



This report was prepared by:  
City of Sanford  
7441 Poplar Springs Church Road  
Sanford, NC 27330

## Quality First

Once again we are proud to present our annual water quality report covering all testing performed between January 1 and December 31, 2010. 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 to continue providing you and your family with high-quality drinking water.

We encourage you to share your thoughts with us on the information contained in this report. Should you ever have any questions or concerns, we are always available to assist you.



For more information about this report, or for any questions relating to your drinking water, please call Mr. Scott M. Christiansen, Water Treatment Plant Superintendent, at (919) 775-8307.

## Community Participation

You are invited to participate in our public forum and voice your concerns about your drinking water. The City Council meets the first and third Tuesday of each month at 7:00 p.m. in the Council Chambers at the Municipal Building, 225 East Weatherspoon Street in Sanford. The Law and Finance Committee of the Council meets the Wednesday preceding each Council Meeting at 1:00 p.m. in the Council Chambers. Special meetings may be called in accordance with G.S. 160A-71. Meetings are open to the public.

## Where Does My Water Come From?

The City of Sanford's customers are fortunate because they enjoy an abundant water supply from a single surface-water source, the Cape Fear River. The Deep River, Haw River, and Rocky River form the headwaters of the Cape Fear River Basin. The City of Sanford Water Treatment Plant serves the City of Sanford, Carolina Trace, Goldston Gulf, Town of Broadway, Lee County, and parts of Chatham County. Our treatment facility provides over 2 billion gallons of clean drinking water every year.

## 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 reports that include maps, background information, and a relative susceptibility rating of Higher, Moderate, or Lower.

The relative susceptibility rating of the water source for the City of Sanford 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 watershed and its delineated assessment area). The assessment found that the Cape Fear River has a Higher susceptibility rating. It is important to note that 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.

The complete SWAP report for the City of Sanford may be viewed on the Web at [www.deh.enr.state.nc.us/pws/swap](http://www.deh.enr.state.nc.us/pws/swap). To obtain a copy of this report, please mail a written request to Source Water Assessment Program Report Request, 1634 Mail Service Center, Raleigh, NC 27699-1634, or email a request to [swap@ncmail.net](mailto:swap@ncmail.net). Please indicate your system's name and public water supply identification number, as well as 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) 715-2633.

## 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 can acquire 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; and 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.

## Water Treatment Process

The City of Sanford water treatment staff are committed to providing safe, high-quality drinking water for our customers. The treatment process consists of a series of steps. First, raw water is drawn from the Cape Fear River and stored in a 60 million gallon reservoir. The water is gravity fed into a mixing tank where a coagulant chemical (alum) is added. The addition of the coagulant chemical causes particles to adhere to one another (called "floc"), making them heavy enough to settle into a basin from which the sediment is removed. Chlorine is then added for disinfection. At this point, the water is filtered through multimedia filters composed of anthracite coal and silicate sand. As smaller, suspended particles are removed, the turbidity disappears and the clear water emerges.

Chlorine is added again as a safeguard against any bacteria that may be present as the water travels into a 2 million gallon storage tank. (We carefully monitor the amount of chlorine, adding the lowest quantity necessary to protect the safety of your water without compromising taste.) Finally, caustic soda (to adjust the final pH and alkalinity), fluoride (to prevent tooth decay), a corrosion inhibitor (to protect distribution pipes), and chlorine with ammonia (to form chloramines for final disinfection) are added before the water is pumped to sanitized elevated storage tanks and into your home or business.

## Violation Information

Date and Length of Violation: 8/19/10-12/31/10; Steps taken to Correct Violation; Multiple actions have been taken to correct both the total Haloacetic Acids and Trihalomethanes violations, including scrutinizing operational parameters to ensure minimum chlorine dosage and maximum solids removal, calibrating process instrumentation, cleaning chlorine contact chambers, cleaning elevated storage tanks, increased distribution flushing, and evaluating the effectiveness of implementing an alternative coagulant and or treatment techniques.

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 experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer.

## LT2 Rule

The U.S. EPA has created the Long-Term 2 Enhanced Surface Water Treatment Rule (LT2) for the sole purpose of reducing illness linked with the contaminant *Cryptosporidium* and other disease-causing microorganisms in drinking water. The rule will bolster existing regulations and provide a higher level of protection of your drinking water supply.

