



## Yorktown Water System

PWS ID: NC0234165

### Annual Water Quality Report 2019

#### Message from Don Denton, President

Dear Carolina Water Service, Inc. of North Carolina Customers,

I am pleased to share your Annual Water Quality Report for 2019. This report is designed to inform you of the quality of water we delivered to you over the past year.

As your community water utility, we fully appreciate our role in the local community and are committed to providing safe, reliable and cost-effective service to you. All of our employees share in this commitment and strive to serve you with integrity and professionalism.

**We are proud to share this report which provides water quality testing results through December 2019. We continually work to supply water that meets or exceeds all federal and state water quality regulations.**

Our dedicated local team of water quality experts is working in the community everyday ensuring that you, our customer, are our top priority and that we are providing high quality service that protects the environment and benefits our communities - now and in the years to come.

Best regards,

Visit us online at [www.carolinawaterservicenc.com](http://www.carolinawaterservicenc.com)

Or Join us on Facebook and Twitter

@CarolinaWaterNC



According to the Centers for Disease Control and Prevention (CDC) and the US Environmental Protection Agency (EPA), the virus that causes COVID-19 has not been detected in drinking water. Conventional water treatment methods that use disinfection, such as those provided by Carolina Water Service, Inc. of North Carolina, should remove or inactivate the virus that causes COVID-19 as they do for other pathogens. Based on current evidence, the risk to water supplies is low. **You can continue to use and drink water from your tap as usual.**

EPA also encourages the public to help keep household plumbing and our nation's water infrastructure operating properly by only flushing toilet paper. **Disinfecting wipes and other items should be disposed of in the trash, not the toilet.** For more information, visit the CDC at <https://www.cdc.gov/coronavirus/2019-ncov/php/water.html> and EPA at <https://www.epa.gov/coronavirus/coronavirus-and-drinking-water-and-wastewater>.

#### Source of Drinking Water

We purchase your water from Winston-Salem/Forsyth County Utilities which operates three water treatment facilities drawing water from both the Yadkin River and Salem Lake.

#### Water Conservation

Please be reminded that our water systems in North Carolina are always in some stage of either voluntary or mandatory water conservation restriction. These restrictions may vary weekly due to drought conditions and are dictated by a system established by the North Carolina Utilities Commission in an order dated May 23, 2008. The customers are encouraged to keep informed of current restrictions by visiting [www.carolinawaterservicenc.com](http://www.carolinawaterservicenc.com) and clicking on the "Community Drought Status" link on the front page or call our customer service at (800) 525-7990.

#### Help Protect our Resources

Help put a stop to the more than **1 trillion gallons of water lost annually** nationwide due to household leaks. These easy to fix leaks waste the average family the amount of water used to fill a backyard swimming pool each year. Plumbing leaks can run up your family's water bill an extra 10 percent or more, but chasing down these water and money wasting culprits is as easy as 1—2—3. Simply check, twist, and replace your way to fewer leaks and more water savings:

- ⇒ **Check** for silent leaks in the toilet with a few drops of food coloring in the tank, and check your sprinkler system for winter damage.
- ⇒ **Twist** faucet valves; tighten pipe connections; and secure your hose to the spigot. For additional savings, twist a WaterSense labeled aerator onto each bathroom faucet to save water without noticing a difference in flow. They can save a household more than 500 gallons each year—equivalent to the amount water used to shower 180 times!
- ⇒ **Replace** old plumbing fixtures and irrigation controllers that are wasting water with WaterSense labeled models that are independently certified to use 20 percent less water and perform well.

For more information visit [www.epa.gov/watersense](http://www.epa.gov/watersense).

***We ask that all our customers help us protect our water sources which are the heart of our community, our way of life and our children's future.***

***Este informe contiene información muy importante sobre su agua beber. Tradúzcalo ó hable con alguien que lo entienda bien.***

## EPA Wants You To Know

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 and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

### **Contaminants that may be present in source water include:**

- A. **Microbial contaminants**, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- B. **Inorganic contaminants**, such as 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.
- C. **Pesticides and herbicides**, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.
- D. **Organic chemical contaminants**, including 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.
- E. **Radioactive contaminants**, which can be naturally occurring or be the result of oil and gas production and mining activities.

