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23



BRUNSWICK COUNTY PUBLIC UTILITIES
WATER QUALITY REPORT

250 Grey Water Road, Supply, NC 28462
Phone: 910.253.2657, Option 1
Email: utilityadmin@brunswickcountync.gov

Helpful Contact Information

Billing Questions
(910) 253-2655, Option 2

Water Emergencies
8:00 AM to 4:30 PM
(910) 253-2657, Option 1

After Hours Emergencies
4:30 PM to 8:00 AM
(910) 755-7921
(910) 371-3490
(910) 454-0512

Northwest Water Treatment Plant
(910) 371-3490

211 Water Treatment Plant
(910) 454-0512

Backflow Prevention Questions
(910) 253-2457

Lead and Copper Questions
(910) 253-1997

EPA Safe Drinking Water Hotline
1-800-426-4791

Brunswick County Public Utilities is pleased to share its 2023 annual water quality report. Our water system has enjoyed unprecedented growth over the past several years and we are proud to serve the wonderful community that we work and live in. Brunswick County Public Utilities continuously works to meet and/or exceed all state and federal water quality standards. Our dedicated staff regularly tests water from the source to your tap to ensure its quality.

During the 2023 calendar year, staff sampled over 200 constituents in the water supply. Compounds, such as GenX and other Perfluoroalkyl Substances (PFAS), have become a more significant issue as regulations continue to develop and more is understood regarding their health impacts. On April 10, 2024 the Environmental Protection Agency (EPA) announced the final National Primary Drinking Water Regulation for six PFAS. The EPA established legally enforceable levels, also known as Maximum Contaminant Levels (MCLs), for PFOA, PFOS, PFHxS, PFNA, and HFPO-DA (GenX), and for PFAS mixtures containing at least two or more of PFHxS, PFNA, HFPO-DA, and PFBS. More information can be found by visiting <https://www.epa.gov/sdwa/and-polyfluoroalkyl-substances-pfas>.

Brunswick County Public Utilities is in the fourth year of construction building a Low-pressure Reverse Osmosis (LPRO) water treatment addition at the Northwest Water Treatment Plant which, when completed, will be able to meet and/or exceed the requirements of current and future PFAS regulations. LPRO is the most advanced treatment technology available to remove GenX and other contaminants from the water supply. Visit <https://www.brunswickcountync.gov/nwtp> for more information on the LPRO plant addition currently under construction.

On the left of this page, please take note of the helpful contact information such as the billing and emergency after hours phone numbers.

As always, we are here to serve so please do not hesitate to reach out if you have questions or comments.

