



County of Brunswick Water Quality Report–2019

IMPORTANT PHONE NUMBERS

BILLING QUESTIONS
 [\(910\) 253-2655 Option 2](tel:(910)253-2655)

WATER EMERGENCIES
8:00 a.m. to 4:30 p.m.
 [\(910\) 253-2657 Option 1](tel:(910)253-2657)

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

Northwest WTP
 [\(910\) 371-3490](tel:(910)371-3490)
211 WTP
 [\(910\) 454-0512](tel:(910)454-0512)
Alternate
 [\(910\) 755-7921](tel:(910)755-7921)

EPA SAFE DRINKING WATER HOTLINE
 [1-800-426-4791](tel:1-800-426-4791)

SOURCE WATER ASSESSMENT
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LEAD in Drinking Water
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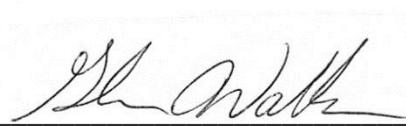
Brunswick County Public Utilities is pleased to share its 2019 annual water quality report. The quality of water that we provide to you is of paramount concern. Brunswick County’s water consistently meets EPA and state water quality requirements. Our dedicated staff continually tests water from the source to your tap to ensure its quality. During the 2019 calendar year staff sampled for over 150 constituents in the water supply. Some of the constituents tested for are considered “emerging contaminants” and are not regulated by the EPA or the state. Limited information is available on many of these emerging contaminants and they represent a significant concern to water providers due to the difficulty in removing them with traditional water treatment processes and the potential health concerns that they may pose. These newly discovered compounds, such as GENX and other Perfluoroalkyl Substances (PFAS), have been the subject of numerous news articles, public forums, and research papers. The EPA is considering promulgating regulations for PFAS, but experts indicate that it may take years before enforceable standards are available. However, the Brunswick County Board of Commissioners is acting now to protect our most valuable resource by authorizing the design and construction of the most advanced treatment technology available to remove GENX and other unregulated contaminants from the raw water. See the article below for more information on the proposed Low-Pressure Reverse Osmosis Plant Project that is scheduled to be online by Spring of 2023. Follow our Web site link at [<http://www.brunswickcountync.gov/utilities/gen-x-pfas-information/>](http://www.brunswickcountync.gov/utilities/gen-x-pfas-information/) for updates on the design and construction of our full-scale Low-Pressure Reverse Osmosis water treatment facility. Information on PFAS, 1,4 Dioxane, and other contaminants are available on EPA’s Web site at: [<https://www.epa.gov/pfas>](https://www.epa.gov/pfas) and at [<https://www.epa.gov/dwucmr/learn-about-unregulated-contaminant-monitoring-rule>](https://www.epa.gov/dwucmr/learn-about-unregulated-contaminant-monitoring-rule). Please see the attached letter from our County Manager, HHS Director, and Public Utilities Director at the end of this report addressing recent PFAS reports and media attention in Brunswick County.

So, moving forward throughout our report this year please take note of our billing phone number and emergency after hours phone numbers, and on Pages 6-10 have our water quality data compiled for all of 2019. Page 11 has water-saving tips and the best times to irrigate your lawn.

As always, we are here to serve so please reach out if you have questions or comments.

Regards,


John Nichols, Director of Public Utilities


Glenn Walker, Water Resources Manager



Brunswick County Water Quality Report 2019 Continued:

COVID-19 Utility Response - Our water treatment plants are designed to destroy and remove bacteria and viruses from the water supply. The EPA’s surface water treatment rule mandated that all community surface water treatment systems demonstrate at least a 4-log removal for viruses, that equals 99.99% removal. In addition to virus removal, Brunswick County Utilities has instituted several staffing changes to lessen our potential to exposure to COVID-19. Our water treatment staffs are working seven-day shifts, field crews are meeting directly at the jobsites while only their foremen are obtaining parts at the warehouse, administrative staff are staggering times in the office and working remotely to limit overlap with other crew members, and rigorous cleaning with disinfectants at all facilities is taking place daily.

The Brunswick County Public Utilities Department would like to let you know that we are here to serve you 24 hours a day. If you plan to dig, then call 811 or log on to www.NC811.org to request utility locates. If you have billing questions, call Utility Billing at 910-253-2655 Option 2. If you have water quality concerns or questions about the function of your meter, please contact our office at (910) 253-2657 Option 1; 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) 253-2657.

