



Brunswick County 2022 Water Quality Report

IMPORTANT PHONE NUMBERS

Billing Questions
910-253-2655 Option 2

WATER EMERGENCIES

8 a.m. to 4:30 p.m.
910-253-2657
Option 1

AFTERHOURS

4:30 p.m. to 8 a.m.
910-371-3490

211 WATER PLANT

910-454-0512

ALTERNATE

910-755-7921

EPA SAFE DRINKING WATER HOTLINE

1-800-426-4791

Source Water Assessment
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Brunswick County Public Utilities is pleased to share its 2022 annual water quality report. Our water system has had 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 has met and/or exceeded all water quality standards. Our dedicated staff continually tests water from the source to your tap to ensure its quality. During the 2022 calendar year, staff sampled over 200 constituents in the water supply. Compounds, such as GenX and other per- and polyfluoroalkyl substances (PFAS), have become a more significant issue as regulations continue to develop and more is understood regarding their health impacts. In March 2023, EPA took a key step to protect public health by proposing maximum contaminant levels or MCLs for six PFAS known to occur in drinking water, PFOA and PFOS at 4 parts per trillion and PFNA, PFHxS, PFBS, HFPO-DA(GenX) combined as a hazard index of 1.0. Approval of these proposed MCLs is expected to occur in December 2023. More information can be found by visiting epa.gov/sdwa/and-polyfluoroalkyl-substances-pfas.

Brunswick County Public Utilities is in the third year of construction building a Low-pressure Reverse Osmosis (LPRO) water treatment addition at the Northwest Water Treatment Plant which will be able to meet and/or exceed the requirements of future PFAS regulations. LPRO is the most advanced treatment technology available to remove GenX and other unregulated contaminants from the water supply. For more information about the LPRO plant addition currently under construction, visit brunswickcountync.gov/nwtp.

Please take note of the billing phone number and emergency afterhours phone numbers in the left margin, water quality data on pages 6-9, and water-saving tips and the best times to irrigate your lawn on page 12.

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

Regards,

John Nichols, Director of Public Utilities

Glenn Walker, Water Resources Manager

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 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.

211 Water Treatment Plant

The 211 Water Treatment Plant is a six (6) million gallon a day groundwater treatment plant. The raw water is sourced from fourteen (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. A photo of the claricone up-flow lime softening process is below.

We would like to congratulate water treatment plant operator Jesse Burgess for attaining his A-Well certification. The facility would also like to welcome Aaron Biagiotti, Tracy Flack, and Shane Manual as new water treatment plant operators.

The Brunswick County Planning Department and County Utilities Staff have developed a Wellhead Protection Area (WPA) Overlay District. 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.



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 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 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. 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. The water treatment plant has met this goal four times.

Staff Certifications: Congratulations to Mary Wilson for attaining the B-Surface Water Treatment certification. The facility would like to welcome Jason Ashcraft and Daniel Boyden as new water treatment operators.

Northwest Water Treatment Plant Expansion and Reverse Osmosis Treatment Upgrades: 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 are: expansion of the existing treatment process from 24 million gallons a day (MGD) to 48 MGD and the addition of 36 MGD of low-pressure reverse osmosis (LPRO), plus the necessary ancillary equipment to ensure it all works together. An overhead shot of the construction site is below.

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: brunswickcountync.gov/genx. Learn more about the Northwest Water Treatment Plant project at brunswickcountync.gov/nwtp.



Water Quality Results for 2022

Terms and 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.

N/A: not applicable

ntu: nephelometric turbidity unit (cloudiness)

ppm-mg/L: parts per million or milligrams per liter **ppb-ug/L:** parts per billion or micrograms per liter

ppt-ng/L: parts per trillion or nanograms per liter **pCi/l:** Picocuries per liter (a measure of radiation)