Regards,



John Nichols, PE, CSPEC
Public Utilities Director



Glenn Walker
Water Resources Manager

CONTENT

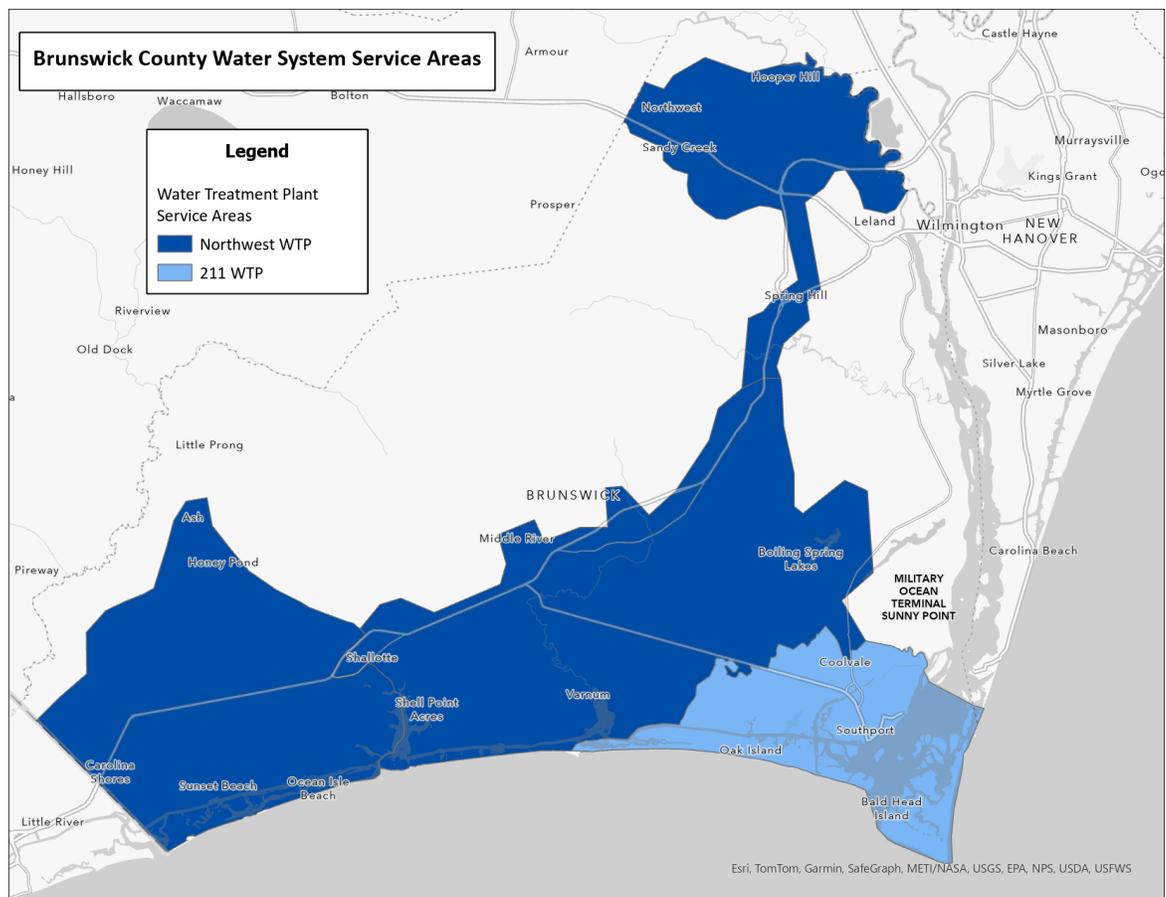
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Brunswick County Public Utilities is here to serve you twenty-four (24) hours a day. If you plan to dig, please call 811 or visit www.NC811.org to request utility locates. If you have billing questions, please call Customer Service at 910-253-2655, Option 2. For 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, please call (910) 253-2457.

FIND YOUR SERVICE AREA

Brunswick County operates two water treatment plants (WTP); the Northwest WTP and the Highway 211 WTP, commonly referred to as the 211 WTP. The Northwest WTP is a 24 million gallon per day (MGD) surface water treatment plant that treats raw water from the Cape Fear River. The 211 WTP is a 6 MGD groundwater water treatment plant that sources its water from groundwater wells.

The data tables on pages 8 through 12 provide water quality data for the two water treatment plants and the distribution system. All of Brunswick County's water customers and wholesale water customers* receive either all or part of their water from the Northwest WTP. Within the Southport, St. James, Oak Island, and Caswell Beach areas, water from the Northwest WTP is blended with water from the 211 WTP to serve customers. Bald Head Island has its own treatment plant, but supplementary water is supplied by the 211 WTP, or blended water from both Brunswick County plants. All other customers in the County receive their water solely from the Northwest WTP.



*As of June 2023, Brunswick County's current wholesale customers include Bald Head Island, Holden Beach, Oak Island, Ocean Isle Beach, Shallotte, and Southport.

QUICK FACTS!
 The total Brunswick County water system capacity is 30 MGD.
 The greatest one day system demand in 2023 was 25.64 MGD on May 13th!

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 2020) 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. 10, 2020
Well #1, 2, 15, 16, 17	Lower	Sept. 10, 2020
Well #3, 8, 11, 12, 12A, 18, 19	Moderate	Sept. 10, 2020
Well # 5, 6A	Higher	Sept. 10, 2020

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.

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). Brunswick County Public Utilities, Cape Fear Public Utility Authority, and Pender County Public Utilities are all customers of LCFWASA. Brunswick County Public Utilities is the contract operator of the raw water pump station at LCFWASA.

Area Wide Optimization Program (AWOP): The Northwest WTP participates in this program designed to optimize water system operations and water quality by closely monitoring filter effluent turbidity and microbial results in the WTP. NCDEQ 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. The water treatment plant has met this goal five out of the last eight years.

