



Water Quality Report

2019

*This report contains information about the high-quality water
Greenville Utilities treats and delivers to our customers.*

Atención

Este folleto tiene información importante acerca de la calidad del agua que provee la Ciudad de Greenville. Si tiene preguntas acerca de la calidad del agua, llame al Departamento de Water Resources al Greenville Utilities durante las horas de trabajo.

This is a publication of the Public Information Office. Printed on recycled paper.

Our goal is to provide you with a safe and dependable supply of drinking water.

The highly-trained, state-certified staff at our Water Treatment Plant (WTP) continuously monitors the treatment process to ensure our water quality meets regulatory requirements. More than 100,000 tests are performed on hundreds of substances each year to ensure that your drinking water is safe. The WTP currently has the capacity to treat 22.5 million gallons per day (mgd). During 2018, GUC treated an average of 13.4 million gallons of water a day.



We welcome questions and feedback, or any general inquiries you may have. Please contact us at (252) 551-1551.

Connected To You

We treat more than 13.4 million gallons of water each day serving more than 140,000 people.

Sources of drinking water – both tap and bottled – include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive materials, and may pick up substances resulting from human activity or the presence of animals.

Substances that may be present in source water include: biological contaminants, such as viruses and bacteria; inorganic

contaminants, such as salts and metals; pesticides and herbicides; organic chemicals from industrial or petroleum use; and natural or man-made radioactive materials.

To ensure tap water is safe to drink, the Environmental Protection Agency (EPA) prescribes regulations limiting the amount of certain substances in water provided by public systems. U.S. Food and Drug Administration regulations establish limits for contaminants in bottled water that must

provide the same protection of public health.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants, but 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 from the EPA's Safe Drinking Water Hotline 1-800-426-4791.



WHERE YOUR WATER COMES FROM | GUC's Water Treatment Plant receives its water from the Tar River, which is classified as a surface water supply. Additionally, six area deep wells supplement the surface water supply.

The Treatment Process

Water from the Tar River is pumped into a 63-million-gallon pre-settling reservoir where large, heavy dirt particles begin to settle out as the water slowly moves to the outlet of the reservoir. From there, the water flows to the plant where a coagulant (chemical to help smaller dirt particles come together to form larger particles called floc) is added. The water then passes through a series of mixers, called flocculators, designed to facilitate the formation of floc. After the mixers, the water slows to a snail's pace as it enters the sedimentation

basins. As it passes through the basins, about 95% of the floc settles to the bottom. The cleaner water from the top of the basin is then channeled to ozone tanks where it is ozonated. This part of the process is called primary disinfection. Harmful bacteria, germs, viruses and microorganisms are killed or inactivated by this process.

Next, the water is filtered where a majority of the remaining particles are removed. Additional chemical treatment happens next. Fluoride is added to help prevent tooth

decay, sodium hydroxide (caustic) is added to increase pH, phosphate is added for corrosion control and chlorine and ammonia are added to form chloramines, which function as the secondary disinfection in the distribution system.

Finished water is then pumped into two, three-million-gallon ground storage tanks and into the distribution system, which includes our customers' homes and businesses as well as two elevated tanks.

System Improvements

In December of 2018, Greenville Utilities completed the first phase of the Water Main Rehabilitation Program. The program is focused on rehabilitating cast iron water mains, which pose concerns about pressure and capacity due to

tuberculation as well as a risk physical failure due to age.

The first phase of the program rehabilitated approximately 2,700 linear feet of six-inch cast iron main along 10th

Street, from Forbes Avenue to College Hill Drive. The rehabilitation consisted of cleaning the water main and inserting a structural cured-in-place liner into the pipe, as well as replacing associated valves and fittings.

Our Findings

Listed are substances detected in GUC's treated water during 2018, unless otherwise noted. Not listed are other substances that were tested for (i.e., MTBE, Mercury, Petroleum products, etc.), but were not detected.

