

ANNUAL

WATER QUALITY REPORT

Water testing performed in 2008



CITY OF SANFORD



PWS ID#: 0353010

Meeting the Challenge

We are once again proud to present to you our annual water quality report. This edition covers all testing completed from January 1 through December 31, 2008. Over the years, we have dedicated ourselves to producing drinking water that meets all state and federal drinking water standards. We continually strive to adopt new and better methods for delivering the best quality drinking water to you. As new challenges to drinking water safety emerge, we remain vigilant in meeting the challenges of source water protection, water conservation, and community education while continuing to serve the needs of all our water users.

Please share with us your thoughts about the information in this report. After all, well-informed customers are our best allies.



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.

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.

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 City Council meets the first and third Tuesdays at 7:00 p.m. of each month in the Council Chambers at the Municipal Building at 225 E. Weatherspoon Street in Sanford. The Law and Finance Committee of the Council meets the Wednesday preceding each Council Meeting in the Council Chambers at 1:00 p.m. Special meetings may be called in accordance with G.S. 160A-71. Meetings are open to the public.

Source Water Assessment Program

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. To obtain a copy of this report, please mail a written request to Water Assessment Program – Report Request, 1634 Mail Service Center, Raleigh, NC 27699-1634, or email a request to swap@ncmail.net. Please indicate your system 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.

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 the Rocky River form the headwaters of the Cape Fear River Basin. The City of Sanford Water Treatment Plant serves the City of Sanford, Lee County, the Town of Broadway, Carolina Trace, and parts of Chatham County. Our treatment facility provides roughly 2 billion gallons of clean drinking water every year.



Information on the Internet

Visit the City of Sanford's Web site (www.sanfordnc.net) for information on all city departments and departmental contacts. The U.S. EPA Office of Water (www.epa.gov/watrhome) and the Centers for Disease Control and Prevention (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 (www.ehnr.state.nc.us) that provides complete and current information on water issues in North Carolina, including valuable information about our watershed.



Questions?

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.

What's a Cross-Connection?

Cross-connections that contaminate drinking water distribution lines are a major concern. A cross-connection is formed at any point where a drinking water line connects to equipment (boilers), systems containing chemicals (air conditioning systems, fire sprinkler systems, irrigation systems), or water sources of questionable quality. Cross-connection contamination can occur when the pressure in the equipment or system is greater than the pressure inside the drinking water line (backpressure). Contamination can also occur when the pressure in the drinking water line drops due to fairly routine occurrences (main breaks, heavy water demand) causing contaminants to be sucked out from the equipment and into the drinking water line (backsiphonage).

Outside water taps and garden hoses tend to be the most common sources of cross-connection contamination at home. The garden hose creates a hazard when submerged in a swimming pool or when attached to a chemical sprayer for weed killing. Garden hoses that are left lying on the ground may be contaminated by fertilizers, cesspools, or garden chemicals. Improperly installed valves in your toilet could also be a source of cross-connection contamination.

Community water supplies are continually jeopardized by cross-connections unless appropriate valves, known as backflow prevention devices, are installed and maintained. We are surveying all industrial, commercial, and institutional facilities in the service area to make sure that all potential cross-connections are identified and eliminated or protected by a backflow preventer. We also inspect and test each backflow preventer to make sure that it is providing maximum protection.

For more information, review the Cross-Connection Control Manual from the U.S. EPA's Web site at www.epa.gov/safewater/crossconnection.html. You can also call the Safe Drinking Water Hotline at (800) 426-4791.

Water Treatment Process

The treatment process consists of a series of steps. First, raw water is drawn from the Cape Fear River and is stored in a sixty-million-gallon reservoir. The water is gravity fed into a mixing tank where a coagulant chemical 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 two-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 (used to adjust the final pH and alkalinity), fluoride (used to prevent tooth decay), a corrosion inhibitor (used to protect distribution system pipes), and chlorine with ammonia (used to form chloramines for final disinfection) are added before the water is pumped to sanitized elevated storage tanks and into your home or business.