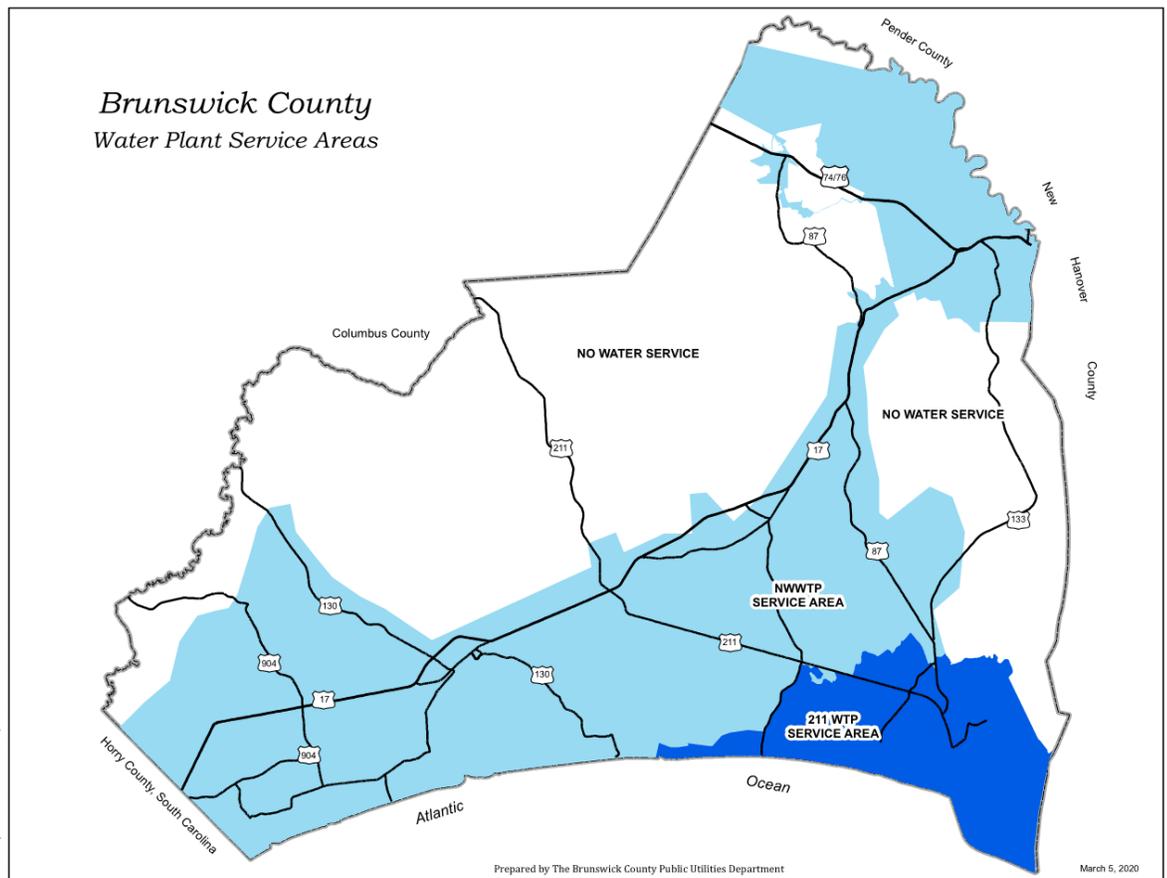
Interesting Facts:

Total Brunswick County Water System Capacity: 30 MGD

The Greatest One Day System Demand of the Year for 2019 was 27.650 million gallons (MGD) on June 29, 2019.

Find Your Service Area

Brunswick County operates two water treatment plants; the 24 million gallon per day Northwest WTP that treats raw water from the Cape Fear River and the 6 million gallon per day groundwater 211 WTP. The three data tables on Pages 6-10 provide water quality data for the two water treatment plants and the distribution system. Customers in the area of HWY. 211 near the towns of St. James, Southport, and Oak Island primarily receive water from the 211 WTP or, at times, blended water from both plants. Bald Head Island has its own treatment plant, but supplementary water is supplied by the 211 WTP, or blended water. All other customers receive water from the Northwest WTP.





Brunswick County Water Quality Report 2019 Continued:

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, *radioactive material*, and can pick up substances resulting from the presence of animals or from human activity. Contaminants are anything in the water other than the water molecule. Contaminants that may be present in source water include *microbial contaminants*, such as viruses and bacteria, which may come from wildlife, sewage treatment plants, septic systems, and agricultural livestock operations; *inorganic contaminants*, such as salts and metals, which can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, *radioactive material* from oil and gas production, mining, or farming; *pesticides and herbicides*, which typically come from agricultural operations; and *chemicals*, which are often by-products of industrial processes.

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 Environmental Quality (DEQ), 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 most recent assessment findings (September 2017) are summarized in the table below.

Susceptibility of Sources to Potential Contaminant Sources (PCSs)

Source Name	Susceptibility Rating	SWAP Report Date
CAPE FEAR RIVER	Moderate	Sept. 8, 2017
WELL # 1, 2, 15, 16, 17, 18, & 19	Lower	Sept. 8, 2017
WELL # 3, 5, 6A, 8, 11, 12, & 12A	Moderate	Sept. 8, 2017

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 <<https://www.ncwater.org/?page=600>> then enter 0410045. 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.



Brunswick County Water Quality Report 2019 Continued:

211 Water Treatment Plant



The 211 Water Treatment Plant has fourteen (14) different groundwater wells that are tapped into the Castle Hayne Aquifer approximately 175 ft. below the ground's surface. They use a lime softening process to remove excess calcium from the water. In 2019 the facility installed a carbon-dioxide feed system that will ensure better water quality over using liquid acid products, staff also had one of the treatment residual lagoons converted into a drying bed which allows treatment residuals to dry,



BlueinGreen CO2 system

reducing handling time and ease of cleanout. For FY20 the facility will start upgrading to a new filtration system. Facility staff continue to provide quality water service to the areas of Southport, Oak Island, and St. James Plantation. Congratulations to Jacob Stephens for attaining his Maintenance Technologist 1 Certification.

Northwest Water Treatment Plant

The Northwest WTP takes water from the Cape Fear River above Lock and Dam #1 in Bladen County through a contract with Lower Cape Fear Water and Sewer Authority (LCFWASA). LCFWASA is expanding capacity in order to meet the area's demand for surface water. Brunswick County Public Utilities, Cape Fear Public Utilities, and Pender County Public Utilities are all customers of LCFWASA. Brunswick County Public Utilities is the contract operator of the raw water pump station for LCFWASA.

