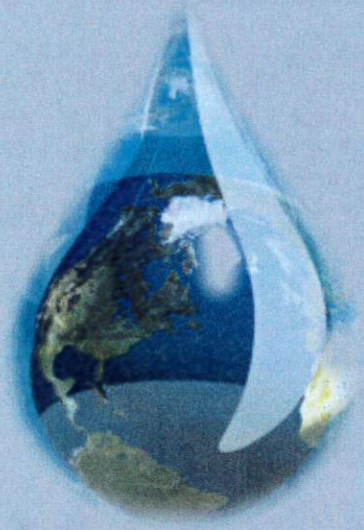
Annual WATER QUALITY REPORT

Reporting Year 2020



CHATHAM COUNTY
NORTH CAROLINA

PWS ID#: 03-19-126, 03-19-050, 40-19-010

Annual Water Quality Report For 2020

Chatham County, PWS ID#: NC 03-19-126, 03-19-050, 40-19-010

We are pleased to present our annual water quality report, which covers all testing performed between January 1 and December 31, 2020. This report is developed to keep you informed about your water quality, what it contains, and how it compares to standards set by regulatory agencies. To that end, we remain vigilant in meeting the challenges of new regulations, source water protection, water conservation, community outreach and education while continuing to serve the needs of all our water customers. Thank you for allowing us to continue providing you and your family with high quality drinking water.

If you have any questions about this report or concerning your water, please contact Daniel Clevenger at the Chatham County Water Treatment Plant at 919-303-0055. If you are interested in attending a Board of Commissioners (BOC) meeting, the BOC meets the second Monday of each month at 6 p.m. on the 2nd floor of the Historic Courthouse at 40 East Street in Pittsboro. Meetings are open to the public.

Este informe contiene información muy importante sobre su agua potable. Tradúzcalo o hable con alguien que lo entienda bien.

Where Does My Drinking Water Come From?

North Water System (PWS #03-19-126): Governors Club, Briar Chapel, Bynum, sections of Moncure, Corinth, and Merry Oaks area water customers. The water supply comes from a connection with the Town of Cary's raw water transmission line that withdraws water from Jordan Lake and is treated through the operation of the Chatham County Water Treatment Facility. Built in 1995, it is a multistage treatment facility designed to treat and pump up to 3 million gallons of water every day (MGD). The raw water daily average is 1.979 MGD, and the yearly total raw water is 710.434 MG. The finished water daily average is 1.792 MGD, and the yearly finished total is 643.266 MG. Chatham County purchases some of its water supply for the North Water System from the City of Durham. The daily average from the City of Durham is 0.123 MGD. The City of Durham draws from two surface water sources, Lake Michie and the Little River Reservoir.

Asbury Water System (PWS #40-19-010): Asbury and sections of Moncure area water customers. Chatham County purchases the water supply from the City of Sanford, which draws from a single surface water source from the Cape Fear River. The Haw River, the Deep River, and the Rocky River form the headwaters of the Cape Fear River Basin.

Southwest Water System (PWS #03-19-050): Silk Hope, Highway 902, Bonlee, Harpers Crossroad, and Bennett area water customers. Chatham County purchases the water supply from the Town of Siler City, which draws from a single surface water source from the Rocky River and from the City of Sanford, which draws from a single surface water source from the Cape Fear River. The Haw River, the Deep River and the Rocky River form the headwaters of the Cape Fear River Basin.

Water Restrictions

Chatham County has adopted year-round conservation measures. Visit our web site at www.chathamcountync.gov.

Chatham County purchases a percentage of its water supply from the Town of Siler City, the City of Sanford and the City of Durham. The County water customers served by Siler City's water (Southwest Water System), Sanford's water (Asbury Water System and parts of the Southwest Water System) and Durham's water (parts of the North Water System) are also required to abide by their water restrictions. For more information, visit the Town of Siler City's website at www.silercity.org, the City of Sanford's website at www.sanfordnc.net or the City of Durham's website at www.durhamnc.gov.

Important Health Information

Some Chatham County water customers may be more vulnerable to elements in drinking water than the general population. Immune compromised persons such as persons undergoing chemotherapy, persons who have undergone organ transplants, persons with HIV/AIDS or other immune system disorders, elderly and infants may be particularly at risk from infections. These persons should seek advice about drinking water from their health care providers. The U.S. Environmental Protection Agency (EPA) and the Centers for Disease Control and Prevention (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 at (800) 426-4791 or www.water.epa.gov/drink/hotline.