### **What measures are in place to ensure water is safe to drink?**

In order to ensure that tap water is safe to drink, the EPA prescribes regulations, which limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (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).

### **Special notice from EPA for the elderly, infants, cancer patients and people with HIV/AIDS or other immune system problems**

**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 microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).**

### **Information Concerning Lead in 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. Carolina Water Service, Inc. of North Carolina 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](http://www.epa.gov/safewater/lead).

Water that remains stationary within your home plumbing for extended periods of time can leach lead out of pipes joined with lead-containing solder as well as brass fixtures or galvanized pipes. Flushing fixtures has been found to be an effective means of reducing lead levels. The flushing process could take from 30 seconds to 2 minutes or longer until it becomes cold or reaches a steady temperature. Faucets, fittings, and valves, including those advertised as "lead-free," may contribute lead to drinking water. Consumers should be aware of this when choosing fixtures and take appropriate precautions. Visit the NSF Web site at [www.nsf.org](http://www.nsf.org) to learn more about lead-containing plumbing fixtures.

### **Drain Disposal Information**

Sewer overflows and backups can cause health hazards, damage home interiors, and threaten the environment. A common cause is sewer pipes blocked by grease, which gets into the sewer from household drains. Grease sticks to the insides of pipes. Over time, the grease can build up and block the entire pipe. Help solve the grease problem by keeping this material out of the sewer system in the first place:

- Never pour grease down sink drains or into toilets. Scrape grease into a can or trash.
- Put strainers in sink drains to catch food scraps / solids for disposal.

### **Prescription Medication and Hazardous Waste**

Household products such as paints, cleaners, oils, and pesticides, are considered to be household hazardous waste. Prescription and over-the-counter drugs poured down the sink or flushed down the toilet can pass through the wastewater treatment system and enter rivers and lakes (or leach into the ground and seep into groundwater in a septic system). Follow the directions for proper disposal procedures. **Do not flush hazardous waste or prescription and over-the-counter drugs down the toilet or drain.** They may flow downstream to serve as sources for community drinking water supplies. Many communities offer a variety of options for conveniently and safely managing these items. For more information, visit the EPA website at: [www.epa.gov/hw/household-hazardous-waste-hhw](http://www.epa.gov/hw/household-hazardous-waste-hhw).

**The Safe Drinking Water Act** was passed in 1974 due to congressional concerns about organic chemical contaminants in drinking water and the inefficient manner by which states supervised and monitored drinking water supplies. Congress' aim was to assure that all citizens served by public water systems would be provided high quality water. As a result, the EPA set enforceable standards for health-related drinking water contaminants. The Act also established programs to protect underground sources of drinking water from contamination.

**Understanding This Report** In order to help you understand this report, we want you to understand a few terms and abbreviations that are contained in it.

Action level (AL)	The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.
AVG	Regulatory compliance with some MCLs is based on running annual average of monthly samples.
EPA	Environmental Protection Agency.
Maximum Contaminant Level (MCL)	The highest level of a contaminant that is allowed in drinking water. MCL's are set as close to the MCLG's as feasible using the best available treatment technology.
Maximum Contaminant Level Goal (MCLG)	The "goal" is the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLG's 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 Disinfectant 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.
Not applicable (N/A)	Not applicable.
Not Detected (ND)	This means not detected and indicates that the substance was not found by laboratory analysis.
Parts per million (ppm) or Milligrams per liter (mg/l)	One part per million corresponds to one minute in two years or a single penny in \$10,000.
Parts per billion (ppb) or Micrograms per liter (ug/l)	One part per billion corresponds to one minute in 2,000 years or a single penny in \$10,000,000.
Picocuries per liter (pCi/L)	A measure of radioactivity in the water.
Locational Running Annual Average (LRAA)	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.
Running Annual Average (RAA)	Measurement of the clarity, or turbidity, of water. Turbidity in excess of 5 NTU is just noticeable to the average person.
Nephelometric Turbidity Units (NTU)	A measure of the cloudiness of the water.
Treatment Technique (TT)	A required process intended to reduce the level of a contaminant in drinking water.
Turbidity	A measure of the cloudiness of the water. It is monitored because it is a good indicator of the effectiveness of the filtration system. The turbidity rule requires that 95% or more of the monthly samples must be less than or equal to 0.3 NTU.

