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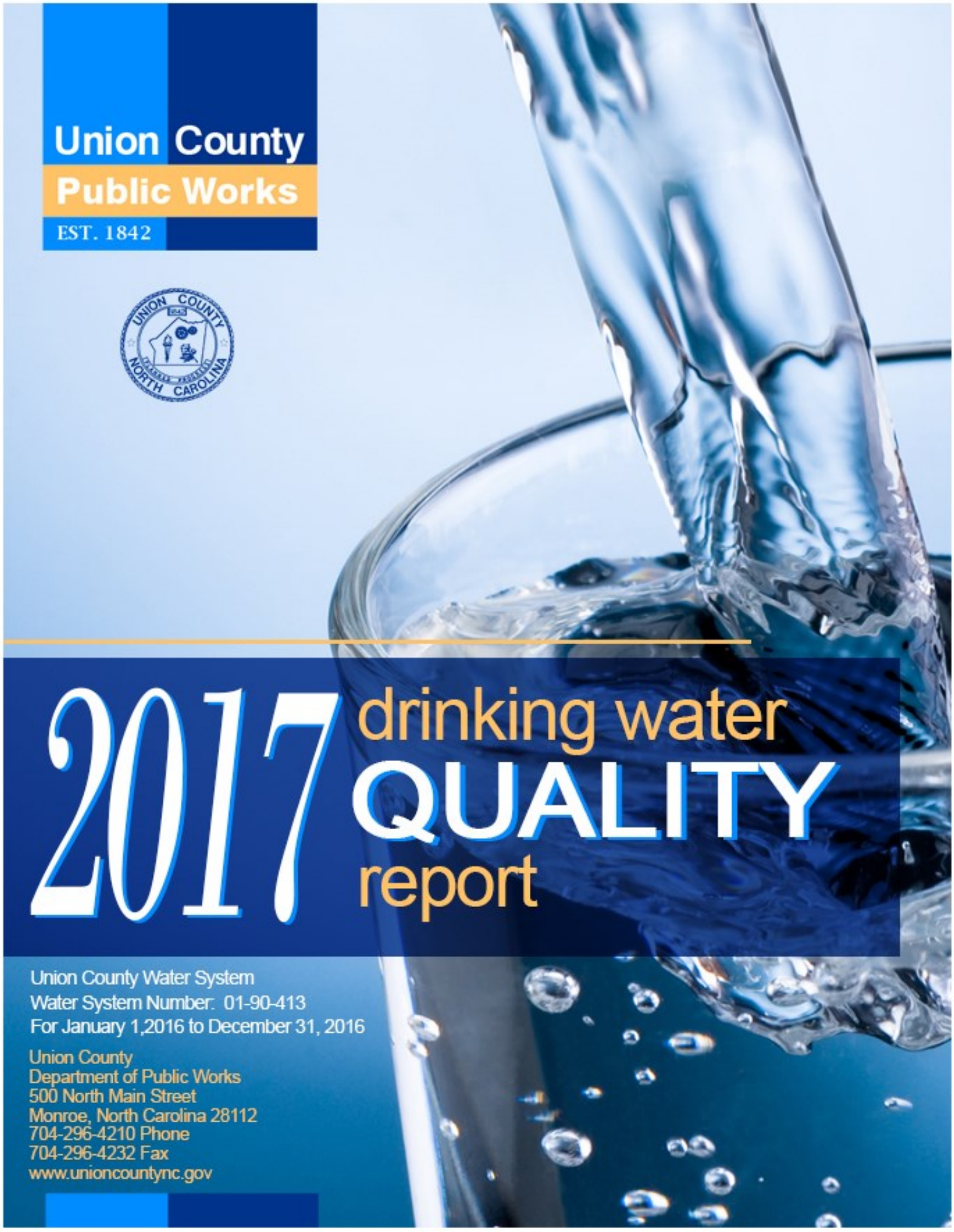

2017 drinking water QUALITY report

Union County Water System
Water System Number: 01-90-413
For January 1,2016 to December 31, 2016

Union County
Department of Public Works
500 North Main Street
Monroe, North Carolina 28112
704-296-4210 Phone
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Union County Public Works Vision Statement:

We are recognized for providing exemplary service through the engagement of our employees in the efficient and effective management of our assets and resources.

Dear Customer,

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 contact Junior Honeycutt at (704) 289-7044. We want our valued customers to be informed about their water utility. If you want to learn more, please visit our website at www.co.union.nc.us.

Sincerely,
Junior Honeycutt
Union County Public Works
Water Superintendent,
500 North Main Street

2016 Year in Review

For 365 days a year, rain, snow, sleet or hail, approximately 120 Union County Water and Wastewater employees strive to excel in all they do; from installing pipes to engineering to laboratory testing, and most importantly, customer service. Our Water Quality Report is a reflection of that commitment. In 2016, Union County pumped nearly 4.7 billion gallons of safe, potable water to our residents.

