



Zemosa Acres Water System

PWS ID: NC0113188

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

Your water is purchased from the City of Concord, which provides treated surface water from Lake Concord, Lake Fisher and Lake Don T. Howell. In addition to producing water at the Hillgrove and Coddle Creek water treatment plants, the City of Concord also receives water from the City of Kannapolis and the City of Albemarle.

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.
AVG	Regulatory compliance with some MCLs is based on running annual average of monthly samples.
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.
Nephelometric Turbidity Units (NTU)	A measure of water clarity. Turbidity in excess of 5 NTU is just noticeable to the average person.
oocysts/L	The number of organisms per liter of water
Treatment Technique (TT)	A treatment technique is a required process intended to reduce the level of a contaminant in drinking water.

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 the City of Concord, City of Kannapolis, and City of Albemarle 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
City of Concord, Albemarle SWAP Ratings		
Lake Fisher/ Coldwater Creek	Moderate	9/1/2017
Lake Concord/Coldwater Creek	Moderate	9/1/2017
Lake Don T. Howell	Moderate	9/1/2017
City of Kannapolis		
Kannapolis Lake	Moderate	7/12/2017
Second Creek/ Back Creek	Moderate	7/12/2017
City of Albemarle		
Tuckertown Reservoir	Moderate	9/1/2017
Narrows Reservoir/ Badin Lake	Moderate	9/1/2017

The complete SWAP Assessment report for the City of Concord, City of Kannapolis, and City of Albemarle 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 North Carolina

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

Disinfectant Residuals Summary

Contaminant (units)	Year Sampled	MRDL Violation Y/N	Your Water (highest RAA)	Range Low High	MRDLG	MRDL	Likely Source of Contamination
Chlorine (ppm)	2019	N	0.94	0.21 - 1.33	4	4.0	Water additive used to control microbes

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

Disinfection Byproduct (units)	Sample Location Code	Sample Date	MCL Violation Y/N	Your Water (highest LRAA)*	Range Low High	MCLG	MCL	Likely Source of Contamination
TTHM (ppb) [Total Trihalomethanes]	B01	2019	N	63.85	ND - 58.6	N/A	80	Byproduct of drinking water disinfection.
TTHM (ppb) [Total Trihalomethanes]	B02	2019	N	64.93	ND - 96.3**	N/A	80	Byproduct of drinking water disinfection.
HAA5 (ppb) [Total Haloacetic Acids]	B01	2019	N	33.8	ND - 42.2	N/A	60	Byproduct of drinking water disinfection.
HAA5 (ppb) [Total Haloacetic Acids]	B02	2019	N	47.05	ND - 41.7	N/A	60	Byproduct of drinking water disinfection.

* "Your Water" is the highest quarterly LRAA for TTHMs and HAA5s and may reflect an average based on sample results from previous quarters not reported on this table.

**We collect quarterly samples for disinfection byproducts at two sites (labeled B01 and B02) in the distribution system. One quarterly sample collected in August 2019 from B02 showed levels of TTHMs above 80 ppb. Compliance is based on a four-quarter average; therefore, our system was not in violation. We will continue quarterly monitoring and our customers will be notified should the average exceed the MCL. For additional information, please see the following from the U.S. EPA: *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.*

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/>

Water Quality Test Results City of Concord

Carolina Water Service, Inc. of NC receives water from the City of Concord which receives water from the City of Kannapolis and the City of Albemarle:

Contaminant (units)	Year Sampled	MCL Violation Y/N	City of Concord Level Detected Range (low-high)	Hillgrove WTP Level Detected Range (low-high)	Coddle Creek WTP Level Detected Range (low-high)	City of Albemarle Level Detected Range (low-high)	City of Kannapolis Level Detected Range (low-high)	MCLG	MCL	Likely Source of Contamination
Fluoride (ppm)	2019	N	N/A	0.84 0.18 - 0.84	0.85 0.51 - 0.85	0.53 N/A	ND N/A	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories

Inorganic Contaminants

Fluoride (ppm)	2019	N	N/A	0.84 0.18 - 0.84	0.85 0.51 - 0.85	0.53 N/A	ND N/A	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
----------------	------	---	-----	---------------------	---------------------	-------------	-----------	---	---	---

Synthetic Organic Chemical (SOC) Contaminants Including Pesticides and Herbicides

Hexachlorocyclopentadiene (ppb)	2019	N	N/A	N/A	N/A	0.38	N/A	50	50	Discharge from chemical factories.
Simazine (ppb)	2019	N	N/A	N/A	N/A	N/A	0.39 ND-0.39	4	4	Herbicide runoff

Total Organic Carbon (TOC)

Contaminant (units)	Year Sampled	TT Violation Y/N	City of Concord Level Detected Range (low-high)	Hillgrove WTP Level Detected Range (low - high)	Coddle Creek WTP Level Detected Range (low-high)	City of Albemarle Level Detected Range (low-high)	City of Kannapolis Level Detected Range (low-high)	MCLG	MCL	Likely Source of Contamination
Total Organic Carbon (ppm) (removal ratio) (TOC)-TREATED	2019	N	N/A	1.37* 1.10 - 1.63	1.39* 1.17 - 1.68	1.33* 1.00 - 1.70	1.44* 1.12 - 1.61	N/A	TT	Naturally present in the environment.