**Source Water Assessment Program (SWAP)**

The North Carolina Department of Environmental Quality (DEQ), 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 Winston-Salem 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
<b>City of Winston-Salem SWAP Ratings</b>		
Salem Lake	Higher	09/05/2017
Yadkin River (Idols Dam)	Higher	09/05/2017
Yadkin River (PW NW Swann WTP)	Moderate	09/05/2017

The complete SWAP Assessment report for the City of Winston-Salem may be viewed on the Web at: [www.ncwater.org/?page=600](http://www.ncwater.org/?page=600). 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. If you are unable to access

your SWAP report on the web, you may mail a written request for a printed copy to:

Source Water Assessment Program – Report Request, 1634 Mail Service Center, Raleigh, NC 27699-1634, or email requests to [swap@ncdenr.gov](mailto:swap@ncdenr.gov). Please indicate your system name, number, 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.

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.

**Monitoring Your Water**

We routinely monitor for over 150 contaminants in your drinking water according to Federal and State laws. The tables below list all the drinking water contaminants that we detected in the last round of sampling for each particular contaminant group. The presence of contaminants does not necessarily indicate that water poses a health risk. **Unless otherwise noted, the data presented in this table is from testing done January 1 through December 31, 2019.** The EPA and the State allow us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. Some of the data, though representative of the water quality, is more than one year old.

**If You Have Questions Or Want To Get Involved**

Carolina Water Service, Inc. of North Carolina does not hold regular public meetings. If you have any questions about this report or concerning your water, or would like a company representative to attend an upcoming homeowners association meeting, please contact Customer Service at 1-800-525-7990.

## Water Quality Test Results

Carolina Water Service, Inc. of North Carolina is required by State and Federal Regulations to analyze certain parameters in the water system in addition to the sampling conducted by the City of Winston-Salem/Forsyth County Utilities. The results are listed below:

### Disinfectant Residuals Summary

Contaminant (units)	Year Sampled	MRDL Violation Y/N	Your Water (highest RAA)	Range Low High	MRDLG	MRDL	Likely Source of Contamination
Chlorine (ppm)	2019	N	1.0	0.63 - 1.33	4	4.0	Water additive used to control microbes

### Stage 2 Disinfection Byproduct Compliance

Disinfection Byproduct (units)	Year Sampled	MCL Violation Y/N	Your Water (highest LRAA)	Range Low High	MCLG	MCL	Likely Source of Contamination
TTHM (ppb) [Total Trihalomethanes]	2019	N	65.7*	21.1 - 57.7	N/A	80	Byproduct of drinking water disinfection
HAA5 (ppb) [Total Haloacetic Acids]	2019	N	39.53*	17.8 - 33.4	N/A	60	Byproduct of drinking water disinfection

\*Compliance is based on a 4-quarter running average of sample results. "Your Water" lists the highest quarterly LRAA for TTHMs and HAA5s, and may reflect an average based on sample results from previous quarters not reported on this table.

### PFAS Testing

Carolina Water Service, Inc. of North Carolina is currently conducting statewide drinking water testing for Per- and Polyfluoroalkyl Substances (PFAS). These man-made compounds are used in the manufacturing of products resistant to water, grease or stains including firefighting foams, cleaners, cosmetics, paints, adhesives and insecticides. PFAS can migrate into the soil, water, and air and is likely present in the blood of humans and animals all over the world. The Environmental Protection Agency (EPA) has established a health advisory level at 70 parts per trillion. For more information visit <https://www.epa.gov/ground-water-and-drinking-water/drinking-water-health-advisories-pfoa-and-pfos>. Notification has or will be sent to all registered customers of the testing results once completed.

Carolina Water Service, Inc. of North Carolina is committed to providing safe, reliable, and cost-effective drinking water services to all of our customers.

**Violations:** In 2019, Carolina Water Service, Inc. of North Carolina performed all required monitoring for contaminants. In addition, no violations from the North Carolina Department of Environmental Quality were received and we were in compliance with applicable testing and reporting requirements.

