



ANNUAL

WATER
QUALITY
REPORT

Water testing performed in 2009

Presented By:
CITY OF CONCORD



PWS ID#: NC0113010

Maintaining High Standards

Once again we are proud to present our annual water quality report. This report covers all testing performed between January 1, 2009, and December 31, 2009. The events of the past few years have presented many of us with challenges we could not have imagined. Yet in spite of this, we have maintained our high standards in an effort to continue delivering the best quality drinking water possible. There may be other hurdles in the future, but know that we will always stand behind you and the drinking water we work diligently to provide.

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

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/safewater/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.

Where Does My Water Come From?

The City of Concord obtains water from five 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. For information on the quality of Kannapolis's water, contact Wilmer Melton, Director of Public Works, at (704) 920-4200. 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 assessments 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 City of Concord and the City of Kannapolis 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 the table below:

SUSCEPTIBILITY OF SOURCES TO PCSs		
Source Name	Susceptibility Rating	SWAP Report Date
Lake Fisher/Coldwater Creek (Concord)	Moderate	May 16, 2007
Lake Concord/Coldwater Creek (Concord)	Moderate	May 16, 2007
Lake Don T. Howell (Concord and Kannapolis)	Moderate	May 16, 2007
Kannapolis Lake (Kannapolis)	Moderate	May 16, 2007
Second Creek/Back Creek (Kannapolis)	Moderate	May 16, 2007

These susceptibility ratings do not imply poor water quality; they indicate only the system's potential to become contaminated by PCSs in the assessment area.

The complete SWAP Reports for the cities of Concord and Kannapolis may be viewed on the Web at www.deh.enr.state.nc.us/pws/swap. Please 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 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.

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 Meeting Room at the Municipal Building, 26 Union Street South, Concord, NC.

Questions?

For more information about this report, or for any questions relating to your drinking water, please call Terry Gross, Deputy Director of Water Resources, at (704) 920-5337.



Water Use Restrictions

Water use restrictions for customers of Concord have been amended.

The following activities will be allowed under the modified water use restrictions:

- Lawn irrigation will ONLY be allowed on Tuesday, Thursday, and Saturday.
- Those who violate the specified lawn irrigation days watering rule will receive written notice of the violation and the appropriate fee will be assessed.

The following activities are permitted at anytime:

- Residential car washing will be allowed using a hand-held hose or pressure washer, both equipped with a spring-loaded nozzle.
- Residential use of water for washing down of outside areas using a hand-held hose or pressure washer, both equipped with a spring-loaded nozzle.
- Watering of trees, flowers, shrubs, ornamental plants, and vegetable gardens for plant preservation.
- All customers are allowed to use pressure washing devices.

Concord is committed to environmentally sustainable water use practices 365 days a year during normal conditions and periods of drought. Irrigation creates the single largest demand for water during spring and summer months. In order to continue to be aggressive in protecting our natural resources, the City is maintaining restrictions on days of irrigation and also uses water pricing to promote further conservation. Research shows that properly maintained lawns only need 1 inch of water per week to thrive, and it is best to water during evening and early morning hours.

We thank our customers for reducing their demand and assisting us with extending our limited water supplies during drought conditions. Our businesses and residents continue to demonstrate leadership in water conservation and environmental protection.

The aforementioned water use restrictions do not apply to those customers using wells or ponds for irrigation purposes. However, all users are encouraged to remain diligent in their conservation efforts regardless of the water source.

LT2 Rule

To comply with the LT2 rule, the City of Concord collected samples from its raw water sources during 2007 and 2008 for analysis of *Cryptosporidium* and *E. coli*. Samples were collected once a month from each raw water source that was being used that month. Here are the results that were obtained:

Cryptosporidium: *Cryptosporidium* was detected in only one raw water sample out of 21 raw water samples; the detection was found at Lake Fisher, at a level of 0.48 oocysts/L.

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

Raw water source	Average result	Range of results
Lake Don T. Howell	8.8	ND–66.7
Lake Fisher	16.1	ND–153
Lake Concord	14.5	4–24.9

The City of Kannapolis sampled Lake Kannapolis for *Cryptosporidium* during 2008 and 2009. *Cryptosporidium* was not detected, but *E. coli* was found: Average: 59.9, Range: ND–920.

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 Concord 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.

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. The state allows 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]	City of Concord		Hillgrove WTP		Coddle Creek WTP		City of Kannapolis		VIOLATION	TYPICAL SOURCE
				AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH		
Chlorine (ppm)	2009	[4]	[4]	0.97	0.10-1.97	NA	NA	NA	NA	1.30	0.22-1.90	No	Water additive used to control microbes
Fluoride (ppm)	2009	4	4	NA	NA	0.84	NA	0.91	NA	0.97	NA	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAA] (ppb)	2009	60	NA	51.5	26.1-88.7	NA	NA	NA	NA	37.9	32.6-43.2	No	By-product of drinking water disinfection
TTHMs [Total Trihalomethanes] (ppb)	2009	80	NA	64.8	19-150	NA	NA	NA	NA	65.3	42-88.2	No	By-product of drinking water chlorination
Total Organic Carbon [TOC] ¹ (removal ratio)	2009	TT	NA	NA	NA	1.32	1.19-1.49	1.26	1.11-1.54	1.17	1.08-1.36	No	Naturally present in the environment
Turbidity² (NTU)	2009	TT = 1 NTU	NA	NA	NA	0.26	0.06-0.26	0.16	0.05-0.16	0.213	0.028-0.213	No	Soil runoff
Turbidity³ (Lowest monthly percent of samples meeting limit)	2009	TT	NA	NA	NA	100	NA	100	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)	2007	1.3	1.3	0.222	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Lead (ppb)	2007	15	0	NID	1/30	No	Corrosion of household plumbing systems; Erosion of natural deposits

UNREGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	Hillgrove WTP		Coddle Creek WTP		City of Kannapolis		TYPICAL SOURCE
				AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	
Sodium (ppm)	2009	17.3	N/A	13.8	N/A	24.8	N/A	N/A	N/A	Naturally occurring
Sulfate (ppm)	2009	38.2	N/A	33.5	N/A	29.3	N/A	N/A	N/A	Naturally occurring

INITIAL DISTRIBUTION SYSTEM EVALUATION (CITY OF CONCORD)³

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Halocetic Acids [HAA]-IDSE Results (ppb)	2008	46.1	ND-64.3	By-product of drinking water disinfection
TTTHMs [Total Trihalomethanes]-IDSE Results (ppb)	2008	94.1	ND-161	By-product of drinking water disinfection

¹ Depending 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. TOC compliance method for Hillgrove and Coddle Creek is Step 1.

² 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 percent or more of the monthly samples must be less than or equal to 0.3 NTU.

³ 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 TTTHMs) 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 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.

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.

