



## Public Utilities Department

### ***2021 Annual Drinking Water Quality Report*** ***Town of Smithfield Water Treatment Plant*** **PWS ID# 03-51-010**

We are pleased to present to you this year's Annual Drinking Water Quality Report. This report is a snapshot of last year's water quality. Included are details about your source of water, what it contains, and how it compares to standards set by regulatory agencies. Our constant goal is to provide you with a safe and dependable supply of drinking water. We want you to understand the efforts we make to continually improve the water treatment process and protect our water resources. We are committed to ensuring the quality of your water and to providing you with this information, because informed customers are our best allies. If you have any questions about this report or concerning your water, please contact Dale Boyette at (919) 934-2661. If you want to learn more, please attend any of our regularly scheduled Town Council meetings held on the first Tuesday of each month at 7:30 pm in the Smithfield Town Hall.

## **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. 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).

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 Town of Smithfield 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 <http://www.epa.gov/safewater/lead>.

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 microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife; 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; 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, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems; and radioactive contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

## When You Turn on Your Tap, Consider the Source

The source water treated by the Smithfield Water Plant is withdrawn from the Neuse River.

Our plant is a conventional surface water treatment plant which utilizes coagulation, sedimentation and filtration.

The Smithfield Water Filtration plant has the capacity to withdraw up to 8.2 million gallons of water per day from the Neuse River.

Our plant currently has the capacity to produce 6.2 million gallons per day with plans to expand production to 8.2 million gallons per day.



**Smithfield's Water Filtration Plant is located at 515 North 2<sup>nd</sup> Street.**

## Source Water Assessment Program (SWAP) Results



The North Carolina Department of Environment and Natural Resources (DENR), Public Water Supply (PWS) Section, Source Water Assessment Program (SWAP) conducted assessments for all drinking water sources across North Carolina. The purpose of the assessments was to determine the susceptibility of each drinking water source (well or surface water intake) to Potential Contaminant Sources (PCSs). The results of the assessment are available in SWAP Moderate or Lower

Assessment Reports which include maps, background information and a relative susceptibility rating of Higher, The North Carolina Department of Environment and Natural Resources (DENR), Public Water Supply (PWS) Section, Source Water Assessment Program (SWAP) conducted assessments for all drinking water sources across North Carolina. The purpose of the assessments was to determine the susceptibility of each drinking water source (well or surface water intake) to Potential Contaminant Sources (PCSs). The results of the assessment are available in SWAP Assessment Reports that include maps, background information and a relative susceptibility rating of Higher, Moderate or Lower.

The relative susceptibility rating of each source for the Town of Smithfield 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
Neuse River	Higher	September 2020

The complete SWAP Assessment report for the Town of Smithfield may be viewed on the Web at: <http://swap.ncwater.org/website/swap/GetPWSNameForm.asp>. 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.



**Peal Reservoir, Smithfield’s 16 million gallon off stream storage reservoir.**

**Peal Reservoir will soon be expanded to 24 million gallons.**

# Violations that Your Water System Received for the Report Year

The Town of Smithfield received no violations during 2021.

## Awards and Accomplishments

The Town of Smithfield Water Utility Departments are dedicated to preserving the confidence of our customers as well as providing the highest quality water possible.

### **We are proud of our accomplishments!**

#### **Distribution Awards:**

In 2021 the Town of Smithfield Water Distribution Department received the American Water Works Association system of the year award for small sized systems.

Small Sized Distribution Systems are designated as systems with greater than 100 miles and up to 250 miles of distribution pipe.

The North Carolina Water Distribution System of The Year Award is awarded each year to a single municipality in each class, Small, Medium and Large system. This prestigious award is given in recognition of systems that protect the public health through pro-active practices of management, operations and maintenance of their water distribution system beyond minimum standards.

Smithfield's water distribution department received the AWWA Small System award 5 consecutive years!

#### **Treatment Awards:**

In 2020 the Town of Smithfield Water Treatment Plant received the Area Wide Optimization Award (AWOP) for excellence in water quality!