Northwest WTP Expansion Update: Brunswick County Public Utilities continues to work with CDM Smith to advance the construction of needed water treatment plant improvements for the removal of PFAS contaminants. Oscar Renda Contracting company is currently working on upgrades and plant construction. Major elements include expansion of the existing treatment process from 24 MGD to 48 MGD and the addition of 36 MGD minimum of LPRO plus the necessary ancillary equipment to ensure it all works together. 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 website at: <https://www.brunswickcountync.gov/583/Gen-X-PFAS-Information>. Pictured below is an updated overhead shot of the construction site.



STAFF UPDATES!

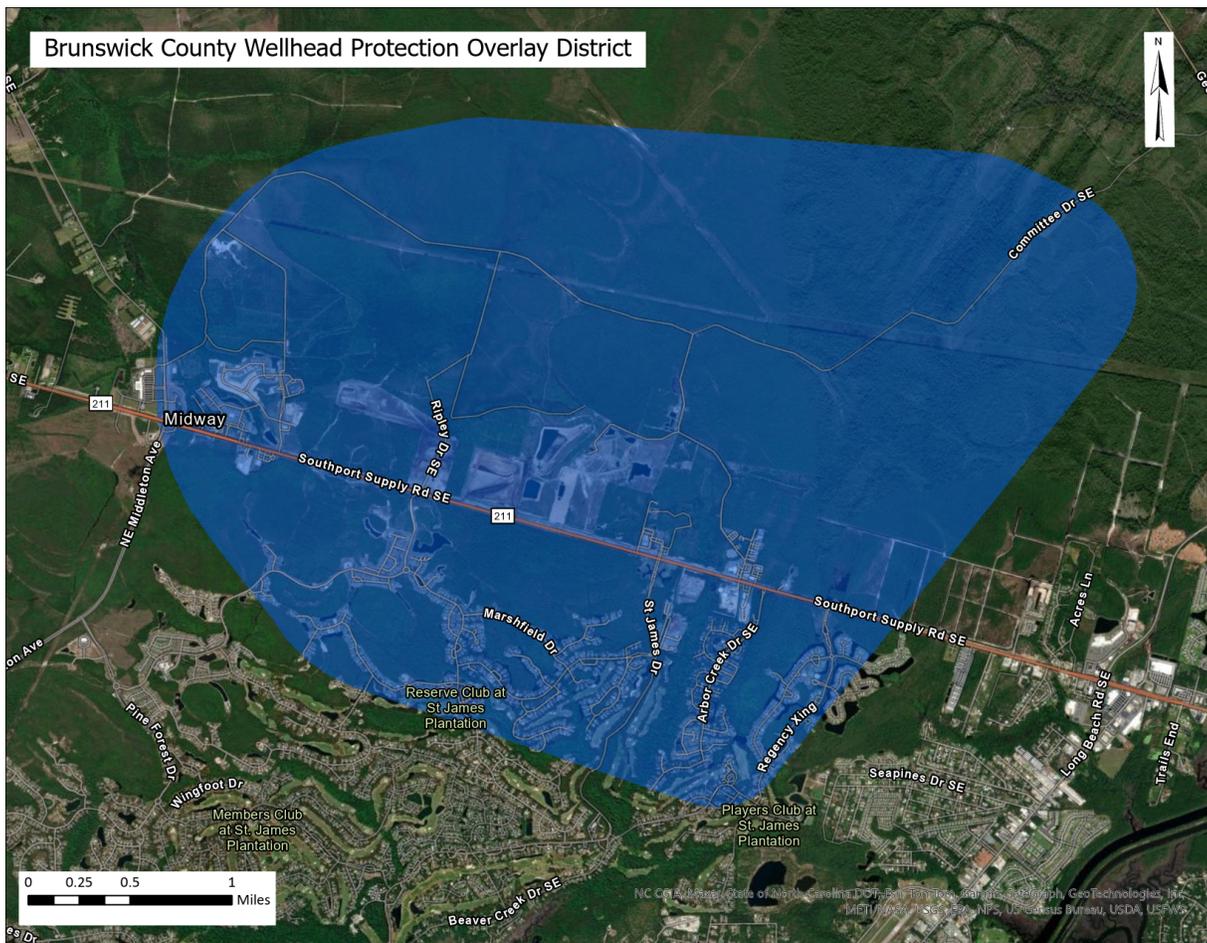
Congratulations to Jason Ashcraft for attaining their B-Surface Water Treatment certification and Jay Booth for receiving both their Maintenance I and C-Surface Water Treatment certifications.

