

2011 Drinking Water Quality Test Results

Over 120 substances are regularly monitored in your drinking water, according to Federal and State regulations to ensure the production of high quality water. The table below lists all substances that were detected during the 2011 calendar year. All of which were below regulatory limits. For a more complete list of substances that were analyzed please visit our website at www.greensboro-nc.gov/water or call 373-7527.

KEY ABBREVIATIONS USED IN THE TABLE

<	Less than symbol: Below the detection limit of the instrument	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.
AL	Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.	mg/L	Milligrams per Liter: Equivalent to Parts per Million (ppm); Corresponds to one penny in \$10,000 or one minute in two years.
CU	Color Units	N/A	Not Applicable: Information not applicable/not required for the water system or for that rule.
M	Mitchell Water Plant: Located in central Greensboro, with source water supplied by Lake Brandt.	ND	Non-Detects: Laboratory analysis indicates that the contaminant is not present at the level of detection set for the particular methodology used.
MCL	Maximum Contaminant Level: The highest level of a contaminant that is allowed in drinking water; are set as close to the MCLGs as feasible using the best available treatment technology. A person would have to drink 2 liters of water every day at the MCL level for a lifetime to have a one-in-a-million chance of it affecting their health.	NR	Not Regulated: Unregulated contaminants are those for which EPA has not established drinking water standards; Used by EPA to determine the occurrence of the unregulated contaminant and if future regulation is needed.
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 and are non-enforceable public health goals.	NTU	Nephelometric Turbidity Unit: Nephelometric turbidity unit is a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.
MRDL	Maximum Residual Disinfectant Level: 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.	RAA	Running annual average for each plant, computed quarterly.
		SS	Secondary Standards: Non-enforceable guidelines for drinking water due to aesthetic considerations such as taste, color, and odor; Substances are not considered a risk to human health at the established levels.
		SU	Standard Units
		T	Townsend Water Plant: Located northeast of Greensboro, with source water supplied by Lake Townsend.
		TT	Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water.
		µg/L	Micrograms per Liter: Equivalent to Parts per Billion (ppb); Corresponds to one penny in \$10,000,000 or one minute in 2,000 years.

MONITORED LEAVING THE TREATMENT PLANT

SUBSTANCE OR CHARACTERISTIC	UNIT	HIGHEST LEVEL ALLOWED MCL	IDEAL GOAL MCLG	ANNUAL COMPLIANCE TESTS	AVERAGE OF ROUTINE TESTING	RANGE OF ROUTINE TESTING	POTENTIAL SOURCE OF SUBSTANCE
Aluminum	mg/L	SS	0.20	N/A	T 0.01 M 0.03	T <0.01-0.08 M <0.01- 0.10	Residual from the treatment process
Chloride	mg/L	SS	250	N/A	T 15.3 M 16.0	T 11-23.2 M 6.7-29.8	Naturally present in the environment; treatment process
Chlorine, Free Total residual ¹	mg/L	4.0 MRDL	4.0 MRDLG	N/A	T 2.37 M 2.39	T 1.1-3.9 M 1.17-3.9	Water additive used to control microbes
Chloramines	mg/L	4.0 MRDL	4.0 MRDLG	N/A	T 2.77 M 3.04	T 1.1-4.0 M 1.2-3.9	Erosion of natural deposits; steel mills
Color	CU	SS	15	N/A	T 1.2 M 2.0	T <1-4 M <1-6	—
Fluoride	mg/L	4.0	2.0	T <0.01 ND M <0.01 ND	T 0.34 M 0.35	T 0-0.98 M 0-1	Water additive which promotes strong teeth
Hardness, Total ²	mg/L	NR	—	N/A	T 40 M 40	T 25-71 M 10-72	Natural deposits and the treatment process
Iron	mg/L	SS	0.300	T <0.060 ND M <0.060 ND	T <0.01 M 0.01	T <0.01-0.06 M <0.01-0.10	—
Manganese	mg/L	SS	0.050	T <0.010 ND M <0.010 ND	T 0.01 M 0.01	T <0.01-0.38 M <0.01-0.59	—
Nitrate as Nitrogen	mg/L	10.0	10	T <1.00 ND M <1.00 ND	T 0.62 M 0.87	T 0.24-1.71 M 0.22-1.88	Fertilizer runoff; sewage; natural deposits
Pentachlorophenol	ug/L	1	zero	T 0.06	—	—	Discharge from rubber & chemical factories
pH	SU	SS	6.5–8.5	T 6.70 M 7.00	N/A	T 6.6-8.9 M 6.9-8.9	—
Phosphorus, Total	mg/L	NR	N/A	N/A	T 0.57 M 0.52	T 0.44-0.73 M 0.36-0.8	Fertilizer runoff; Corrosion control treatment
Sodium	mg/L	NR	N/A	T 13.31 M 21.22	T 15.5 M 18.7	T 10.8-22.3 M 4.8-39.2	Naturally occurring minerals in the soil
Sulfate	mg/L	SS	250	T 30 M 38	T 25.4 M 28.9	T 0.2-46.7 M 1.0-47.7	Naturally occurring minerals in the soil
Total Dissolved Solids (TDS)	mg/L	SS	500	N/A	T 108 M 123	T 82-172 M 93-192	Erosion of natural deposits; treatment process
Total Organic Carbon ³	mg/L	TT	N/A	N/A	RAA T 1.30 M 1.34	T 1.07-1.54 M 0.96-1.52	Naturally present in the environment
Turbidity ⁴	NTU	TT	N/A	N/A	T 0.06 M 0.10	T 0.01-0.28 M 0.06-0.29 T 100% <0.30 M 100% <0.30	Soil runoff
Zinc	mg/L	SS	5.0	—	T <0.01 M <0.01	T <0.01-0.11 M <0.01-0.08	Corrosion of plumbing fixtures; industrial waste

