

CARTHAGE WATER SYSTEM

PWS ID# "03-63-025"

2023 Annual Drinking Water Quality Report

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 from where your water comes, 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.

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 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 storm water 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 storm water 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 storm water 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.

Lead In Drinking 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. The Town of Carthage 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>.

When You Turn on Your Tap, Consider the Source

The water that is used by this system is surface water, which comes from the town reservoir, located off Vass Carthage Road. Our alternate water source is Nick’s Creek, located off of Highway 22, near Southern Pines. During the months of November and December, the Town purchased from the Town of Southern Pines, which draws surface water from Drowning Creek.

Source Water Assessment Program (SWAP) Results

The North Carolina Department of Environmental Quality (NCDEQ), 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 Carthage 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
TOWN POND	Moderate
NICK’S CREEK	Moderate
DROWNING CREEK	Moderate

This information was obtained from the SWAP report dated September 10, 2020. The complete SWAP Assessment report for the Carthage Water Treatment Plant may be viewed on the Web at: www.ncwater.org/pws/swap. 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@deq.nc.gov. Please indicate your system the water sytem name and 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 systems’ potential to become contaminated by PCS’s in the assessment area

Violations that Your Water System Received for the Report Year

During the first quarter of 2023, the Total Haloacetic Acids (HAA) were not analyzed. Samples were collected on March 21, 2023 and sent to the commercial laboratory that analyzes the samples. The samples were received by the commercial laboratory. The laboratory was unable to generate HAA results due to a supplier issue. The laboratory had a problem with a standard that is used in the HAA analysis. Their supplier of the standard had to do some internal work and then provide a new standard to the commercial laboratory. This internal work delayed the analysis beyond the holding time and compliance period. To avoid this problem in the future, the commercial laboratory is adding additional product testing to confirm that manufacturer’s specifications are being met.

The Town did not experience any exceedance of water quality standards of the State and Federal required testing of the drinking water.

What If I Have Any Questions Or Would Like to Become More Involved?

If you have any questions about this report or concerning your water, please contact Allen Smith, Director of Public Works, Town of Carthage at (910) 947-5041. We want our valued customers to be informed about their water utility. If you want to learn more, please attend any of our regularly scheduled meetings. They are held on third Monday of each month, unless otherwise posted, at the McDonald Building located at 203 McReynolds Street in Carthage.

Water Quality Data Table 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, 2023.** The EPA or the State requires 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.

Important Drinking Water Definitions:

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

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 - 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 nanogram per liter (ng/l) - One part per trillion is equivalent to about thirty seconds out of every million years

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

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 treatment technique is a required process intended to reduce the level of a contaminant in drinking water.

Maximum Residual Disinfection Level Goal – The “Level” (MRDLG) 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 – The “Highest Level” (MRDL) 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 - The “Maximum Allowed” (MCL) is 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 - The “Goal”(MCLG) is 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.

Extra Note: MCL’s are set at very stringent levels. To understand the possible health effects described for many regulated constituents, a person would have to drink 2 liters of water every day at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect.

Turbidity

Contaminant (units)	MCL Violation Y/N	Your Water	MCLG	MCL	Likely Source of Contamination
Turbidity (NTU)	N	0.10	N/A	TT = 1 NTU	Soil runoff
		100%		TT = percentage of samples < 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.

Inorganics Contaminants

Contaminant (units)	Sample Date	MCL Violation Y/N	Your Water	Range		MCLG	MCL	Likely Source of Contamination
				Low	High			
Fluoride (ppm)	Daily	N	1.39	0.61	1.39	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories

Lead and Copper Contaminants

Contaminant (units)	Sample Date	Your Water	# of sites found above the AL	MCLG	MCL	Likely Source of Contamination
Copper (ppm) (90 th percentile)	June 2021	0.074	None	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead (ppb) (90 th percentile)	June 2021	<3.0	None	0	AL=15	Corrosion of household plumbing systems, erosion of natural deposits

Disinfectant Residual Summary

Contaminant (units)	MCL/MRDL Violation Y/N	Your Water (AVG)	Range Low High		MCLG	MCL	Likely Source of Contamination
Chlorine (ppm)	N	2.635	1.8	3.4	MRDLG = 4	MRDL = 4	Water additive used to control microbes