The facility would like to welcome Jesse Horne as new water treatment plant operator.

211 WATER TREATMENT PLANT

The 211 Water Treatment Plant is a 6 MGD groundwater treatment plant. The raw water is sourced from 14 water supply wells drilled to approximately 175 feet into the Castle Hayne Aquifer. The facility utilizes a lime softening process to remove excess calcium and iron from the well water.

The Brunswick County Planning Department and County Utilities Staff have developed a Wellhead Protection Area (WPA) Overlay Zoning District. This district can be seen in the map below. The purpose of the WPA overlay district is to protect public water supply wells in the area by minimizing man-made impacts to the soils above the aquifer. For more information on Wellhead Protection please visit <https://www.deq.nc.gov/about/divisions/water-resources/drinking-water/drinking-water-protection-program>.



STAFF UPDATES!

Congratulations to Bryan Morris for attaining their A-Well Water Treatment certification, Tracy Flack and Shane Manuel for attaining their C-Well Water Treatment certifications, and Kenny Revels for attaining their B-Surface Water Treatment certification.

The facility would like to welcome Kenneth Osborne as a new water treatment plant operator.

WATER QUALITY RESULTS FOR 2023

Terms and abbreviations used in the Water Quality results tables.

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.

Treatment Technique (TT): A required process intended to reduce the level of a contaminant in drinking water.

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.

ppm-mg/L: parts per million or milligrams per liter **MGD:** million gallons a day

ppb-ug/L: parts per billion or micrograms per liter **Y/N:** Yes/No

ppt-ng/L: parts per trillion or nanograms per liter **N/A:** not applicable

pCi/l: Picocuries per liter (a measure of radiation)

Important notes for the Water Quality results tables.

- 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.
- Unregulated Contaminant Monitoring Rule 5 (UCMR 5) sampling at the Northwest WTP and 211 WTP was completed in calendar year 2023. For more information on UCMR 5 please visit: <https://www.epa.gov/dwucmr/fifth-unregulated-contaminant-monitoring-rule>.

QUICK FACTS!

In 2023 BCPU staff installed approximately 28 miles of water mains to increase the total to 1,237.6 miles of water main.

NORTHWEST WATER TREATMENT PLANT ANALYSIS

Listed below are the results of water quality sampling performed from January 1, 2023, to December 31, 2023

For questions and comments please contact: Thaddeus Hill, Water Resources Superintendent
at (910) 371-3490 or thad.hill@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	0.05	% of samples ≤ 0.3 ntu		N	Soil Runoff
			0.22	100.0%			
Raw Water TOC	Treatment Technique Removal Ratio ≥1 (Step 1)	N/A	Average Removal Ratio 1.098	0.864	1.308	N	Naturally Present in the Environment
Finish Water TOC		N/A					
Total Organic Carbon (TOC)		N/A					
pH	6.8 - 8.5	N/A	7.6	7.6	7.8	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 0.61 ppm	0.52	0.66	N	By-Product of Disinfection
Chlorine Dioxide	0.8 ppm	0.8 ppm	Average 0.54 ppm	0.49	0.61	N	Water Additive Used to Control Microbes
Fluoride	4 ppm	4 ppm	Average 0.71 ppm	0	0.84	N	Water Additive which Promotes Strong Teeth
Orthophosphate	17 ppm	N/A	Average 1.54ppm	1.42	2.10	N	Water Additive Used to Control Corrosion
Total Chlorine	4 ppm	4 ppm	Average Minimum 3.08 ppm	2.87	3.40	N	Water Additive Used to Control Microbes
Monochloramine Disinfectant Residual	4 ppm	4 ppm	2.87 ppm	0	3.09	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 1.009 ppb	0.22	3.1	N	Purifying Agent in Pharmaceuticals and By-Product of PET Plastic Production
Hardness	Non Regulated	N/A	Average 30.6 ppm	26.7	44.00	N	Part of the Treatment Process, Erosion of Natural Deposits
Iron	Non Regulated	N/A	Average 0.01 ppm	0	0.06	N	Part of the Treatment Process, Erosion of Natural Deposits
Manganese	Non Regulated	N/A	0.01 ppm	0.01	0.08	N	Part of the Treatment Process, Erosion of Natural Deposits
Free Ammonia	Non Regulated	N/A	0.094 ppm	0	0.141	N	Water Additive Used to Control Microbes
Sodium	Non Regulated	N/A	20.4 mg/L	N/A		N	Part of the Treatment Process, Erosion of Natural Deposits

QUICK FACTS!

