

“2020” Annual Drinking Water Quality Report Town of Leland

Water System Number: “70-10-058”

We are pleased to present to you this year's Annual Drinking Water Quality Report. This report is a snapshot of last year's water quality. Included are details about your source(s) of water, what it contains, and how it compares to standards set by regulatory agencies. Our constant goal is to provide you with a safe and dependable supply of drinking water. We want you to understand the efforts we make to continually improve the water treatment process and protect our water resources. We are committed to ensuring the quality of your water and to providing you with this information because informed customers are our best allies. **If you have any questions about this report or concerning your water, please contact Lynn Vetter at (910) 332-4652]. We want our valued customers to be informed about their water utility. If you want to learn more, please attend any of our regularly scheduled meetings. They are held at Town Hall on the third Thursday of each month at 6:30 pm.**

What EPA Wants You to Know

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised 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 microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

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. **Town of Leland** is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife; inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming; pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses; organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems; and radioactive contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities.

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.

When You Turn on Your Tap, Consider the Source

The water that is used by this system is purchased from Brunswick County.

Source Water Assessment Program (SWAP) Results

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 assessment findings are summarized in the table below:

Susceptibility of Sources to Potential Contaminant Sources (PCSs)

Source Name	Susceptibility Rating	SWAP Report Date
Well #1, #2, #15, #16, #17	Lower	September 10, 2020
Well #3, #5, #6A, #8, #11, #12, #12A, #18, #19	Moderate	September 10, 2020

The complete SWAP Assessment report for **Brunswick County** may be viewed on the Web at:

<https://www.ncwater.org/?page=600> Note that because SWAP results and reports are periodically updated by the PWS Section, the results available on this web site may differ from the results that were available at the time this CCR was prepared. If you are unable to access your SWAP report on the web, you may mail a written request for a printed copy to: Source Water Assessment Program – Report Request, 1634 Mail Service Center, Raleigh, NC 27699-1634, or email requests to swap@ncdenr.gov. Please indicate your system name, number, and provide your name, mailing address and phone number. If you have any questions about the SWAP 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 system’s potential to become contaminated by PCSs in the assessment area.

Help Protect Your Source Water

Protection of drinking water is everyone’s responsibility. We have implemented the following source water protection actions: You can help protect your community’s drinking water source(s) in several ways: (examples: dispose of chemicals properly; take used motor oil to a recycling center, volunteer in your community to participate in group efforts to protect your source, etc.).

Water Quality Data Tables of Detected Contaminants

We routinely monitor for over 150 contaminants in your drinking water according to Federal and State laws. The tables below list all the drinking water contaminants that we detected in the last round of sampling for each particular contaminant group. The presence of contaminants does not necessarily indicate that water poses a health risk. **Unless otherwise noted, the data presented in this table is from testing done January 1 through December 31, (2020).** The EPA and the State allow us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. Some of the data, though representative of the water quality, is more than one year old.

Unregulated contaminants are those for 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.

Important Drinking Water Definitions:

Action Level (AL) - The concentration of a contaminant which, if 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.

Maximum Residual Disinfection Level (MRDL) – The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfection Level Goal (MRDLG) – The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

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.

Level 1 Assessment - A Level 1 assessment is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.

Level 2 Assessment - A Level 2 assessment is a very detailed study of the water system to identify potential problems and determine (if possible) why an E. coli MCL violation has occurred and/or why total coliform bacteria have been found in our water system on multiple occasions.

Maximum Contaminant Level (MCL) - The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

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.