MONITORED IN THE DISTRIBUTION SYSTEM

Chlorine, Free residual ⁵	mg/L	4.0 MRDL	4.0 MRDLG	N/A	1.67	<0.01-4.00	Disinfection additive used to control microbes
Total Coliform ⁷	–	5.0% positive	zero	N/A	0.65%	N/A	Naturally present in the environment
E.coli ¹⁰	–	zero	zero	N/A	0.00%	N/A	Human and animal fecal waste
Total Trihalomethanes TTHM ⁸	µg/L	80	N/A	N/A	RAA 60.3	25.3-108.6	By-product of drinking water disinfection
Total Haloacetic Acids HAA5 ⁹	µg/L	60	N/A	N/A	RAA 46.1	14.4-80.1	By-product of drinking water disinfection

MONITORED AT THE CUSTOMER'S TAP

Lead ⁶	µg/L	15.0 AL	zero	1 of the 108 at risk homes tested was above AL	< 3.0-30	Corrosion of Household Plumbing
Copper ⁶	µg/L	1.30 AL	1.30	100% of homes tested were below AL	< 0.05-0.23	Corrosion of Household Plumbing

Greensboro Testing Highlights

- 2,233 water samples were collected at various points in the distribution system to test for bacteria such as Total Coliform, and E. Coli. Two of the 2,233 samples analyzed tested positive for Total Coliform bacteria. Zero samples tested positive for E.Coli. No violations occurred.



- In 2011, over 100 at-risk homes were tested for evidence of lead and copper due to corrosion of household plumbing. EPA regulations specify that 90% of the homes must be below the Action Level.

- Of the regulated Volatile Organic contaminants monitored, no detectable amounts were measured. Of the Synthetic Organic contaminants monitored in the finished water, a trace of Pentachlorophenol was detected. Two additional samples were analyzed. Both results were below detection limits.

Source Water Assessment Program (SWAP) Results

The North Carolina Department of Environment and Natural Resources (NCDENR), 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 for the City of Greensboro 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 Potential Contaminant Sources (PCSs)		
Source Name	Susceptibility Rating	SWAP Report Date
Lake Brandt	Higher	February 19, 2010
Lake Townsend	Higher	February 19, 2010

The complete SWAP Assessment report for the City of Greensboro 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 CCR was prepared. To obtain a printed 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 the request to swap@ncmail.net. Please indicate your system name (City of Greensboro), PWS ID (02-41-010), 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 919-715-2633. 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's in the assessment area.

What EPA Wants You to Know

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised 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 can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbiological contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

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 Greensboro 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 the exposure is available from the Safe Drinking Water website at www.epa.gov/safewater/lead.

Water Disinfectant

To meet mandatory drinking water standards for disinfectant byproducts levels, the City of Greensboro Water Resources Department changed disinfectants from chlorine to chloramines. The conversion occurred in July of 2011.

Questions and Public Involvement are Welcome

Water Resources is a department within the City of Greensboro local government, and is responsible for the operation and maintenance of the City's drinking water system.

Greensboro City Council meetings are held at 5:30 pm on the first and third Tuesday of each month in the Melvin Municipal Office Building at 300 West Washington Street.

If you have any questions about this report or concerns about your Greensboro City Water quality, please contact the Water Quality Laboratory at 373-7527.

For questions about your water bill or your meter, please call 373-2489.

To report water main breaks, sanitary sewer backups, or other system maintenance concerns, please call the Construction and Maintenance dispatcher at 373-2033.

If you have well water and have questions about your water quality, contact Guilford County Water Quality Department at 641-7613.

