Annual Water Quality Report

City of Shelby
PWS ID # 01-23-010
Water Testing Performed in 2024

The City of Shelby's goal is to deliver an adequate supply of safe drinking water to our customers. On an average day in Shelby, our water system delivers 5.9 million gallons of water to over 23,000 people. Our Mayor, City Council, City Manager, Director of Water Resources, Plant Superintendent, Plant Supervisor, Treatment Operators, Laboratory Operators, Distribution Operators, and Customer Service Representatives all work together to meet and exceed Environmental Protection Agency (EPA) and State standards to provide our customers with reliable and safe tap water.

Our drinking water once again meets and exceeds all state and federal drinking water standards.

Overview

The City of Shelby is proud of the high quality water it produces. This annual water quality report describes the source of our water, lists the results of our tests and contains important information about our water and your health. The City of Shelby will notify you immediately if there is any reason for concern about our water. We are happy to show you how we have surpassed water-quality standards! We are committed to providing you with a safe and dependable supply of water, while keeping you informed of our efforts.

Where Does My Water Come From?

Shelby's water comes from the surface water source of the First Broad River that flows along the west side of town. The City of Shelby is permitted to withdraw up to 18 million gallons per day (MGD) from the First Broad River. The City is capable of utilizing the Broad River for up to 9 MGD for secondary backup water supply.

How It Is Treated

Shelby has one water treatment plant located at 801 West Grover Street. Water is transferred from the river into a series of three on-site reservoirs at the water treatment plant. These reservoirs hold a three-day supply of raw water. The water treatment plant, built in 1953 and upgraded in 1994, and 2021 has a production capacity of 12 MGD. Once at the plant, raw water is mixed with caustic soda to adjust the pH and aluminum sulfate (alum) to cause dirt particles to coagulate (clump) together. After mixing, the water flows into settling basins where heavy particles are removed through settling. The water then flows through filters, which traps and removes the remaining smaller particles. We add chlorine to prevent bacterial growth and fluoride is added to promote dental health. We then distribute water to our customers through a distribution system which consists of 227 miles of lines and five (5) above ground storage tanks. The staff at the water treatment plant is continually conducting tests at the plant and throughout the City's distribution system to assure high water quality.

Water Quality Table Information

The City routinely monitors for over 150 contaminants in your drinking water according to Federal and State laws. The table located below and on page 3 and 4 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 the water poses a health risk. Unless otherwise noted, the data presented in these tables is from testing done January 1 through December 31, 2024. 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.

For your information, the definitions of MCL and MCLG are listed below:

- Maximum Contaminant Level or MCL: The highest level of a contaminant that is allowed in drinking water.
- Maximum Contaminant Level Goal or MCLG: The level of a contaminant in drinking water below which there is no known or expected risk to health.

MCLs are set as close to the MCLGs as feasible by the EPA and the City of Shelby is using the best available treatment technology. MCLGs allow for a margin of safety.

Key to Table

- AL = Action Level
- LRAA = Locational Running Annual Average
- MCL = Maximum Contaminant Level
- MCLG = Maximum Contaminant Level Goal
- MFL = Million Fibers Per Liter
- mg/L = Milligrams per liter (mg/L)
- MRDL = Maximum Residual Disinfect Level
- MRDLG = Maximum Residual Disinfectant Level Goal
- N/A = Not Applicable
- NR = Not Regulated
- NTU = Nephelometric Turbidity Units
- ppb = parts per billions, or micrograms per liter
- ppq = parts per quadrillion, or picograms per liter (ug/L)
- ppm = parts per million, or milligrams per liter (mg/L)
- ppq = parts per quadrillion, or picograms per liter
- ppt = parts per trillion, or nanograms per liter
- SMCL = Secondary Maximum Contaminant Level
- SS = Secondary Standards (non-enforced guidelines)
- SU = Standard Units
- TT = Treatment Technique

Contaminants

Nitrate/Nitrite Contaminants

Contaminant (units)	Sample Date	MCL Violation Y/N	Your Water	Range Low—High	Likely Source of Contamination
Nitrate (as Nitrogen) (ppm)	1/9/24	N	.64	N/A	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits

Turbidity*

Contaminant (units)	Treatment Technique (TT) Violation Y/N	Your Water	MCLG	Treatment Technique (TT) Violation if:	Likely Source of Contamination
Turbidity (NTU) - Highest single turbidity measurement	N	0.312 NTU	N/A	Turbidity > 1 NTU	Soil runoff
Turbidity (NTU) - Lowest monthly percentage (%) of samples meeting turbidity limits	N	99.9%	N/A	Less than 95% of monthly turbidity measurements are ≤ 0.3 NTU.	Soil runoff

*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 (lowest RAA)	Range Monthly Removal Ratio Low—High	MCLG	Treatment Technique (TT) violation if:	Likely Source of Contamination
Total Organic Carbon (removal ratio) (TOC)-TREATED	N	1.62	0.0-2.85	N/A	Removal ratio RAA < 1.00 and alternative compliance criteria was not met	Naturally present in the environment

The City's water treatment plant welcomes visitors. If you would like a tour of the plant or if you have any questions about this report or the quality of your water, please call the City of Shelby Water Treatment Plant at (704) 484-6885 or email at waterplant@cityofshelby.com
Visit us at www.cityofshelby.com/waterplant

National Primary Drinking Water Regulation Compliance

The City of Shelby also operates electric, sanitary sewer, natural gas and stormwater systems.
The City of Shelby is a member of North Carolina 811.
Know what's below! For all requests for locating utilities, please call 8-1-1 BEFORE you dig.

