2025 Annual Drinking Water Quality Report
Charlotte Water

Water System Number: 01-60-010

Introduction

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(s) 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 call our customer service number by dialing 311 or 704-336-7600. 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 at the Charlotte-Mecklenburg Government Center, 699 E Fourth St, Charlotte, NC 28202.** You can also find more information regarding water quality on our website**:**
https://www.charlottenc.gov/water/Water-Quality

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) or at https://www.epa.gov/aboutepa/epa-hotlines#drinking

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), safewater@epa.gov, or at https://www.epa.gov/aboutepa/epa-hotlines#drinking

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

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. Charlotte Water 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 Charlotte Water at 311 or 704-336-7600. 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

We have been working to identify service line materials throughout the water system and prepared an inventory of all service lines in our water system. To access this inventory, go to our website: https://charlottewaterlead.org/

When You Turn on Your Tap, Consider the Source

Mountain Island Lake and Lake Norman supply our treatment plants with high quality water for your home, business, or school. These surface waters are part of the Catawba River Basin, which provides water for more than 1.5 million people in our growing region. Charlotte Water operates three water treatment plants, and they collectively treat an average of 125 million gallons of water a day.

Our Treatment Process

Long before you step in the shower or turn on the tap, Charlotte Water employees have managed numerous processes to protect our drinking water and those who use it. First, we pump the water from Mountain Island Lake and Lake Norman to one of the three water treatment plants - Franklin, Dukes, or Vest. We add powdered activated carbon for taste and odor control followed by aluminum sulfate (alum) in the rapid mix phase to cause dirt particles to coagulate, which are then removed through settling. The water then flows through filters that trap even smaller particles. We add chlorine to prevent bacterial growth and fluoride to promote dental health. We also add lime to adjust the water's pH, which helps prevent pipe corrosion and the leaching of metals into the water. We then pump the water to homes, businesses, and storage tanks through over 4,664 miles of water pipes.

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 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 Charlotte Water 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	Susceptibility Rating	SWAP Report Date
Mt. Island Lake/Catawba River	Moderate	September 2020
Lake Norman	Higher	September 2020

Report Date: September 9, 2020

The complete SWAP Assessment report for Charlotte Water 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 Consumer Confidence Report (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 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 or email at swap@deq.nc.gov

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.

Help Protect Your Source Water

Protection of drinking water is everyone's responsibility. Charlotte Water partners with Charlotte-Mecklenburg Storm Water Services, Duke Energy, the Lake Norman Marine Commission, NC State University, and the NC Department of Environmental Quality to expand the scope of source water quality monitoring and watershed protection in Lake Norman and Mountain Island Lake. You can help protect your community's drinking water source(s) in several ways: If you see or suspect potential water contaminations, water leaks, or sewage spills, please call **311 or 704-336-7600**. We will respond 24 hours-a-day, 365 days-a-year. Dispose of chemicals properly and take used motor oil to the four Mecklenburg County recycling centers. Put only toilet paper in the toilet. All other products should go in the trash including flushable wipes.

Violations that Your Water System Received for the Report Year

During 2025, we received **zero** drinking water violations.

Important Drinking Water Definitions:

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

Herbicide – Any chemical(s) used to control undesirable vegetation.

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.

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.

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 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.

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.

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

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

Pesticide – Generally, any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest.

PWS – Public Water Section of the NC Department of Environmental Quality

Running Annual Average (RAA) – The average of samples taken at all locations throughout the system.

Total Organic Carbon (TOC) - has no health effects, however, organics provide a medium for the formation of disinfection byproducts. The TOC compliance criterion applies only to treated water.

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

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 following tables list all the drinking water contaminants that we detected in the last round of sampling for each 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, 2025.** 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

Lead and Copper Contaminants

Contaminant (units)	Year Sampled	Your Water (90^{th} Percentile)	Number of sites found above the AL	Range Low High	MCLG	AL	Likely Source of Contamination
Copper (**ppm**) (90^{th} percentile)	2025	ND	0	ND – 0.084	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits
Lead (**ppb**) (90^{th} percentile)	2025	ND	1	ND – 44	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 info@charlottewaterlead.org

Exposure to lead in drinking water can cause serious health effects in all age groups. Infants and children can have decreases in IQ and attention span. Lead exposure can lead to new learning and behavior problems or exacerbate existing learning and behavior problems. The children of women who are exposed to lead before or during pregnancy can have increased risk of these adverse health effects. Adults can have increased risks of heart disease, high blood pressure, kidney or nervous system problems.