Substances That Could Be in Water

To ensure tap water is safe to drink, the U.S. EPA prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration 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 these contaminants does not necessarily indicate that the water poses a health risk.

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. In some cases, radioactive material, and substances resulting from the presence of animals or from human activity. Substances that may be present in source water include:

Microbial Contaminants, such as viruses and bacteria, may come from sewage treatment plants, septic systems, agricultural livestock operations, or wildlife. **Inorganic Contaminants**, such as salts and metals, can be naturally occurring or may result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming. **Pesticides and Herbicides**, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses. **Organic Chemical Contaminants**, including synthetic and volatile organic chemicals, are by-products of industrial processes and petroleum production and may also come from gas stations, urban stormwater runoff, and septic systems. **Radioactive Contaminants**, can be naturally occurring or may be the result of oil and gas production and mining activities. For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

Lead in Customer Plumbing

Elevated levels of lead, if present, can cause serious health problems especially for pregnant women and young children. Lead in drinking water primarily comes from materials and components associated with service lines and home plumbing. Chatham County is responsible for providing high-quality drinking water but cannot control the variety of materials used in plumbing components. When the water in your residential plumbing has been stagnant for several hours, the potential for lead exposure can be minimized 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 (800) 426-4791 or at www.epa.gov/safewater/lead.

Source Water Assessment Program

The North Carolina Department of Environmental Quality (NCDEQ), Public Water Supply (PWS), Source Water Assessment Program (SWAP) conducted assessments for all drinking water sources across North Carolina. The purpose of these assessments is to determine the susceptibility of each drinking water source (well or surface water) to potential contaminant sources (PCS). The relative susceptibility rating of the water source for Chatham County's North Water System was determined by combining the contaminant rating (number and location of PCS with the assessment area) and the inherent vulnerability rating (characteristics or existing conditions of the watershed and its delineated assessment area). The assessment findings are summarized in the table below:

Source System Name	Source Name	Susceptibility Rating	Report Date
North Water System (03-19-126)	Jordan Lake Watershed	Higher	September 2020
Purchased Water Systems	**Source Name**	**Susceptibility Rating**	**Report Date**
Asbury Water System (40-19-010)	Cape Fear River (City of Sanford)	Higher	September 2020
Southwest Water System (03-19-050)	Rocky River (Town of Siler City)	Moderate	September 2020
North Water System (03-19-126)	Lake Michie (City of Durham)	Higher	September 2020
	Little River Reservior (City of Durham)	Higher	September 2020

The complete SWAP Report for Chatham County North Water System (03-19-126) may be viewed at the Web site https://www. https://www.ncwater.org/SWAP_Reports/NC0319126_SWAP_Report-20200909.pdf. 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 Annual Water Quality Report was prepared. If you are unable to access your SWAP report on the above Web site, 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. Please indicate your system name (ex.: Chatham County North Water System), system number (ex.: 03-19-126), 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 PCS in the assessment area.

Sampling Results

During the past year, we have taken hundreds of water samples to determine the presence of any radioactive, biological, inorganic, volatile organic, or synthetic organic contaminants. The tables below show the contaminants that were detected in drinking water. The state requires us to monitor for certain substances less often than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year the sample was taken.

