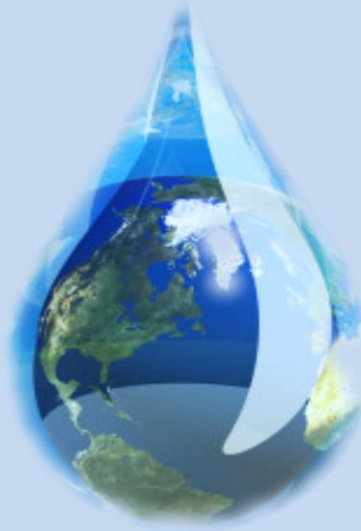


Annual
WATER
QUALITY
REPORT
Reporting Year 2016



PWS ID#: 03-19-126, 03-19-050, 40-19-010



Annual Water Quality Report For 2016

Chatham County, PWS ID#: NC 03-19-126, 03-19-050, 40-19-010



We are pleased to present our annual water quality report covering all testing performed between January 1 and December 31, 2016. This report is developed to keep you informed about your water quality, what it contains, and how it compares to standards set by regulatory agencies. 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 our water customers. Thank you for allowing us to continue providing you and your family with high quality drinking water.

If you have any questions about this report or concerning your water, please contact Daniel Clevenger at the Chatham County Water Treatment Plant at 919-303-0055. If you are interested in attending a Board of Commissioners (BOC) meeting, the BOC meets the second Monday of each month at 6 p.m. on the 2nd floor of the Historic Courthouse at 40 East Street in Pittsboro. Meetings are open to the public.

Este informe contiene información muy importante sobre su agua potable. Tradúzcalo o hable con alguien que lo entienda bien.

Where Does My Drinking Water Come From?

North Water System (PWS #03-19-126): Governors Club, Briar Chapel, Bynum, sections of Moncure, Corinth, and Merry Oaks area water customers. The water supply comes from Jordan Lake and is treated through the operation of the Chatham County Water Treatment Facility, built in 1995. It is a multistage treatment facility designed to treat and pump up to 3 million gallons of water every day (MGD). The raw water daily average is 1.66 MGD, and the yearly total raw water is 607.46 MG. The finished water daily average is 1.54 MGD, and the yearly finished total is 557.56 MG.

Asbury Water System (PWS #40-19-010): Asbury and sections of Moncure area water customers. Chatham County purchases the water supply from the City of Sanford, which draws from a single surface water source from the Cape Fear River. The Haw River, the Deep River, and the Rocky River form the headwaters of the Cape Fear River Basin.

Southwest Water System (PWS #03-19-050): Silk Hope, Highway 902, Bonlee, Harpers Crossroad, and Bennett area water customers. Chatham County purchases the water supply from the Town of Siler City, which draws from a single surface water source from the Rocky River.

Water Restrictions

Chatham County has adopted year-round conservation measures. For more details, visit our web site at www.chathamnc.org.

Chatham County purchases some of its water supply from the Town of Siler City and the City of Sanford. The County water customers served by Siler City's water (Southwest Water System) and Sanford's water (Asbury Water System) are also required to abide by their water restrictions. For more information, visit the Town of Siler City's website at www.silercity.org and the City of Sanford's website at www.sanfordnc.net.

Important Health Information

Some Chatham County water customers may be more vulnerable to constituents in drinking water than the general population. Immune compromised persons such as persons undergoing chemotherapy, persons who have undergone organ transplants, persons with HIV/AIDS or other immune system disorders, elderly and infants may be particularly at risk from infections. These persons should seek advice about drinking water from their health care providers. The U.S. Environmental Protection Agency (EPA) and the Centers for Disease Control and Prevention (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 at (800) 426-4791 or www.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.

Lead in Customer Plumbing

Elevated levels of lead, if present, 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. Chatham County is responsible for providing high-quality drinking water but cannot control the variety of materials used in plumbing components. When the water in your residential plumbing has been stagnant 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 (800) 426-4791 or at www.epa.gov/safewater/lead.

Lead Consumer Notice Violation : Chatham County received a lead consumer notice violation on June 27, 2016 for the Chatham County North System (ID # - NC0319126) for failing to provide the State with certified copies of the Lead Consumer Notices to the residents where lead sampling took place. Certified copies of the original notices (which were sent to each resident where a sample was taken immediately after the results were known) were sent to the State immediately. Compliance was achieved on July 20, 2016 and no further action was taken by the State. This was just a record reporting violation. All samples taken showed no detection of any lead and consumer water quality and health were not at risk.