Stage 2 Disinfection Byproducts (DBPs) Total Trihalomethanes (TTHM) and Haloacetic Acids (five) (HAA5)

Disinfection Byproduct	Year Sampled	MCL Violation Y/N	Your Water (highest LRAA)	Range Low - High	MCLG	MCL	Likely Source of Contamination
TTHM (ppb)	2025	N	63.7	17.2 – 77.4	N/A	80	Byproduct of drinking water disinfection
HAA5 (ppb)	2025	N	22.9	10.4 – 24.5	N/A	60	Byproduct of drinking water disinfection

TTHM: ***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.***
HAA5: ***Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.***

Disinfectant Residuals Summary

Contaminant (units)	Year Sampled	MRDL Violation Y/N	Your Water (RAA)	Range Low - High	MRDLG	MRDL	Likely Source of Contamination
Chlorine (ppm)	2025	No	1.04	0.47 – 1.60	4	4.0	Water additive used to control microbes

Inorganic Contaminants

Contaminant (units)	Year Sampled	MCL Violation Y/N	Your Water (average)	Range Low - High	MCLG	MCL	Likely source of contamination
Fluoride (ppm)	2025	N	0.65	0.04 – 0.81	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories

Synthetic Organic Chemical (SOC) Contaminants Including Pesticides and Herbicides

Contaminant (units)	Sample Date	MCL Violation Y/N	Your Water (average)	Range Low - High	MCLG	MCL	Likely source of contamination
Dalapon (ppb)	7/10/2025	N	1.4	ND – 1.4	200	200	Runoff from herbicide used on rights of way

Turbidity*

Nephelometric Turbidity Unit (NTU)	Year Sampled	Treatment Technique (TT) Violation Y/N	Your Water	MCLG	Treatment Technique (TT) Violation if:	Likely Source of Contamination
Highest Single Turbidity Measurement	2025	N	0.271	N/A	Turbidity > 1.0 NTU	Soil runoff
Lowest Monthly Percentage (%) of Samples Meeting Turbidity Limits	2025	N	100%	N/A	Less than 95% of monthly turbidity measurements are ≤0.3 NTU	

***** Turbidity (NTU) 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)	Year Sampled	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 (ppm)	2025	N	0.63	0.16 - 1.20	N/A	Removal Ratio RAA <1.00 and alternative compliance criteria (ACC) was not met	Naturally present in the environment

The RAA of our removal ratio was below 1.00 during all quarters of the year, but this was not a treatment technique violation because we met the alternative compliance criteria for TOC removal by (ACC) Method #2 as our Treated Water TOC was less than 2.00 ppm.

Unregulated Contaminants Monitoring Rule (UCMR) 5 – Required by EPA

(monitored once every 5 years)

Contaminant (units)	Sample Dates	Your Water (Average)	Range Low High
PFPeA - Perfluoropentanoic Acid (ppt)	Aug 2023, Nov 2023, Feb 2024, May 2024	0.67	ND – 3.4
PFBA – Perfluorobutanoic Acid (ppt)	Aug 2023, Nov 2023 Feb 2024, May 2024	0.75	ND – 9.7

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 704-336-7600, dialing 311, or emailing utilbill@charlottenc.gov
You may also go to EPA's Unregulated Contaminant Monitoring Rule to view the data of all systems.

Cryptosporidium

Charlotte Water monitors quarterly for Cryptosporidium. There were **zero detects** for 2025.

Cryptosporidium is a microbial pathogen found in surface water throughout the U.S. Although filtration removes *Cryptosporidium*, the most commonly used filtration methods cannot guarantee 100 percent removal. Our monitoring indicates the presence of these organisms in our source water and/or finished water. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. Ingestion of *Cryptosporidium* may cause cryptosporidiosis, an abdominal infection. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, immuno-compromised people, infants and small children, and the elderly are at greater risk of developing life-threatening illness. We encourage immuno-compromised individuals to consult their doctor regarding appropriate precautions to take to avoid infection. *Cryptosporidium* must be ingested to cause disease, and it may be spread through means other than drinking water.
The PWS Section requires monitoring for other misc. contaminants, some for which the EPA has set national secondary drinking water standards (SMCLs) because they may cause cosmetic effects or aesthetic effects (such as taste, odor, and/or color) in drinking water. The contaminants with SMCLs normally do not have any health effects and normally do not affect the safety of your water.

