# 2005 Annual Water Quality Report

## City of Greensboro
## PWS# 02-41-010

The City of Greensboro is pleased to provide you with the 2005 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.

### 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 more than 238,000 people with an average daily water demand of 31.7 million gallons per day in 2005.

During 2005, the City of Greensboro purchased minimal amounts of water from Reidsville, Winston-Salem, and Burlington. 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) 222-5132 |

Greensboro's Water Supply Lakes

### 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 by-products 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 web site at www.epa.gov/safewater/hfacts.html.

# 2005 Drinking Water Quality Test Results

Over 120 substances are regularly monitored in your drinking water according to Federal and State regulations and to produce high quality water. The table below lists all substances that were detected during the 2005 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.

## 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 | 0.2 | – | 0.06 | <0.01-0.13 | Residual from the Treatment Process |
| Bromodichloromethane | µg/L | NR | zero | T 2.76 M 4.04 | – | – | By-product of drinking water disinfection |
| Barium | mg/L[2] | 2 | 2 | 0.026 | – | – | Erosion of natural deposits; metal refinery |
| Chloride | mg/L | SS | 250 | – | 10.3 | 6.3-15.3 | Naturally occurring minerals in the soil |
| Chlorine, Free residual [1] | mg/L | 4.0 MRDL | 4.0 MRDLG | – | 1.7 | T 1.41-2.14 M 1.40-2.12 | Water additive used to control microbes |
| Chlorodibromomethane | µg/L | NR | 60 | T <0.5 ND M 1.01 | – | – | By-product of drinking water disinfection |
| Chloroform | µg/L[16] | NR | N/A | T 14.9 M 9.24 | – | – | By-product of drinking water disinfection |
| Color | CU | SS | 15 | – | 2.3 | 0.4-10.6 | Minerals; dissolved organic matter |
| Copper (also monitored at customer's tap) | mg/L[2] | SS | 1 | – | <0.01 | <0.01–0.01 | Corrosion of household plumbing |
| Fluoride | mg/L | 4 | 2 | T 0.77 M 0.74 | T 0.78 M 0.76 | T <0.1-1.13 M 0.05-1.3 | Water additive which promotes strong teeth |
| Gross Beta | pCi/L | 50 | zero | T <4 M 4.1 | – | – | Decay of natural and man-made minerals |
| Hardness, Total [2] | mg/L | NR | N/A | – | 41 | 31-50 | Natural deposits and the treatment process |
| pH | SU | SS | 6.5–8.5 | T 7.42 M 7.37 | 7.4 | T 7.2-7.7 M 6.8-8.0 | |
| Phosphorus, Total | mg/L[2] | NR | N/A | – | 0.29 | 0.13-0.43 | Fertilizer runoff; Corrosion control treatment |
| Sodium | mg/L | NR | N/A | T 7.68 M 13.2 | 12.5 | 6.8-18.8 | Naturally occurring minerals in the soil |
| Sulfate | mg/L | SS | 250 | T 15 M 24 | 20.9 | 11.0-29.0 | Naturally occurring minerals in the soil |
| Total Dissolved Solids (TDS) | mg/L | SS | 500 | – | 88 | 60–117 | Erosion of natural deposits; treatment process |
| Total Organic Carbon [3] | mg/L | TT | N/A | – | T 2.42 M 2.15 | T 1.86-3.40 M 1.45-3.04 | Naturally present in the environment |
| Turbidity [4] | NTU[10] | TT | N/A | – | T 0.02 M 0.03 | T 0.01-0.08 NTU M 0.01–0.12 NTU<br>T 100%<0.30 M 100%<0.30 | Soil Runoff |
| Uranium | pCi/L | 20 | zero | T 3.8 M <2 | – | – | Erosion of natural deposits |
| Zinc | mg/L[2] | SS | 5 | – | <0.01 | <0.01 | Corrosion plumbing fixtures; industrial waste |

## MONITORED IN THE DISTRIBUTION SYSTEM

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Chlorine, Free residual [5] | mg/L | 4.0 MRDL | 4.0 MRDLG | – | 1.03 | 0.02-2.38 | Disinfection additive used to control microbes |
| Total Haloacetic Acids HAA5 | µg/L | 60 | N/A | – | 38.8 | 9.9-66.8 | By-product of drinking water disinfection |
| Total Trihalomethanes TTHM | µg/L[16] | 80 | N/A | – | 42.3 | 21.2-73.6 | By-product of drinking water disinfection |
| Total Coliform Bacteria | – | <5.0% positive | zero | – | 0.40% | – | Naturally present in the environment |
| Fecal Coliform Bacteria | – | zero | zero | – | 0.0% | – | Human and animal fecal waste |