Major accomplishments of 2016 include:

- Added 17 miles of water main
- “Ice pigging” the water distribution system in Olde Sycamore
- Completion of the Weddington Water Tower
- Forest Park Pump Station Replacement
- Sandblast and paint the Austin Road Water Tower
- Galvanized water line replacement
- New water customers: 1,197
- New fire hydrants: 50

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Facts About Drinking Water

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. Union County Public Works 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:

- **Microbial contaminants**, such as viruses and bacteria, that 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
- **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 that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration (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 Union County Public Works comes from two surface sources, the Catawba River located in Lancaster County, S.C. and the Pee Dee River located in eastern Anson County.

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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 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 Union County 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
Pee Dee River	Moderate	July 2015
Catawba River	Moderate	Originally April 2003 (Reviewed Annually)

The complete SWAP Assessment report for Union County 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@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.

The complete SWAP Assessment for the Catawba River Water Treatment Plant can be obtained by contacting the Bureau of Water in Columbia, South Carolina at (803)898-4300 or on the web at www.scdhec.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.

Water Quality Data Tables of Detected Contaminants

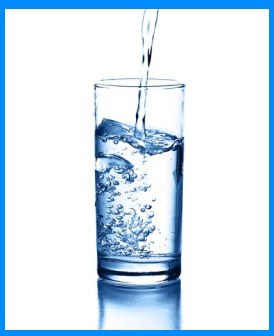
We routinely monitor for over 150 contaminants in your drinking water according to Federal and State laws. The tables below list all the drinking water contaminants that we detected in the last round of sampling for each particular contaminant group. The presence of contaminants does not necessarily indicate that water poses a health risk. **Unless otherwise noted, the data presented in this table is from testing done January 1 through December 31, 2016.** 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.

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.

Water Treatment Plant Honored for Surpassing Standards

The Catawba River Water Treatment Plant (CRWTP), which provides the majority of Union County's water supply, was honored for surpassing federal and state drinking water standards.

The CRWTP was recognized by the South Carolina Department of Health and Environmental Control for achieving the 2015 Area-Wide Optimization Program (AWOP) water quality goals. While all systems have to meet strict state and federal drinking water standards, AWOP establishes performance goals that are significantly more stringent. Through its participation in AWOP, the CRWTP increased filtration and treatment systems to help protect and serve the health of the public, achieving water quality that is about three times better than the EPA's standards. The plant began participating in AWOP in 2003 and has been recognized for achieving the AWOP goals 12 of the last 13 years.



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Water conservation inside your home

Check faucets and pipes for leaks
A small drip from a worn faucet washer can waste several gallons of water per day. Larger leaks can waste hundreds of gallons. Have them repaired immediately.

Check your toilets for leaks
Put a little food coloring in your toilet tank. If, without flushing, the color begins to appear in the bowl within 30 minutes, you have a leak that should be repaired immediately.

Turn off the faucet
When lathering hands, shaving or brushing teeth.

Use your dishwasher and washing machine for only full loads
Automatic dishwashers and clothes washers should be fully loaded for optimum water conservation.

Water conservation in the yard and garden

Put a layer of mulch around trees and plants
Mulch will slow evaporation of moisture while discouraging weed growth. Adding 2 - 4 inches of organic material such as compost or bark mulch will increase the ability of the soil to retain moisture.

Don't drown your lawn
The greatest waste of water comes from applying too much, too often to your lawn -- much of the water is never absorbed. Your lawn needs about an inch of water per week. To help gauge that, place a tuna can in each irrigation zone and then run your system until you get an inch (or fraction thereof depending on the number of times you irrigate weekly) to properly set your sprinklers.

Watch the clock
Water between 5 a.m. and 10 a.m. -- when the sun is low, winds are calm and temperatures are cool. Mid-day watering tends to be less efficient because of water loss due to evaporation.

Water only things that grow
If you have an underground sprinkler system, make sure the sprinkler heads are adjusted properly to avoid watering sidewalks and driveways. A properly adjusted sprinkler head should spray large droplets of water instead of a fine mist to minimize evaporation and wind drift.

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Water Supply

Union County jointly owns and operates the Catawba River Water Treatment Plant with the Lancaster County Water and Sewer District (LCW&SD) in Lancaster SC. Currently 80% of our water needs are met through this facility. Union County also has a purchase water agreement with Anson County, NC to purchase up to four million gallons daily. Union County currently has a total of 25 million gallons per day (MGD) water supply capacity.

How is my water treated?