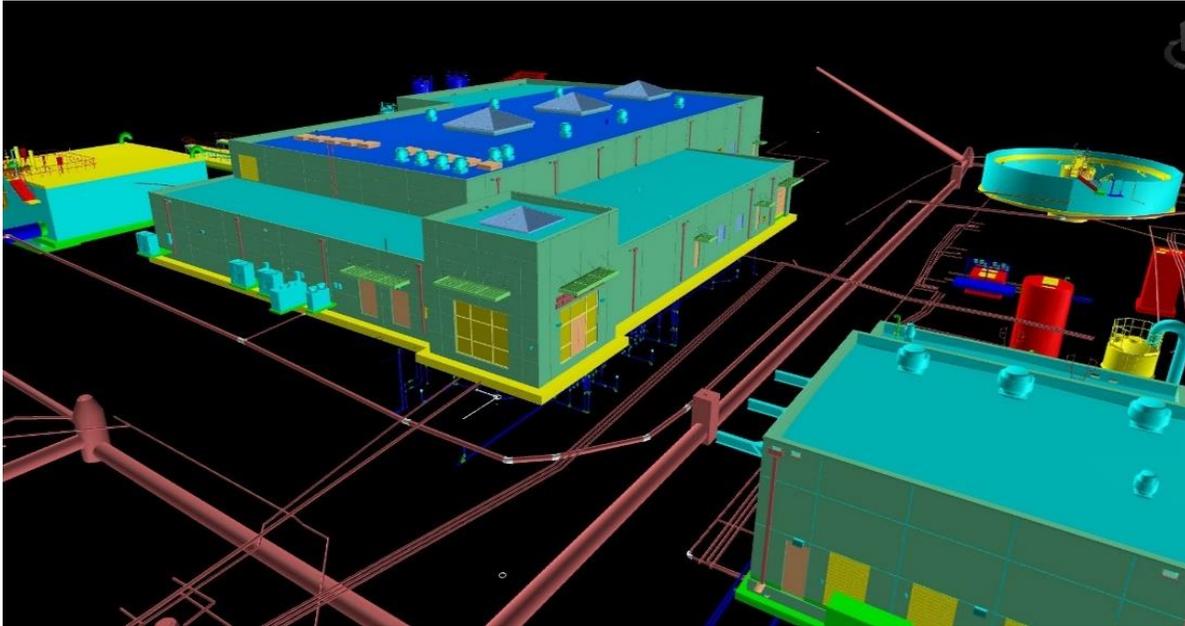
Area Wide Optimization Program (AWOP): The Northwest WTP participates in this program designed to maximize water system operations and water quality by closely monitoring filter effluent turbidity and microbial results in the WTP. NC DEQ and the EPA have established a turbidity goal of <0.10 ntu; this is one third of the mandated 0.3 ntu required by the Safe Drinking Water Act. We are proud to say that the operations team at the Northwest WTP has met the optimization goal of <0.10 ntu for the 2019 calendar year! This is the third time in the last five years we have met the AWOP goal.

Staff Certifications: Congratulations to Justin Loiacono for attaining the Grade 1 Physical/Chemical Operator Certification and to Blake Foster and Thomas Hunt for receiving their C-Surface Water Treatment Certifications.

Northwest WTP Expansion Update: Brunswick County Public Utilities is working with CDM Smith to advance the construction of needed water treatment plant improvements for the removal of PFAS contaminants. Currently we have all the necessary permits in hand and have bid the project; construction will start sometime in the summer of 2020. Major elements are: expansion of the existing treatment process from 24 million gallons a day (MGD) to 48 MGD and the addition of 36 MGD Low Pressure Reverse Osmosis (LPRO) plus the necessary ancillary equipment to ensure it all works together. The project will be capable of producing water treated by the Low Pressure Reverse Osmosis System in the Spring of 2023 and the entire project is scheduled for completion by August 2023. More detailed information about the LPRO design, water quality results, and steps we are taking to secure our water future can be found on the Brunswick County Web site: <<http://www.brunswickcountync.gov/utilities/gen-x-pfas-information/>>.