BCPU laboratory staff collected 1,260 samples in 2023 for bacteriological testing.
At the Northwest WTP lab, 14 different laboratory tests are performed weekly.
This equals a total of 728 tests performed in 2023!

FINISHED WATER PFAS RESULTS FOR 2023

PFAS Substances- Unregulated	EPA's MCL	EPA's MCLG	Brunswick County Samples (Avg)	Range		Violation Y/N	Source of Contaminant
				Low	High		
PFBA	Non Regulated	N/A	4.903	1.91	11.3	N	By-Product of Chemical Manufacturer
PFPeA	Non Regulated	N/A	7.782	2.49	17.6	N	By-Product of Chemical Manufacturer
PFHxA	Non Regulated	N/A	7.133	2.18	13.1	N	By-Product of Chemical Manufacturer
PFHpA	Non Regulated	N/A	3.128	1.35	5.43	N	By-Product of Chemical Manufacturer
PFOA	Non Regulated	N/A	5.67	2.26	10.2	N	By-Product of Chemical Manufacturer
PFNA	Non Regulated	N/A	0.662	0.461	0.987	N	By-Product of Chemical Manufacturer
PFDA	Non Regulated	N/A	0.32	0.112	0.505	N	By-Product of Chemical Manufacturer
PFUnDA	Non Regulated	N/A	0.064	0.015	0.144	N	By-Product of Chemical Manufacturer
PFDoDA	Non Regulated	N/A	0.021	0.021	0.021	N	By-Product of Chemical Manufacturer
PFTrDA	Non Regulated	N/A	0	N/A	N/A	N	By-Product of Chemical Manufacturer
PFTeDA	Non Regulated	N/A	0	N/A	N/A	N	By-Product of Chemical Manufacturer
PFHxDA	Non Regulated	N/A	0.112	0.05	0.206	N	By-Product of Chemical Manufacturer
PFBS	Non Regulated	N/A	4.69	1.408	9.14	N	By-Product of Chemical Manufacturer
PFPeS	Non Regulated	N/A	0.657	0.328	1.01	N	By-Product of Chemical Manufacturer
PFHxS	Non Regulated	N/A	4.18	0.974	7.69	N	By-Product of Chemical Manufacturer
PFHpS	Non Regulated	N/A	0.184	0.041	0.31	N	By-Product of Chemical Manufacturer
PFOS	Non Regulated	N/A	10.16	5.03	14.3	N	By-Product of Chemical Manufacturer
PFNS	Non Regulated	N/A	0	N/A	N/A	N	By-Product of Chemical Manufacturer
PFDS	Non Regulated	N/A	0	N/A	N/A	N	By-Product of Chemical Manufacturer
4:2 FTS	Non Regulated	N/A	0	N/A	N/A	N	By-Product of Chemical Manufacturer
6:2FTS	Non Regulated	N/A	0.3	0.006	2.3	N	By-Product of Chemical Manufacturer
8:2 FTS	Non Regulated	N/A	0.005	0.004	0.324	N	By-Product of Chemical Manufacturer
10:2 FTS	Non Regulated	N/A	0	N/A	N/A	N	By-Product of Chemical Manufacturer
FBSA	Non Regulated	N/A	0.4	0.057	1.05	N	By-Product of Chemical Manufacturer
N-EtFOSA	Non Regulated	N/A	0.371	0.249	0.548	N	By-Product of Chemical Manufacturer
N-EtFOSAA	Non Regulated	N/A	0.706	0.001	1.44	N	By-Product of Chemical Manufacturer
N-EtFOSE	Non Regulated	N/A	0	N/A	N/A	N	By-Product of Chemical Manufacturer
N-MeFOSA	Non Regulated	N/A	0.014	0.014	0.014	N	By-Product of Chemical Manufacturer
N-MeFOSAA	Non Regulated	N/A	0.021	0.004	0.041	N	By-Product of Chemical Manufacturer
N-MeFOSE	Non Regulated	N/A	0	N/A	N/A	N	By-Product of Chemical Manufacturer
PFOSA	Non Regulated	N/A	0.076	0.007	0.526	N	By-Product of Chemical Manufacturer
Nafion Byproduct 1	Non Regulated	N/A	0	N/A	N/A	N	By-Product of Chemical Manufacturer
Nafion Byproduct 2	Non Regulated	N/A	0.316	0.055	1.04	N	By-Product of Chemical Manufacturer
ADONA	Non Regulated	N/A	0	N/A	N/A	N	By-Product of Chemical Manufacturer
EVE Acid	Non Regulated	N/A	0.273	0	0.717	N	By-Product of Chemical Manufacturer
HFPO-DA	Non Regulated	N/A	3.695	0.644	15.3	N	By-Product of Chemical Manufacturer
Hydro-EVE Acid	Non Regulated	N/A	0.407	0.006	3.68	N	By-Product of Chemical Manufacturer
NFDHA	Non Regulated	N/A	0.011	0.009	0.013	N	By-Product of Chemical Manufacturer
PEPA	Non Regulated	N/A	1.879	0.444	4.51	N	By-Product of Chemical Manufacturer
PFECA-G	Non Regulated	N/A	0	N/A	N/A	N	By-Product of Chemical Manufacturer
PFMOAA	Non Regulated	N/A	17.11	2.39	37.2	N	By-Product of Chemical Manufacturer
PFMOBA	Non Regulated	N/A	0	N/A	N/A	N	By-Product of Chemical Manufacturer
PFMOPra	Non Regulated	N/A	0.137	0.005	0.341	N	By-Product of Chemical Manufacturer

