



2018 ANNUAL Drinking Water Quality Report Water System Number 02-41-010

The City's Water Resources Department is proud to report that our drinking water is safe to drink and meets or surpasses all State and Federal (EPA) standards.

GREENSBORO'S WATER SOURCES

The City of Greensboro has three surface water sources: Lake Higgins, Lake Brandt, and Lake Townsend. 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 served approximately 302,454 people with an average daily water demand of 32.5 million gallons per day in 2018. During 2018 the City of Greensboro purchased water from Burlington, Reidsville, Piedmont Triad Regional Water Authority, and Winston-Salem. Water Quality Reports from these systems can be found by visiting www.greensboro-nc.gov/CCR or by contacting:

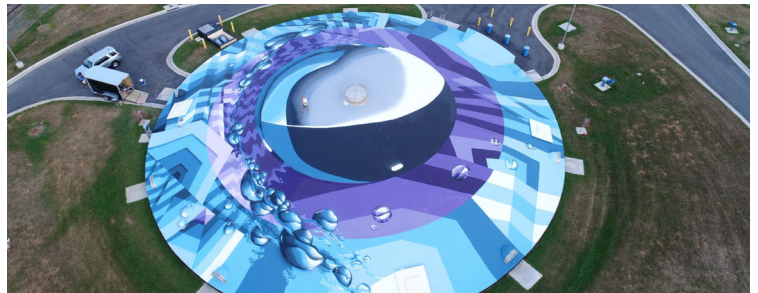
City of Burlington	336-222-5133
City of Reidsville	336-349-1070
Piedmont Triad Regional Water Authority	336-498-5510
City of Winston-Salem	336-945-1179

WHAT EPA WANTS YOU TO KNOW

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).

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. The Environmental Protection Agency (EPA) and the Center for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial 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, we provide lead testing. 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 <http://www.epa.gov/safewater/lead>.



UNDERSTANDING CONTAMINANTS LISTED IN THE REPORT

All sources of drinking water, including tap and bottled, involve water that travels over a 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 present in untreated source water include:

Microbial - viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife;

Inorganic - salts and metals, which can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, 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 - 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. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

2018 DRINKING WATER QUALITY TEST RESULTS

Approximately 120 contaminants are regularly monitored in your drinking water according to Federal and State regulations to ensure the production of high quality water. The table lists all substances that were detected during the 2018 calendar year. All substances were below regulatory limits. The presence of contaminants does not necessarily indicate that your drinking water poses a health risk. For a more complete list of substances that were analyzed in 2018 please visit our website at <http://www.greensboro-nc.gov/water> or call 336-373-7527.

MONITORED LEAVING THE TREATMENT PLANT

SUBSTANCE OR CHARACTERISTIC	UNIT	HIGHEST ALLOWED BY EPA MCL	PUBLIC HEALTH GOAL MCLG	AVERAGE	RANGE	POTENTIAL SOURCE OF SUBSTANCE
Aluminum	mg/L	Regulated	0.20	T <0.01 ND M <0.01 ND	T <0.01 ND - 0.08 M <0.01 ND	Naturally present in the environment
Alkalinity, total	mg/L		—	T 26 M 30	T 11-38 M 8-51	N/A
Calcium	mg/L		—	T 13 M 12	T 9-20 M 3-27	Natural deposits and the treatment process
Chloride	mg/L	Regulated	250	T 12 M 14	T 6-17 M 6-25	Natural deposits and the treatment process
Chlorine, Total residual ¹	mg/L	4.0 MRDL	4.0 MRDLG	T 3.0 M 3.0	T 2.0-3.6 M 0.9-3.5	Water additive used to control microbes
Chloramines	mg/L	4.0 MRDL	4.0 MRDLG	T 2.8 M 2.8	T 2.0-3.5 M 1.0-3.4	Water additive used to control microbes
Color	CU	Regulated	15	T 1 M 2	T <1 ND - 4 M <1 ND - 7	N/A
Fluoride	mg/L	4.0	2.0	T 0.55 M 0.11	T 0.29-0.88 M 0.01-0.36	Water additive that prevents dental caries
Hardness, Total ²	mg/L	Not Regulated	—	T 61 M 50	T 22-121 M 25-88	Natural deposits and the treatment process
Iron	mg/L	Regulated	0.30	T <0.01 ND M <0.01 ND	T <0.01 ND - 0.04 M <0.01 ND - 0.02	Plumbing corrosion and natural deposits
Magnesium	mg/L		—	T 2.3 M 2.5	T 1.0-4.4 M 1.5-7.7	Natural deposits and the treatment process
Nitrate (as Nitrogen)	mg/L	10.0	10.0	T <1.0 ND M <1.0 ND	T < 1 ND M < 1 ND - 1.1	Fertilizer runoff, sewage, erosion of natural deposits
pH	SU	Regulated	6.5-8.5	N/A	T 7.1-8.5 M 7.1-8.7	N/A
Phosphorus, Total	mg/L	Not Regulated	—	T 2.82 M 2.60	T 1.16-3.82 M 1.39-3.50	Fertilizer runoff, corrosion control treatment
Potassium	mg/L		—	T 2.7 M 2.7	T 1.5-3.5 M 1.5-3.7	Natural deposits and the treatment process
Sodium	mg/L	Not Regulated	—	T 15 M 20	T 8-34 M 13-40	Naturally occurring minerals in the soil
Specific Conductance	µmho/cm		—	T 212 M 232	T 84-282 M 108-330	N/A
Sulfate	mg/L	Regulated	250	T 38 M 44	T 5-58 M 3-79	Naturally occurring minerals in the soil
Total Dissolved Solids (TDS)	mg/L	Regulated	500	T 126 M 145	T 88-183 M 103-254	Erosion of natural deposits; treatment process
Total Organic Carbon ³	Removal Ratio	TT	—	RAA T 62 M 66	T 57-71 M 60-78	Naturally present in the environment
Turbidity ⁴	NTU	TT	—	T 0.06 M 0.06	T 0.01-0.24 M 0.01-0.30	Soil runoff