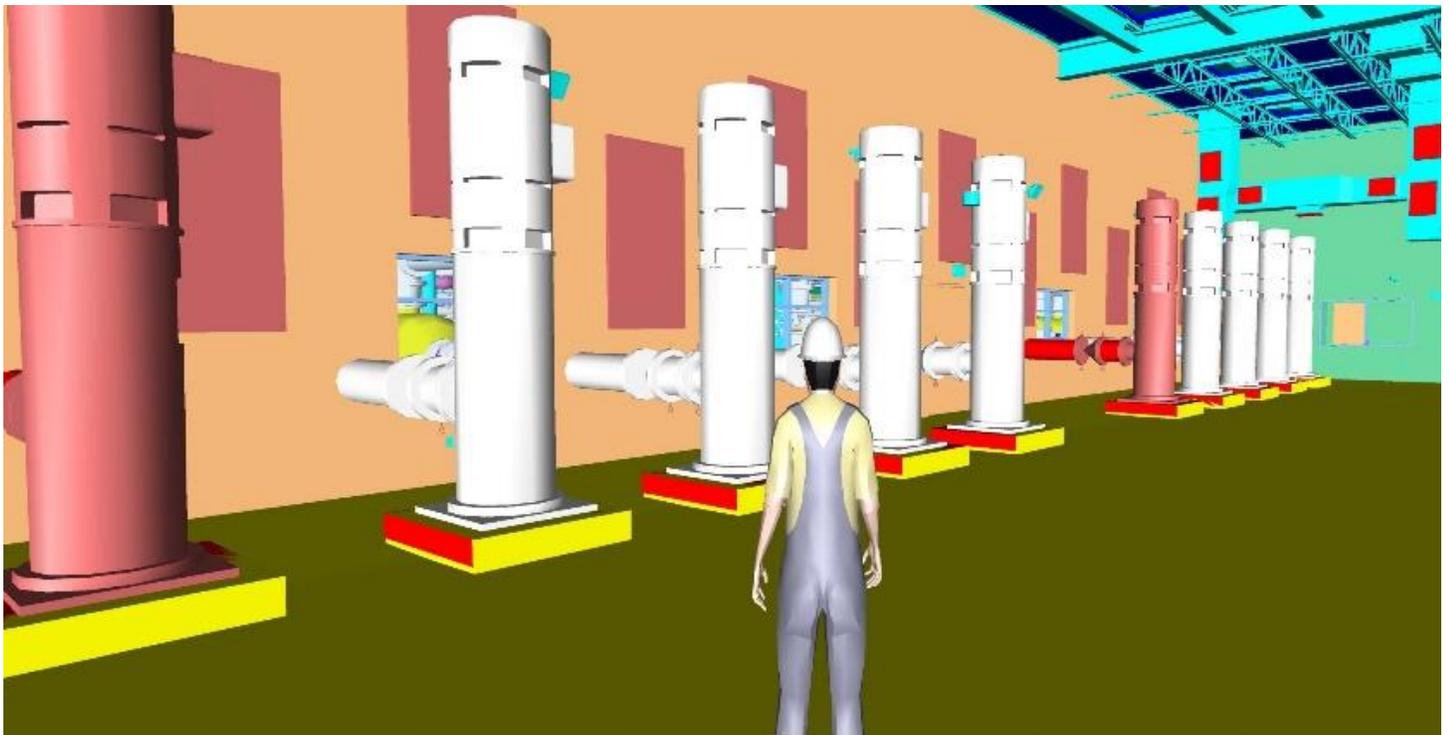


Brunswick County Water Quality Report 2019 Continued:



To our left, is a 3D rendering of our future LPRO building and ancillary facilities.

Pictured below is a rendering of our future low pressure pump station in our LPRO building.





Brunswick County Water Quality Report 2019 Continued:

Water Quality Results for 2019

Terms & abbreviations used in the tables 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 and are non-enforceable public health goals.
- **Maximum Contaminant Level (MCL):** the highest level of a contaminant that is allowed in drinking water as set by the EPA. MCLs are set as close to the MCLGs as feasible using the best available treatment technology and taking cost into consideration. MCLs are enforceable standards.
- **Action Level (AL):** the concentration of a contaminant which, when exceeded, triggers treatment or other requirements which a water system must follow.
- **Locational Running Annual Average (LRAA)** – The average of sample analytical results for samples taken at a particular monitoring location during the previous four calendar quarters under the Stage 2 Disinfectants and Disinfection Byproducts Rule.
- **Units**
 - **N/A:** not applicable
 - **ppm-mg/L:** parts per million or milligrams per liter
 - **ppt-ng/L:** parts per trillion or nanograms per liter
 - **MGD:** million gallons a day
 - **ntu:** nephelometric turbidity unit (cloudiness)
 - **ppb-ug/L:** parts per billion or micrograms per liter
 - **pCi/l:** Picocuries per liter (a measure of radiation)
 - **Y/N:** Yes No

Northwest Water Treatment Plant Analysis						
Listed below are the results of water quality sampling performed from January 1, 2019, to December 31, 2019.						
Questions and Comments: Contact Glenn Walker, Water Resources Manager, 910-371-3490 or glenn.walker@brunswickcountync.gov						
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 1.0 ntu	N/A	Average 0.033 ntu	% of samples ≤ 0.3 ntu	N	Soil Runoff
			Maximum 0.167 ntu	100.0%		
Raw Water TOC	Treatment Technique Removal Ratio ≥1 (Step 1)	N/A	Average Removal Ratio 1.157	0.827 1.57	N	Naturally Present in the Environment
Finish Water TOC		N/A				
Total Organic Carbon (TOC)		N/A				
pH	6.8 - 8.5	N/A	7.4	7.1 - 8.8	N	By-Product of Caustic Addition
REGULATED INORGANIC CHEMICALS	EPA's MCL	EPA's MCLG	Brunswick County Amount Detected	Range Low High	Violation Y/N	Source of Contaminant
Chlorite	1.0 ppm	0.8 ppm	Average 0.57 ppm	0.45 0.67	N	By-Product of Disinfection
Chlorine Dioxide	0.8 ppm	0.8 ppm	Average 0.09 ppm	0.0 0.31	N	Water Additive Used to Control Microbes
Fluoride	4 ppm	4 ppm	Average 0.60 ppm	0.0 .99	N	Water Additive which Promotes Strong Teeth
Orthophosphate	17 ppm	N/A	Average 1.40 ppm	1.33 1.8	N	Water Additive Used to Control Corrosion
Total Chlorine	4 ppm	4 ppm	Average Minimum 3.00 ppm	1.2 3.15	N	Water Additive Used to Control Microbes
Monochloramine Disinfectant Residual	4 ppm	4 ppm	2.73 ppm	0.0 3.12	N	Water Additive Used to Control Microbes
UNREGULATED SUBSTANCES	EPA's MCL	EPA's MCLG	Brunswick County Amount Detected	Range Low High	Violation Y/N	Source of Contaminant
1,4 Dioxane	Non Regulated	N/A	Average 1.41 ppb	0.37 3.6	N	Purifying Agent in Pharmaceuticals and By-Product of PET Plastic Production
Hardness	Non Regulated	N/A	Average 22.7 ppm	21 35	N	Part of the Treatment Process, Erosion of Natural Deposits
Iron	Secondary MCL 0.3 ppm	N/A	Average 0.014 ppm	0.007 0.24	N	Part of the Treatment Process, Erosion of Natural Deposits
Manganese	Secondary MCL 0.05 ppm	N/A	0.017 ppm	0.008 0.22	N	Part of the Treatment Process, Erosion of Natural Deposits
Free Ammonia	Non Regulated	N/A	0.080 ppm	0.0 0.107	N	Water Additive Used to Control Microbes
Sodium	Non Regulated	N/A	25.54 ppm	N/A	N	Part of the Treatment Process, Erosion of Natural Deposits
CRYPTOSPORIDIUM - Cape Fear River 2017	Non Regulated	N/A	0.0 oocyst	0	N	Naturally Present in the Environment



