



Willowbrook Water System

PWS ID: NC0351166

Annual Water Quality Report 2019

Message from Don Denton, President

Dear Carolina Water Service, Inc. of North Carolina Customers,

I am pleased to share your Annual Water Quality Report for 2019. This report is designed to inform you of the quality of water we delivered to you over the past year.

As your community water utility, we fully appreciate our role in the local community and are committed to providing safe, reliable and cost-effective service to you. All of our employees share in this commitment and strive to serve you with integrity and professionalism.

We are proud to share this report which provides water quality testing results through December 2019. We continually work to supply water that meets or exceeds all federal and state water quality regulations.

Our dedicated local team of water quality experts is working in the community everyday ensuring that you, our customer, are our top priority and that we are providing high quality service that protects the environment and benefits our communities - now and in the years to come.

Best regards,

Visit us online at www.carolinawaterservicenc.com

Or Join us on Facebook and Twitter

@CarolinaWaterNC



COVID-19 Response

According to the Centers for Disease Control and Prevention (CDC) and the US Environmental Protection Agency (EPA), the virus that causes COVID-19 has not been detected in drinking water. Conventional water treatment methods that use disinfection, such as those provided by Carolina Water Service, Inc. of North Carolina, should remove or inactivate the virus that causes COVID-19 as they do for other pathogens. Based on current evidence, the risk to water supplies is low. **You can continue to use and drink water from your tap as usual.** EPA also encourages the public to help keep household plumbing and our nation's water infrastructure operating properly by only flushing toilet paper. **Disinfecting wipes and other items should be disposed of in the trash, not the toilet.**

For more information, visit the CDC at <https://www.cdc.gov/coronavirus/2019-ncov/php/water.html> and EPA at <https://www.epa.gov/coronavirus/coronavirus-and-drinking-water-and-wastewater>.

Source of Drinking Water

We purchase your water from Johnston County-West, which draws surface water from the Neuse River. Johnston County also purchases water from the town of Smithfield and Harnett County on a bulk basis. The source for the Smithfield supply is the Neuse River and Harnett County is the Cape Fear River. Their treatment processes are similar to the county's. Water purchased from Smithfield and Harnett County mixes with water produced by Johnston County in the distribution system.

Water Conservation

Please be reminded that our water systems in North Carolina are always in some stage of either voluntary or mandatory water conservation restriction. These restrictions may vary weekly due to drought conditions and are dictated by a system established by the North Carolina Utilities Commission in an order dated May 23, 2008. The customers are encouraged to keep informed of current restrictions by visiting www.carolinawaterservicenc.com and clicking on the "Community Drought Status" link on the front page or call our customer service at (800) 525-7990.

Help Protect our Resources

Help put a stop to the more than **1 trillion gallons of water lost annually** nationwide due to household leaks. These easy to fix leaks waste the average family the amount of water used to fill a backyard swimming pool each year. Plumbing leaks can run up your family's water bill an extra 10 percent or more, but chasing down these water and money wasting culprits is as easy as 1—2—3. Simply check, twist, and replace your way to fewer leaks and more water savings:

- ⇒ **Check** for silent leaks in the toilet with a few drops of food coloring in the tank, and check your sprinkler system for winter damage.
- ⇒ **Twist** faucet valves; tighten pipe connections; and secure your hose to the spigot. For additional savings, twist a WaterSense labeled aerator onto each bathroom faucet to save water without noticing a difference in flow. They can save a household more than 500 gallons each year—equivalent to the amount water used to shower 180 times!
- ⇒ **Replace** old plumbing fixtures and irrigation controllers that are wasting water with WaterSense labeled models that are independently certified to use 20 percent less water and perform well.

For more information visit www.epa.gov/watersense.

We ask that all our customers help us protect our water sources which are the heart of our community, our way of life and our children's future.

Este informe contiene información muy importante sobre su agua beber. Tradúzcalo ó hable con alguien que lo entienda bien.

EPA Wants You To Know

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:

- A. **Microbial contaminants**, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- B. **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.
- C. **Pesticides and herbicides**, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.
- D. **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.
- E. **Radioactive contaminants**, which can be naturally occurring or be the result of oil and gas production and mining activities.

What measures are in place to ensure water is safe to drink?

In order to ensure that tap water is safe to drink, the EPA prescribes regulations, which limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

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).

Special notice from EPA for the elderly, infants, cancer patients and people with HIV/AIDS or other immune system problems

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).