REGULATED SUBSTANCES

				North Water System		Southwest Water System (Purchased Water from The Town of Siler City and the City of Sanford)		Asbury Water System (Purchased Water from The City of Sanford)			
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE (Low - High)	AMOUNT DETECTED	RANGE (Low - High)	AMOUNT DETECTED	RANGE (Low - High)	VIOLATION	TYPICAL SOURCE
Alpha Emitters (pCi/L)	2019	15	0	ND	NA	NA	NA	NA	NA	No	Erosion of natural deposits
Combined Uranium (pCi/L)	2019	5	0	ND	NA	NA	NA	NA	NA	No	Erosion of natural deposits
Combined radium (pCi/L)	2019	20.1	0	ND	NA	NA	NA	NA	NA	No	Erosion of natural deposits
Chloramines (ppm)	2020	[4]	[4]	3.62	2.09 - 3.94	2.74	0.25 - 3.66	3.51	2.42 - 3.75	No	Water additive used to control microbes
Chlorine (ppm)	2020	[4]	[4]	3.44	0.15 - 3.97	2.49	0.6 - 3.7	2.53	2.07 - 2.75	No	Water additive used to control microbes
Flouride (ppm)	2020	4	4	0.74	0.37 - 2.59	0.47	0.47 - 0.47	0.68	NA	No	Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories
Total Haloacetic Acids [HAA5] - Stage 2 (ppb)	2020	60	NA	11	2 - 19	52	38 - 74	55	30 - 69	No	By-product of drinking water disinfection
TTHMs [Total Trihalomethanes] - Stage 2 (ppb)	2020	80	NA	22	10 - 28	64	40 - 70	68	37 - 72	No	By-product of drinking water chlorination needed to kill harmful organisms; Formed when source water contains large amounts of organic matter
Total Organic Carbon [TOC] [2] (ppm)	2020	TT	NA	1.59	0 - 2.30	NA	NA	NA	NA	No	Naturally present in the environment
Total Organic Carbon [TOC] (removal ratio)	2020	TT	NA	1.66	1.35 - 2.22	1.61	1.49 - 1.72	1.33	1.25 - 1.40	No	Naturally present in the environment
Turbidity [3] (NTU)	2020	TT = 1 NTU	NA	0.044	0.010 - 0.369	0.25	NA	0.17	NA	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2020	TT=95% of samples < 0.3	NA	100	NA	100	NA	100	NA	No	Soil runoff

* Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.

* Some people who drink water containing trihalomethanes in excess of the MCL over many years may have experience problems with their liver, kidneys, or central nervous system, and may have an increased risk of getting cancer.

COPPER AND LEAD CONTAMINANTS SAMPLED IN 2020 - SOUTHWEST WATER SYSTEM [1] (Tap water samples were collected for copper and lead analysis from sample sites throughout the community)

CONTAMINANT (UNIT OF MEASURE)	YEAR SAMPLED	MCLG	AL	AMOUNT DETECTED	SITES ABOVE AL / TOTAL SITES	TYPICAL SOURCE
Copper (ppm) - (90th percentile)	2020	1.3	AL = 1.3	0.057	0 / 10	Corrosion of household plumbing systems; erosion of natural deposits
Lead (ppb) - (90th percentile)	2020	0	AL = 15	0	0 / 10	Corrosion of household plumbing systems; erosion of natural deposits

SECONDARY SUBSTANCES (NORTH WATER SYSTEM)

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SMCL	MCLG	AMOUNT DETECTED	RANGE (Low-High)	VIOLATION	TYPICAL SOURCE
Iron (ppb)	2020	300	NA	14	0 - 140	No	Leaching from natural deposits: Industrial wastes
Manganese (ppb)	2020	50	NA	8	1 - 50	No	Leaching from natural deposits
pH (Units)	2020	6.5 - 8.5	NA	7.54	7.00 - 7.80	No	Naturally occuring
Sulfate (ppm)	2020	250	NA	33	NA	No	Runoff / leaching from natural deposits; Industrial wastes

UNREGULATED SUBSTANCES (NORTH WATER SYSTEM)

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE (Low-High)
Nickel (ppm)	2020	ND	NA
Sodium (ppm)	2020	22.8	NA
Phosphate (ppm)	2020	0.929	0.020 - 2.030
Total Calcium (ppm)	2020	8.32	7.75 - 8.97
Total Hardness (ppm)	2020	33	30 -36
Total Magnesium (ppm)	2020	2.89	2.68 - 3.25

[1] Copper and Lead testing is performed on each of the three Chatham County Water Systems (North, Asbury and Southwest) once every three years. The North Water System will be tested in 2021 and the Asbury Water System will be tested in 2022.

[2] Depending on the TOC in the source water, the system MUST have a certain percentage removal of TOC or must achieve alternative compliance criteria. If this percentage removal is not achieved, there ia an alternative percentage removal. If a system fails to meet the alternative percentage removal, the system is in violation of a Treatment Technique.

[3] Turbidity is a measure of cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system. The turbidity rule requires that 95% or more of the monthly samples be less than or equal to 0.3 NTU.