PFAS results are continued on the next page

FINISHED WATER PFAS RESULTS FOR 2023 (continued)

PFAS Substances- Unregulated	EPA's MCL	EPA's MCLG	Brunswick County Samples (Avg)	Range		Violation Y/N	Source of Contaminant
				Low	High		
PFO2HxA	Non Regulated	N/A	4.287	0.736	9.64	N	By-Product of Chemical Manufacturer
PFO3OA	Non Regulated	N/A	1.287	0.383	3.04	N	By-Product of Chemical Manufacturer
PFO4DA	Non Regulated	N/A	0.367	0.073	0.504	N	By-Product of Chemical Manufacturer
PFO5DA	Non Regulated	N/A	0.069	0.04	0.1	N	By-Product of Chemical Manufacturer
PMPA	Non Regulated	N/A	5.97	1.38	13.4	N	By-Product of Chemical Manufacturer
R-EVE Acid	Non Regulated	N/A	5.155	1.05	14	N	By-Product of Chemical Manufacturer
11CI-PF3OUdS	Non Regulated	N/A	0	N/A	N/A	N	By-Product of Chemical Manufacturer
9CI-PF3ONS	Non Regulated	N/A	0	N/A	N/A	N	By-Product of Chemical Manufacturer
Hydrolyzed PSDA	Non Regulated	N/A	3.064	0.267	15.1	N	By-Product of Chemical Manufacturer
NVHOS	Non Regulated	N/A	1.153	0.265	2.04	N	By-Product of Chemical Manufacturer
PFEESA	Non Regulated	N/A	0	N/A	N/A	N	By-Product of Chemical Manufacturer
R-PSDA	Non Regulated	N/A	3.33	1.02	7.79	N	By-Product of Chemical Manufacturer
R-PSDCA	Non Regulated	N/A	0	N/A	N/A	N	By-Product of Chemical Manufacturer

211 GROUNDWATER TREATMENT PLANT ANALYSIS

Listed below are the results of water quality sampling performed from January 1, 2023, to December 31, 2023

For questions and comments please contact: Jeremy Sexton, Water Treatment Plant Superintendent
at (910) 253-2488 or jeremy.sexton@brunswickcountync.gov