Sampling of our water source has shown the following:

*E. coli*: <1 – 148 MPN

It is important to note that these results are from our raw water source only and not from our treated drinking water supply. For more information, contact the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

## 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/safewater/lead](http://www.epa.gov/safewater/lead).

## 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 [www.epa.gov/drink/hotline/](http://www.epa.gov/drink/hotline/).

## Information on the Internet

Visit the City of Sanford's Web site ([www.sanfordnc.net](http://www.sanfordnc.net)) for information on all City departments and departmental contacts. The U.S. EPA Office of Water ([www.epa.gov/watrhome](http://www.epa.gov/watrhome)) and the Centers for Disease Control and Prevention ([www.cdc.gov](http://www.cdc.gov)) Web sites provide a substantial amount of information on many issues relating to water resources, water conservation, and public health. Also, the North Carolina Department of Environment and Natural Resources has a Web site (<http://portal.ncdenr.org/web/guest>) that provides complete and current information on water issues in North Carolina, including valuable information about our watershed.

## City of Sanford Public Access Channel

Please view the City of Sanford's Public Access Channel on Charter Cablevision Channel 11 for coverage of Council meetings, sewer and water construction activities, street closings, community announcements, and other information relevant to City activities.

## 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 water. The state allows 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.

REGULATED SUBSTANCES							
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Atrazine (ppb)	2010	3	3	0.1	ND–0.1	No	Runoff from herbicide used on row crops
Fluoride (ppm)	2010	4	4	0.94	0.08–1.07	No	Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAA] <sup>1</sup> (ppb)	2010	60	NA	65	16.9–127.9	Yes	By-product of drinking water disinfection
Simazine (ppb)	2010	4	4	0.14	0.11–0.14	No	Herbicide runoff
Total Organic Carbon [TOC]–Source	2010	NA	NA	6.0	5.5–7.7	No	Naturally present in environment
Total Organic Carbon [TOC]–Treated	2010	TT	NA	3.1	2.4–3.3	No	Naturally present in environment
TTHMs [Total Trihalomethanes] <sup>2</sup> (ppb)	2010	80	NA	110	47–205	Yes	By-product of drinking water disinfection
Turbidity <sup>3</sup> (NTU)	2010	TT=1	NA	0.13	0.03–0.13	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2010	TT=95% of samples<0.3	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	AL	MCLG	AMOUNT DETECTED (90TH%TILE)	SITES ABOVE AL/ TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2010	1.3	1.3	0.058	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2010	15	0	3	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits

UNREGULATED AND OTHER SUBSTANCES				
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Hardness (ppm)	2010	43	NA	Presence of mineral deposits, most commonly calcium and magnesium
Manganese (ppm)	2010	0.01	NA	Erosion of natural deposits
pH (Units)	2010	7.6	7.0–8.5	Measurement of acid or base neutralizing capacities of water
Sodium (ppm)	2010	29.5	NA	Erosion of natural deposits; Chemical used in water treatment
Sulfate (ppm)	2010	33.6	NA	Erosion of natural deposits; Decay of organic matter

INITIAL DISTRIBUTION SYSTEM EVALUATION RESULTS <sup>4</sup>				
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Haloacetic Acids [HAA]–IDSE Results (ppb)	2009	40	30–50	By-product of drinking water disinfection
TTHMs [Total Trihalomethanes]–IDSE Results (ppb)	2009	85	82–87	By-product of drinking water disinfection

<sup>1</sup> Locational Running Annual Average (LRAA): Site 002, 62 ppb; Site 003, 65 ppb.

<sup>2</sup> Locational Running Annual Average (LRAA): Site 001, 111 ppb; Site 002, 99 ppb; Site 003, 109 ppb; Site 004, 94 ppb.

<sup>3</sup> 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.

<sup>4</sup> We were required by the U.S. EPA to conduct an evaluation of our distribution system. This is known as an Initial Distribution System Evaluation (IDSE) and is intended to identify locations in our distribution system that have elevated disinfection by-product concentrations. Disinfection by-products (e.g., HAAs and TTHMs) result from continuous disinfection of drinking water and form when disinfectants combine with organic matter that naturally occurs in the source water.

## Definitions

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

**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).

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