Substances Description and Origin of Substance	Highest Level Allowed [MCL]	Highest Level Detected	Range Detected	Ideal Goals [MCLG]
Beta Emitters (pCi/L): Decay of natural and man-made radioactive deposits. Last analyzed in 2015.	50.0	18.0	18.0 - 4.0 (Highest and lowest site values)	0.0
Bromate (ppb): By-product of drinking water disinfection.	10.0 (Running Annual Avg.)	1.0 (Running Annual Avg.)	4.2 - <1.0 (Highest and lowest site values)	0.0
Chloramines (ppm): Water additive used to control microbes.	4.0 (Running Annual Avg.)	2.9 (System Avg.)	4.4 - 1.1 (Highest and lowest site values)	4.0
Chlorine (ppm): Water additive used to control microbes.	4.0 (Running Annual Avg.)	2.4 (System Avg.)	3.7 - 0.6 (Highest and lowest site values)	4.0
Copper (ppm): Occurs naturally in soil but can be present in drinking water due to corrosion of private household plumbing.	1.3 (Action Level)	0.2 (90th Percentile)	0 No sample site exceeded the action level.	1.3
Fluoride (ppm): A naturally occurring mineral; also added to water to promote dental health.	4.0	1.4	1.4 - 0.6	4.0
Haloacetic Acid (ppb): By-product of drinking water chlorination.	60.0 (Locational Running Annual Avg.)	31.0 (Highest Locational Running Annual Avg.)	40.0 - 16.0 (Highest and lowest site values)	n/a
Lead (ppb): Occurs naturally in soil but can be present in drinking water due to corrosion of private household plumbing.*	15.0 (Action Level)	<3.0 (90th Percentile)	0 No sample site exceeded the action level.	0.0
Total Organic Carbon Raw (ppm): Naturally present in the environment.	TT	13.3	13.3 - 5.3 (Highest and lowest site values)	n/a

Substances Description and Origin of Substance	Highest Level Allowed [MCL]	Highest Level Detected	Range Detected	Ideal Goals [MCLG]
Total Organic Carbon Treated Naturally present in the environment.	TT	3.5	3.5 - 2.7 (Highest and lowest site values)	n/a
Total Coliform (two total coliform bacteria detected): Naturally present in the environment.	Presence of total coliform bacteria in >5% of monthly samples.	1.0%	n/a	0
Trihalomethanes (ppb): By-product of drinking water chlorination.	80.0 (Locational Running Annual Avg.)	29.0 (Highest Locational Running Annual Avg.)	41.0 - 9.0 (Highest and lowest site value)	n/a
Turbidity (NTU): A measure of cloudiness in water. It may be caused by inorganic soil particles or fragments of organic matter that can interfere with treatment.	1.0 and 95% of samples below 0.3 (Treatment Technique)	0.18 and 100% of samples below 0.3	n/a	0.3

* Note From Chart

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.

GUC provides high quality drinking water, but cannot control the variety of materials used in home plumbing components. Minimize the potential for lead exposure by flushing the tap for 30 seconds to two minutes before using water

for drinking or cooking. Information on lead in drinking water, testing methods, and steps to take to minimize exposure are available from the Safe Drinking Water Hotline at (800) 426-4791 or at water.epa.gov/drink/info/lead/index.cfm.

Glossary Of Terms

Action Level – The concentration of a contaminant which, if exceeded, triggers additional treatment measures by the public water system.

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 Byproducts Rule.

Maximum Contaminant Level (MCL) – The highest level of a contaminant allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technique.

Maximum Contaminant Level Goal (MCLG) – 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.

Maximum Residual Disinfectant Level (MRDL) – 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.

Maximum Residual Disinfection Level Goal (MRDLG) – 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.

Nephelometric Turbidity Units (NTU) – Turbidity is a measure of cloudiness in water.

Ninetieth Percentile – The concentration value exceeding the lower ninety percent of samples analyzed and exceeded by the upper ten percent.

Parts Per Billion (ppb) – One part per billion is comparable to one minute in two thousand years or one penny in \$10,000,000.

Parts Per Million (ppm) – Equivalent to milligrams per liter. One part per million is comparable to one minute in two years, or one penny out of \$10,000.

Picocuries Per Liter (pCi/L) – A measurement of radioactivity per liter.

Treatment Techniques (TT) – A required process intended to reduce the level of contaminants.

> – is greater than; < – is less than.