Information Concerning Lead in Water

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. Carolina Water Service, Inc. of North Carolina 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 www.epa.gov/safewater/lead.

Water that remains stationary within your home plumbing for extended periods of time can leach lead out of pipes joined with lead-containing solder as well as brass fixtures or galvanized pipes. Flushing fixtures has been found to be an effective means of reducing lead levels. The flushing process could take from 30 seconds to 2 minutes or longer until it becomes cold or reaches a steady temperature. Faucets, fittings, and valves, including those advertised as "lead-free," may contribute lead to drinking water. Consumers should be aware of this when choosing fixtures and take appropriate precautions. Visit the NSF Web site at www.nsf.org to learn more about lead-containing plumbing fixtures.

Drain Disposal Information

Sewer overflows and backups can cause health hazards, damage home interiors, and threaten the environment. A common cause is sewer pipes blocked by grease, which gets into the sewer from household drains. Grease sticks to the insides of pipes. Over time, the grease can build up and block the entire pipe. Help solve the grease problem by keeping this material out of the sewer system in the first place:

- Never pour grease down sink drains or into toilets. Scrape grease into a can or trash.
- Put strainers in sink drains to catch food scraps / solids for disposal.

Prescription Medication and Hazardous Waste

Household products such as paints, cleaners, oils, and pesticides, are considered to be household hazardous waste. Prescription and over-the-counter drugs poured down the sink or flushed down the toilet can pass through the wastewater treatment system and enter rivers and lakes (or leach into the ground and seep into groundwater in a septic system). Follow the directions for proper disposal procedures. **Do not flush hazardous waste or prescription and over-the-counter drugs down the toilet or drain.** They may flow downstream to serve as sources for community drinking water supplies. Many communities offer a variety of options for conveniently and safely managing these items. For more information, visit the EPA website at: www.epa.gov/hw/household-hazardous-waste-hhw.

The Safe Drinking Water Act was passed in 1974 due to congressional concerns about organic chemical contaminants in drinking water and the inefficient manner by which states supervised and monitored drinking water supplies. Congress' aim was to assure that all citizens served by public water systems would be provided high quality water. As a result, the EPA set enforceable standards for health-related drinking water contaminants. The Act also established programs to protect underground sources of drinking water from contamination.

Understanding This Report In order to help you understand this report, we want you to understand a few terms and abbreviations that are contained in it.

Action level (AL)	The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.
EPA	Environmental Protection Agency.
Maximum Contaminant Level (MCL)	The highest level of a contaminant that is allowed in drinking water. MCL's are set as close to the MCLG's as feasible using the best available treatment technology.
Maximum Contaminant Level Goal (MCLG)	The "goal" is the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLG's allow for a margin of safety.
Maximum Residual Disinfectant 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 Disinfectant 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.
Not applicable (N/A)	Not applicable.
Not Detected (ND)	This means not detected and indicates that the substance was not found by laboratory analysis.
Parts per million (ppm) or Milligrams per liter (mg/l)	One part per million corresponds to one minute in two years or a single penny in \$10,000.
Parts per billion (ppb) or Micrograms per liter (ug/l)	One part per billion corresponds to one minute in 2,000 years or a single penny in \$10,000,000.
Picocuries per liter (pCi/L)	A measure of radioactivity in the 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.
Running Annual Average (RAA)	Calculated running annual average of all contaminant levels detected.

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 Johnston County and the Town of Smithfield 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
Johnston County West/Smithfield SWAP Ratings		
Neuse River	Higher	9/01/2017
Harnett County SWAP Ratings		
Cape Fear River	Moderate	8/31/2017
Dunn/Cape Fear River	Higher	8/31/2017

The complete SWAP Assessment report for Johnston County and the Town of Smithfield may be viewed on the Web at: 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.

Monitoring Your Water

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, 2019.** 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.

If You Have Questions Or Want To Get Involved

Carolina Water Service, Inc. of North Carolina does not hold regular public meetings. If you have any questions about this report or concerning your water, or would like a company representative to attend an upcoming homeowners association meeting, please contact Customer Service at 1-800-525-7990.

