

A high-speed photograph of water splashing, with a central stream of water falling and creating a large splash at the bottom. The water is clear and blue, with many droplets and ripples visible. The background is white.

ANNUAL WATER QUALITY REPORT

REPORTING YEAR 2019

Presented By



Our Mission Continues

We are once again pleased to present our annual water quality report covering all testing performed between January 1 and December 31, 2019. Over the years, we have dedicated ourselves to producing drinking water that meets all state and federal standards. We continually strive to adopt new methods for delivering the best-quality drinking water to you. As new challenges to drinking water safety emerge, we remain vigilant in meeting the goals of source water protection, water conservation, and community education while continuing to serve the needs of all our water users.

Please remember that we are always available should you ever have any questions or concerns about your water.



Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791 or <http://water.epa.gov/drink/hotline>.



Substances That Could Be in Water

To ensure that tap water is safe to drink, the U.S. EPA prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration 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 these contaminants does not necessarily indicate that the water poses a health risk.

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, in some cases, radioactive material, and substances resulting from the presence of animals or from human activity. Substances 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, or wildlife; Inorganic Contaminants, such as salts and metals, which can be naturally occurring or may 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 may also come from gas stations, urban stormwater runoff, and septic systems; Radioactive Contaminants, which can be naturally occurring or may be the result of oil and gas production and mining activities.

For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

Community Participation

You are invited to participate in our public forum and voice your concerns about your drinking water. The Concord City Council meets the second Thursday of each month at 6:00 p.m. in Council Chambers, located at 35 Cabarrus Avenue West, Concord.

QUESTIONS?

For more information about this report, or for any questions relating to your drinking water, please call Rusty Campbell, Water Treatment Superintendent, at (704) 920-5337.

Source Water Assessment

The North Carolina Department of Environment and Natural Resources, 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 (PCS). 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 was determined by combining the contaminant rating (number and location of PCS 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). 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 PCS in the assessment area. The assessment findings are summarized in the table below:

SOURCE NAME	SUSCEPTIBILITY RATING	SWAP REPORT DATE
Lake Fisher/Coldwater Creek (Concord)	Moderate	September 1, 2017
Lake Concord/Coldwater Creek (Concord)	Moderate	September 1, 2017
Lake Don T. Howell (Concord)	Moderate	September 1, 2017
Kannapolis Lake (Kannapolis)	Moderate	July 12, 2017
Second Creek/Back Creek (Kannapolis)	Moderate	July 12, 2017
Tuckertown Reservoir (Albemarle)	Moderate	September 1, 2017
Narrows Reservoir/Badin Lake (Albemarle)	Moderate	September 1, 2017

The complete SWAP report may be viewed online at <https://www.ncwater.org/?page=600>. Note that because SWAP results and reports are periodically updated by PWS, the results available on this website may differ from those available at the time this CCR was prepared.

If you are unable to access your SWAP report online, 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 and 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 at (919) 707-9098.

Where Does My Water Come From?

The City of Concord obtains water from six different sources. It has two water treatment plants, which draw water from three surface water reservoirs. The Coddle Creek Water Treatment Plant draws water from Lake Don T. Howell. The Hillgrove Water Treatment Plant draws water from Lake Concord, Lake Fisher, and Lake Don T. Howell.

Plans are underway to ensure that we have an adequate water supply. Concord also purchases water from the cities of Kannapolis and Albemarle. For information on the quality of Kannapolis’ water, contact Alex Anderson, Director of Water Resources, at (704) 920-4252. For information on the quality of Albemarle’s water, contact Shaun Whitley at (704) 984-9657. Additionally, Concord can purchase water from the City of Charlotte. For information on the quality of Charlotte’s water, contact Charlotte Water at (704) 391-5144.



Cryptosporidium in Drinking Water

To comply with the LT2 rule, Concord began collecting samples for cryptosporidium and E. coli in October 2015. Albemarle collected cryptosporidium samples in 2016. 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 shown are reported in oocyst/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

E. COLI: The following averages and ranges were obtained from analyses of the Concord raw water sources (results shown are reported as MPN, colonies/100 mL of sample):

RAW WATER SOURCE	AVERAGE RESULT	RANGE OF RESULTS
Lake Don T. Howell (Concord)	2.6	<1–13.2
Lake Fisher (Concord)	9.0	<1–33.1
Lake Concord (Concord)	40.1	2–304

KANNAPOLIS CRYPTOSPORIDIUM¹
KANNAPOLIS GIARDIA²

RAW WATER SOURCE	AVERAGE RESULT	RANGE OF RESULTS
Kannapolis Lake	0.010	ND–0.095
Coddle Creek	0.960	ND–4.47
Second Creek	0.370	ND–1.04