Source Water Assessment Program

The North Carolina Department of Environmental Quality (NCDEQ), Public Water Supply (PWS), Source Water Assessment Program (SWAP) conducted assessments for all drinking water sources across North Carolina. The purpose of assessments is to determine the susceptibility of each drinking water source (well or surface water) to potential contaminant sources (PCS). The relative susceptibility rating of the water source for Chatham County North Water System was determined by combining the contaminant rating (number and location of PCS with the assessment area) and the inherent vulnerability rating (characteristics or existing conditions of the watershed and its delineated assessment area). The assessment findings are summarized in the table below:

Source System Name	Source Name	Susceptibility Rating	Report Date
North Water System (03-19-126)	Jordan Lake Watershed	Higher	August 2015
Purchased Water Systems	Source Name	Susceptibility Rating	Report Date
Asbury Water System (40-19-010)	Cape Fear River (City of Sanford)	Moderate	August 2015
Southwest Water System (03-19-050)	Rocky River (Town of Siler City)	Moderate	August 2015

The complete SWAP Report for Chatham County North Water System (03-19-126) may be viewed at the Web site <http://swap.ncwater.org/website/swap/viewer.htm>. 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 Annual Water Quality Report was prepared. If you are unable to access your SWAP report on the above Web site, 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 (ex.: Chatham County North Water System), system number (ex.: 03-19-126), 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 PCS in the assessment area.

Sampling Results

During the past year, we have taken hundreds of water samples in order to determine the presence of any radioactive, biological, inorganic, volatile organic, or synthetic organic contaminants. The tables below show only those contaminants that were detected in the drinking water. The state requires us to monitor 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.

Detected Contaminants

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 assessment(s) to identify problems and to correct any problems that were found during these assessments.

During the past year we were required to conduct a Level 1 Assessment on our Asbury System (NC4019010). One Level 1 Assessment was completed. In addition, we were required to take 3 corrective actions and we completed all 3 of the corrective actions which included adding sample tap locations to the County's routine flushing schedule, improvements made to the sample site disinfection process to eliminate potential for contamination and County sampling staff were re-trained on the process of sampling site disinfection and acquiring routine samples. Repeat samples and special non-compliant samples upstream and downstream were taken immediately after the total coliform-positive sample and all these samples were absent of total coliform bacteria. All assessments and corrective actions were completed by October 24, 2016.

Microbiological Contaminants in the Distribution System - Chatham County Asbury Water System (NC4019010) - For systems that collect *less than 40* samples per month

Contaminants (units)	MCL Violation (Y/N)	Your Water	MCLG	MCL	Likely Source of Contamination
Total Coliform Bacteria (presence or absence)	Y	2 * Level 1 Assessment Required	0	1 positive sample per month	Naturally present in the environment
E. Coli (presence or absence)	N	0	0	Note: If either an original routine sample and/or its repeat sample(s) are E. coli positive, a Tier 1 violation exists.	Human and animal fecal waste

*If any system collecting fewer than 40 samples per month has two or more positive samples in one month, an assessment is required.

REGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	North Water System		Southwest Water System (Purchased Water from The Town of Siler City)		Asbury Water System (Purchased Water from The City of Sanford)		VIOLATION	TYPICAL SOURCE
				AMOUNT DETECTED	RANGE (Low - High)	AMOUNT DETECTED	RANGE (Low - High)	AMOUNT DETECTED	RANGE (Low - High)		
Alpha Emitters (pCi/L)	2013	15	0	1	NA	NA	NA	NA	NA	No	Erosion of natural deposits
Chloramines (ppm)	2016	[4]	[4]	3.63	2.01 - 3.92	1.91	0.4 - 3.8	3.29	2.04 - 3.77	No	Water additive used to control microbes
Chlorine (ppm)	2016	[4]	[4]	3.49	0.32 - 4.29	1.43	0.4 - 2.6	2.51	2.28 - 2.72	No	Water additive used to control microbes
Flouride (ppm)	2016	4	4	0.76	0.05 - 1.34	0.56	NA	0.55	NA	No	Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories
Total Haloacetic Acids [HAA5] - Stage 2 (ppb)	2016	60	NA	24	18 - 28	39	2 - 49	21	2 - 41	No	By-product of drinking water disinfection
THHMs [Total Trihalomethanes] - Stage 2 (ppb)	2016	80	NA	42	28 - 52	50	30 - 56	57	35 - 79	No	By-product of drinking water chlorination needed to kill harmful organisms; Formed when source water contains large amounts of organic matter
Total Organic Carbon [TOC] ² (ppm)	2016	TT	NA	2.03	1.10 - 3.00	NA	NA	NA	NA	No	Naturally present in the environment
Total Organic Carbon [TOC] (removal ratio)	2016	TT	NA	1.58	1.30 - 1.80	1.65	1.52 - 1.87	1.38	1.16 - 1.56	No	Naturally present in the environment
Turbidity ³ (NTU)	2016	TT = 1 NTU	NA	0.037	0.009 - 0.768	0.23	NA	0.09	NA	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2016	TT=95% of samples <0.3	NA	100	NA	100	NA	100	NA	No	Soil runoff