Tables of Detected Contaminants

Lead and Copper Contaminants

Contaminant (units)	Sample Date	Your Water	Number of sites found above the AL	MCLG	AL	Likely Source of Contamination
Copper (ppm) (90 th percentile)	8/6/2020	0.084	0	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits
Lead (ppb) (90 th percentile)	8/14/2020	0.00	0	0	AL=15	Corrosion of household plumbing systems; erosion of natural deposits

Disinfectant Residuals Summary

	Year Sampled	MRDL Violation Y/N	Your Water (highest RAA)	Range		MRDLG	MRDL	Likely Source of Contamination
				Low	High			
Chlorine (ppm)	2020	N	1.74	0.63	2.20	4	4.0	Water additive used to control microbes
Chloramines (ppm)	2020	N	1.62	0.00	2.60	4	4.0	Water additive used to control microbes

Stage 2 Disinfection Byproduct Compliance - Based upon Locational Running Annual Average (LRAA)

Disinfection Byproduct	Year Sampled	MCL Violation Y/N	Your Water (highest LRAA)	Range		MCLG	MCL	Likely Source of Contamination
				Low	High			
TTHM (ppb)						N/A	80	Byproduct of drinking water disinfection
Location B01	2020	N	28.0	23.0	31.0			
Location B02	2020	N	28.25	24.0	33.0			
HAA5 (ppb)						N/A	60	Byproduct of drinking water disinfection
Location B01	2020	N	16.75	13.0	20.0			
Location B02	2020	N	21.0	18.0	25.0			

For TTHM: *Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer.*

For HAA5: *Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.*

Northwest Water Treatment Plant Analysis

Listed below are the results of water quality sampling performed from January 1, 2020, to December 31, 2020.