Other Miscellaneous Water Characteristics Contaminants – At Entry Point to Distribution System

Contaminant (units)	Year Sampled	Your Water (average)	Range Low High	Secondary MCL
Alkalinity (ppm)	2025	21	17 – 25	N/A
Aluminum (ppb)	2025	24	17 – 38	50-200 ppb
Calcium Hardness as CaCO3 (ppm)	2025	25	21 – 27	N/A
Chloride (ppm)	2025	6.4	5.5 – 6.8	250 ppm
Conductivity (umhos/cm)	2025	95	84 – 101	N/A
Hardness, Total as CaCO3 (ppm)	2025	32	27 – 35	N/A
Iron, Total (ppb)	2025	5.7	0 - 35	300
Magnesium (ppm)	2025	1.7	1.5 – 1.8	N/A
pH	2025	8.5	7.4 – 9.5	6.5 – 8.5*
Silica (ppm)	2025	8.8	8.0 – 9.6	N/A
Sodium (ppm)	2025	3.6	2.1 – 4.5	N/A
Sulfate (ppm)	2025	9.5	8.5 – 9.9	250 ppm
Total Dissolved Solids (TDS) (ppm)	2025	59	52 – 66	500 ppm

* The PWS Section has established a pH range of 7.0 – 9.2 for Charlotte Water in order to ensure optimal corrosion control treatment.

Additional Monitoring of Other Unregulated Contaminants

In addition to participating in the EPA's Unregulated Contaminant Monitoring Rule, Charlotte Water has been working with an outside certified laboratory to analyze drinking water samples for other unregulated contaminants.
The following tables reflect results only when a contaminant is detected. A full list of all the non-detected contaminants can be found on our website at:
https://www.charlottenc.gov/water/Water-Quality/CCR#tabs

Table 1 – Contaminants Regulated by EPA:

The following contaminants are currently regulated by the EPA and therefore, have MCLs. However, current EPA approved analytical methods for the contaminants listed below, do not have detection levels as low as those offered by our outside lab. Therefore, these traces of contaminants are considered non-detected by EPA.

Contaminant (units)	Result (Highest)	MCL	EPA Health Advisory (DWEL)
Manganese (ppb)	4.5	50*	1,600

Definitions from EPA 2018 Edition of the Drinking Water Standards and Health Advisories Tables:
MCL: Maximum Contaminant Level
Health Advisory (HA): An estimate of acceptable drinking water levels for a chemical substance based on health effects information; an HA is not a legally enforceable Federal standard, but serves as technical guidance to assist Federal, State, and local officials.
DWEL: Drinking Water Equivalent Level. A DWEL is a drinking water lifetime exposure level, assuming 100% exposure from that medium, at which adverse, noncarcinogenic health effects would not be expected to occur.
***** Secondary DW Regulation: Non-enforceable guidelines. Contaminants may cause aesthetic effects in DW.

Table 2 - Contaminants **Not** Regulated by EPA (no MCLs):

Contaminant (units)	Result (Highest)	EPA Health Advisory (DWEL used unless otherwise noted)
Acesulfame K (ppb)	0.04	
Bromochloroacetic acid (ppb)	4.2	
Bromodichloroacetic acid (ppb)	2.4	
Caffeine (ppb)	0.25	
Chromium, Hexavalent (ppb)	0.11	
Dichloroacetonitrile (ppb)	1.2	
Iodate (ppb)	6.9	
Iohexol (ppb)	0.07	
Perchlorate (ppb)	0.07	25[2]
Perfluorobutanoic acid (PFBA) (ppt)	2.1	
Perfluorohexanoic acid (PFHxA) (ppt)	2.2	
Perfluoropentanoic acid (PFPeA) (ppt)	2.5	
Salicylic acid (ppb)	2.5	
Strontium (ppb)	36	20,000[1]
Sucralose (ppb)	1.1	

Definitions from EPA 2018 Edition of the Drinking Water Standards and Health Advisories Tables:
Health Advisory (HA): An estimate of acceptable drinking water levels for a chemical substance based on health effects information; an HA is not a legally enforceable Federal standard, but serves as technical guidance to assist Federal, State, and local officials.

1 DWEL: Drinking Water Equivalent Level. A DWEL is a drinking water lifetime exposure level, assuming 100% exposure from that medium, at which adverse, noncarcinogenic health effects would not be expected to occur.

2 Subchronic value for pregnant women.