E. COLI: The following averages and ranges were obtained from analyses of the Kannapolis raw water sources (results shown are reported as MPN, colonies/100 mL of sample):

RAW WATER SOURCE	AVERAGE RESULT	RANGE OF RESULTS
Kannapolis Lake	1.44	ND–5
Coddle Creek	342.22	25–1,374
Second Creek	49.33	30–1,058

ALBEMARLE Our system monitored for *cryptosporidium* in 2019 and found the following levels:

SAMPLES (ppm)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
<i>Cryptosporidium</i>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<i>Giardia</i>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

¹ *Cryptosporidium* was detected in 4 out of 36 raw water samples, with one detection at Coddle Creek (0.3 oocyst/L) and three at Second Creek (0.095, 0.098, and 0.098 oocyst/L).

² *Giardia* was detected in 12 out of 36 raw water samples (results shown are reported as cysts/L).

Lead in Home Plumbing

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. We are responsible for providing high-quality drinking water, but we 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 two 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 at (800) 426-4791 or at www.epa.gov/safewater/lead.

Test Results

Our water is monitored for many different kinds of substances on a very strict sampling schedule, and the water we deliver must meet specific health standards. Here we only show those substances that were detected in our water (a complete list of all our analytical results is available upon request). Remember that detecting a substance does not mean the water is unsafe to drink; our goal is to keep all detects below their respective maximum allowed levels.

The state recommends monitoring for certain substances less than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

REGULATED SUBSTANCES

				City of Concord		Hillgrove WTP		Coddle Creek WTP			
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Chlorine (ppm)	2019	[4]	[4]	1.08	0.20–2.02	NA	NA	NA	NA	No	Water additive used to control microbes
Fluoride (ppm)	2019	4	4	NA	NA	0.84	0.18–0.84	0.85	0.51–0.85	No	Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAAs] (ppb)	2019	60 ¹	NA	55.3	25.0–60.3	NA	NA	NA	NA	No	By-product of drinking water disinfection
Hexachlorocyclopentadiene (ppb)	2019	50	50	NA	NA	NA	NA	NA	NA	No	Discharge from chemical factories
Simazine (ppb)	2019	4	4	NA	NA	NA	NA	NA	NA	No	Herbicide runoff
Total Organic Carbon [TOC] (removal ratio)	2019	TT ²	NA	NA	NA	1.37 ³	1.10–1.63	1.39 ³	1.17–1.68	No	Naturally present in the environment
TTHMs [Total Trihalomethanes] (ppb)	2019	80	NA	67	15.7–76.9	NA	NA	NA	NA	No	By-product of drinking water disinfection
Turbidity ⁵ (NTU)	2019	TT = 1 NTU	NA	NA	NA	0.16	0.05–0.16	0.29	0.05–0.29	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2019	TT = 95% of samples meet the limit	NA	NA	NA	100	NA	100	NA	No	Soil runoff

REGULATED SUBSTANCES

				City of Albemarle		City of Kannapolis					
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE		
Chlorine (ppm)	2019	[4]	[4]	1.13	0.16–1.56	0.83	0.20–1.52	No	Water additive used to control microbes		
Fluoride (ppm)	2019	4	4	0.53	NA	ND	NA	No	Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories		
Haloacetic Acids [HAAs] (ppb)	2019	60 ¹	NA	40	25–45	47	35.0–47.0	No	By-product of drinking water disinfection		
Hexachlorocyclopentadiene (ppb)	2019	50	50	0.38	NA	NA	NA	No	Discharge from chemical factories		
Simazine (ppb)	2019	4	4	NA	NA	0.00039	ND–0.00039	No	Herbicide runoff		
Total Organic Carbon [TOC] (removal ratio)	2019	TT ²	NA	1.33 ⁴	1.00–1.70	1.44 ³	1.12–1.61	No	Naturally present in the environment		
TTHMs [Total Trihalomethanes] (ppb)	2019	80	NA	40	14–64	73	40.0–73.0	No	By-product of drinking water disinfection		
Turbidity ⁵ (NTU)	2019	TT = 1 NTU	NA	0.40	0.04–0.40	0.092	0.015–0.092	No	Soil runoff		
Turbidity (Lowest monthly percent of samples meeting limit)	2019	TT = 95% of samples meet the limit	NA	100	NA	100	NA	No	Soil runoff		

CITY OF ALBEMARLE

Microbiological Contaminants in the Distribution System - For systems that collect less than 40 samples per month

CONTAMINANT (UNITS)	MCL VIOLATION Y/N	YOUR WATER	MCLG	MCL	LIKELY SOURCE OF CONTAMINATION
Total Coliform Bacteria (presence or absence)	N	1	1	1 positive sample/month	Naturally present in the environment

During our monthly distribution system monitoring in April 2019, one of our samples for the presence of coliform bacteria came back positive, however it tested negative for *E. coli* which triggered a level one assessment. Within the assessment we were required to take a repeat sample from the tap that tested positive as well as samples within five service connections upstream and downstream from the tap that tested positive. Subsequent samples taken all came back negative for the presence of coliform bacteria and *E. coli*. The residence where the initial positive sample was collected at the time was unoccupied. After consulting with our state official it was determined the best course of action would be to remove that particular residence from our list of sites we routinely monitor in our distribution system.