MGD: million gallons a day **Y/N:** Yes No

Northwest Water Treatment Plant Analysis							
Listed below are the results of water quality sampling performed from January 1, 2022, to December 31, 2022.							
Questions and Comments: Contact Thaddeus Hill Water Resources Superintendent , 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	% of samples ≤ 0.3 ntu	99.5%		N	Soil Runoff
			sample range	0.06	0.79		
Raw Water TOC	Treatment Technique Removal Ratio ≥1 (Step 1)	N/A	TOC Removal Ratio Avg = 1.074	0.694	1.266	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	7.5 - 7.9		N	By-Product of Caustic Addition
REGULATED INORGANIC CHEMICALS	EPA's MCL	EPA's MCLG	Brunswick County Samples (Avg)	Range Low High		Violation Y/N	Source of Contaminant
Chlorite	1.0 ppm	0.8 ppm	0.50 ppm	0.44	0.59	N	By-Product of Disinfection
Chlorine Dioxide	0.8 ppm	0.8 ppm	0.027 ppm	0.0	0.31	N	Water Additive Used to Control Microbes
Fluoride	4 ppm	4 ppm	0.68 ppm	0.0	.88	N	Water Additive which Promotes Strong Teeth
Orthophosphate	17 ppm	N/A	1.43 ppm	1.35	1.8	N	Water Additive Used to Control Corrosion
Total Chlorine	4 ppm	4 ppm	3.0 ppm	2.90	3.2	N	Water Additive Used to Control Microbes
Monochloramine Disinfectant Residual	4 ppm	4 ppm	2.89 ppm	0.0	3.16	N	Water Additive Used to Control Microbes
UNREGULATED SUBSTANCES	EPA's MCL	EPA's MCLG	Brunswick County Samples (Avg)	Range Low High		Violation Y/N	Source of Contaminant
1, 4 Dioxane	Non Regulated	N/A	1.406 ppb	.24	2.9	N	Purifying Agent in Pharmaceuticals and By-Product of PET Plastic Production
Hardness	Non Regulated	N/A	28 ppm	24	40	N	Part of the Treatment Process, Erosion of Natural Deposits
Iron	Non Regulated	N/A	0.01 ppm	0.01	0.11	N	Part of the Treatment Process, Erosion of Natural Deposits
Manganese	Non Regulated	N/A	0.01 ppm	0.01	0.06	N	Part of the Treatment Process, Erosion of Natural Deposits
Free Ammonia	Non Regulated	N/A	0.10 ppm	0.0	0.17	N	Water Additive Used to Control Microbes
Sodium	Non Regulated	N/A	23.118	N/A		N	Part of the Treatment Process, Erosion of Natural Deposits
CRYPTOSPORIDIUM - Cape Fear River 2017		N/A	0.0 oocyst	0		N	Naturally Present in the Environment