Brunswick County Water Quality Report 2019 Continued:

Cryptosporidium Monitoring: The Northwest WTP monitored for Cryptosporidium in 2017 and did not detect any oocysts in 12 samples from our raw water supply. Cryptosporidium is a microbial parasite which is found in surface water throughout the United States. Although Cryptosporidium can be removed by filtration, the most commonly used filtration methods cannot guarantee 100 percent removal. Our previous monitoring of the source water has indicated 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 oocyst by using chlorine dioxide as a pre-oxidant disinfectant in our raw water supply line and again just before filtration. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals 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.

Northwest Water Treatment Plant Analysis Continued

UNREGULATED PFAS SUBSTANCES	EPA's MCL	EPA's MCLG	Brunswick County	Range		Violation Y/N	Source of Contaminant
			Amount Detected	Low	High		
			(Average)				
Perfluorobutanoic acid	Non Regulated	N/A	5.670 ppt	N/A	N/A	N	By-Product of Chemical Manufacturer
Perfluoropentanoic acid	Non Regulated	N/A	14.823 ppt	N/A	N/A	N	By-Product of Chemical Manufacturer
Perfluorohexanoic acid	Non Regulated	N/A	14.451ppt	N/A	N/A	N	By-Product of Chemical Manufacturer
Perfluoroheptanoic acid	Non Regulated	N/A	8.861ppt	N/A	N/A	N	By-Product of Chemical Manufacturer
Perfluorooctanoic acid	Non Regulated	N/A	5.935 ppt	N/A	N/A	N	By-Product of Chemical Manufacturer
Perfluorononanoic acid	Non Regulated	N/A	0.937 ppt	N/A	N/A	N	By-Product of Chemical Manufacturer
Perfluorodecanoic acid	Non Regulated	N/A	0.631ppt	N/A	N/A	N	By-Product of Chemical Manufacturer
Perfluoroundecanoic acid	Non Regulated	N/A	0.159 ppt	N/A	N/A	N	By-Product of Chemical Manufacturer
Perfluorododecanoic acid	Non Regulated	N/A	0.074 ppt	N/A	N/A	N	By-Product of Chemical Manufacturer
Perfluorotridecanoic acid	Non Regulated	N/A	0.117 ppt	N/A	N/A	N	By-Product of Chemical Manufacturer
Perfluorotetradecanoic acid	Non Regulated	N/A	0.068 ppt	N/A	N/A	N	By-Product of Chemical Manufacturer
Perfluorobutane sulfonic acid	Non Regulated	N/A	3.466 ppt	N/A	N/A	N	By-Product of Chemical Manufacturer
Perfluoropentane sulfonic acid	Non Regulated	N/A	1224 ppt	N/A	N/A	N	By-Product of Chemical Manufacturer
Perfluorohexane sulfonic acid	Non Regulated	N/A	4.602 ppt	N/A	N/A	N	By-Product of Chemical Manufacturer
Perfluoroheptane sulfonic acid	Non Regulated	N/A	0.271ppt	N/A	N/A	N	By-Product of Chemical Manufacturer
Perfluorooctane sulfonic acid	Non Regulated	N/A	11279 ppt	N/A	N/A	N	By-Product of Chemical Manufacturer
Perfluorononane sulfonic acid	Non Regulated	N/A	0.053 ppt	N/A	N/A	N	By-Product of Chemical Manufacturer
Perfluorodecane sulfonic acid	Non Regulated	N/A	0.415 ppt	N/A	N/A	N	By-Product of Chemical Manufacturer
6:2 fluorotelomer sulfonic acid	Non Regulated	N/A	0.396 ppt	N/A	N/A	N	By-Product of Chemical Manufacturer
8:2 fluorotelomer sulfonic acid	Non Regulated	N/A	0.081ppt	N/A	N/A	N	By-Product of Chemical Manufacturer
Perfluorooctane sulfonamide	Non Regulated	N/A	0.096 ppt	N/A	N/A	N	By-Product of Chemical Manufacturer
N-methyl perfluorooctane sulfonamido acetic acid	Non Regulated	N/A	0.205 ppt	N/A	N/A	N	By-Product of Chemical Manufacturer
N-ethyl perfluorooctane sulfonamido acetic acid	Non Regulated	N/A	0.165 ppt	N/A	N/A	N	By-Product of Chemical Manufacturer
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid (Gen-X)	Non Regulated	N/A	11974 ppt	N/A	N/A	N	By-Product of Chemical Manufacturer
Perfluoro-2-methoxyacetic acid	Non Regulated	N/A	133.42 ppt	N/A	N/A	N	By-Product of Chemical Manufacturer



Brunswick County Water Quality Report 2019 Continued:

NOTICE TO THE PUBLIC

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. On October 20, 2019, we did not complete all monitoring for Chlorine Dioxide/Chlorite and therefore cannot be sure of the quality of our drinking water during that time.