## MONITORED AT THE CUSTOMER'S TAP

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Copper [6] June–Sept. 2004 | mg/L[2] | 1.30 AL | 1.3 | 100% of homes tested were below AL | | <0.05-0.249 | Corrosion of Household Plumbing |
| Lead [7] June–Sept. 2004 | µg/L[16] | 15.0 AL[15] | zero | 100% of homes tested were below AL | | <3.0-10.0 | Corrosion of Household Plumbing |

1 Chlorine residual tested hourly and monitored continuously online
2 Considered to be moderately soft
3 Compliance based on 35-45% removal
4 100% of samples were <0.30. The EPA requirement is 95%
5 Tested at each bacteriological sample site
6 50 at-risk homes tested every 3 years by a state certifiied lab for copper and lead; All consumer complaints tested for copper and lead by the Water Resources lab.
7 One home that had historically never shown any lead initially testted above the Action Level. On re-sampling under the same conditions, the site was lead-free. Lab error was indicated.

## Key to Abbreviations Used in the Table

**<** **Less than symbol**: Which means below the detection limit of the instrument

**AL** **Action Level**: The concentration of a contaminant that triggers treatment changes or other requirements; If more than 10% of tap samples exceed the AL for Copper and Lead, water systems must take additional steps

**CU** **Color Units**

**M** **Mitchell Water Plant**: Located in central Greensboro

**MCL** **Maximum Contaminant Level**: The highest level of a contaminant that is allowed in drinking water; MCLs are set at very stringent levels-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

**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

**MRDL** **Maximum Residual Disinfectant Level**: Highest level of a disinfectant allowed in drinking water; Convincing evidence shows 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 disinfectants to control microbes

**µg/L** **Micrograms per Liter**: Equivalent to Parts per Billion (ppb); Corresponds to one penny in $10,000 or one minute in 2,000 years

**mg/L** **Milligrams per Liter**: Equivalent to Parts per Million (ppm); Corresponds to one penny in $10,000 or one minute in two years

**N\A** **Not Applicable**: Information not applicable/not required for the water system or for that particular regulation

**NR** **Not Regulated**: Unregulated contaminants are those for which EPA has not established drinking water standards; Used by EPA to determine the occurrence of unregulated contaminant and if future regulation is needed

**NTU** **Nephelometric Turbidity Unit**: Measures cloudiness of water; Turbidity may not go above 1.0 NTU, and must not exceed 0.30 in 95% of daily samples in any month

**pCi/L** **Picocuries per Liter**: A measure of radioactivity in water

**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 Plan**: Located northeast of Greensboro

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

## Greensboro Testing Highlights

- All substances detected were below regulatory limits. No violations occurred.
- 1,849 water samples were collected at various points in the distribution system to test for bacteria such as Total Coliform, Fecal Coliform, and E. Coli. 7 of the 1,849 samples analyzed tested positive for Total Coliform bacteria. All samples were negative for Fecal Coliform and E. Coli bacteria.

- In 2004, 50 at-risk homes were tested for evidence of Copper and Lead due to corrosion of household plumbing. All homes tested were below the EPA Action Level, although EPA regulations specify that only 90% of the homes must be below the Action Level. Greensboro well exceeds this requirement.
- Of the more than 50 Volatile Organic Chemicals that are monitored, only trace amounts of three substances were detected: Bromodichloromethane, Chlorodibromomethane, and Chloroform. These are part of the Total THM group of disinfection by-products and were well below regulatory limits. (See Table)

## 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).

## 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 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 | March 21, 2005 |
| Lake Townsend | Higher | March 21, 2005 |

The complete SWAP Assessment report for the City of Greensboro may be viewed on the Web at: **http://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 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,

## 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 p.m. on the first and third Tuesday of each month in the Melvin Municipal Office Building at 300 W. Washington Street.

If you have any questions about this report or concerning 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 the Customer Service Division at 373-2344.

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 Environmental Health at 641-7777.

Visit our web site for additional information about Water Resources: www.greensboro-nc.gov/water.

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

AGUA USELA SABIAMENTE®

### En Español

Este informe contiene información muy importante. Tradúzcale o hable con un amigo quien lo entienda bien.

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

Important Drinking Water Information Enclosed!

# 2005 Annual Water Quality Report

The City of Greensboro's 2005 Annual Water Quality Report contains important information about your drinking water.

Look inside for details about:

- The Sources of Your Drinking Water
- Substances that are Detected in Your Drinking Water
- Frequently Asked Questions
- Water Resources Contact Information

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.

WATER Resources
City of Greensboro

WATER USE IT WISELY

#1 There are a number of ways to save water, and they all start with you.

#34 Install a rain shut-off device on your automatic sprinklers to eliminate unnecessary watering.

#43 Soak your pots and pans instead of letting the water run while you scrape them clean.