**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.*

BRUNSWICK COUNTY 2022 WATER QUALITY REPORT

Finished Water PFAS Results for 2022

PFAS SUBSTANCES UNREGULATED *	EPA's MCL	EPA's MCLG	Brunswick County Samples (Avg) ppt	Low (ppt)	High (ppt)	Violation Y/N	Source of Contaminant
PFBA	Non Regulated	N/A	5.215	2.59	10.9	N	By-Product of Chemical Manufacturer
PFPeA	Non Regulated	N/A	10.380	2.98	27.5	N	By-Product of Chemical Manufacturer
PFHxA	Non Regulated	N/A	7.958	2.56	17.7	N	By-Product of Chemical Manufacturer
PFHpA	Non Regulated	N/A	3.487	1.51	6.54	N	By-Product of Chemical Manufacturer
PFOA	Non Regulated	N/A	5.533	3.4	8.98	N	By-Product of Chemical Manufacturer
PFNA	Non Regulated	N/A	0.751	0.375	1.25	N	By-Product of Chemical Manufacturer
PFDA	Non Regulated	N/A	0.413	0.138	0.808	N	By-Product of Chemical Manufacturer
PFUnDA	Non Regulated	N/A	0.123	0.0166	0.214	N	By-Product of Chemical Manufacturer
PFDoDA	Non Regulated	N/A	0.036	0.00156	0.145	N	By-Product of Chemical Manufacturer
PFTTrDA	Non Regulated	N/A	0.052	0.00601	0.11	N	By-Product of Chemical Manufacturer
PFTeDA	Non Regulated	N/A	0.012	0.00179	0.0386	N	By-Product of Chemical Manufacturer
PFBS	Non Regulated	N/A	5.255	1.78	11.7	N	By-Product of Chemical Manufacturer
PFPeS	Non Regulated	N/A	0.743	0.409	1.32	N	By-Product of Chemical Manufacturer
PFHxS	Non Regulated	N/A	4.330	2.51	8.76	N	By-Product of Chemical Manufacturer
PFHpS	Non Regulated	N/A	0.226	0.0078	0.444	N	By-Product of Chemical Manufacturer
PFOS	Non Regulated	N/A	9.909	5.9	17.4	N	By-Product of Chemical Manufacturer
PFNS	Non Regulated	N/A	0.038	0.0009	0.0759	N	By-Product of Chemical Manufacturer
PFDS	Non Regulated	N/A	0.035	0.0038	0.0608	N	By-Product of Chemical Manufacturer
4:2 FTS	Non Regulated	N/A	0.020	0.0024	0.0951	N	By-Product of Chemical Manufacturer
6:2 FTS	Non Regulated	N/A	0.733	0.0232	9.56	N	By-Product of Chemical Manufacturer
8:2 FTS	Non Regulated	N/A	0.053	0.0196	0.0877	N	By-Product of Chemical Manufacturer
PFOSA	Non Regulated	N/A	0.088	0.0022	0.324	N	By-Product of Chemical Manufacturer
N-MeFOSAA	Non Regulated	N/A	0.079	0.0189	0.279	N	By-Product of Chemical Manufacturer
N-EtFOSAA	Non Regulated	N/A	0.053	0.0066	1.58	N	By-Product of Chemical Manufacturer
HFPO-DA	Non Regulated	N/A	5.290	1.37	12.7	N	By-Product of Chemical Manufacturer
PFMOAA	Non Regulated	N/A	35.709	5.8	85.6	N	By-Product of Chemical Manufacturer
PFMOPrA	Non Regulated	N/A	0.091	0.0351	0.156	N	By-Product of Chemical Manufacturer
PFO2HxA	Non Regulated	N/A	5.818	0.682	16.2	N	By-Product of Chemical Manufacturer
PFO3OA	Non Regulated	N/A	1.658	0.358	4.31	N	By-Product of Chemical Manufacturer
PFO4DA	Non Regulated	N/A	0.509	0.0933	1.37	N	By-Product of Chemical Manufacturer
Nafion Byproduct 1	Non Regulated	N/A	0.036	0.0155	0.0772	N	By-Product of Chemical Manufacturer
ADONA	Non Regulated	N/A	0.024	0.0151	0.0344	N	By-Product of Chemical Manufacturer
9Cl-PF3ONS	Non Regulated	N/A	0.0689	0.0604	0.0788	N	By-Product of Chemical Manufacturer
11Cl-PF3OUdS	Non Regulated	N/A	0.0522	0.0195	0.103	N	By-Product of Chemical Manufacturer
10:2 FTS	Non Regulated	N/A	0.1084	0.0208	0.188	N	By-Product of Chemical Manufacturer
EVE Acid	Non Regulated	N/A	0.0298	0.0015	0.245	N	By-Product of Chemical Manufacturer
FBSA	Non Regulated	N/A	0.7662	0.128	1.97	N	By-Product of Chemical Manufacturer
Hydro-EVE Acid	Non Regulated	N/A	0.2923	0.0041	0.892	N	By-Product of Chemical Manufacturer
Hydrolyzed PSDA	Non Regulated	N/A	8.953	0.703	29.3	N	By-Product of Chemical Manufacturer
Nafion Byproduct 2	Non Regulated	N/A	0.408	0.111	1.41	N	By-Product of Chemical Manufacturer
N-EtFOSA	Non Regulated	N/A	0.05	0.049	0.0507	N	By-Product of Chemical Manufacturer
N-EtFOSE	Non Regulated	N/A	0			N	By-Product of Chemical Manufacturer
NFDHA	Non Regulated	N/A	0			N	By-Product of Chemical Manufacturer
N-MeFOSA	Non Regulated	N/A	0.018	0.0174	0.0187	N	By-Product of Chemical Manufacturer
N-MeFOSE	Non Regulated	N/A	0.033	0.033	0.033	N	By-Product of Chemical Manufacturer
NVHOS	Non Regulated	N/A	4.37	0.856	13.7	N	By-Product of Chemical Manufacturer
PEPA	Non Regulated	N/A	2.731	0.401	7.74	N	By-Product of Chemical Manufacturer
PFECA-G	Non Regulated	N/A	0.069	0.0258	0.117	N	By-Product of Chemical Manufacturer
PFESA	Non Regulated	N/A	0.079	0.0081	0.287	N	By-Product of Chemical Manufacturer
PFHxDA	Non Regulated	N/A	0.024	0.0064	0.132	N	By-Product of Chemical Manufacturer
PFMOBA	Non Regulated	N/A	0			N	By-Product of Chemical Manufacturer
PFOSDA	Non Regulated	N/A	0.1106	0.0227	0.437	N	By-Product of Chemical Manufacturer
PMMPA	Non Regulated	N/A	7.0783	2.35	15.3	N	By-Product of Chemical Manufacturer
R-EVE Acid	Non Regulated	N/A	10.309	1.12	95.9	N	By-Product of Chemical Manufacturer
R-PSDA	Non Regulated	N/A	15.233	2.87	42.6	N	By-Product of Chemical Manufacturer
R-PSDCA	Non Regulated	N/A	0.0807	0.0109	0.221	N	By-Product of Chemical Manufacturer

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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 illnesses. 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 Resources Superintendent, 910-253-2488 or jeremy.sexton@brunswickcountync.gov