Unregulated Contaminant Monitoring Rule (UCMR)

Every five years, the EPA issues the UCMR, a list of unregulated contaminants to be monitored by public water systems. The first UCMR was issued in September 1999.

Through the UCMR, public water

systems provide the EPA data about the presence of these unregulated contaminants in drinking water. The data allows the EPA to determine if the population is being exposed, quantify the level of exposure, and assess the impact of these unregulated contaminants on the

environment and public health. This is the first step in the EPA's process to determine what new contaminants may need to be regulated.

For more information, visit the EPA Web site at water.epa.gov.

Unregulated Contaminant Monitoring Rule 4 Data

Substances Description and Origin of Substance	Highest Level Detected	Range Detected
Bromochloroacetic Acid (ppb): By-product of drinking water chlorination.	5.5	5.5 - 3.0
Bromodichloroacetic Acid (ppb): By-product of drinking water chlorination.	1.9	1.9 - 0.8
Chlorodibromoacetic Acid (ppb): By-product of drinking water chlorination.	0.33	0.33 - 0.3
Dibromoacetic Acid (ppb): By-product of drinking water chlorination.	0.85	0.85 - 0.34
Dichloroacetic Acid (ppb): By-product of drinking water chlorination.	32.0	32.0 - 10.3
Monobromoacetic Acid (ppb): By-product of drinking water chlorination.	0.35	0.35 - 0.30
Monochloroacetic Acid (ppb): By-product of drinking water chlorination.	9.4	9.4 - 3.1
Trichloroacetic Acid (ppb): By-product of drinking water chlorination.	7.0	7.0 - 2.6
Bromide (ppb): Naturally present in the environment.	37.0	37.0 - 20.0

Substances Description and Origin of Substance	Highest Level Detected	Range Detected
TOC (ppm): Naturally present in the environment.	12.1	12.1 - 9.8
Manganese (ppb): Naturally-occurring element; commercially available in combination with other elements and minerals; used in steel production, fertilizer batteries and fireworks; drinking water and wastewater treatment chemicals; essential nutrient	14.5	14.5 - <0.4
Quinoline (ppb): Used as a pharmaceutical (anti-malarial) and flavoring agent; produced as a chemical intermediate; Component of coal.	0.1	0.1 - <0.02

Source Water Assessment Program

The NC Department of Environmental Quality (DEQ), Public Water Supply (PWS) section's 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 the 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 Greenville Utilities 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.

The report for GUC may be viewed on the web at: <https://tinyurl.com/WQR2019>. 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 a request to swap@ncmail.net. If you have any questions about the SWAP report, please contact the Source Water Assessment Program by phone at (919) 715-2633.

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.

SOURCE WATER ASSESSMENT PROGRAM FINDINGS

Greenville Utilities has seven water sources from which to draw: the Tar River (Water Treatment Plant) and six wells located throughout GUC's system. Susceptibility ratings are as follows:

SUSCEPTIBILITY	WATER SOURCES
Higher:	Water Treatment Plant
Moderate:	WSW Well, SSW Well, BWW Well, NSW Well
Lower:	EPW Well, IBW Well



What You Should Know About Chloramines

The WTP uses chloramines as its secondary disinfectant. Chloramines are intended to form fewer chemicals (by-products) in water, improve the taste and odor of water (compared to chlorine), and last longer in the distribution system to prevent bacterial growth.

Chloraminated water is safe for bathing, drinking, cooking and all uses we have for water every day.

However, there are two groups of people who need to take special care with chloraminated water: kidney dialysis patients and fish owners.

Just like chlorine, chloramines must be removed from water used in kidney dialysis machines. If you are a dialysis patient or have questions, please call your physician or dialysis center.

Like chlorine, chloramines are

toxic to fish. Fish owners need to remove chlorine, ammonia and chloramines from the water before use with tropical fish. Local pet stores carry water conditioners that remove chloramines. If you have questions, contact your pet store for information and detailed instructions. For further information about chloramines and chlorine, please call (252) 551-1551.

What You Should Know About Cryptosporidium

Cryptosporidium is a microscopic organism that can cause diarrhea, fever and other gastrointestinal symptoms if ingested. The organism occurs in human and

animal wastes and may be present in local streams and lakes. State and Federal regulations do not require Greenville Utilities to test for cryptosporidium. We go the extra

mile to protect our customers and conduct tests monthly. The WTP includes an ozonation process that inactivates cryptosporidium.

