



Brandywine Bay Water System

PWS ID: NC0416163

Annual Water Quality Report 2020

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 2020. 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. We want you to understand the efforts we make to continually improve the water treatment process and protect our water resources. This report includes information to keep you informed of what's working and where we continue to work hard to deliver safe, reliable, and cost-effective service.

We are proud to share this report which is based on water quality testing through December 2020. We continually strive to supply water that meets or exceeds all federal and state water quality regulations.

Our dedicated team of local water quality experts works every day to ensure that you, our customer, are our top priority and that we are providing the highest quality service – 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 remains low. Customers can continue using and drinking tap water as usual. The EPA also encourages the public to help keep household plumbing and our nation's water infrastructure operating properly by only flushing toilet paper. Disinfecting or other sanitary wipes, including those labeled as "flushable" and other non-toilet paper items, should NOT be flushed in toilets. 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

Your water comes from several wells located in Carteret County, which draws water from Castle Haynes aquifer. An aquifer is a geological formation that contains water.

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 *Learn More under Water Conservation Tips* 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)	Analysis or test results indicate the constituent is not detectable at minimum reporting limit.
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 Brandywine Bay 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	Lower	9/10/2020
Well #3	Lower	9/10/2020

The complete SWAP Assessment report for Brandywine Bay 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, 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.

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

Contaminant (units)	Sample Location Code	Year Sampled	MCL Violation Y/N	Your Water (highest LRAA)	Range Low High	MCLG	MCL	Likely Source of Contamination
Stage 2 Disinfection Byproduct Compliance - Based upon Locational Running Annual Average (LRAA)								
TTHM (ppb) [Total Trihalomethanes]	B01	2020	Y*	90.75	35 - 114	N/A	80	Byproduct of drinking water disinfection.
	B02	2020	Y*	80.5	24.5 - 108	N/A	80	Byproduct of drinking water disinfection.
HAA5 (ppb) [Total Haloacetic Acids]	B01	2020	N	42.5	8.4 - 49	N/A	60	Byproduct of drinking water disinfection.
	B02	2020	Y*	61.75	36 - 86	N/A	60	Byproduct of drinking water disinfection.

*We collect quarterly samples for disinfection byproducts at two sites in the distribution (B01 and B02). Our customers were notified of violations we received for a TTHM LRAA MCL exceedance during first quarter 2020, and TTHM and HAA5 LRAA exceedances during second quarter 2020. We are implementing plans to install additional equipment and alternate disinfection treatment to permanently reduce disinfection byproducts in the system. We estimate the project should be complete by June 2021. For additional information, please see the following from the U.S. EPA: [TTHMs](#) - *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.* [HAA5s](#) - *Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.*

Disinfectant Residuals Summary

Contaminant (units)	Year Sampled	MCL/MRDL Violation Y/N	Your Water (highest RAA)	Range Low High	MRDLG	MRDL	Likely Source of Contamination
Chlorine (ppm)	2020	N	0.79	0.2 - 2.2	4	4	Water additive used to control microbes

Microbiological Contaminants in the Distribution System

Contaminant (units)	Sample Date	Violation	Value	MCL/TT	MCLG	Likely Source of Contamination
Total Coliform Bacteria (presence or absence)	5/7/2020	No	Present (1 sample)	TT*	N/A	Naturally present in the environment

*If a system collecting fewer than 40 samples per month has two or more positive samples in one month, an assessment is required. We routinely collect two coliform samples per month, and in May 2020 one of the monthly compliance samples showed the presence of total coliform bacteria. Repeat samples were collected, none of which showed total coliform bacteria present. *Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system.*

Inorganic Contaminants

Contaminant (units)	Year Sampled	MCL Violation Y/N	Your Water	Range Low High	MCLG	MCL	Likely Source of Contamination
Fluoride (ppm)	2020	N	0.21	N/A	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories

Lead and Copper Contaminants

Contaminant (units)	Sample Date	Your Water	# of sites found above the AL	MCLG	MCL	Likely Source of Contamination
Copper (ppm) (90 th percentile)	Aug 2018	0.208	0	1.3	AL= 1.3	Corrosion of household plumbing systems; Erosion of natural deposits

PFAS Testing

Carolina Water Service, Inc. of North Carolina continues efforts to conduct 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.

Perfluorooctane Sulfonate (PFOS) and Perfluorooctanoic Acid (PFOA) were tested during 2020 with no detection. No detection means the constituent is not detectable at the minimum reporting limit. 2.0 ng/L is the minimum level the lab is reporting a detection for these parameters. Nanograms per liter (ng/L) equals Parts per trillion (ppt) – One part per trillion corresponds to one minute in 2,000,000 years, or a single penny in \$10,000,000,000.

For more information visit <https://www.epa.gov/ground-water-and-drinking-water/drinking-water-health-advisories-pfoa-and-pfos>.

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 2020, Carolina Water Service, Inc. of North Carolina performed all required monitoring for contaminants. Please see the section for Stage 2 Disinfection Byproduct Compliance for information regarding violations we received for TTHM and HAA5 LRAA MCL exceedances. We were in compliance for all other 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/>