Contaminants *(continued)*

Inorganic Contaminants

Contaminant (units)	Sample Date	MCL Violation Y/N	Your Water	Range Low—High	MCLG	MCL	Likely Source of Contamination
Barium (ppm)	1-9-24	N	.016	0.014-0..017	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Fluoride (ppm)	3-14-24	N	.73	0.0—1.13	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Selenium (ppb)	11-12-24	N	.85	0.0-1.70	0.5	2	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories.

Disinfectant Residuals Summary

	MRDL Violation Y/N	Your Water (RAA)	Range Low High	MRDLG	MRDL	Likely Source of Contamination
Chlorine (ppm)	N	1.19	0.28-2.17	4	4.0	Water additive used to control microbes

Stage 2 Disinfection Byproduct Compliance

Disinfection Byproduct	Year Sampled	MCL Violation Y/N	Your Water	Range Low High	MCLG	MCL	Likely Source of Contamination
TTHM (ppb)	2024	N	56	13-88	N/A	80	Byproduct of drinking water disinfection
HAA5 (ppb)	2024	N	24	11-29	N/A	60	Byproduct of drinking water disinfection

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

Lead and Copper Contaminants

Contaminant (units)	Sample Date	Your Water (90th Percentile)	Number of sites found above the AL	Range Low High	MCLG	AL	Likely Source of Contamination
Copper (ppm) (90th percentile)	6-29-22	0.133	0	0.0-0.137	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits
Lead (ppb) (90th percentile)	6-29-22	<3	0	0.0-0.0	0	AL=15	Corrosion of household plumbing systems; erosion of natural deposits

The table above summarizes our most recent lead and copper tap sampling data. If you would like to review the complete lead tap sampling data, please email us at waterplant@cityofshelby.com .
The City of Shelby has been actively assessing the presence of lead service lines in the water system since 2018. Utilizing an EPA-approved statistical methodology, we have determined with 95% confidence that fewer than 1% of service lines contain lead. Throughout our comprehensive inventory process, **no lead service lines were identified**. The City remains committed to ongoing documentation of all service lines encountered to ensure compliance with regulatory requirements and to maintain the highest standards of water quality and public health protection when it comes to lead in our system.

Lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The City of Shelby is responsible for providing high quality drinking water and removing lead pipes, but cannot control the variety of materials used in plumbing components in your home. You share the responsibility for protecting yourself and your family from the lead in your home plumbing. You can take responsibility by identifying and removing lead materials within your home plumbing and taking steps to reduce your family's risk. Before drinking tap water, flush your pipes for several minutes by running your tap, taking a shower, doing laundry or a load of dishes. You can also use a filter certified by an American National Standards Institute accredited certifier to reduce lead in drinking water. If you are concerned about lead in your water and wish to have your water tested, contact the City of Shelby Water Treatment Plant at waterplant@cityofshelby.com. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available at *http://www.epa.gov/safewater/lead*.

Other Miscellaneous Water Characteristics Contaminants

Contaminant (units)	Sample Date	Your Water	Range Low High	SMCL
Sodium (ppm)	1-9-24	11.3	10.8-11.8	N/A
Sulfate (ppm)	1-9-24	13.65	13.3-14.0	250 mg/L
Manganese (ppm)	11-12-24	0.003	0.0-0.053	0.05

Unregulated Contaminants			
Contaminant (units)	**Sample Date**	**Your Water (average)**	**Range Low High**
HFPO-DA (ppt)	2-13-24	1.6	1.50-1.70
PFBS (ppt)	2-13-24	0.96	0.90-1.0
PFHxS (ppt)	2-13-24	0.96	0.90-1.0
PFNA (ppt)	2-13-24	1.28	1.20-1.30
PFOS (ppt)	2-13-24	1.40	1.30-1.60
PFOA (ppt)	2-13-24	2.20	1.70-2.90

Our water system has sampled for a series of unregulated contaminants. Unregulated contaminants are those for which EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulations are warranted. If you are interested in examining the results, please contact us at waterplant@ cityofshelby.com.

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

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 water that is used by this system is surface water and comes from the First Broad River

Source Water Assessment Program (SWAP) Results

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 Containment 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 Shelby was determined by combining the contaminant rating (number and location of PCSs within the assessment area) and the inherent vulnerable 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 complete SWAP Assessment Report for the City of Shelby may be viewed on the Web at https://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 the 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 a request to swap@deq.nc.gov. Please indicate the 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.

2020 Susceptibility of Sources to Potential Contaminant Sources (PCSS)	
SOURCE NAME:	SUSCEPTIBILITY RATING:
First Broad River	Moderate
Broad River	Higher