Chlorine dioxide, a disinfectant, was monitored but Chlorite, a by-product of Chlorine Dioxide was not monitored as required by the NC Public Water Supply Section.

There is nothing you need to do at this time.

All sample results before and after the missed sample were reported to be in compliance with state health standards.

The water system returned to compliance the next day, October 21, 2019, and there is no reason to believe the water quality was ever out of compliance. New and existing staff have reviewed procedures to reduce sampling irregularities.

(CD) Chlorine Dioxide/Chlorite – includes testing for Chlorine Dioxide and/or Chlorite.

Water Quality Results for 2019 Continued:

HWY. 211 Groundwater Treatment Plant Analysis							
Questions and Comments: Contact Jeremy Sexton, Water Resources Superintendent, 910-454-0512 or jeremy.sexton@brunswickcountync.gov							
REGULATED INORGANIC CHEMICALS	EPA's MCL	EPA's MCLG	Brunswick County Amount Detected	Range Low	Range High	Violation Y/N	Source of Contaminant
Fluoride	4 ppm	4 ppm	0.56 ppm	0.06	17	N	Water Additive Used to Promote Strong Teeth
Orthophosphate	17 ppm	N/A	13 ppm	0.7	3.2	N	Water Additive Used to Control Corrosion
Total Chlorine	4 ppm	4 ppm	2.1 ppm	0.9	3.6	N	Water Additive Used to Control Microbes
Monochloramine	4 ppm	4 ppm	2.4 ppm	1.2	3.9	N	Water Additive Used to Control Microbes
UNREGULATED SUBSTANCES	EPA's MCL	EPA's MCLG	Brunswick County Amount Detected	Range Low	Range High	Violation Y/N	Source of Contaminant
Turbidity	Non Regulated	N/A	Average 0.22 ntu	0.03	3.3	N	Part of the Treatment Process, Erosion of Natural Deposits
pH	Non Regulated	N/A	-----	6.6	9.1	N	Part of the Treatment Process, Erosion of Natural Deposits
CO2	Non Regulated	N/A	7.2 ppm	4.0	17	N	Part of the Treatment Process, Erosion of Natural Deposits
Alkalinity	Non Regulated	N/A	39 ppm	17	295	N	Part of the Treatment Process, Erosion of Natural Deposits
Hardness	Non Regulated	N/A	123 ppm	40	384	N	Part of the Treatment Process, Erosion of Natural Deposits
Iron	Non Regulated	N/A	0.03 ppm	0	0.86	N	Part of the Treatment Process, Erosion of Natural Deposits
Chloride	Non Regulated	N/A	22 ppm	18	34	N	Part of the Treatment Process, Erosion of Natural Deposits
Free Ammonia	Non Regulated	N/A	0.09 ppm	0	0.39	N	Water Additive Used to Control Microbes
UNREGULATED PFAS SUBSTANCES	Non Regulated	There were no PFAS chemicals detected in groundwater for 2019.					
UNREGULATED CONTAMINANT MONITORING RULE (UCM)	These Unregulated Contaminants were selected by the EPA to attain their prevalence in Community Water Systems						
Germanium	Non Regulated	N/A	0.33 ppb	NA		N	Naturally-occurring element; commercially available in combination with other elements and minerals



Brunswick County Water Quality Report 2019 Continued:

Distribution System Analysis

Questions and Comments: Contact Mickey Thompson, Water Distribution Superintendent, 910-253-2404 or mickey.thompson@brunswickcountync.gov

