

ANNUAL WATER QUALITY REPORT

REPORTING YEAR 2018

Presented By
City of Concord



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, 2018. 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.

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.

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, those 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>.



Protecting Your Water

Bacteria are a natural and important part of our world. There are around 40 trillion bacteria living in each of us; without them, we would not be able to live healthy lives. Coliform bacteria are common in the environment and are generally not harmful themselves. The presence of this bacterial form in drinking water is a concern, however, because it indicates that the water may be contaminated with other organisms that can cause disease.

In 2016, the U.S. EPA passed a new regulation called the Revised Total Coliform Rule, which requires additional steps that water systems must take in order to ensure the integrity of the drinking water distribution system by monitoring for the presence of bacteria like total coliform and *E. coli*. The rule requires more stringent standards than the previous regulation, and it requires water systems that may be vulnerable to contamination to have in place procedures that will minimize the incidence of contamination. Water systems that exceed a specified frequency of total coliform occurrences are required to conduct an assessment of their system and correct any problems quickly. The EPA anticipates greater public health protection under the new regulation due to its more preventive approach to identifying and fixing problems that may affect public health.

Though we have been fortunate to have the highest-quality drinking water, our goal is to eliminate all potential pathways of contamination into our distribution system, and this new rule helps us to accomplish that goal.

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. In addition, 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

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 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 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). 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. The assessment findings are summarized in this table:

SUSCEPTIBILITY OF SOURCES TO POTENTIAL CONTAMINANT SOURCES		
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 Assessment report may be viewed on the Web at <https://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 your request 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 by phone at (919) 707-9098.

Reporting UCMR4 Data

Kannapolis participated in the 4th stage of the U.S. EPA’s Unregulated Contaminant Monitoring Rule (UCMR4) program by performing additional tests on our drinking water. UCMR4 sampling 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. Unregulated contaminant monitoring data are available to the public, so please feel free to contact us if you are interested in obtaining that information. If you would like more information on the U.S. EPA’s Unregulated Contaminant Monitoring Rule, please call the Safe Drinking Water Hotline at (800) 426-4791.

This program is the EPA’s screening survey and assessment monitoring of 30 unregulated contaminants using specialized analytical method technologies not as commonly used by drinking water laboratories. This program is for data gathering and future assessment options.

Analysis was performed during the 2018 calendar year for the city of Kannapolis.

SUBSTANCE (UNIT OF MEASURE)	AMOUNT DETECTED	RANGE LOW-HIGH
Manganese (ppb)	16.6	NA
Total Organic Carbon (ppb)	3,780	NA
Total Organic Carbon (ppb)	3,910	NA
Total Organic Carbon (ppb)	1,590	NA
Bromide (ppb)	21.6	NA
Manganese (ppb)	10.4	NA

How Long Can I Store Drinking Water?

The disinfectant in drinking water will eventually dissipate even in a closed container. If that container housed bacteria before it was filled with the tap water, the bacteria may continue to grow once the disinfectant has dissipated. Some experts believe that water could be stored up to six months before needing to be replaced. Refrigeration will help slow the bacterial growth.

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 at (800) 426-4791 or at www.epa.gov/safewater/lead.



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 p.m., in the Council Chambers located at 35 Cabarrus Avenue W., Concord, NC.

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:

CONCORD <i>CRYPTOSPORIDIUM</i> (RESULTS 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

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

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

Kannapolis *cryptosporidium* (sampled in 2018): *Cryptosporidium* was detected in four raw water samples out of 27 raw water samples. One detection was at Coddle Creek, at a level of 0.3 oocysts/L, and three were at Second Creek, at 0.095, 0.098, and 0.098 oocysts/L, respectively.

Kannapolis *Giardia* (sampled in 2018): *Giardia* was detected in 12 out of 27 raw water samples (results reported in cysts/L):

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 (sampled in 2018): The following averages and ranges were obtained from analyses of the following City of Kannapolis raw water sources (results reported as *E. coli* per 100 ml 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

The Albemarle system monitored for *Cryptosporidium* with samples in 2018 and found these levels:

SAMPLES (PPM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Crypto	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Giardia	.091	ND	ND	.091	.10	ND	.089	.118	.091	ND	ND	ND



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 show only 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. We are pleased to report that your drinking water meets or exceeds all federal and state requirements.

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.

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)	2018	3	3	NA	NA	ND	NA	0.10	NA	ND	NA	0.200	ND–0.200	No	Runoff from herbicide used on row crops
Chlorine (ppm)	2018	[4]	[4]	1.01	0.23–1.79	NA	NA	NA	NA	0.94	0.20–1.67	0.82	0.20–1.68	No	Water additive used to control microbes
Fluoride (ppm)	2018	4	4	NA	NA	0.88	0.55–0.88	0.84	0.48–0.84	0.69	NA	0.77	NA	No	Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAAs] ¹ (ppb)	2018	60	NA	53.3	20.1–79.4	NA	NA	NA	NA	55	32–70	48	26.0–55.5	No	By-product of drinking water disinfection
Mercury [inorganic]	2018	2	2	NA	NA	ND	NA	ND	NA	0.01	NA	ND	NA	No	Erosion of natural deposits; Discharge from refineries and factories; Runoff from landfills; Runoff from cropland
TTHMs [Total Trihalomethanes] ² (ppb)	2018	80	NA	70	15.3–94.8	NA	NA	NA	NA	49	22–66	77	30.2–96.8	No	By-product of drinking water disinfection
Total Organic Carbon [TOC] ³ (removal ratio)	2018	TT	NA	NA	NA	1.35 ⁴	1.11–1.49 ⁴	1.28 ⁴	1.04–1.39 ⁴	1.39 ⁵	1.24–1.56 ⁵	1.25 ⁴	1.11–1.39 ⁴	No	Naturally present in the environment
Turbidity ⁶ (NTU)	2018	TT = 1 NTU	NA	NA	NA	0.29	0.06–0.29	0.14	0.05–0.14	0.14	0.04–0.14	0.099	0.027–0.099	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2018	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.

		City of Concord				City of Albemarle		City of Kannapolis				
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH %ILE)	SITES ABOVE AL/TOTAL SITES	AMOUNT DETECTED (90TH %ILE)	SITES ABOVE AL/TOTAL SITES	(90TH %ILE)	SITES ABOVE AL/TOTAL SITES	VIOLATION	TYPICAL SOURCE	
Copper (ppm)	2016	1.3	1.3	0.306	0/60	0.09 ⁷	0/36 ⁷	0.18 ⁷	0/39 ⁷	No	Corrosion of household plumbing systems; Erosion of natural deposits	
Lead (ppb)	2016	15	0	ND	1/60	ND ⁷	0/36 ⁷	ND ⁷	0/39 ⁷	No	Corrosion of household plumbing systems; Erosion of natural deposits	

UNREGULATED SUBSTANCES ⁸

		Hillgrove WTP		Coddle Creek WTP		City of Albemarle		City of Kannapolis	
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH
Sodium (ppm)	2018	22	NA	20	NA	16.5	NA	8.60	NA
Sulfate (ppm)	2018	24	NA	28	NA	23.5	NA	24.4	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 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.

³ Depending on the TOC in our source water, the system MUST have a certain percentage removal of TOC or must 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.

⁴ TOC compliance method: Step 1

⁵ Compliance method: Alternative compliance criteria # 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 2018.

⁸ Unregulated contaminants are those for which the U.S. EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist the EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulations are warranted.

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% of our lead and copper detections.

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