Unregulated Substances	EPA's MCL	EPA's MCLG	Brunswick County Samples (Avg)	Range		Violation Y/N	Source of Contaminant
				Low	High		
Turbidity	Non Regulated	N/A	Average 0.48 ntu	0.04	8.9	N	Part of the Treatment Process, Erosion of Natural Deposits
pH	Non Regulated	N/A	N/A	7.2	9.1	N	Part of the Treatment Process
CO2	Non Regulated	N/A	7.0 ppm	3	17	N	Part of the Treatment Process
Alkalinity	Non Regulated	N/A	45 ppm	27	187	N	Part of the Treatment Process, Erosion of Natural Deposits
Hardness	Non Regulated	N/A	126 ppm	40	233	N	Part of the Treatment Process, Erosion of Natural Deposits
Iron	Non Regulated	N/A	0.03 ppm	0	0.53	N	Part of the Treatment Process, Erosion of Natural Deposits
Chloride	Non Regulated	N/A	22 ppm	19	27	N	Part of the Treatment Process, Erosion of Natural Deposits
Free Ammonia	Non Regulated	N/A	0.04 ppm	0	0.2	N	Water Additive Used to Control Microbes
Regulated Inorganic Chemicals	EPA's MCL	EPA's MCLG	Brunswick County Samples (Avg)	Range		Violation Y/N	Source of Contaminant
Flouride	4 ppm	4 ppm	0.82 ppm	0.14	1.8	N	Water Additive Used to Promote Strong Teeth
Orthophosphate	17 ppm	N/A	1.03 ppm	0.36	2.8	N	Water Additive Used to Control Corrosion
Total Chlorine	4 ppm	4 ppm	2.4 ppm	1.1	3.7	N	Water Additive Used to Control Microbes
Monochloroime	4 ppm	4 ppm	2.73 ppm	1.4	3.5	N	Water Additive Used to Control Microbes

DISTRIBUTION SYSTEM ANALYSIS

Listed below are the results of water quality sampling performed from January 1, 2023, to December 31, 2023

For questions and comments please contact: Mickey Thompson, Water Distribution Superintendent
at (910) 253-2404 or mickey.thompson@brunswickcountync.gov

Lead and Copper	Action Level (AL)	MCLG	Brunswick County Amount Detected	Number of Samples Above Action Level		Exceedence of the Action Level? Y/N	Source of Contaminant
Copper 90th Percentile 6/11/20 to 9/30/20	1.3 ppm	1.3 ppm	0.1872 ppm	0		N	Corrosion of Household Plumbing
Lead 90th Percentile 6/11/20 to 9/30/20	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	45.7 ppb	36	53		
Location BO2 TTHM	LLRA 80 ppb	N/A	41.7 ppb	25	53	N	By-Product of Disinfection
Location BO3 TTHM	LLRA 80 ppb	N/A	40 ppb	25	49	N	By-Product of Disinfection
Location BO4 TTHM	LLRA 80 ppb	N/A	44.2 ppb	31	54	N	By-Product of Disinfection
Location BO5 TTHM	LLRA 80 ppb	N/A	41 ppb	26	52	N	By-Product of Disinfection
Location BO6 TTHM	LLRA 80 ppb	N/A	37.7 ppb	28	47	N	By-Product of Disinfection
Location BO7 TTHM	LLRA 80 ppb	N/A	38.7 ppb	21	52	N	By-Product of Disinfection
Location BO8 TTHM	LLRA 80 ppb	N/A	36.5 ppb	22	43	N	By-Product of Disinfection
Location BO1 HAA	LLRA 60 ppb	N/A	17.7 ppb	8	26	N	By-Product of Disinfection
Location BO2 HAA	LLRA 60 ppb	N/A	24.2 ppb	22	27	N	By-Product of Disinfection
Location BO3 HAA	LLRA 60 ppb	N/A	23.5 ppb	21	27	N	By-Product of Disinfection
Location BO4 HAA	LLRA 60 ppb	N/A	24.7 ppb	21	30	N	By-Product of Disinfection
Location BO5 HAA	LLRA 60 ppb	N/A	24 ppb	19	33	N	By-Product of Disinfection
Location BO6 HAA	LLRA 60 ppb	N/A	12.7 ppb	2	25	N	By-Product of Disinfection
Location BO7 HAA	LLRA 60 ppb	N/A	22.2 ppb	19	27	N	By-Product of Disinfection
Location BO8 HAA	LLRA 60 ppb	N/A	24.5 ppb	20	30	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 0.54 ppm	0.49	0.64		
Nitrate	10 ppm	10 ppm	1.32 ppm	N/A		N	By-Product of Disinfection
Pesticide, Volatile, and Synthetic Organic Chemicals	There were no regulated pesticides, volatile, or synthetic organic chemicals detected in the distribution system (beyond those listed above) for the 2023 sample period						
Microbiological Contaminants	EPA's MCL	EPA's MCLG	Numer of Positive/Present Samples	Range Low High		Violation Y/N	Source of Contaminant
Total Coliforms Bacteria Present or Absent	TT*	N/A	0	N/A			

*If a system collecting 40 or more samples per month finds greater than 5% of monthly samples are positive in one month, an assessment is required.