	EPA's MCL	EPA's MCLG	Brunswick County Amount Detected	Range Low	Range High	Violation Y/N	Source of Contaminant
UNREGULATED SUBSTANCES							
Turbidity	Non Regulated	N/A	Average 0.62 ntu	0.08	5.4	N	Part of the Treatment Process, Erosion of Natural Deposits
pH	Non Regulated	N/A	-----	6.9	9.2	N	Part of the Treatment Process
CO2	Non Regulated	N/A	7.6	3.0	20	N	Part of the Treatment Process
Alkalinity	Non Regulated	N/A	43	26	160	N	Part of the Treatment Process, Erosion of Natural Deposits
Hardness	Non Regulated	N/A	122	82	235	N	Part of the Treatment Process, Erosion of Natural Deposits
Iron	Non Regulated	N/A	0.05	0	.50	N	Part of the Treatment Process, Erosion of Natural Deposits
Chloride	Non Regulated	N/A	22	18	26	N	Part of the Treatment Process, Erosion of Natural Deposits
Free Ammonia	Non Regulated	N/A	0.04	0	0.18	N	Water Additive Used to Control Microbes
REGULATED INORGANIC CHEMICALS			Brunswick County Amount Detected	Range Low	Range High	Violation Y/N	Source of Contaminant
Fluoride	4ppm	4ppm	0.83	0.2	1.2	N	Water Additive Used to Promote Strong Teeth
Orthophosphate	17ppm	N/A	1.2	0.3	2.3	N	Water Additive Used to Control Corrosion
Total Chlorine	4ppm	4ppm	2.7	1.2	3.8	N	Water Additive Used to Control Microbes
Monochloramine	4ppm	4ppm	3	2.1	3.6	N	Water Additive Used to Control Microbes

BRUNSWICK COUNTY 2022 WATER QUALITY REPORT

Distribution System Analysis

Questions and Comments: Contact Parul Baranwal, Phd Water quality program manager, 910-253-1997 or Parul.Baranwal@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 6/11/20 - 9/30/20		1.3 ppm	1.3 ppm	0.1311 ppm	0	N	Corrosion of Household Plumbing
Lead 90th percentile 6/11/20 - 9/30/20		0.015 ppm	0 ppm	.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	48.4 ppb	33 - 58	N	By-product of Disinfection
Location BO2	TTHM	LLRA 80 ppb	N/A	45.6 ppb	32 - 56	N	By-product of Disinfection
Location BO3	TTHM	LLRA 80 ppb	N/A	48.6 ppb	34 - 65	N	By-product of Disinfection
Location BO4	TTHM	LLRA 80 ppb	N/A	46 ppb	30 - 64	N	By-product of Disinfection
Location BO5	TTHM	LLRA 80 ppb	N/A	44.8 ppb	34 - 52	N	By-product of Disinfection
Location BO6	TTHM	LLRA 80 ppb	N/A	42.4 ppb	33 - 52	N	By-product of Disinfection
Location BO7	TTHM	LLRA 80 ppb	N/A	43.2 ppb	34 - 54	N	By-product of Disinfection
Location BO8	TTHM	LLRA 80 ppb	N/A	43.6 ppb	33 - 53	N	By-product of Disinfection
Location BO1	HAA	LLRA 60 ppb	N/A	21.7 ppb	18 - 25	N	By-product of Disinfection
Location BO2	HAA	LLRA 60 ppb	N/A	19.0 ppb	15 - 26	N	By-product of Disinfection
Location BO3	HAA	LLRA 60 ppb	N/A	20.75 ppb	17 - 31	N	By-product of Disinfection
Location BO4	HAA	LLRA 60 ppb	N/A	22.5 ppb	14 - 33	N	By-product of Disinfection
Location BO5	HAA	LLRA 60 ppb	N/A	20.5 ppb	17 - 27	N	By-product of Disinfection
Location BO6	HAA	LLRA 60 ppb	N/A	18.25 ppb	14 - 24	N	By-product of Disinfection
Location BO7	HAA	LLRA 60 ppb	N/A	18.25 ppb	17 - 20	N	By-product of Disinfection
Location BO8	HAA	LLRA 60 ppb	N/A	19.5 ppb	16 - 27	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 0.50 ppm	0.44 0.59	N	By-product of Disinfection
Nitrate		10 ppm	10 ppm	1.09 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 2022 Sample Period			
Microbiological contaminants		EPA's MCL	EPA's MCLG	Number of positive/present samples	Range Low High	Violation Y/N	source of contamination
Total Coliforms Bacteria presence or absent		TT*	N/A	1	N/A	N	natural present in the environment

* 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.

Did You Know?

BRUNSWICK COUNTY WANTS YOU TO KNOW ABOUT POTENTIAL HOUSEHOLD LEAD & 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 [epa.gov/safewater/lead](https://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 [epa.gov/safewater/lead](https://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 & COPPER IN 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

BRUNSWICK COUNTY 2022 WATER QUALITY REPORT

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 a.m. to 10 a.m. and 4 p.m. to 7 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, and/or Saturday**
- **If your home has an EVEN numbered address:** You should irrigate on **Wednesday, Friday, and/or Sunday**
- **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.