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 6/1/17 - 8/31/17	1.3 ppm	1.3 ppm	0.120 ppm	1	N	Corrosion of Household Plumbing
Lead 90th percentile 6/1/17 - 8/31/17	0.015 ppm	0 ppm	≤0.003 ppm	0	N	Corrosion of Household Plumbing
ORGANIC CHEMICALS TTHM and HAA	EPA's MCL	EPA's MCLG	Brunswick County Amount Detected	Range Low High	Violation Y/N	Source of Contaminant
Location BO1 TTHM	LLRA 80 ppb	N/A	27.5 ppb	13 - 40	N	By-product of Disinfection
Location BO2 TTHM	LLRA 80 ppb	N/A	22.8 ppb	17 - 30	N	By-product of Disinfection
Location BO3 TTHM	LLRA 80 ppb	N/A	26.8 ppb	12 - 37	N	By-product of Disinfection
Location BO4 TTHM	LLRA 80 ppb	N/A	39.8 ppb	20 - 50	N	By-product of Disinfection
Location BO5 TTHM	LLRA 80 ppb	N/A	35.3 ppb	17 - 45	N	By-product of Disinfection
Location BO6 TTHM	LLRA 80 ppb	N/A	33.3 ppb	15 - 45	N	By-product of Disinfection
Location BO7 TTHM	LLRA 80 ppb	N/A	31.5 ppb	14 - 44	N	By-product of Disinfection
Location BO8 TTHM	LLRA 80 ppb	N/A	32.8 ppb	17 - 43	N	By-product of Disinfection
Location BO1 HAA	LLRA 60 ppb	N/A	20.0 ppb	17 - 29.6	N	By-product of Disinfection
Location BO2 HAA	LLRA 60 ppb	N/A	17.5 ppb	14 - 21	N	By-product of Disinfection
Location BO3 HAA	LLRA 60 ppb	N/A	20.3 ppb	15 - 24	N	By-product of Disinfection
Location BO4 HAA	LLRA 60 ppb	N/A	22.0 ppb	10 - 32	N	By-product of Disinfection
Location BO5 HAA	LLRA 60 ppb	N/A	21.3 ppb	17 - 33.3	N	By-product of Disinfection
Location BO6 HAA	LLRA 60 ppb	N/A	22.0 ppb	18 - 30.2	N	By-product of Disinfection
Location BO7 HAA	LLRA 60 ppb	N/A	18.8 ppb	15 - 25.4	N	By-product of Disinfection
Location BO8 HAA	LLRA 60 ppb	N/A	22.0 ppb	19 - 33.7	N	By-product of Disinfection
REGULATED INORGANIC CHEMICALS	EPA's MCL	EPA's MCLG	Brunswick County Amount Detected	Range Low High	Violation Y/N	Source of Contaminant
Chlorite	1.0 ppm	0.8 ppm	Average 0.47 ppm	0.37 0.59	N	By-product of Disinfection
Nitrate	10 ppm	10 ppm	<1.0 ppm	N/A	N	By-product of Disinfection
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 2019 Sample Period					

Did You Know?

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 materials and components associated with service lines and home plumbing. Brunswick County Public Utilities provides high-quality drinking water but cannot control the variety of materials used in plumbing components. When your tap 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>.

- **How Does Brunswick County prevent and monitor for LEAD in our drinking water?**
 - We don't use lead service lines between the distribution pipes and our water meters.
 - We have an active corrosion control and prevention plan that requires us to feed a corrosion inhibitor (orthophosphate) and to monitor the residual daily at the water plants and weekly in the distribution system.
 - Brunswick County building codes have required plumbing materials to be low or free of lead since 1987.
 - We monitor for lead and copper in homes that were built before 1987 and may be at higher risk for exposure due to susceptible plumbing materials (copper pipe with lead solder joints) at least every three years.



Brunswick County Water Quality Report 2019 Continued:

Distribution System Analysis Continued								
Unregulated Contaminant Monitoring Rule (UCMR) 4			These Unregulated Contaminants were selected by the EPA to attain their prevalence in Community Water Systems					
		EPA's MCL	EPA's MCLG	Brunswick County Amount Detected	Range		Violation Y/N	Source of Contaminant
					Low	High		
Location BO1	HAA5	Non Regulated	N/A	29.6 ppb	N/A		N	By-product of Disinfection
	HAA6Br	Non Regulated	N/A	14.7 ppb	N/A		N	By-product of Disinfection
	HAA9	Non Regulated	N/A	37.8 ppb	N/A		N	By-product of Disinfection
Location BO2	HAA5	Non Regulated	N/A	26.6 ppb	N/A		N	By-product of Disinfection
	HAA6Br	Non Regulated	N/A	13.3 ppb	N/A		N	By-product of Disinfection
	HAA9	Non Regulated	N/A	36.08 ppb	N/A		N	By-product of Disinfection
Location BO3	HAA5	Non Regulated	N/A	34.2 ppb	N/A		N	By-product of Disinfection
	HAA6Br	Non Regulated	N/A	15.5 ppb	N/A		N	By-product of Disinfection
	HAA9	Non Regulated	N/A	45.9 ppb	N/A		N	By-product of Disinfection
Location BO4	HAA5	Non Regulated	N/A	29.3 ppb	N/A		N	By-product of Disinfection
	HAA6Br	Non Regulated	N/A	23.6 ppb	N/A		N	By-product of Disinfection
	HAA9	Non Regulated	N/A	45.6 ppb	N/A		N	By-product of Disinfection
Location BO5	HAA5	Non Regulated	N/A	33.3 ppb	N/A		N	By-product of Disinfection
	HAA6Br	Non Regulated	N/A	16.4 ppb	N/A		N	By-product of Disinfection
	HAA9	Non Regulated	N/A	46.28 ppb	N/A		N	By-product of Disinfection
Location BO6	HAA5	Non Regulated	N/A	30.2 ppb	N/A		N	By-product of Disinfection
	HAA6Br	Non Regulated	N/A	15.2 ppb	N/A		N	By-product of Disinfection
	HAA9	Non Regulated	N/A	40.61ppb	N/A		N	By-product of Disinfection
Location BO7	HAA5	Non Regulated	N/A	25.4 ppb	N/A		N	By-product of Disinfection
	HAA6Br	Non Regulated	N/A	13.69 ppb	N/A		N	By-product of Disinfection
	HAA9	Non Regulated	N/A	45 ppb	N/A		N	By-product of Disinfection
Location BO8	HAA5	Non Regulated	N/A	33.7 ppb	N/A		N	By-product of Disinfection
	HAA6Br	Non Regulated	N/A	14.98 ppb	N/A		N	By-product of Disinfection
	HAA9	Non Regulated	N/A	45.53 ppb	N/A		N	By-product of Disinfection

- Unregulated contaminants are those which EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulations are warranted.