Water Quality Test Results

Carolina Water Service, Inc. of NC is required by State and Federal Regulations to analyze certain parameters in the water system in addition to the sampling conducted by Johnston County. The results are listed below:

Contaminant (units)	Sample Date	MCL Violation Y/N	Your Water	Range Low High	MCLG	MCL	Likely Source of Contamination
Stage 2 Disinfection Byproduct Compliance							
TTHM (ppb) [Total Trihalomethanes]	2019	N	41.5	29-51	N/A	80	Byproduct of drinking water disinfection
HAA5 (ppb) [Total Haloacetic Acids]	2019	N	28.75	24-32	N/A	60	Byproduct of drinking water disinfection

Disinfectant Residuals Summary

Disinfectant (units)	Year Sampled	MRDL Violation Y/N	Your Water (highest RAA)	Range Low High	MRDLG	MRDL	Likely Source of Contamination
Chlorine (ppm)	2019	N	1.15	1-1.3	4	4.0	Water additive used to control microbes
Chloramines (ppm)	2019	N	2.48	1.5-2.8	4	4.0	Water additive used to control microbes

PFAS Testing

Carolina Water Service, Inc. of North Carolina is currently conducting statewide drinking water testing for Per- and Polyfluoroalkyl Substances (PFAS). These man-made compounds are used in the manufacturing of products resistant to water, grease or stains including firefighting foams, cleaners, cosmetics, paints, adhesives and insecticides. PFAS can migrate into the soil, water, and air and is likely present in the blood of humans and animals all over the world. The Environmental Protection Agency (EPA) has established a health advisory level at 70 parts per trillion. For more information visit <https://www.epa.gov/ground-water-and-drinking-water/drinking-water-health-advisories-pfoa-and-pfos>. Notification has or will be sent to all registered customers of the testing results once completed. Carolina Water Service, Inc. of North Carolina is committed to providing safe, reliable, and cost-effective drinking water services to all of our customers.

Violations: In 2019, Carolina Water Service, Inc. of North Carolina performed all required monitoring for contaminants. In addition, **no violations** from the North Carolina Department of Environmental Quality were received and we were in compliance with applicable testing and reporting requirements.

To access your utility account anytime, anywhere, please register for our customer portal & download MyUtilityConnect at <https://connect.myutility.us/connect/>

The following are sample results provided by Johnston County. If you have any questions concerning this information, please contact Chandra Farmer, P.E., Director of Utilities and Engineering at (919) 209-8333 or by writing to Johnston County Utility Dept., PO Box 2263, Smithfield NC 27577. Find out more on the internet at www.jcutil.com/ccr.

2019 Water Quality Test Results Johnston County West, Town of Smithfield & Harnett County

Inorganic Contaminants

Contaminant (units)	Sample Date	MCL Violation Y/N	Your Water	Range Low High	MCLG	MCL	Likely Source of Contamination
Fluoride (ppm) (Johnston Cty West)	March 2019	N	0.29	N/A	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Fluoride (ppm) (Harnett Cty)	January 2019	N	0.44	N/A			

Disinfection Byproduct Contaminants and Disinfectant Residuals Summary

Chlorite - distribution (ppm) (Harnett Cty)	2019	N	0.326	0.14 - 0.50	0.8	1.0	Byproduct of drinking water disinfection
Chlorine Dioxide (ppb) (Harnett Cty)	2019	N	21.5	ND - 228	MRDLG=800	MRDL=800	Water additive used to control microbes

Synthetic Organic Chemical (SOC) Contaminants including Pesticides and Herbicides

Simazine (ppb) (Johnston Cty West)	2019	N	0.06	ND - 0.14	4	4	Herbicide runoff
Simazine (ppb) (Smithfield)	2019	N	0.1	ND - 2.4			

In 2018, the system performed monthly source water monitoring for *Cryptosporidium* to satisfy the EPA Long Term 2 Enhanced Surface Water Treatment Rule. Harnett County had zero detects. A level of 0.09 cysts/Liter was found in the source water (prior to treatment) for the months of January 2018 (Town of Smithfield), February 2018 and April 2018 (Johnston County West). *Cryptosporidium* is a microbial pathogen found in surface water throughout the U.S. Although filtration removes *Cryptosporidium*, the most commonly used filtration methods cannot guarantee 100 percent removal. Monitoring indicates the presence of these organisms in the source water. Current test methods do not allow the water systems to determine if the organisms are dead or if they are capable of causing disease. Ingestion of *Cryptosporidium* may cause cryptosporidiosis, an abdominal infection. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, immuno-compromised people, infants and small children, and the elderly are at greater risk of developing life threatening illness. Johnston County encourages immuno-compromised individuals to consult their doctor regarding appropriate precautions to take to avoid infection. *Cryptosporidium* must be ingested to cause disease, and it may spread through means other than drinking water.