NOTICE TO THE PUBLIC TIER III

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 the compliance period specified in the table below, we did not complete all monitoring or testing for the contaminants listed and therefore cannot be sure of the quality of your drinking water during that time.

CONTAMINANT GROUP	FACILITY ID NO./SAMPLE POINT ID	COMPLIANCE PERIOD BEGIN DATE	NUMBER OF SAMPLES/SAMPLING FREQUENCY	WHEN SAMPLES WERE TAKEN
HAA5/TTHM	04-10-045	Jan. 1, 2024	8- Quarterly	June 2024
TOC	04-10-045	Jan. 1, 2024	1- Monthly	Feb. 2, 2024

What happened? The required TOC sample was not collected for the month of January 2024. The TTHM/HAA sample was collected in February 2024, however it was collected too early in the compliance period.

What contaminants are involved?

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

What should I do? There is nothing you need to do at this time.

What is being done? A TOC sample was collected the following month (February 2024) to bring the water treatment plant back into compliance. The next TTHM/HAA sample will be collected in June of 2024 to bring the system back into compliance.

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.

For more information about this violation, please contact Thad Hill at (910) 371-3490 or via email at thad.hill@brunswickcountync.gov.

DID YOU KNOW?

Brunswick County wants you to know about potential household lead and copper contamination.

Although there is no Maximum Contaminant Level (MCL) established for lead or copper, the federal government establishes an “action level” (AL) that prompts specific measures by the water supplier. The AL is determined based on the 90th percentile, requiring that 90 percent of the samples fall at or below the designated AL. For copper, the AL is set at 1.3 parts per million (ppm), while for lead, it is 15 parts per billion (ppb).

The consumption of lead-contaminated water by infants and children may result in hindered physical or cognitive development. In children, it can lead to minor impairments in both physical and mental growth, including potential limitations in attention span and learning capabilities. Prolonged consumption of such water by adults may contribute to the development of kidney issues or hypertension.

Lead

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>.

Copper

Although copper is an essential nutrient, individuals who consume water with copper levels exceeding the designated action level within a relatively short period may encounter gastrointestinal discomfort. Moreover, prolonged consumption of water surpassing the action level for copper over many years could potentially lead to liver or kidney damage. If you have Wilson’s Disease, it is advisable to consult your personal doctor. If you have concerns about copper levels in your water, it is recommended to consider testing it. The safe drinking water hotline at 1 (800) 426-4791 or the website <http://www.epa.gov/safewater/lead> can provide information regarding copper in drinking water, testing methods, and steps you can take to minimize exposure.

How does Brunswick County prevent and monitor for lead and copper 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 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.

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. Drinking water, whether from tap or bottled sources, originates from a variety of natural sources such as rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water flows across the land's surface or seeps through the ground, it naturally acquires minerals and, in certain instances, radioactive elements through dissolution. Additionally, it may accumulate substances introduced by animal or human activities.

Potential impurities found in the source water encompass various categories: **microbial contaminants** like viruses and bacteria, may originate from sewage treatment plants, septic systems, agricultural livestock operations, stormwater runoff and wildlife. **Inorganic contaminants** such as salts and metals, can either be naturally occurring or arise from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming. **Pesticides and herbicides** can stem from diverse sources such as agriculture, urban stormwater runoff, and residual land applications. **Organic chemical contaminants**, including synthetic and volatile organic chemicals result from industrial processes, petroleum production, gas stations, urban stormwater runoff, and septic systems. Lastly, **radioactive contaminants** can occur naturally or arise from oil and gas production and mining activities.

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).

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 when connected to public water systems because whole house filtration tends 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 affect everyone during times of drought, water shortages and emergencies. It is recommended that you set your irrigation system now to match the County's water shortage response requirements. 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.