What does it take to get clean, safe water into your home? We've broken down the steps for you below.

Water Source - From wells, lakes or rivers to the water treatment plant.

Sedimentation - The dirt settles to the bottom, while the clean water flows to filtration.

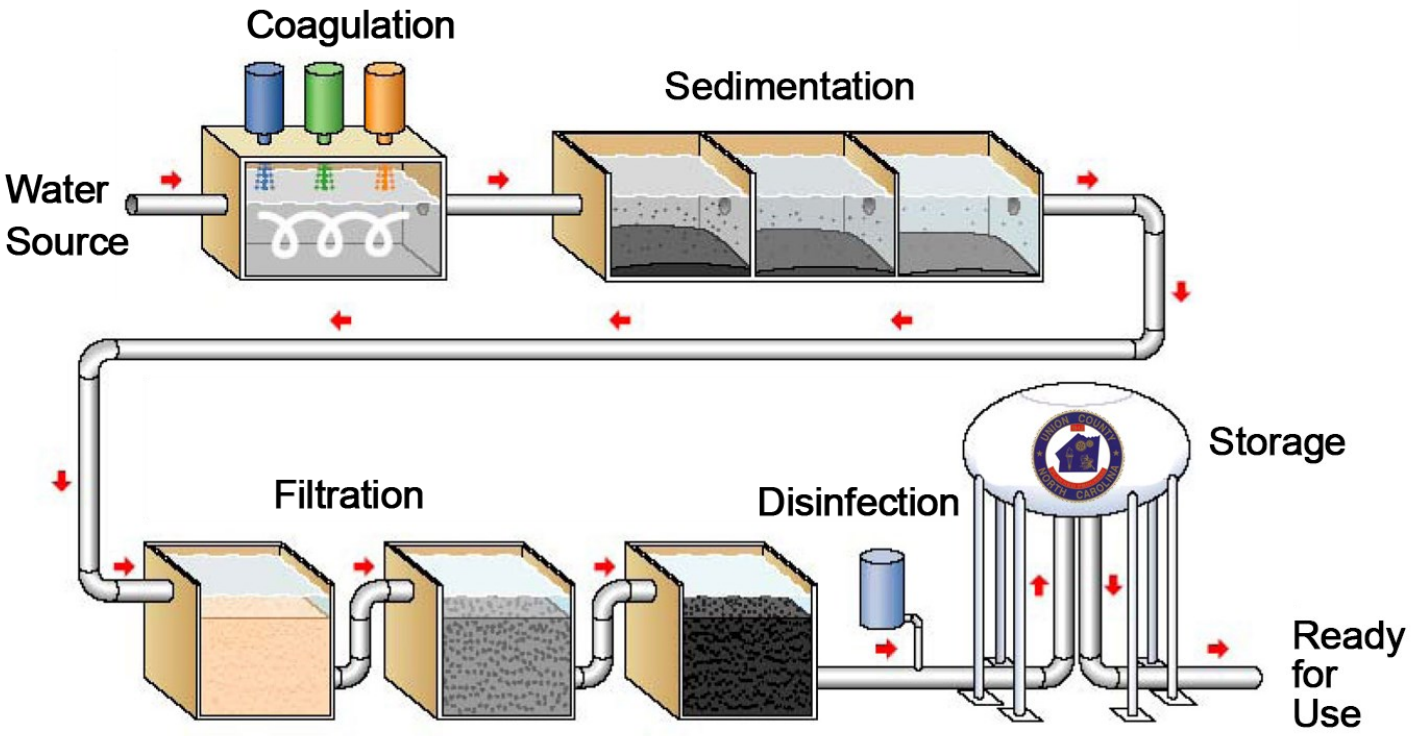
Coagulation - Special compounds remove the dirt particles from water. Alum and other chemicals are added to form sticky particles called "floc" which attract dirt particles. The combined weight of the dirt and floc become heavy enough to sink to the bottom during sedimentation.

Filtration - Water passes through filters, some made of layers of sand, gravel, and charcoal, to purify it further.

Disinfection - A small amount of chlorine is added to kill any bacteria or microorganisims that may be in the water.

Storage - Pumped to water towers. Water is placed in a closed tank or reservoir in order for disinfection to take place.

Ready for Use - Flows through pipes to homes and businesses in the community.



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Water Quality Definitions

Included in this report are tables containing levels of contaminants that have been detected in our water. In all cases, although they are present, they are below prescribed levels by the EPA, and pose no risk known health risk at these levels. We have listed a few definitions to help you understand the information in the tables.

AL (Action Level) - The concentration of a contaminant that triggers treatment or other required actions by the water supply.

Level Found - This column represents an average of sample result data collected during the Consumer Confidence Reporting (CCR) year. In some cases, it may represent a single sample if only one sample was collected.