*To access your utility account anytime, anywhere, please register for our customer portal & download MyUtilityConnect at <https://connect.myutility.us/connect/>*

**The following water quality information was provided by the City of Winston-Salem/Forsyth County Utilities. For questions about this report or the quality of drinking water, call City Link 311 or 336-727-8000.**

## Water Quality Test Results - City of Winston-Salem/Forsyth County Utilities

### 2019 Regulated at the Treatment Plant

Substance (units)	Highest Level Allowed (EPA's MCL)	Ideal Goals (EPA's MCLG)	Range of Detection	Average Level Detected	Likely Source of Contamination
Barium (ppm)	2	2	0.013 - 0.019	0.016	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Thallium (ppb)	2	0.5	ND - 1.0	<1.0	Leaching from ore-processing sites; discharge from electronics, glass and drug factories
Fluoride (ppm)	4	4	0.31 - 0.97	0.77	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Orthophosphate (ppm)	0.5 - 5.0	1.0	0.67 - 0.98	0.85	Water treatment additive to prevent pipe corrosion
Total Organic Carbon	Treatment Technique*	n/a	0.60 - 1.57	0.94	Naturally present in the environment
Turbidity, NTU	Treatment Technique**	n/a	0.01 - 0.21	0.05	Soil runoff

\*Treatment technique for total organic carbon was complied with throughout 2019.

\*\*95% of the measurements taken in one month must be below 0.3 NTU. Turbidity treatment technique was complied with throughout 2019.

NTU - A measure of the clarity of the water. Turbidity in excess of 5 NTU is just noticeable to the average person.

### Unregulated Substances at the Treatment Plant - Point of Entry

Contaminant (units)	Sample Date	Range Low High	Average Level Detected	Likely Source of Contamination
Geosmin (ppt)	2019	2.5 - 9.9	4.7	Byproduct of algae growth
2-methylisoborneol (ppt)	2019	ND - 10.6	3.9	Byproduct of algae growth

### Unregulated Substances at the Treatment Plant - Source Water

Contaminant (units)	Sample Date	Range Low High	Average Level Detected	Likely Source of Contamination
Geosmin (ppt)	2019	2.1 - 9.1	4.6	Byproduct of algae growth
2-methylisoborneol (ppt)	2019	ND - 71.9	16.4	Byproduct of algae growth

**Cryptosporidium sp.** - This is a microscopic organism that, when ingested, can cause diarrhea, fever and other gastrointestinal symptoms. The organism occurs naturally in surface waters (lakes & streams) and comes from animal waste. *Cryptosporidium sp.* is eliminated by an effective treatment combination of coagulation, sedimentation, filtration, and disinfection.

Winston-Salem/Forsyth County Utilities has completed two rounds of 24-month sampling at all of the water sources and has not detected any cryptosporidium. In addition, *Cryptosporidium sp.* has never been detected in the treated drinking water.

### Unregulated Contaminant Monitoring Rule

The 1996 Safe Drinking Water Act (SDWA) Amendments of 1996 established the Unregulated Contaminant Monitoring Rule (UCMR) that requires the US Environmental Protection Agency (EPA) to issue a list of no more than 30 unregulated contaminants to be monitored by all large public water systems (PWSs) serving over 10,000 customers and a representative sample of small PWSs. The UCMR requires the EPA to develop a Contaminant Candidate List (CCL) every five years. Unregulated contaminants are those for which EPA has not established drinking water standards.

The purpose of unregulated contaminant monitoring is to assist the EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulations are warranted. The UCMR also requires the EPA to store and maintain a database of analytical results gathered through each UCMR sampling cycle called the National Contaminant Occurrence Database (NCOD).

For this fourth cycle of the UCMR (called UCMR4), Winston-Salem/Forsyth County Utilities collected samples at the three water treatment plants and in the distribution system from July 2018 through June 2019.

Under the UCMR4 the source water is sampled for 10 cyanotoxins, bromide and organic carbon. Cyanotoxins are algae produced by-products which have potentially toxic impacts. The system has completed all the required cyanotoxin sampling and did not have any detections in the source water. Bromide and organic carbon contribute to disinfection by-product formation. In addition, 20 additional compounds were sampled which include two metals, nine pesticides, three alcohols, three semi-volatile chemicals and three brominated haloacetic acids (HAA9s). The table below contains all detections of the UCMR4 sampling to date.

If you would like more information on EPA's Unregulated Contaminants Monitoring Rule, please call the Safe Drinking Water Hotline at 1-800-426-4791 or visit [www.epa.gov/dwucmr](http://www.epa.gov/dwucmr).