Definitions:

- **Al (Action level)**: The concentration of the contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.
- **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 Stage 2 Disinfectants and Disinfection Byproducts Rule.
- **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.
- **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)**: The highest level of 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.
- **NA (Not applicable)**: Information not applicable/ not required for that particular water system or for that particular rule.
- **ND (Not detected)**: Indicates that the substance was not found by laboratory analysis.
- **NTU (Nephelometric Turbidity Units)**: Measurement of the clarity, or turbidity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.
- **pCi/L (picocuries per liter)**: A measure of radioactivity.
- **ppt (parts per trillion) or Nanograms per liter (nanograms/L)**: One part substance per trillion parts water. One ppt corresponds to one minute in 2,000 years, or a single penny in $10,000,000.
- **ppb (parts per billion)**: One part substance per billion parts water (or ug/L). One part substance per billion parts water. One ppb corresponds to one minute in 2,000,000 years, or a single penny in $10,000,000,000.
- **ppm (parts per million)**: One part substance per million parts water (or mg/L). One part substance per million parts water. One ppm corresponds to one minute in 2 years, or a single penny in $10,000.
- **Removal ratio**: A ratio between the percentage of a substance actually removed to the percentage of the substance required to be removed.
- **SMCL (Secondary Maximum Contaminant Level)**: Acceptable concentrations of contaminants which cause unpleasant tastes, odors, or colors in the water. SMCLs are for contaminants that will not cause adverse health effects.
- **TT (Treatment Technique)**: A required process intended to reduce the level of a contaminant in drinking water.

NOTICE TO THE PUBLIC

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

CHATHAM CO-SW CHATHAM 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 monitor or test' or '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	WHEN SAMPLES WERE OR WILL BE TAKEN (Water System to Complete)
DISINFECTION BYPRODUCTS (DBPS)	D01	JANUARY 1, 2020	1 / QUARTERLY (MONTH OF MARCH)	MAY 2020

**** See back of this notice for further information on contaminants.**

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

What is being done? 1st Quarter samples were taken in March 2020 during the switch over from chloramines to free chlorine by the City of Sanford (the source water supply for Chatham County's Southwest System). The State marked the samples as non-compliance because they were collected during the City's burnout and not during normal operating conditions. The samples were re-taken in May 2020.

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, and 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:

Responsible Person Larry Bridges	System Name Chatham Co. – SW Chatham	System Address (Street) 964 East St. Suite 205
Phone Number (919) 542-8238	System Number NC 03-19-050	System Address (City/State/Zip) Pittsboro, NC 27312

Violation Awareness Date: __June 18, 2020_____

Date Notice Distributed: __April 2021_____ Method of Distribution:_____2020 CCR_____

Public Notification Certification:

The public water system named above hereby affirms that public notification has been provided to its consumers in accordance with all delivery, content, format, and deadline requirements specified in 15A NCAC 18C .1523.

Owner/Operator: _____ (Signature) _____ (Print Name) _____ (Date)