Depending on the TOC in the source water, the system MUST have a certain percentage removal of TOC or must achieve alternative compliance criteria.

*Concord and Kannapolis: TOC compliance method- Step 1. Albemarle: TOC compliance method, Alternate compliance criteria #2.

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	City of Concord Level Detected Range (low-high)	Hillgrove WTP Level Detected Range (low-high)	Coddle Creek WTP Level Detected Range (low-high)	City of Albemarle Level Detected Range (low-high)	City of Kannapolis Level Detected Range (low-high)	MCL (MRDL)	Likely Source of Contamination
Turbidity (NTU)	2019	N	N/A	0.16 0.05 - 0.16	0.29 0.05 - 0.29	0.40 0.04 - 0.40	0.092 0.015 - 0.092	TT=1 NTU	Soil runoff
Turbidity (NTU)-Lowest monthly percentage (%) of samples meeting turbidity limits	2019	N	N/A	100%	N/A	100%	N/A	TT=1 NTU	Soil runoff

Additional Monitoring:

To comply with the LT2 rule, the City of Concord began collecting samples for *cryptosporidium* and E. coli in October 2015. The City of Albemarle collected *cryptosporidium* samples in 2016. The City of Kannapolis began collecting samples in October 2016. Samples were collected monthly from each raw water source. Here are the results that were obtained:

Concord Cryptosporidium (results are reported in oocysts/L):		
Raw water source	Average result	Range of results
Lake Don T. Howell	ND	ND
Lake Fisher	0.007	ND - 0.087
Lake Concord	0.09	ND - 0.100

Kannapolis Cryptosporidium: *Cryptosporidium* was detected in four raw water sample out of 36 raw water samples. One detection was at Coddle Creek at a level a of 0.3 oocysts/L, and three were at Second Creek at 0.095, 0.098 and 0.098 oocysts/L, respectively.

Albemarle Cryptosporidium: No *cryptosporidium* was detected.

E Coli: The following averages and ranges were obtained from water analyses of the following City of Concord and Kannapolis raw water sources (results shown are reported as MPN, colonies/100 ml of sample)			Giardia: Kannapolis detected Giardia in 12 out of 36 raw water samples (results shown are reported as cysts/L)		
Raw water source	Average result	Range of results	Raw water source	Average result	Range of results
Lake Don T. Howell (Concord)	2.6	<1 - 13.2	Kannapolis Lake (Kannapolis)	0.010	ND - 0.095
Lake Fisher (Concord)	9.0	<1 - 33.1	Coddle Creek (Kannapolis)	0.960	ND - 4.47
Lake Concord (Concord)	40.1	2 - 304	Second Creek (Kannapolis)	0.370	ND - 1.04
Kannapolis Lake (Kannapolis)	1.44	ND - 5			
Coddle Creek (Kannapolis)	342.22	25 - 1374			
Second Creek (Kannapolis)	49.33	30 - 1058			

Secondary drinking water standards The PWS Section requires monitoring for other misc. contaminants, some for which the EPA has set national secondary drinking water standards (SMCLs) because they may cause cosmetic effects or aesthetic effects (such as taste, odor and/or color) in drinking water. The contaminants with SMCLs normally do not have any health effects and normally do not affect the safety of your water.

Unregulated Inorganic Substances						
Contaminant (units)	Year Sampled	Hillgrove WTP Amount detected	Coddle Creek WTP Amount Detected	City of Albemarle	City of Kannapolis	Secondary MCL
Sodium (ppm)	2019	17	12	14.53	11.07	No Limit
Sulfate (ppm)	2018/2019	19	21	16.6	22	250

Unregulated Contaminant Monitoring Rule (UCMR4) The purpose of unregulated monitoring is to assist the U.S. EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulations are warranted. In 2018 and 2019, Kannapolis participated in the 4th stage of the U.S. EPA's Unregulated Contaminant Monitoring Rule (UCMR4) program by performing additional tests on the drinking water. If you would like more information on the U.S. EPA's UCMR Rule, please call the Safe Drinking Water Hotline at (800) 426-4791.

Unregulated Contaminant Monitoring		
Contaminant (units)	Year Sampled	City of Kannapolis Level Detected
Total Organic Carbon (ppb)	2018	3,780
Total Organic Carbon (ppb)	2018	3,910
Total Organic Carbon (ppb)	2018	1,590
2-Methoxyethanol (ppb)	2019	2.3
2-Propen-1-pol (ppb)	2019	0.32
Bromide	2019	30.8
Bromochloroacetic Acid (ppb)	2019	16.5
Butylated Hydroxyl Anisole (ppb)	2019	31.8
Chlorodibromoacetic Acid (ppb)	2019	3.2
Chlorpyrifos (ppb)	2019	13.1
Dichloroacetic Acid (ppb)	2019	32.2
Dimethipin (ppb)	2019	5.0
Ethoprop (ppb)	2019	17.1
Germanium (ppb)	2019	1.3
HAA9 (ppb)	2019	52.4
Haolacetic Acids (Total) (ppb)	2019	3.9
Manganese (ppb)	2019	23.3
Merphos-Oxone (ppb)	2019	1760
Monobromoacetic Acid (ppb)	2019	1.8
Profenofos (ppm)	2019	3.1
Trichloroacetic Acid (ppb)	2019	3390
alpha-BHC (ppb)	2019	35.1