Disinfection By-Product Contaminants

Contaminant (units)	MCL/MRDL Violation Y/N	Your Water (AVG)	Range Low High		MCLG	MCL	Likely Source of Contamination
TTHM [Total Trihalomethanes] (ppb)							By-product of drinking water chlorination
Christian Development (B01)	N	29.5	10.2	41.7	N/A	80	
355 Needmore Road (B02)	N	30.1	12.2	50.0	N/A	80	
HAA5 [Total Haloacetic Acids] (ppb)							By-product of drinking water disinfection
Christian Development (B01)	N	37.0	25.8	44.7	N/A	60	
355 Needmore Road (B02)	N	36.7	21.4	44.3	N/A	60	

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
Total Organic Carbon (removal ratio) (TOC)-TREATED	N	1.25	0.76	1.43	N/A	TT	Naturally present in the environment	Step 1

Synthetic Organic Chemical (SOC) Contaminants Including Pesticides and Herbicides

Contaminant (units)	Violation Y/N	Your Water (AVG)	Range Low High		MCLG	MCL	Likely Source of Contamination
Simazine (ppb)	N	0.11	<0.07	0.11	4	4	Herbicide runoff

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		Secondary MCL
			Low	High	
Iron (ppm)	Various	0.04	0.00	0.08	0.3
Manganese (ppm)	Various	0.008	0.00	0.09	0.05
Sodium (ppm)	1/4/2022	5.9	N/A		N/A
Sulfate (ppm)	1/4/2022	<15.0	N/A		250
pH	Daily		6.7	9.1	6.5 to 8.5

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. During the year 2023, the Carthage Water Treatment Plant participated in EPA’s Unregulated Contaminant Monitoring (UCMR5) program. The UCMR5 included a group of compounds called per- and polyfluoroalkyl (PFAS). PFAS are man-made chemicals that have been in use since 1940 and are found in many different consumer, commercial, and industrial products. They have been used to make nonstick cookware, water-repellent clothing, stain resistant fabrics and carpets, some cosmetics, some firefighting foams, and products that resist grease, water, and oil. PFAS are very persistent in the environment because they break down very slowly. A total of twenty-nine (29) contaminants were tested and all of the test results were reported as not present in the drinking water at the detection level.

Water Quality Test Results – Town of Southern Pines

Compound & Unit	Highest Level Allowed by Regulation (MCL)	Maximum Contaminant Level Goal (MGLG)	Maximum Detected by Southern Pines	Range		Major Source of Compound
				High	Low	
Microbiological Contaminants January through December 2023						
Turbidity, NTU*	TT = 1 NTU	N/A	0.12	0.12	0.04	Soil run off
	TT = percentage of samples <0.3 NTU	N/A	100%			
Turbidity is the measure of the cloudiness of the water. The Town monitors Turbidity because it is a good indicator of the effectiveness of our filter treatment system. The turbidity rule requires that 95% or more of the monthly samples must be below 0.3 NTU.						
Inorganic Contaminants January through December 2023						
Fluoride, mg/l	4.0	4.0	1.0	1.0	0.6	Water additive which promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories
Total Organic Carbon (TOC) January through December, 2023 *** Running Annual Average						
Total Organic Carbon (TOC) Removal Ratio – Treated Water**	TT	N/A	1..24***	1.47	1.06	Naturally present in the environment
The water system used the removal of Total Organic Carbon (TOC) as the method used to comply with disinfectants/disinfection by-product treatment technique requirements. The TOC removal ratio is required to be greater than 1.0.						
Unregulated Contaminants January through December, 2023 Unregulated contaminants are those for which the 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 regulation is warranted.						
Perfluorobutanesulfonic acid (PFBS), ng/l	N/A	N/A	1.1	1.1	<0.94	Unknown
Perfluorooctanoic acid (PFOA), ng/l	N/A	N/A	3.9	3.9	<1.3	Unknown
Perfluorohexanoic acid (PFHxA), ng/l	N/A	N/A	1.1	1.1	<0.94	Unknown
Perfluoropentanoic acid (PFPeA), ng/l	N/A	N/A	1.1	1.1	<0.94	Unknown