Lead and Drinking Water

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. The City of Sanford is responsible for providing high-quality drinking water, but 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.



Cryptosporidium in Source Water

Cryptosporidium is a microbial parasite found in surface water throughout the U.S. Although filtration removes *Cryptosporidium*, the most commonly used filtration methods cannot guarantee 100 percent removal. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, immunocompromised people are at greater risk of developing life-threatening illness. We encourage immunocompromised individuals to consult their doctor regarding appropriate precautions to take to avoid infection. *Cryptosporidium* must be ingested to cause disease, and it may be spread through means other than drinking water.

Cryptosporidium has been detected in the source water supplying the plant at very low concentrations. Although the water plant provides filtration and has not detected *Cryptosporidium* in the drinking water, we are required to notify you of the potential associated risks.

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 table below shows only those contaminants that were detected in the water. Although all of the substances listed here are under the Maximum Contaminant Level (MCL), we feel it is important that you know exactly what was detected and how much of the substance was present in the water.

The state requires us to monitor 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

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Alpha Emitters (pCi/L)	2003	15	0	0.39	NA	No	Erosion of natural deposits
Atrazine (ppb)	2008	3	3	0.12	NA	No	Runoff from herbicide used on row crops
Beta/Photon Emitters ¹ (pCi/L)	2003	50	0	0.7	NA	No	Decay of natural and man-made deposits
Chloramines (ppm)	2008	[4]	[4]	2.76	ND-4	No	Water additive used to control microbes
Chlorine (ppm)	2008	[4]	[4]	0.9	ND-2.2	No	Water additive used to control microbes
Combined Radium (ppm)	2003	5	0	0.7	NA	No	Erosion of natural deposits
Dalapon (ppb)	2008	200	200	3.1	NA	No	Runoff from herbicide used on rights of way
Fluoride (ppm)	2008	4	4	0.87	NA	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAA] (ppb)	2008	60	NA	32.6	24.5-36.8	No	By-product of drinking water disinfection
Simazine (ppb)	2008	4	4	0.152	NA	No	Herbicide runoff
TTHMs [Total Trihalomethanes] (ppb)	2008	80	NA	61.31	50-84	No	By-product of drinking water chlorination
Total Coliform Bacteria (% positive samples)	2008	5% of monthly samples are positive	0	2	NA	No	Naturally present in the environment
Total Organic Carbon [TOC] ² (ppm)	2008	TT	NA	3.6	3.3-4.1	No	Naturally present in the environment
Turbidity ³ (NTU)	2008	TT = 1 NTU	NA	0.19	0.03-0.19	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2008	TT	NA	100	NA	No	Soil runoff

Tap water samples were collected for lead and copper analyses from sample sites throughout the community (Lead was not detected at the 90th percentile)

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH% TILE)	SITES ABOVE AL/TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2007	1.3	1.3	0.101	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives

UNREGULATED AND OTHER SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Alkalinity (ppm)	2008	42	NA	Erosion of natural deposits; Water treatment processes
Hardness (ppm)	2008	35	NA	Presence of mineral deposits, most commonly calcium and magnesium
Iron (ppm)	2008	0.01	NA	Erosion of natural deposits
Manganese (ppm)	2008	0.02	NA	Erosion of natural deposits
pH (Units)	2008	8	6.5-8.5	Measurement of acid or base neutralizing capacities of water
Raw Total Organic Carbon (ppm)	2008	7.3	6.3-8.8	Naturally present in the environment
Sodium (ppm)	2008	32.3	NA	Erosion of natural deposits
Sulfate (ppm)	2008	41.6	NA	Erosion of natural deposits

¹The MCL for beta particles is 4 mrem/year. The U.S. EPA considers 50 pCi/L to be the level of concern for beta particles.

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

³Turbidity 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.

Definitions

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

pCi/L (picocuries per liter): A measure of radioactivity.

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.