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

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

COPPER AND LEAD CONTAMINANTS SAMPLED IN 2016 - ASBURY WATER SYSTEM ¹(Tap water samples were collected for copper and lead analysis from sample sites throughout the community)

CONTAMINANT (UNIT OF MEASURE)	YEAR SAMPLED	MCLG	AL	AMOUNT DETECTED	SITES ABOVE AL / TOTAL SITES	TYPICAL SOURCE
Copper (ppm) - (90 th percentile)	2016	1.3	AL = 1.3	0.391	0 / 30	Corrosion of household plumbing systems; erosion of natural deposits
Lead (ppb) - (90 th percentile)	2016	0	AL = 15	ND	0 / 30	Corrosion of household plumbing systems; erosion of natural deposits

SECONDARY SUBSTANCES (NORTH WATER SYSTEM)

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SMCL	MCLG	AMOUNT DETECTED	RANGE (Low-High)	VIOLATION	TYPICAL SOURCE
Iron (ppb)	2016	300	NA	22	1 - 90	No	Leaching from natural deposits; Industrial wastes
Manganese (ppb)	2016	50	NA	15	1 - 166	No	Leaching from natural deposits
pH (Units)	2016	6.5 - 8.5	NA	7.40	7.00 - 8.00	No	Naturally occurring
Sulfate (ppm)	2016	250	NA	31	NA	No	Runoff / leaching from natural deposits; Industrial wastes

UNREGULATED SUBSTANCES (NORTH WATER SYSTEM)

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE (Low-High)
Nickel (ppm)	2015	ND	NA
Sodium (ppm)	2016	19.5	NA
Total Calcium (ppm)	2016	7.98	6.99 - 8.68
Total Hardness (ppm)	2016	31	28 - 34
Total Magnesium (ppm)	2016	2.76	2.48 - 2.96

¹ Copper and Lead testing is performed on each of the three Chatham County Water Systems (North, Asbury and Southwest) once every three years. The Southwest Water System will be tested in 2017 and the North Water System will be tested in 2018.

² Depending on the TOC in the source water, the system MUST have a certain percentage removal of TOC or must achieve alternative compliance criteria. If this percentage removal is not achieved, there is an alternative percentage removal. If a system fails to meet the alternative percentage removal, the system is in violation of a Treatment Technique.

³ Turbidity is a measure of 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 be less than or equal to 0.3 NTU.

Definitions:

- **AI (Action level):** The concentration of the contaminant which, 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.
- **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 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 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):** Information not applicable/ not required for that particular water system or for that particular rule.
- **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.
- **pCi/L (picocuries per liter):** A measure of radioactivity.
- **ppb (parts per billion):** One part substance per billion parts water (or microgram per liter). One ppb is equivalent of half a teaspoon of water in an Olympic sized swimming pool.
- **ppm (parts per million):** One part substance per million parts water (or milligrams per liter). One ppm is equivalent of one drop of water in sixteen gallons.
- **Removal ratio:** A ratio between the percentage of a substance actually removed to the percentage of the substance required to be removed.
- **SMCL (Secondary Maximum Contaminant Level):** Acceptable concentrations of contaminants which cause unpleasant tastes, odors, or colors in the water. SMCLs are for contaminants that will not cause adverse health effects.
- **TT (Treatment Technique):** A required process intended to reduce the level of a contaminant in drinking water.