MONITORED IN THE DISTRIBUTION SYSTEM

Chlorine, Total residual ⁵	mg/L	4.0 MRDL	4.0 MRDLG	2.2	0.02-3.81	Water additive used to control microbes
Chloramines ⁵	mg/L	4.0 MRDL	4.0 MRDLG	2.2	<0.01 ND - 3.05	Water additive used to control microbes
Total Coliform Bacteria ⁶ (Presence/Absence)		5.0% of monthly samples positive	zero	0.65% ⁶	N/A	Naturally present in the environment
e. Coli ⁷ (Presence/Absence)		zero	zero	0	N/A	Human and animal fecal waste

MONITORED AT THE CUSTOMER'S TAP

Lead ⁸	µg/L	15.0 AL	zero	98.2% of homes were below AL 90th percentile = < 3 ND	<3 ND - 44	Corrosion of household plumbing and erosion of natural deposits
Copper ⁸	mg/L	1.3 AL	1.3	100% of homes were below AL 90th percentile = 0.06	<0.05 ND - 0.08	Corrosion of household plumbing and erosion of natural deposits

¹ Chlorine residual tested every two hours and monitored continuously on-line.

² Considered to be moderately soft (USGS standards established in 1962).

³ Compliance based on 35% and 45% removal of Total Organic Carbon; compliance method step 1.

⁴ 99.9% of monthly samples were <0.30. The EPA requirement is 95%. Combined filtered effluent used for compliance.

⁵ Tested at each bacteriological sample site. There were 1877 samples tested in 2018.

⁶ If a system collecting 40 or more samples per month finds greater than 5% of monthly samples are positive in one month, an assessment is required.

⁷ 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. There were 1877 samples tested in 2018. There were zero positive E. coli samples.

⁸ A minimum of 50 at-risk homes were tested from June 1 to September 30, 2018 by a state certified lab for lead and copper; all consumer complaints were tested for lead and copper by the Water Resources lab. The next round of compliance sampling will be done in 2018.

⁹ Some people who drink water containing Trihalomethanes (TTHM) in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have increased risk for getting cancer. MCL = 80 µg/L.

¹⁰ Some people who drink water containing Haloacetic Acids (HAA5) in excess of the MCL over many years may have an increased risk for getting cancer. MCL = 60 µg/L.

STAGE 2 DISINFECTION BYPRODUCT COMPLIANCE Based upon Locational Running Annual Average (LRAA)

LOCATION	UNIT	TTHM ⁹ RANGE		HIGHEST LRAA TTHM	HAA5 ¹⁰ RANGE		HIGHEST LRAA HAA5
		LOW	HIGH		LOW	HIGH	
B01	µg/L	20	69	48	35	50	43
B02	µg/L	29	73	53	27	57	43
B03	µg/L	36	68	73	26	58	46
B04	µg/L	27	37	50	14	38	36
B05	µg/L	25	34	48	16	34	27
B06	µg/L	41	65	59	31	52	43
B07	µg/L	17	31	49	6	25	32
B08	µg/L	29	69	51	22	43	42
B09	µg/L	17	28	46	4	27	32
B10	µg/L	29	69	48	36	58	47
B11	µg/L	40	55	60	32	50	48
B12	µg/L	28	65	50	34	53	43

2018 UNREGULATED CONTAMINANTS

Unregulated contaminants are those for which EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulations are warranted. Data results of samples taken in 2018 are listed in the table below.

2018 UNREGULATED CONTAMINANT TABLE				
CONTAMINANT	UNIT	TOWNSEND (FINISHED)	MITCHELL (FINISHED)	DISTRIBUTION
1, 4-Dioxane	µg/L	<0.07 ND	<0.07 ND	<0.07 ND - 3.9
Chlorate	µg/L	110 - 340	96 - 660	<10 ND - 440
Chromium (VI)	µg/L	0.03 - 0.07	0.02 - 0.06	0.02 - 0.18
Other PFAS	ng/L	<2 ND - 15	<2 ND - 29	<2 ND - 16
PFOA	ng/L	2.8 - 6.5	2.6 - 12	2.0 - 8.1
PFOS	ng/L	13 - 40	11 - 88	2.8 - 36

2018 UCMR4 CYANOTOXINS			
CONTAMINANT	UNIT	TOWNSEND (FINISHED)	MITCHELL (FINISHED)
Anatoxin-a	µg/L	<0.03 ND	<0.03 ND
Cylindrospermopsin	µg/L	<0.09 ND	<0.09 ND
Total Microcystins & Nodularins	µg/L	<0.30 ND	<0.30 ND

UCMR4 cyanotoxins samples were analyzed from March through June 2018. There were no detections of cyanotoxins in any of the bimonthly samples.