Visit our website for additional information about Water Resources at www.greensboro-nc.gov/water.

For more drinking water information, visit EPA's website at www.epa.gov/safewater/hfacts.

¹ Chlorine residual tested every two hours and monitored continuously on line. Tested at each bacteriological sample site.

² Considered to be moderately soft.

³ Compliance based on 45-50% removal.

⁴ 100% of samples were <0.30. The EPA requirement is 95%.

⁵ A minimum of 100 at-risk homes tested over a six month period by a state certified lab.

⁶ Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidney, or higher cholesterol. Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk for getting cancer.

⁷ Some people who drink water containing Haloacetic Acids in excess of the MCL over many years may have an increased risk for getting cancer.

⁸ The MCL is exceeded if a routine sample and repeat sample are Total Coliform positive, and one is also Fecal Coliform or E. Coli positive.

⁹ Some people who drink water containing Haloacetic Acids in excess of the MCL over many years may have an increased risk for getting cancer.

¹⁰ The MCL is exceeded if a routine sample and repeat sample are Total Coliform positive, and one is also Fecal Coliform or E. Coli positive.



City of Greensboro
Water Resources Department
PO Box 3136
Greensboro, NC 27402

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Important
Drinking Water
Information
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2011 Annual Water Quality Report

The City of Greensboro's 2011 Annual Water Quality Report contains important information about your drinking water. The City's Water Resources Department is proud to report that our drinking water meets or surpasses all State and Federal (EPA) standards, and no violations occurred.

Look inside for details about:

- The Sources of Your Drinking Water
- Substances that were Detected in Your Drinking Water
- Water Resources Contact Information

En Español

Este informe contiene información muy importante. Tradúzcale o hable con un amigo quien lo entienda bien. Para información en Español llame al 373-2489.

2011 Annual Water Quality Report City of Greensboro PWS# 02-41-010

The City of Greensboro is pleased to provide you with the 2011 Water Quality Report. The Federal Safe Drinking Water Act requires all public water systems to provide this report to its customers. The report presents information about our water system and the quality of our water. Our constant goal is to provide a safe and dependable supply of drinking water. The City's Water Resources Department is proud to report that our drinking water meets or surpasses all State and Federal (EPA) standards, and no violations occurred in our system.

Greensboro's Water Sources

Greensboro depends upon three surface water sources to supply our water: Lake Townsend, Lake Brandt and Lake Higgins. These lakes are located in northern Guilford County in the upper Cape Fear River Basin within a protected watershed. When full, Greensboro's three water reservoirs hold about eight billion gallons of water. Water from Lake Brandt is treated at the Mitchell Water Treatment Plant and water from Lake Townsend is treated at the Townsend Water Treatment Plant. Lake Higgins is used to refill Lake Brandt as needed.

Greensboro's water system serves approximately 270,000 people with an average daily water demand of 33.2 million gallons per day in 2011.

During 2011 the City of Greensboro purchased water from Reidsville, Winston-Salem, Burlington and the Piedmont Triad Regional Water Authority. To obtain Water Quality Reports from these systems, please contact the following:

City of Reidsville	(336) 349-1070
City of Winston-Salem	(336) 727-8418
City of Burlington	(336) 222-5133
Piedmont Triad Regional Water Authority	(336) 498-5510

Understanding Contaminants

All sources of drinking water, both tap and bottled, include water that travels over the surface of the land or through the ground. The water dissolves naturally occurring minerals and in some cases radioactive material, and can pick up substances resulting from the presence of animals or human activity.

Contaminants that may be expected in untreated water include:

- Microbial - viruses and bacteria from human, agricultural, or wildlife sources.
- Inorganic - salts and metals, which can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, mining or farming.
- Pesticides and herbicides - may come from urban stormwater runoff, residential uses and agricultural uses.
- Organic chemicals - synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.
- Radioactive materials - can be naturally occurring or the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. FDA 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 contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791), or visit their website at www.epa.gov/safewater/hfacts.

Plant Improvement Highlights

The City of Greensboro Water Resources Department continues to provide our customers with a safe and dependable supply of drinking water. Various system improvement projects are planned throughout Greensboro to continue to maintain the integrity of the distribution system.

For example, the 80 year old deteriorating finished water reservoir (dome) located at Mitchell Water Treatment Plant will be replaced. At Lake Townsend Water Treatment Plant, new filter backwash pumps designed to improve filter cleaning will be installed. A reduction in total organic carbon, which is naturally present in source water will be achieved by the installation of lake aeration. To learn more about the Water Resources Department visit www.greensboro-nc.gov/water.



Mitchell Water Treatment Plant Finished Water Reservoir



Lake Townsend Water Treatment Plant Filter Basins