Coliform bacteria are organisms that are present in the environment and in the feces of all warm-blooded animals and humans. Coliform bacteria will likely not cause illness. However, their presence in drinking water indicates that disease-causing organisms could be in the water system.

Tap water samples were collected for lead and copper analyses from sample sites throughout the community

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	City of Concord				City of Albemarle		City of Kannapolis		VIOLATION	TYPICAL SOURCE
		AL	MCLG	AMOUNT DETECTED (90TH %ILE)	SITES ABOVE AL/ TOTAL SITES	AMOUNT DETECTED (90TH %ILE)	SITES ABOVE AL/ TOTAL SITES	AMOUNT DETECTED (90TH %ILE)	SITES ABOVE AL/ TOTAL SITES		
Copper (ppm)	2019	1.3	1.3	0.075	0/51	0.09 ⁶	0/36	0.18 ⁶	0/39	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2019	15	0	ND	0/51	ND ⁶	0/36	ND ⁶	0/39	No	Corrosion of household plumbing systems; Erosion of natural deposits

UNREGULATED SUBSTANCES ⁷

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	Hillgrove WTP		Coddle Creek WTP		City of Albemarle		City of Kannapolis	
		AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH
Sodium (ppm)	2019	17	NA	12	NA	14.53	NA	11.07	NA
Sulfate (ppm)	2019	19	NA	21	NA	16.6	NA	22.0	NA

¹ Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.

² Depending on the TOC in our source water, the system must have a certain percentage removal of TOC or achieve alternative compliance criteria. If we do not achieve that percentage removal, there is an alternative percentage removal. If we fail to meet the alternative percentage removal, we are in violation of a treatment technique.

³ Compliance method: Step 1

⁴ Compliance method: ACC #2

⁵ Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system. The turbidity rule requires that 95 percent or more of the monthly samples must be less than or equal to 0.3 NTU.

⁶ Sampled in 2018.

⁷ Unregulated contaminants are those for which U.S. EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist U.S. EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulations are warranted.

OTHER UNREGULATED SUBSTANCES (CITY OF KANNAPOLIS) ⁷

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH
2-Methoxyethanol (ppb)	2019	2.3	NA
2-Propen-1-ol (ppb)	2019	0.32	NA
alpha-BHC (ppb)	2019	35.1	NA
Bromide (ppb)	2019	30.8	NA
Bromochloroacetic Acid (ppb)	2019	16.5	NA
Butylated Hydroxyl Anisole (ppb)	2019	31.8	NA
Chlorodibromoacetic Acid (ppb)	2019	3.2	NA
Chlorpyrifos (ppb)	2019	13.1	NA
Dichloroacetic Acid (ppb)	2019	32.2	NA
Dimethipin (ppb)	2019	5.0	NA
Ethoprop (ppb)	2019	17.1	NA
Germanium (ppb)	2019	1.3	NA
HAA9 (ppb)	2019	52.4	NA
Haloacetic Acids [Total] (ppb)	2019	3.9	NA
Manganese (ppb)	2019	23.3	NA
Merphos-Oxone (ppb)	2019	1,760	NA
Monobromoacetic Acid (ppb)	2019	1.8	NA
Profenofos (ppm)	2019	3.1	NA
Trichloroacetic Acid (ppb)	2019	3,390	NA

Definitions

90th %ile: The levels reported for lead and copper represent the 90th percentile of the total number of sites tested. The 90th percentile is equal to or greater than 90 percent of our lead and copper detections.

AL (Action Level): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

LRAA (Locational Running Annual Average): 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.

MCL (Maximum Contaminant Level): 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.

MCLG (Maximum Contaminant Level Goal): 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.

MRDL (Maximum Residual Disinfectant Level): 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.

MRDLG (Maximum Residual Disinfectant Level Goal): 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.

NA: Not applicable

ND (Not detected): Indicates that the substance was not found by laboratory analysis.

NTU (Nephelometric Turbidity Units): Measurement of the clarity, or turbidity, of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

ppb (parts per billion): One part substance per billion parts water (or micrograms per liter).

ppm (parts per million): One part substance per million parts water (or milligrams per liter).

removal ratio: A ratio between the percentage of a substance actually removed to the percentage of the substance required to be removed.

TT (Treatment Technique): A required process intended to reduce the level of a contaminant in drinking water.