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	Average 0.05 ntu Maximum 0.33 ntu	% of samples ≤ 0.3 ntu 99.7%	N	Soil Runoff
Raw Water TOC	Treatment Technique Removal Ratio ≥1 (Step 1)	N/A	Average Removal Ratio 1.215	1.09 1.311	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	7.0 8.9	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	0.14 0.70	N	By-Product of Disinfection
Chlorine Dioxide	0.8 ppm	0.8 ppm	Average 0.02 ppm	0.0 0.60	N	Water Additive Used to Control Microbes
Fluoride	4 ppm	4 ppm	Average 0.63 ppm	0.0 0.96	N	Water Additive which Promotes Strong Teeth
Orthophosphate	17 ppm	N/A	Average 1.76 ppm	1.10 2.8	N	Water Additive Used to Control Corrosion
Total Chlorine	4 ppm	4 ppm	Average Minimum 2.96 ppm	2.2 3.3	N	Water Additive Used to Control Microbes
Monochloramine Disinfectant Residual	4 ppm	4 ppm	2.73 ppm	0.0 3.3	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 0.80ppb	0.12 10.4	N	Purifying Agent in Pharmaceuticals and By-Product of PET Plastic Production
Hardness	Non Regulated	N/A	Average 22.5 ppm	12 30	N	Part of the Treatment Process, Erosion of Natural Deposits
Iron	Secondary MCL 0.3 ppm	N/A	Average 0.013ppm	0 0.09	N	Part of the Treatment Process, Erosion of Natural Deposits
Manganese	Secondary MCL 0.05 ppm	N/A	0.014 ppm	0 0.18	N	Part of the Treatment Process, Erosion of Natural Deposits
Free Ammonia	Non Regulated	N/A	0.109 ppm	0.02 0.21	N	Water Additive Used to Control Microbes
Sodium	Non Regulated	N/A	20.749 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
UNREGULATED PFAS SUBSTANCES	EPA's MCL	EPA's MCLG	Brunswick County Amount Detected (Average)	Range Low High	Violation Y/N	Source of Contaminant
Perfluorobutanoic acid	Non Regulated	N/A	4.28ppt	0.71 7.48	N	By-Product of Chemical Manufacturer
Perfluoropentanoic acid	Non Regulated	N/A	8.28 ppt	5.18 13.7	N	By-Product of Chemical Manufacturer
Perfluorohexanoic acid	Non Regulated	N/A	6.48 ppt	1.90 15.3	N	By-Product of Chemical Manufacturer
Perfluoroheptanoic acid	Non Regulated	N/A	3.73 ppt	1.13 10	N	By-Product of Chemical Manufacturer
Perfluorooctanoic acid	Non Regulated	N/A	4.87 ppt	1.84 8.58	N	By-Product of Chemical Manufacturer
Perfluorononanoic acid	Non Regulated	N/A	0.72 ppt	0.42 0.986	N	By-Product of Chemical Manufacturer
Perfluorodecanoic acid	Non Regulated	N/A	0.38 ppt	0.15 0.699	N	By-Product of Chemical Manufacturer
Perfluoroundecanoic acid	Non Regulated	N/A	0.11 ppt	0.04 0.209	N	By-Product of Chemical Manufacturer
Perfluorododecanoic acid	Non Regulated	N/A	0.03 ppt	0.01 0.06	N	By-Product of Chemical Manufacturer
Perfluorotridecanoic acid	Non Regulated	N/A	0.06 ppt	0.02 0.105	N	By-Product of Chemical Manufacturer
Perfluorotetradecanoic acid	Non Regulated	N/A	0.14 ppt	0.09 0.283	N	By-Product of Chemical Manufacturer
Perfluorobutane sulfonic acid	Non Regulated	N/A	3.53 ppt	1.69 5.59	N	By-Product of Chemical Manufacturer
Perfluoropentane sulfonic acid	Non Regulated	N/A	0.60 ppt	0.22 0.911	N	By-Product of Chemical Manufacturer
Perfluorohexane sulfonic acid	Non Regulated	N/A	3.17 ppt	1.24 5.06	N	By-Product of Chemical Manufacturer
Perfluoroheptane sulfonic acid	Non Regulated	N/A	0.22 ppt	0.06 0.432	N	By-Product of Chemical Manufacturer
Perfluorooctane sulfonic acid	Non Regulated	N/A	8.35 ppt	2.93 14.2	N	By-Product of Chemical Manufacturer
Perfluorononane sulfonic acid	Non Regulated	N/A	0.04 ppt	0.04 0.0437	N	By-Product of Chemical Manufacturer
Perfluorodecane sulfonic acid	Non Regulated	N/A	0 ppt	0 0	N	By-Product of Chemical Manufacturer
4:2 fluorotelomer sulfonic acid	Non Regulated	N/A	0 ppt	0 0	N	By-Product of Chemical Manufacturer
6:2 fluorotelomer sulfonic acid	Non Regulated	N/A	0.37 ppt	0.02 1.25	N	By-Product of Chemical Manufacturer
8:2 fluorotelomer sulfonic acid	Non Regulated	N/A	0 ppt	0 0	N	By-Product of Chemical Manufacturer
Perfluorooctane sulfonamide	Non Regulated	N/A	0.06 ppt	0.06 0.0651	N	By-Product of Chemical Manufacturer
N-methyl perfluorooctane sulfonamido acetic acid	Non Regulated	N/A	0.15 ppt	0.02 0.673	N	By-Product of Chemical Manufacturer
N-ethyl perfluorooctane sulfonamido acetic acid	Non Regulated	N/A	0.09 ppt	0.05 0.187	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	7.96 ppt	2.11	24.9	N	By-Product of Chemical Manufacturer
Perfluoro-2-methoxyacetic acid	Non Regulated	N/A	32.2 ppt	1.90	114	N	By-Product of Chemical Manufacturer
Perfluoro-3-methoxypropanoic acid	Non Regulated	N/A	0 ppt	0	0	N	By-Product of Chemical Manufacturer
Perfluoro(3,5-dioxahexanoic) acid	Non Regulated	N/A	4.86 ppt	0.81	14.2	N	By-Product of Chemical Manufacturer
Perfluoro(3,5,7-trioxaoctanoic) acid	Non Regulated	N/A	7.77 ppt	0.02	21.2	N	By-Product of Chemical Manufacturer
Perfluoro(3,5,7,9-tetraoxadecanoic) acid	Non Regulated	N/A	3.19 ppt	0.86	5.83	N	By-Product of Chemical Manufacturer
Perfluoro(3,5,7,9,11-pentaoxadodecanoic) acid	Non Regulated	N/A	2.49 ppt	2.27	2.71	N	By-Product of Chemical Manufacturer
Nafion Byproduct1	Non Regulated	N/A	0.34 ppt	0.04	0.741	N	By-Product of Chemical Manufacturer
Nafion Byproduct 2	Non Regulated	N/A	1.06 ppt	0.07	5.48	N	By-Product of Chemical Manufacturer
Perfluoro(2-ethoxyethane)sulphonic acid	Non Regulated	N/A	0.08 ppt	0.08	0.083	N	By-Product of Chemical Manufacturer
Perfluoro-2-methoxypropanoic acid	Non Regulated	N/A	16.51 ppt	8.78	22.3	N	By-Product of Chemical Manufacturer
Fluorotelomer sulfonate 10:2	Non Regulated	N/A	0.67 ppt	0.41	1.23	N	By-Product of Chemical Manufacturer
Perfluorobutane Sulfonamide	Non Regulated	N/A	0.47 ppt	0.16	1.12	N	By-Product of Chemical Manufacturer
N-ethylperfluoro-1-octanesulfonamide	Non Regulated	N/A	2.55 ppt	0.04	4.88	N	By-Product of Chemical Manufacturer
Perfluoro-2-methoxypropanoic acid	Non Regulated	N/A	20.45 ppt	12.60	29.9	N	By-Product of Chemical Manufacturer