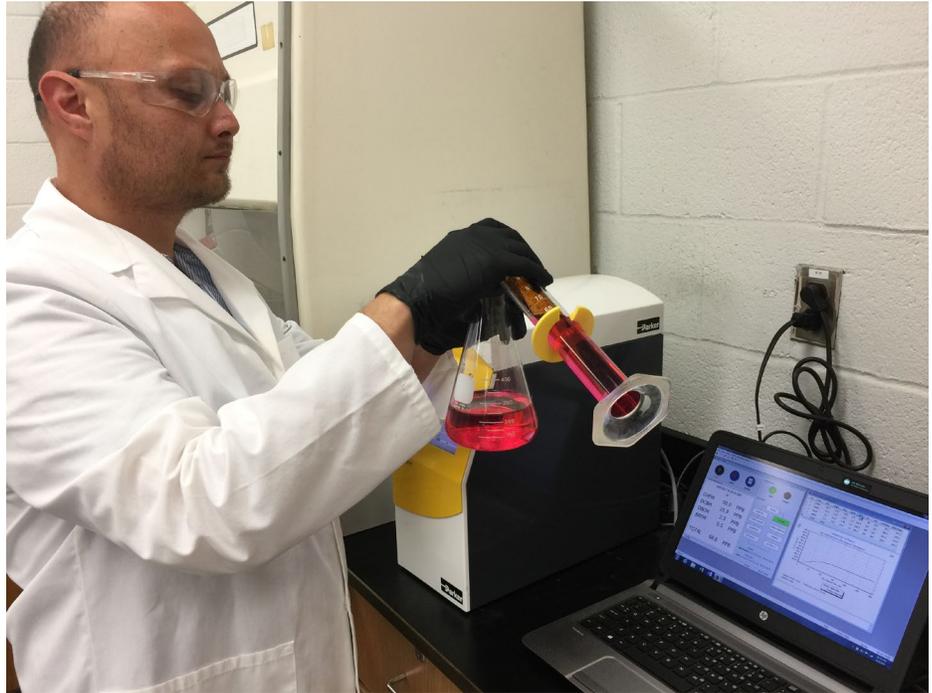
AWOP awards are given each year to water treatment facilities that demonstrate outstanding turbidity removal, a key test of drinking water quality. Turbidity is a measure of the cloudiness or haziness of water caused by individual particles that can interfere with disinfection and provide a medium for microbial growth. Microbes are microscopic particles that occur naturally but can include harmful bacteria and viruses.

While all drinking water systems must meet strict state and federal drinking water standards, Smithfield Water Treatment Plant met performance goals that are significantly more stringent.

Smithfield Water Treatment Plant is proud to be among the elite treatment facilities committed to providing excellence in water quality while guarding the public health.

## Water Quality Data Tables of Detected Contaminants

We routinely monitor for Over 150 contaminants in your drinking water according to Federal and State laws. The table below lists all the drinking water contaminants that we detected in the last round of sampling for the 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, 2021.** 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.



## Tables of Detected Contaminants

### Inorganic Contaminants

Contaminant (units)	Sample Date	MCL Violation Y/N	Your Water	Range		MCLG	MCL	Likely Source of Contamination
				Low	High			
Fluoride (ppm)	2021	N	>0.01	NA		4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories

### Unregulated Inorganic Contaminants

Contaminant (units)	Sample Date	Your Water	Range		Secondary MCL
			Low	High	
Sulfate (ppm)	2020	44.0	NA		250

### Synthetic Organic Chemical (SOC) Contaminants Including Pesticides and Herbicides

Contaminant (units)	Sample Date	MCL Violation Y/N	Your Water	Range		MCLG	MCL	Likely Source of Contamination
				Low	High			
Simazine (ppb)	2020	N	0.0	0.0-2.4		4	4	Herbicide runoff

### Lead and Copper Contaminants

Contaminant (units)	Sample Date	Your Water	# of sites found above the AL	MCLG	AL	Likely Source of Contamination
Copper (ppm) (90 <sup>th</sup> percentile)	2019	0.122	0	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits

Lead (ppb) (90 <sup>th</sup> percentile)	2019	.008	0	0	AL=15	Corrosion of household plumbing systems, erosion of natural deposits
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**Turbidity\***

Contaminant (units)	Treatment Technique (TT) Violation Y/N	Your Water	Treatment Technique (TT) Violation if:	Likely Source of Contamination
Turbidity (NTU) - Highest single turbidity measurement	N	0.247 NTU	Turbidity > 1 NTU	Soil runoff
Turbidity (NTU) - Lowest monthly percentage (%) of samples meeting turbidity limits	100 %	100 %	Less than 95% of monthly turbidity measurements are ≤ 0.3 NTU	

\* Turbidity is a measure of the 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 must be less than or equal to 0.3 NTU.

