



**Presented By
City of Concord**

Concord
NORTH CAROLINA
High Performance Living

ANNUAL
**WATER
QUALITY
REPORT**

WATER TESTING PERFORMED IN 2017



Quality First

Once again we are pleased to present our annual water quality report. As in years past, we are committed to delivering the best-quality drinking water possible. To that end, we remain vigilant in meeting the challenges of new regulations, source water protection, water conservation, and community outreach and education while continuing to serve the needs of all of our water users. Thank you for allowing us the opportunity to serve you and your family.

We encourage you to share your thoughts with us on the information contained in this report. After all, well-informed customers are our best allies.

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.

Level 1 Assessment Update

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. We found coliforms, indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessments to identify problems and to correct any problems that were found during these assessments.

During the past year, we were required to conduct one Level 1 assessment, which was completed. We were not required to take any corrective actions.

Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as those with cancer undergoing chemotherapy, persons who have undergone organ transplants, those 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 that 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 p.m., in the Council Chambers located at 35 Cabarrus Avenue W., Concord, NC.

Testing For *Cryptosporidium*

To comply with the LT2 rule, the City of Concord began collecting samples to test 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:

Concord *cryptosporidium* (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 only one raw water sample out of 36 raw water samples; the detection was found at Second Creek, at a level of 0.093 oocysts/L.

Albemarle *cryptosporidium*:

No *Cryptosporidium* was detected.

E. coli:

The following averages and ranges were obtained from analyses of the following City of Concord and Kannapolis raw water sources (in 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 Lake (Kannapolis)	3.66	ND-15
Coddle Creek (Kannapolis)	1,100.08	2-9,590
Second Creek (Kannapolis)	8,463	240-43,520

Violation Information

The City of Concord purchases water from the Cities of Kannapolis and Albemarle. Due to equipment failure, one of Kannapolis' individual filter turbidity meters failed to record data for approximately two days. The turbidity was monitored by operators and never went out of compliance. Equipment that should record the data did not function properly and was replaced. The City of Kannapolis is currently requesting funding to replace all of their aging turbidity meters, programmable logic controllers, and other filter control apparatus in order to prevent this issue from occurring again.

On December 6, 2017, the City of Albemarle received a Notice of Violation for Lead and Copper sampling. The City of Albemarle did collect and analyze the required samples, but a significant number of samples were collected outside of the specified collection period (June - September). Although the results of the analysis did not indicate issues with Lead and Copper, the results are invalid since the samples were collected outside of the time period specified by the rules. In response, the City of Albemarle issued a Public Notice of the violation. The City of Albemarle is also required to repeat the sampling event at all locations, which is scheduled for June - September, 2018.

As notified to the City of Concord's customers on 6/30/17, the City of Concord received a violation on 5/24/2017 for exceedance of the running annual average (RAA) for haloacetic acids at one sample site, location #B07, for samples collected during the second quarter of 2017. The second quarter RAA for location #B07 was 62.4 ppb. Samples were collected again during the following two quarters, and all locations were in compliance. Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.



Where Does My Water Come From?

The City of Concord obtains water from six different sources. The City 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. The City of Concord also purchases water from the City of Kannapolis and the City of Albemarle. For information on the quality of Kannapolis' water, contact Wilmer Melton, Director of Public Works, at (704) 920-4200. For information on the quality of Albemarle's water, contact Shaun Whitley at (704) 984-9657. Plans are underway to ensure that we have an adequate water supply. Additionally, the City of Concord can purchase water from the City of Charlotte. For information on the quality of Charlotte's water, contact Charlotte-Mecklenburg Utilities at (704) 391-5144.

Source Water Assessment Program (SWAP) Results

The North Carolina Department of Environment and Natural Resources (DENR), 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 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 cities of Concord, Kannapolis, and 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 this table:

SUSCEPTIBILITY OF SOURCES TO PCSs		
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 for the city of Concord may be viewed on the Web at https://www.ncwater.org/files/swap/SWAP_Reports/0113010_9_1_2017_85_11.pdf.

The complete SWAP report for the City of Kannapolis may be viewed at https://www.ncwater.org/files/swap/SWAP_Reports/0180065_7_12_2017_85_11.pdf.

The complete SWAP report for the City of Albemarle may be viewed at https://www.ncwater.org/files/swap/SWAP_Reports/0184010_9_1_2017_17_22.pdf.

Please note that because SWAP results and reports are periodically updated by the PWS Section, the results available on these Web sites may differ from the results that were available at the time this consumer confidence report was prepared. If you have any questions about the SWAP Report, please contact the Source Water Assessment staff by phone at (919) 715-2633.

A susceptibility rating of higher does not imply poor water quality, but rather the system's potential to become contaminated by PCSs in the assessment area.

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 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/lead.

Test Results

Our water is monitored for many different kinds of substances on a very strict sampling schedule. The information in the data tables shows only those substances that were detected between January 1 and December 31, 2017. Remember that detecting a substance does not necessarily 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 often 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.