#### Unregulated Contaminant Monitoring Rule 4 (UCMR4) - Treatment Plant Entry Point

Contaminant (units)	Range of Detections	Average
Manganese, ppb	ND - 2.6	0.54

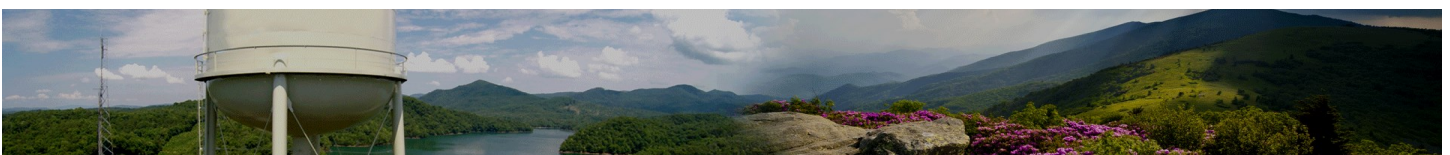
#### Unregulated Contaminant Monitoring Rule 4 (UCMR4) - Treatment Plant Source Water

Total Organic Carbon, ppm	1.08 - 3.15	1.95
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#### Unregulated Contaminant Monitoring Rule 4 (UCMR4) - Distribution System

Total Haloacetic Acids 9 (HAA9), ppb	13.3 - 25.9	19.0
Monochloroacetic Acid, ppb <sub>1</sub>	ND	ND
Dichloroacetic Acid, ppb <sub>1</sub>	4.8 - 11.0	7.4
Trichloroacetic Acid, ppb <sub>1</sub>	5.4 - 12.0	8.5
Monobromoacetic Acid, ppb <sub>1</sub>	ND	ND
Dibromoacetic Acid, ppb <sub>1</sub>	ND	ND
Bromochloroacetic Acid, ppb <sub>2</sub>	1.3 - 2.4	1.8
Bromodichloroacetic Acid, ppb <sub>2</sub>	1.0 - 1.8	1.4
Chlorodibromoacetic Acid, ppb <sub>2</sub>	ND - 0.3	ND
Tribromoacetic Acid, ppb <sub>2</sub>	ND	ND

<sup>1</sup> Currently regulated as HAA5s  
<sup>2</sup> Required HAA9 under UCMR4



Please see the following notice for a violation received by Winston-Salem/Forsyth County Utilities in 2019.

# NOTICE TO THE PUBLIC

**IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER  
WINSTON-SALEM, CITY OF HAS NOT MET MONITORING REQUIREMENTS**

*We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not our drinking water meets health standards. During the compliance period specified in the table below, we did not complete all monitoring or testing for the contaminants listed and therefore cannot be sure of the quality of your drinking water during that time.*

CONTAMINANT GROUP	FACILITY ID NO. / SAMPLE POINT ID	COMPLIANCE PERIOD BEGIN DATE	NUMBER OF SAMPLES/SAMPLING FREQUENCY
ENTRY POINT RESIDUAL DISINFECTANT CONCENTRATION	WP1/EP1 (THOMAS WTP)	NOVEMBER 2019 AND DECEMBER 2019	CONTINUOUS MONITORING

**When samples were or will be taken:** Continuous monitoring was resumed on December 6, 2019.

**What should I do?** There is nothing you need to do at this time.

**What is being done?** Chlorine is added to drinking water to kill harmful bacteria. The amount that remains in water can be measured and is called chlorine residual. The laws governing public systems require our water plants to constantly monitor and record the chlorine residual at the point of entry (POE) into the distribution system. During the period of November 12, 2019 to December 6, 2019 at the Thomas Water Treatment Plant the device that constantly monitors chlorine residual was left in “hold mode” and did not record the values as required. During this time, as is our normal standard operating practice, our operations staff manually tested this location every two hours and at no time did the chlorine residual drop below acceptable levels. Because this is considered a monitoring violation, we are required to notify you within 12 months of receiving the notice from the State of North Carolina. This incident did not jeopardize public health or the quality of water leaving the Thomas Plant.

*Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.*

For more information, please contact:  
 Bill Brewer, Water Treatment Superintendent 336-397-7727  
 City of Winston-Salem, System Number: NC0234010

**Violation Awareness Date: December 20, 2019**