**Total Organic Carbon (TOC)**

Contaminant (units)	TT Violation Y/N	Your Water (RAA Removal Ratio)	Range Monthly Removal Ratio Low – High	MCLG	TT	Likely Source of Contamination	Compliance Method (Step 1 or ACC# __)
Total Organic Carbon (removal ratio) (TOC)-TREATED	N	1.14	1.01-1.32	N/A	TT	Naturally present in the environment	Step 1 & Alt.#4

**STEP 1 TOC Removal Requirements**

Source Water TOC (mg/L)	Source Water Alkalinity mg/L as CaCO <sub>3</sub> (in percentages)		
	0 – 60	> 60-120	> 120
> 2.0 – 4.0	35.0	25.0	15.0
> 4.0 – 8.0	45.0	35.0	25.0
> 8.0	50.0	40.0	30.0

**Alternative Compliance Criteria (ACC)**

Alt. 1	Source Water TOC < 2.0 mg/L
Alt. 2	Treated Water TOC < 2.0 mg/L
Alt. 3	Source Water SUVA ≤ 2.0 L/mg-m
Alt. 4	Treated Water SUVA ≤ 2.0 L/mg-m
Alt. 5	Treated Water Alkalinity < 60 mg/L (for softening systems only)
Alt. 6	THM & HAA RAA's ≤ ½ MCL & uses only chlorine
Alt. 7	Source TOC RAA < 4.0 mg/L and Source Alkalinity > 60 mg/L and THM & HAA RAAs ≤ ½ MCL

**Disinfectants and Disinfection**

**Byproducts Contaminants**

Contaminant (units)	MCL/MRDL Violation Y/N	Your Water	Range Low High	MCLG	MCL	Likely Source of Contamination
TTHM (ppb) [Total Trihalomethanes]	N	25.5	11.0-31.0	N/A	80	By-product of drinking water chlorination
HAA5 (ppb) [Total Haloacetic Acids]	N	23.3	20.3-37.3	N/A	60	By-product of drinking water disinfection
Chlorine (ppm)	N	1.46	0.98-1.55	MRDLG = 4	MRDL = 4	Water additive used to control microbes
Chloramines (ppm)	N	3.42	0.0-4.0	MRDLG = 4	MRDL = 4	Water additive used to control microbes

Secondary Contaminants, required by the NC Public Water Supply Section, are substances that affect the taste, odor, and/or color of drinking water. These aesthetic contaminants normally do not have any health effects and normally do not affect the safety of your water.

#### Water Characteristics Contaminants

Contaminant (units)	Sample Date	Your Water	Range Low/High	SMCL
Sodium (ppm)	2021	36.06	N/A	N/A
pH	2021	7.6	N/A	6.5 to 8.5

#### Unregulated Contaminant Monitoring Rule 4 (Raw Water Sample)

Contaminant (units)	Sample Date	Your Water	Range	
			Low	High
Bromide(ug/L)	2019	20.1	N/A	
Total Organic Carbon (ug/L)	2019	5600	N/A	

#### Unregulated Contaminant Monitoring Rule 4 (Distribution Sample)

Contaminant (units)	Sample Date	Your Water	Range	
			Low	High
Bromochloroacetic acid (ug/L)	2019	2.16	N/A	
Bromodichloroacetic acid (ug/L)	2019	1.57	N/A	
Dichloroacetic acid (ug/L)	2019	17.5	N/A	
Trichloroacetic acid (ug/L)	2019	8.16	N/A	

## **Important Drinking Water Definitions:**

***Not-Applicable (N/A)*** – Information not applicable/not required for that particular water system or for that particular rule.

***Non-Detects (ND)*** - Laboratory analysis indicates that the contaminant is not present at the level of detection set for the particular methodology used.

***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.

***Parts per trillion (ppt) or Nanograms per liter (nanograms/L)*** - One part per trillion corresponds to one minute in 2,000,000 years, or a single penny in \$10,000,000,000.

***Parts per quadrillion (ppq) or Picograms per liter (picograms/L)*** - One part per quadrillion corresponds to one minute in 2,000,000,000 years or one penny in \$10,000,000,000,000.

***Picocuries per liter (pCi/L)*** - Picocuries per liter is a measure of the radioactivity in water.

***Million Fibers per Liter (MFL)*** - Million fibers per liter is a measure of the presence of asbestos fibers that are longer than 10 micrometers.

***Nephelometric Turbidity Unit (NTU)*** - Nephelometric turbidity unit is a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

***Action Level (AL)*** - The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

***Treatment Technique (TT)*** - A required process intended to reduce the level of a contaminant in drinking water.

***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.

***Maximum Residual Disinfection 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 Contaminant Level (MCL)*** - 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.

***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.