Information For At-Risk Customers

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as those undergoing chemotherapy, organ transplant patients, people with HIV/AIDS

or other immune system disorders, some elderly, and infants can be particularly at risk for infections. These people should seek advice about drinking water from their healthcare providers. EPA/Center for Disease Control guidelines on

appropriate means to lessen the risk of infection by cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline, 1-800-426-4791.

Learn More About Water And Get Involved

We provide tours of the WTP and make presentations to groups, including civic organizations and schools. We also have a variety of educational brochures available

upon request. Please contact us at (252) 551-1562 for more information. Our Board of Commissioners meets on the third Thursday of every month at noon.

Meetings are held in the Board Room on the second floor of our Main Office, 401 South Greene Street. The public is welcome to attend.

Backflow Prevention

All customers expect their water to be clean and safe. That is why GUC makes sure the water delivered to each customer is of the highest quality. When water leaves the WTP, it is at its freshest and purest. One of the ways GUC safeguards the water delivered to customers is through the cross-connection control program. This program is designed to prevent contamination of the public water system through an unprotected cross-connection. Whether these connections are permanent or temporary, they can be dangerous and could contaminate or pollute the public water system through backflow. Protective measures must be taken to prevent this potential backflow hazard.

Federal law requires GUC to protect the water supply from potential contamination or pollution. To do

this, all industrial, most commercial and all irrigation customers are required to install backflow prevention assemblies. These assemblies must be installed before any branching of the customer's plumbing can occur. Different types of backflow preventers are required depending on the hazard. Severe hazards exist when there is potential that backflow could create a health threat. Lawn irrigation systems, hospitals, medical offices and manufacturing plants using chemicals are some examples of a severe hazard. Moderate hazards exist from a backflow occurrence that causes discolored or aesthetically objectionable water, but is not a health threat. Restaurants and convenience stores are examples of moderate hazards.

Facilities on GUC's public water system are evaluated to determine

which hazard(s), if any, may potentially exist and the type of backflow prevention assembly that is required. After an approved backflow prevention assembly has been installed and tested, it must be re-tested annually. Only individuals who have been certified through a GUC-approved testing school can test backflow assemblies.

Greenville Utilities constructed a backflow testing lab to ensure contractors and plumbers have the knowledge and skills needed to install and test backflow assemblies. Opened in March 2008, the Lab is housed in its own building on the grounds of the WTP and provides a site for quarterly recertification classes and bi-annual training classes. For more information on the Cross-Connection Control Program, call (252) 551-1551.

Water Conservation & Protection

Save Water and Money—Use Water Wisely:

- Repair all leaks and drips. At one drop per second, a leaky faucet wastes nearly 2,500 gallons/year—enough water for 160 full dishwasher cycles.
- Limit showers to five minutes or less.
- Catch water in an empty tuna can to measure sprinkler output. 3/4 to 1 inch of water is enough to apply each time you irrigate.
- Ensure sprinklers water only the landscape, not driveways/streets.

To Properly Dispose of Hazardous Products:

- Motor Oil/Batteries: Take to the Pitt County Landfill on Allen Road, (252) 902-3350.

- Paint: Remove container lid and let paint harden completely. Containers with lids removed will be collected curbside.
- Pesticides/Herbicides: Contact North Carolina Cooperative Extension Service at (252) 902-1700.
- You can prevent sanitary sewer overflows by disposing of cooking oils and grease as solid waste in your home garbage collection.

For More Information:

Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Avenue NW
Mail Code 3213A
Washington, DC 20460
(202) 260-2090 (fax)
www.epa.gov

Safe Drinking Water Hotline
(800) 426-4791

**NC Department of
Environmental Quality**
1601 Mail Service Center
Raleigh, NC 27699-1601
(919) 733-4984
deq.nc.gov

American Water Works Association
6666 West Quincy Avenue
Denver, CO 80235
(800) 926-7337
www.awwa.org

www.waterwiser.org

Greenville Utilities
PO Box 1847
Greenville, NC 27835-1847
(252) 551-1551
www.guc.com