Plumbing
Lead 90th percentile 6/1/11 - 9/30/11	0.015ppm	0ppm	90% of samples are ≤0.003ppm	1	N	Corrosion of Household Plumbing
ORGANIC CHEMICALS	EPA's MCL		Brunswick County Amount Detected	Range Low	High	Violation Y/N
Total Trihalomethanes Stage 1	Avg of all sites <80ppb	N/A	Average 17.6ppb	1.0	36.0	N
Total Trihalomethanes Stage 2	Avg of individual sites <80ppb	N/A	Average Max 30.0ppb	16.0	30.0	N
Total Haloacetic Acids Stage 1	Avg of all sites <60ppb	N/A	Average 21.6ppb	13.0	34.0	N
Total Haloacetic Acids Stage 2	Avg of individual sites <60ppb	N/A	Average Max 23.0ppb	18.0	23.0	N
Nitrate	10ppm	10ppm	1.77ppm	N/A		N
PESTICIDES, VOLATILE, & SYNTHETIC ORGANIC CHEMICALS		There Were No Regulated Pesticides, Volatile or Synthetic Organic Chemicals Detected in the Distribution System (beyond those listed above) for the 2013 Sample Period				

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 (800-426-4791) or at <<http://www.epa.gov/safewater/lead>>.

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).



Brunswick County Water Quality Report 2013 Continued:

Public Notice(s)

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 1st – 31st, 2013, we did not complete all monitoring for Total Coliform Bacteria and therefore cannot be sure of the quality of our drinking water during that time.

Total Coliform Bacteria samples were taken at 78 of the 80 required sampling sites for December 2013 but two sites were inadvertently overlooked due to a clerical error on the part of the sampling technician. 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 January 1, 2014, the water system has returned to compliance.

(BA) Total Coliform Bacteria – includes testing for Total Coliform Bacteria and Fecal/E.coli Bacteria. Testing for Fecal/E.coli Bacteria is required if total coliform is present in the sample.

For more information please contact: Brunswick County Public Utilities, Glenn Walker at P. O. Box 249 Bolivia, NC 28422 or at (910) 371-3490.

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.

UPDATE

For our customers that received the Public Notice for Chlorite (postmarked March 17, 2014) there has been a revision to express in more detail the levels of chlorite detected in the distribution system. Paragraph two should now read *“We routinely monitor for the presence of drinking water contaminants. Monitoring results for samples collected from the distribution system on February 20, 2014; March 7, 2014; and March 8, 2014, showed that our system exceeded the standard, or maximum contaminant level (MCL) for chlorite. The standard for chlorite is 1.0 mg/L. The average chlorite concentration of the required three-sample set of water samples collected on the dates listed above were 1.1 mg/L, 1.2 mg/L, and 1.2 mg/L, respectively.”*

Also paragraph five should now read ***“What happened? What is being done? When will the problem be corrected?”*** *The County monitors chlorine dioxide as a part of its water treatment process to make sure that the water meets all applicable regulations. The chlorine dioxide dosage changes as a result of changes in the raw water quality. In this case, the raw water quality changed and the chlorine dioxide dosage remained the same. The in-house lab results showed the chlorite levels in accordance with EPA drinking water standards. The County also uses an outside independent lab to test for chlorite in the water in the distribution system and their results indicated levels above 1.0 mg/L. When the lab results were provided to the County by the outside lab, County staff made adjustments in the treatment process to lower the chlorite levels in the potable water. All water samples since March 17, 2014, have been below the maximum contaminant level.”*

We sincerely hope this helps clarify and remove any confusion there might have been related to the language in this report.

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.

• 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.

• REDUCE IRRIGATION FREQUENCY

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

• 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.