HWY 211 Groundwater Treatment Plant Analysis							
Questions and Comments: Contact Jeremy Sexton, Water Treatment Plant Superintendent, 910-253-2488 or jeremy.sexton@brunswickcountync.gov							
	EPA's MCL	EPA's MCLG	Brunswick County Amount Detected	Range High	Low	Violation Y/N	Source of Contaminant
UNREGULATED SUBSTANCES							
Turbidity	Non Regulated	N/A	Average 0.37 ntu	0.04	7.3	N	Part of the Treatment Process, Erosion of Natural Deposits
pH	Non Regulated	N/A	-----	7.0	9.1	N	Part of the Treatment Process
CO2	Non Regulated	N/A	7.9 ppm	4.0	32	N	Part of the Treatment Process
Alkalinity	Non Regulated	N/A	50.5 ppm	19	236	N	Part of the Treatment Process, Erosion of Natural Deposits
Hardness	Non Regulated	N/A	136 ppm	45	281	N	Part of the Treatment Process, Erosion of Natural Deposits
Iron	Non Regulated	N/A	0.09 ppm	0	0.90	N	Part of the Treatment Process, Erosion of Natural Deposits
Chloride	Non Regulated	N/A	21 ppm	10	28	N	Part of the Treatment Process, Erosion of Natural Deposits
Free Ammonia	Non Regulated	N/A	0.13 ppm	0	1.3	N	Water Additive Used to Control Microbes
REGULATED INORGANIC CHEMICALS			Brunswick County Amount Detected	Range Low	High	Violation Y/N	Source of Contaminant
Flouride	4ppm	4ppm	0.78 ppm	0.32	0.78	N	Water Additive Used to Promote Strong Teeth
Orthophosphate	17ppm	N/A	1.2 ppm	0	3.2	N	Water Additive Used to Control Corrosion
Total Chlorine	4ppm	4ppm	2.3 ppm	0.1	3.4	N	Water Additive Used to Control Microbes
Monochloraimae	4ppm	4ppm	2.8 ppm	0.5	3.9	N	Water Additive Used to Control Microbes
UNREGULATED CONTAMINANT MONITORING RULE (UCMR) 4		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
Distribution System Analysis							
ADD YOUR DATA HERE							

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