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 2019 Continued:

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.

What about Home Filtration Systems? Brunswick County Public Utilities does not recommend whole house filtration systems because these systems tend to remove the disinfection properties of the water and may waste a significant amount of water. The removal of disinfection chemicals in turn will allow bacteria to grow in your household plumbing. If you must use a filtration system purchase one that goes “under the counter”, attaches to the kitchen faucet, or is a part of your refrigerator. This allows the disinfected water to remain in the plumbing system, preventing bacterial growth.

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 and save money on your water bill.

- **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 every other day and only when there is no moisture in the root zone.

- **IRRIGATE ON DAYS BASED ON YOUR ADDRESS**

Brunswick County Public Utilities has established irrigation policies that effect everyone during times of drought, water shortages, and emergencies, so go ahead and match our irrigation plan and you will more than likely save money on your water bill and lessen the chance of over irrigating your lawn.

- **If your home has an ODD numbered address :** You should irrigate on **Tuesday-Thursday-Saturday**
- **If your home has an EVEN numbered address:** You should irrigate on **Wednesday-Friday-Sunday**
- **Please, no irrigation on MONDAYS:** This is a high demand day and your irrigation system may not function properly due to low available water pressure.

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

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





FEB. 10, 2020

BRUNSWICK COUNTY GOVERNMENT CENTER

DAVID R. SANDIFER ADMINISTRATION BUILDING
30 GOVERNMENT CENTER DRIVE NE
BOLIVIA, NC 28422

MAILING ADDRESS

POST OFFICE BOX 249
BOLIVIA, NC 28422

TELEPHONE: 910.253.2000 / 800.442.7033

WEBSITE: BRUNSWICKCOUNTYNC.GOV

To our fellow residents of Brunswick County,

Recently our county was the focus of media attention after an independent report claimed Brunswick County has the highest levels of per- and polyfluoroalkyl substances (PFAS) in its drinking water. Hearing this kind of news is concerning for everyone, regardless of whether you lived in the region when GenX (a PFAS compound) was discovered in the Cape Fear River in 2017, or if you recently moved to the area. And we recognize that it was particularly upsetting to our county's families who want to ensure their children are protected.

We have concerns, too. As public servants who work, live, and have families here, it is discouraging to all of us that our weekly water samples show evidence that PFAS compounds continue to pollute the Cape Fear River primarily due to Chemours' Fayetteville Works facility. Meanwhile, we are working as quickly as we can to install an advanced low-pressure reverse osmosis treatment system to remove these contaminants from our water.

Every weekly test sample taken at the Northwest Water Treatment Plant since June 2017 has fallen below the EPA and the NC Department of Health and Human Services' (NCDHHS) established health advisories. If we ever exceed either level, we would notify you, the municipalities, the school district, and the news media immediately. We also publish each test result and information online for transparency at brunswickcountync.gov/genx

However, these health advisory levels only apply to a few regulated PFAS compounds. There is limited research and scientific data on most known PFAS contaminants—which number in the thousands—and thorough health studies require time to ensure accurate results. That's why Brunswick County made a proactive decision in 2018 to install a low-pressure reverse osmosis system at our Northwest Water Treatment Plant to protect our water and remain below any health advisory levels that are likely to be established in the future.

Low-pressure reverse osmosis is considered the best way to remove contaminants from water. Brunswick County's Board of Commissioners have already committed \$137 million to install the new treatment system and upgrade the plant's capacity to support our county's growth. We are in the final review phase for a National Pollutant Discharge Elimination System permit from the NC Department of Environmental Quality (DEQ). The County will receive bids from contractors on March 5 and the Board is expected to issue the bids in April and a notice to construct in May. The new system is estimated to go online 30 to 36 months after construction starts, depending on which bid alternate the commissioners select.

The presence of these contaminants in the Cape Fear River continues to raise questions, but many of the potential answers rely on the expertise, research, and authority of federal and state agencies like the EPA, NCDHHS, and DEQ. These agencies often have more access to certain financial and informational resources that local governments and public utilities typically do not. It is also paramount that they hold Chemours and other contaminators accountable for polluting our drinking water source.

Brunswick County also wants to hold Chemours responsible for its actions. The County has joined other utilities in the region to sue DuPont and Chemours to make Chemours stop polluting our primary source of drinking water. The County also seeks monetary damages from Chemours to hold it accountable for the millions of dollars of advanced treatment methods the County is having to spend to counteract the contaminants Chemours wrongfully discharged into the Cape Fear River.

Moving forward, our team will continue to work on our advanced treatment system project, and we will keep you informed about our water quality and our efforts to bring you the most protectively treated drinking water into our homes, schools, and businesses.

Below are some additional websites to learn more about PFAS and who to contact for toxicology or epidemiology questions. Thank you for your time and your concern for our water quality.

https://epi.dph.ncdhhs.gov/oeo/a_z/pfas.html

<https://deq.nc.gov/news/key-issues/genx-investigation/health-related-resources-about-genx-pfoa-and-pfas>

<https://ncpfastnetwork.com>

<https://www.awwa.org/Resources-Tools/Resource-Topics/PFAS>

Sincerely,

County Manager Randell Woodruff

Public Utilities Director John Nichols

Health and Human Services Director David Stanley

Water Quality Report-2019: To Be Posted On or About June 30, 2020,
or Earlier.