(Continued) 2019 Water Quality Test Results Johnston County West, Town of Smithfield, and Harnett County

Turbidity - is a measure of the cloudiness of the water. It is monitored because it is a good indicator of the effectiveness of the filtration system. The turbidity rule requires that 95% or more of the monthly samples must be less than or equal to 0.3 NTU.

Contaminant (units)	Year Sampled	TT Violation Y/N	Johnston County West Level Detected	Town of Smithfield Level Detected	Harnett County Level Detected	MCLG	Treatment Technique (TT) Violation if:	Likely Source of Contamination
Turbidity (NTU)-Highest single measurement	2019	N	0.115	0.252	0.06	N/A	Turbidity >1 NTU	Soil runoff
Turbidity (NTU)-Lowest monthly percentage (%) of samples meeting turbidity limits	2019	N	100% of samples below limit	100% of samples below limit	100% of samples below limit	N/A	Less than 95% of monthly turbidity measurements are ≤ 0.3 NTU	Soil runoff

NTU – Nephelometric Turbidity Units – A measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.
 TT – Treatment Technique – A treatment technique is a required process intended to reduce the level of a contaminant in drinking water.

Total Organic Carbon (TOC): Depending on the TOC in the source water, the system MUST have a certain % removal of TOC or must achieve alternative compliance criteria. If the system does not achieve that % removal, there is an alternative % removal. If the alternative % removal is not met, the system is in violation of a Treatment Technique.

Contaminant (units)	Year Sampled	TT Violation Y/N	Johnston County West Level Detected Range (low - high)	Town of Smithfield Level Detected Range (low - high)	Harnett County Level Detected Range (low - high)	MCLG	MCL	Likely Source of Contamination
Total Organic Carbon (removal ratio) (TOC)-TREATED	2019	N	1.42* 1.28 - 1.61	1.13* 1.06 - 1.45	1.44* 1.20 - 1.64	N/A	TT	Naturally present in the environment.

* RAA removal ratio.
 Johnston County West and Harnett County TOC compliance method - Step 1. Town of Smithfield TOC compliance method - Step 1 and ACC Alt. 4.

Step 1 TOC Removal Requirements (%)				Alternative Compliance Criteria (ACC)	
Source Water TOC (mg/L)	Source Water Alkalinity Mg/L as CaCO3 (in percentages)			Alt. 1	Alt. 2
	0 – 60	> 60 – 120	> 120	Alt. 3	Alt. 4
> 2.0 – 4.0	35.0	25.0	15.0	Alt. 5	Alt. 6
> 4.0 – 8.0	45.0	35.0	25.0	Alt. 7	
> 8.0	50.0	40.0	30.0		

Unregulated Contaminants - EPA required testing for the Unregulated Contaminants Monitoring Rule (UCMR4). Unregulated contaminants are those for which the EPA has not established drinking water standards. The purpose of the unregulated contaminant monitoring rule is to assist EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulations are warranted. For more information please visit <https://www.epa.gov/dwucmr>.

Harnett County - UCMR4 Distribution Monitoring				Town of Smithfield - UCMR4 Distribution Monitoring			
Contaminant (units)	Sample Date	Your Water (Average)	Range Low - High	Contaminant (units)	Sample Date	Your Water	Range
Bromochloroacetic acid (ppb)	2019	5.811	3.83 - 8.8	Bromochloroacetic acid (ppb)	2019	2.16	N/A
Bromodichloroacetic acid (ppb)	2019	4.487	3.66 - 5.42	Bromodichloroacetic acid (ppb)	2019	1.57	N/A
Chlorodibromacetic acid (ppb)	2019	2.736	0.568 - 4.45	Dichloroacetic acid (ppb)	2019	17.5	N/A
Dibromoacetic acid (ppb)	2019	3.195	ND - 9.55	Trichloroacetic acid (ppb)	2019	8.16	N/A
Dichloroacetic acid (ppb)	2019	7.473	3.15 - 20.9				
Monobromoacetic acid (ppb)	2019	0.591	ND - 1.18				
Monochloroacetic acid (ppb)	2019	0.144	ND - 2.53				
Tribromoacetic acid (ppb)	2019	1.163	ND - 5.46				
Trichloroacetic acid (ppb)	2019	4.214	0.828 - 17.1				