Contaminant Group List

(AS) Asbestos - includes testing for Chrysotile, Amphibole and Total Asbestos.
(BA) Total Coliform Bacteria – includes testing for Total Coliform bacteria and Fecal/*E.coli* bacteria. Testing for Fecal/*E.coli* bacteria is required if total coliform is present in the sample.
(BB) Bromate/Bromide – includes testing for Bromate and/or Bromide.
(CD) Chlorine Dioxide/Chlorite – includes testing for Chlorine Dioxide and/or Chlorite.
(DI) Disinfectant Residual must be tested with the collection of each compliance bacteriological sample, at the same time and site.
Fecal Indicators – includes *E.coli*, enterococci or coliphage.
(HAA5)- Haloacetic Acids - include Monochloroacetic Acid, Dichloroacetic Acid, Trichloroacetic Acid, Monobromoacetic Acid, Dibromoacetic Acid.
(IOC) Inorganic chemicals - include Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cyanide, Fluoride, Iron, Manganese, Mercury, Nickel, pH, Selenium, Sodium, Sulfate, and Thallium.
(LC) Lead and Copper are tested by collecting the required number of samples and testing each of the samples for both lead and copper.
(NT) Nitrate/ (NI) Nitrite – includes testing for nitrate and/or nitrite.
(RA) Radionuclides - includes Gross Alpha, Radon, Uranium, Combined Radium, Radium 226, Radium 228, Potassium 40 (Total), Gross Beta, Tritium, Strontium 89, Strontium 90, Iodine 131, and Cesium 134.
(SOC) – Synthetic Organic Chemicals/Pesticides – include 2,4-D, 2,4,5-TP (Silvex), Alachlor, Atrazine, Benzo(a)pyrene, Carbofuran, Chlordane, Dalapon, Di(2-ethylhexyl)adipate, Di(2-ethylhexyl)phthalate, Dibromochloropropane (DBCP), Dinoseb, Endrin, Ethylene dibromide (EDB), Heptachlor, Heptachlor Epoxide, Hexachlorobenzene, Hexachlorocyclopentadiene, Lindane, Methoxychlor, Oxamyl(vydate), PCBs, Pentachlorophenol, Picloram, Simazine, Toxaphene.
(TOC) - Total Organic Carbon - includes testing for Alkalinity, Dissolved Organic Carbon (DOC), Total Organic Carbon (TOC) and Ultraviolet Absorption 254 (UV254). Source water samples must be tested for both TOC and Alkalinity. Treated water samples must be tested for TOC. Source water samples and treated water samples must be collected on the same day.
(TTHM) - Total Trihalomethanes - include Chloroform, Bromoform, Bromodichloromethane, and Dibromochloromethane.
(VOC) - Volatile Organic Chemicals - include 1,2,4-Trichlorobenzene, Cis-1,2-Dichloroethylene, Xylenes (Total), Dichloromethane, o-Dichlorobenzene, p-Dichlorobenzene, Vinyl Chloride, 1,1,-Dichloroethylene, Trans-1,2,-Dichloroethylene, 1,2-Dichloroethane, 1,1,1-Trichloroethane, Carbon Tetrachloride, 1,2-Dichloropropane, Trichloroethylene, 1,1,2-Trichloroethane, Tetrachloroethylene, Chlorobenzene, Benzene, Toluene, Ethylbenzene, and Styrene.
(WQP) Water Quality Parameters (for Lead and Copper Rule) - includes Calcium, Orthophosphate (as PO_4), Silica, Conductivity, pH, Alkalinity and Water Temperature.

Instructions for Completing the Notice/Certification Form & for Performing Public Notice for Tier 3 Monitoring Violations

1. **Complete ALL the missing information on the "Notice to the Public."** (Note: Under the section of the notice entitled "What is being done?" describe corrective actions you took, or are taking. You may choose the appropriate language below, or develop your own:
   - We have since taken the required samples, as described in the last column of the table above. The sample results showed we are meeting drinking water standards.
   - We have since taken the required samples, as described in the last column of the table above. The sample for [contaminant] exceeded the limit. [Describe corrective action; use information from public notice prepared for violating the limit.]
   - We plan to take the required samples soon, as described in the last column of the table above.

2. **Provide public notification to your customers as soon as reasonably possible after you learn of the violation as follows:**

Community systems must use one of the following: • Hand or direct delivery • Mail, as a separate notice or included with the bill **For community systems**, this notice is appropriate for insertion in an annual notice or the Consumer Confidence Report (CCR), as long as public notification timing and delivery requirements are met [CFR 141.204(d)].	**Non-community** systems must use one of the following: • Posting in conspicuous locations • Hand delivery • Mail **For non-community systems**, if you post the notice, it must remain posted as long as the violation or situation persists; in no case should the notice be posted less than 7 days, even if the violation is resolved. [CFR 141.204(b)].
(Note: **Both** community and non-community systems must use *another* method reasonably calculated to reach others **IF** they would not be reached by one of the required methods listed above [CFR 141.204(c)]. Such methods could include newspapers, e-mail, or delivery to community organizations.	

   - **Both sides of this public notice/certification MUST be delivered to the persons served by the water system** in order for your customers to have access to the required **Contaminant Group List.**
   - If you mail, post, or hand deliver, print your notice on letterhead, if available.
   - Notify new billing customers or units prior to or at the time their service begins.
   - Provide multi-lingual notifications if 30% of the residents served are non-English speaking.
   - Should you decide not to use this enclosed notice and develop your own version instead, the mandatory language in ***bold italics*** may not be altered and you MUST include the ten required elements listed in CFR 141.205. A separate Public Notification Certification Form that is available on our web site or the certification located at the bottom of the sample notice provided MUST also be submitted.

3. **After issuing the "Notice to the Public" to your customers, sign and date the "Public Notification Certification" at the bottom of the notice. Mail the completed public notice/certification form to the Public Water Supply Section, ATTN: Public Notification Rule Manager, 1634 Mail Service Center, Raleigh, NC 27699-1634 within ten days after issuing the notice [CFR 141.31(d)]. Keep a copy for your files.**