We participated in the 3rd stage of the U.S. EPA's Unregulated Contaminant Monitoring Rule (UCMR3) program by performing additional tests on our drinking water. UCMR3 benefits the environment and public health by providing the EPA with data on the occurrence of contaminants suspected to be in drinking water, in order to determine if the EPA needs to introduce new regulatory standards to improve drinking water quality. Contact us for more information on this program.

REGULATED SUBSTANCES															
				City of Concord		Hillgrove WTP		Coddle Creek WTP		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	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Atrazine (ppb)	2017	3	3	NA	NA	NA	NA	NA	NA	ND	NA	0.44	ND–0.440	No	Runoff from herbicide used on row crops
Chlorine (ppm)	2017	[4]	[4]	1.00	0.20–1.98	NA	NA	NA	NA	1.76	0.24–1.76	0.92	0.20–1.59	No	Water additive used to control microbes
Fluoride (ppm)	2017	4	4	NA	NA	0.50	NA	0.70	NA	0.64	0.12–0.64	0.16	NA	No	Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAA] (ppb)	2017	60	NA	62.4	18.2–72	NA	NA	NA	NA	40	21–57	47	26.5–54.0	Yes	By-product of drinking water disinfection
TTHMs [Total Trihalomethanes]¹ (ppb)	2017	80	NA	72	23.9–108.7	NA	NA	NA	NA	48	14–83	67	14.4–110.7	No	By-product of drinking water disinfection
Total Coliform Bacteria (% positive samples)	2017	TT	NA	8	NA	NA	NA	NA	NA	0	NA	2 ²	NA	No	Naturally present in the environment
Total Organic Carbon [TOC]³ (removal ratio)	2017	TT	NA	NA	NA	1.24 ⁴	1.06–1.41 ⁴	1.25 ⁴	1.09–1.34 ⁴	1.45 ⁵	1.28–1.58 ³	1.20 ⁴	1.03–1.39 ⁴	No	Naturally present in the environment
Turbidity⁶ (NTU)	2017	TT = 1 NTU	NA	NA	NA	0.12	0.05–0.12	0.12	0.05–0.12	0.34	0.069–0.34	0.098	0.035–0.098	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2017	TT = 95% of samples meet the limit	NA	NA	NA	100	NA	100	NA	99	NA	100	NA	No	Soil runoff

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%TILE)	SITES ABOVE AL/TOTAL SITES	AMOUNT DETECTED (90TH%TILE)	SITES ABOVE AL/TOTAL SITES	AMOUNT DETECTED (90TH%TILE)	SITES ABOVE AL/TOTAL SITES		
Copper (ppm)	2016	1.3	1.3	0.306	0/60	0.06 ⁷	0/32 ⁷	0.22 ⁸	0/31 ⁸	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2016	15	0	ND	1/60	ND ⁷	0/32 ⁷	ND ⁸	0/31 ⁸	No	Corrosion of household plumbing systems; Erosion of natural deposits

UNREGULATED SUBSTANCES⁹

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)	2017	17	NA	19	NA	20.3	18.07–22.54	20.54	NA
Sulfate (ppm)	2017	23	NA	31	NA	23.5	18.0–29.0	26.6	NA

UNREGULATED CONTAMINANT MONITORING RULE - PART 3 (UCMR3)⁹

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	City of Concord		Hillgrove WTP		Coddle Creek WTP		City of Kannapolis	
		AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH
1,4-Dioxane (ppb)	2014	NA	NA	NA	NA	NA	NA	3.1	NA
Chlorate (ppb)	2015	113	NA	185	NA	68.2	NA	413 ¹⁰	NA
Chromium [Total] (ppb)	2015	0.42	NA	0.24	NA	0.69	NA	NA	NA
Chromium-6 (ppb)	2015	0.40	NA	0.21	NA	0.41	NA	0.083 ¹⁰	NA
Strontium (ppb)	2015	129	NA	133	NA	128 ²	NA	232 ¹⁰	NA
Vanadium (ppb)	2015	0.28	NA	0.44	NA	0.21	NA	0.49 ¹⁰	NA

¹ Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their livers, kidneys, or central nervous systems, and may have an increased risk of getting cancer.

² Sampled in 2016.

³ Depending on the TOC in our source water, the system MUST have a certain % removal of TOC or must achieve alternative compliance criteria. If we do not achieve that % removal, there is an alternative % removal. If we fail to meet the alternative % removal, we are in violation of a Treatment Technique.

⁴ TOC compliance method: Step 1.

⁵ Compliance method: ACC # 2.

⁶ 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% or more of the monthly samples must be less than or equal to 0.3 NTU.

⁷ Sampled in 2017.

⁸ Sampled in 2015.

⁹ 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.

¹⁰ Sampled in 2014.

Definitions

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

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

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 By-products 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.