KEY ABBREVIATIONS USED IN THE TABLES

<: Less than symbol; below the detection limit of the instrument

AL: Action Level; the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow

CU: Color Units

LRAA: Locational Running Annual Average; The average of sample analytical results for samples taken at a particular monitoring location during the previous four calendar quarters under the Stage 2 Disinfectants and Disinfection Byproduct Rule

M: Mitchell Water Plant; located in central Greensboro, with source water supplied by Lake Brandt

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. 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

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.

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.

mg/L: Milligrams per Liter; equivalent to parts per million (ppm); corresponds to one minute in two years or to a single penny in \$10,000

ng/L: Nanograms per Liter; equivalent to parts per trillion (ppt); corresponds to one minute in 2,000,000 years or to a single penny in \$10,000,000,000

N/A: Not Applicable; information not applicable/not required for the water system or for that particular regulation

ND: Non-Detects; laboratory analysis indicates that the contaminant is not present at the level of detection set for the particular methodology used

N/R: 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

NTU: Nephelometric Turbidity Unit; a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

PFOA: Perfluorooctanoic acid, health advisory - 70 ng/L alone or in combination with PFOS

PFOS: Perfluorooctanesulfonic acid, health advisory - 70 ng/L alone or in combination with PFOA.

Other PFAS: Perfluorinated Compounds including Perfluorobutanesulfonic acid (PFBS), Perfluoroheptanoic acid (PFHPA), Perfluorohexanoic acid (PFHxA), and Perfluorohexanesulfonic acid (PFHxS)

ppb: Parts per billion; equivalent to Micrograms per liter (µg/L); corresponds to one minute in 2,000 years, or a single penny in \$10,000,000

ppm: Parts per million; equivalent to Milligrams per liter (mg/L); corresponds to one minute in two years, or a single penny in \$10,000

ppt: Parts per trillion; equivalent to Nanograms per liter (nanograms/L); corresponds to one minute in 2,000,000 years, or a single penny in \$10,000,000,000

RAA: Running Annual Average based on four quarters

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

µmho/cm: Micro ohm per centimeter

µg/L: Micrograms per Liter; equivalent to parts per billion (ppb); corresponds to one minute in 2,000 years or to a single penny in \$10,000,000

SOURCE WATER ASSESSMENT PROGRAM (SWAP) RESULTS

The North Carolina Department of Environmental Quality (NCDEQ), 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 below:

SUSCEPTIBILITY OF SOURCES TO POTENTIAL CONTAMINANT SOURCES (PCSS)

Source Name	Susceptibility Rating	SWAP Report Date
Lake Brandt	Higher	August 31, 2017
Lake Townsend	Higher	August 31, 2017
Haw River	Moderate	August 31, 2017

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 PCSs in the assessment area.

The complete SWAP assessment report for the City of Greensboro may be viewed on the web at: <https://www.ncwater.org/?page=600>. Please note that because SWAP results and reports are periodically updated by the PWS Section, the results available on this website may differ from the results that were available at the time this Drinking Water Quality Report 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. Please indicate the system name (City of Greensboro), Water System Number (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 919-707-9098 or by email at swap@ncdenr.gov.



CITY OF GREENSBORO
 WATER RESOURCES DEPARTMENT
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 GREENSBORO NC 27402

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2018 ANNUAL Drinking Water Quality Report Water System Number 02-41-010

The City of Greensboro's 2018 Annual Drinking Water Quality Report contains important information about your drinking water. The Federal Safe Drinking Water Act requires all public water systems to provide this report to its customers annually. Our primary goal is to provide a safe and dependable supply of drinking water.

Look Inside for Details About:

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

Questions and Public Involvement are Welcome

Public Comments are welcome at the Greensboro City Council meetings, held at 5:30 pm on the first 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 336-373-7527.

En Español

Este informe contiene información muy importante sobre su agua potable. Para la versión en español de este informe, visite la siguiente página web: <http://www.greensboro-nc.gov/CCR> o llame al 336-373-CITY.

For questions about your water bill or your meter, please call 336-373-CITY (2489).
 If you have well water and have questions about your water quality, contact Guilford County Environmental Health Department at 336-641-7613.
 To learn more about Water Resources, visit greensboro-nc.gov/water.
 To report water main breaks, sanitary sewer backups, sewer overflows, or other system maintenance concerns, please call the Water Resources Dispatch Office at 336-373-2033.
 For more drinking water information, visit EPA's website at <http://water.epa.gov/dwstandardsregulations>.

FYI