Locational Running Annual Average (LRAA) - The average of a 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.

Maximum Residual Disinfectant 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 Disinfectant 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.

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) - Not applicable.

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

ppb - Parts per billion or micrograms per liter (ug/L).

ppm - Parts per million or milligrams per liter (mg/L).

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

Turbidity - 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.

Putting It In Perspective

Some compounds found in water are measured in very small units - parts per billion (ppb) or parts per million (ppm). To help you visualize how very small these units are, here are a few illustrations.

One part per billion equates to:

- One second in 32 years
- One drop in a railroad tanker car
- One penny in 10 million dollars
- One ounce in 7,350,000 gallons of water

One part per million equates to:

- One inch in 16 miles
- One minute in two years.
- One penny in 10 thousand dollars
- One ounce in 7,350 gallons of water

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Tables of Detected Contaminants

Microbiological Contaminants in the Distribution System - For systems that collect ***40 or more*** samples per month

Contaminant (units)	MCL Violation Y/N	Your Water	MCLG	MCL	Likely Source of Contamination
Total Coliform Bacteria *(presence or absence)* Union County	N	1	0	5% of monthly samples are positive Note: If either an original routine sample and/or its repeat samples(s) are fecal coliform or *E. coli* positive, a Tier 1 violation exists.	Naturally present in the environment
Fecal Coliform or *E. coli* *(presence or absence)* Union County	N	0	0		Human and animal fecal waste

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* Anson Catawba	N N	0.53 NTU 0.09 NTU	N/A	Turbidity > 1 NTU	Soil runoff
Turbidity (NTU) - *Lowest monthly percentage (%) of samples meeting turbidity limits* Anson Catawba	N N	99% 100%	N/A	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.

Inorganic Contaminants

Contaminant (units)	Sample Date	MCL Violation Y/N	Your Water	Range Low	Range High	MCLG	MCL	Likely Source of Contamination
Fluoride (ppm) Anson Catawba	 2016 2016	 N N	 .54 .59	 0.14 – 1.03 0.59 - 0.59		4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories

= within acceptable limits

= exceeds acceptable limits

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Unregulated VOC Contaminants

Contaminant (units)	Sample Date	Your Water (average)	Range Low	Range High
Chloroform (ppb) Anson	2016	**65.5**	25.6	65.5
Bromodichloromethane (ppb) Anson	2016	**9.98**	1	13.3

Lead and Copper Contaminants

Contaminant (units)	Sample Date	Your Water	Number of sites found above the AL	MCLG	AL	Likely Source of Contamination
Copper (ppm) *(90th percentile)* Union County	2016	0.24	0	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits
Lead (ppb) *(90th percentile)* Union County	2016	6.0	3	0	AL=15	Corrosion of household plumbing systems; erosion of natural deposits

Nitrate/Nitrite Contaminants

Contaminant (units)	Sample Date	MCL Violation Y/N	Your Water	Range Low	Range High	MCLG	MCL	Likely Source of Contamination
Nitrate (as Nitrogen) (ppm) Catawba	2016	N	1.2	1.2	1.2	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits

= within acceptable limits

= exceeds acceptable limits

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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*							
Anson	N	1.9	1.43 – 3.3	N/A	TT	Naturally present in the environment	SUVA Method
Catawba	N	1.02	1.02				

Disinfectant Residuals Summary

	Year Sampled	MRDL Violation Y/N	Your Water (highest RAA)	Range Low High	MRDLG	MRDL	Likely Source of Contamination
Chlorine (ppm)							
Anson	2016	N	1.2	0.8—1.8	4	4.0	Water additive used to control microbes
Catawba	2016	N	3.0	3.0 – 3.0			
Chloramines (ppm) Union County	2016	N	2.38	.21—3.04	4	4.0	Water additive used to control microbes
Chlorine dioxide (ppb) Catawba	2016	N	ND	ND	800	800	Water additive used to control microbes

= within acceptable limits = exceeds acceptable limits

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Stage 2 Disinfection Byproduct Compliance - Based upon Locational Running Annual Average (LRAA)

Disinfection Byproduct	Year Sampled	MCL Violation Y/N	Your Water (highest LRAA)	Range Low High	MCLG	MCL	Likely Source of Contamination
TTHM (ppb)					N/A	80	Byproduct of drinking water disinfection
B01	2016	N	62	46-95			
B02	2016	N	20	17-25			
B03	2016	N	58	46-81			
B04	2016	N	60	47-83			
B05	2016	N	19	17-21			
B06	2016	N	18	15-20			
B07	2016	N	57	45-76			
B08	2016	N	17	15-18			
HAA5 (ppb)					N/A	60	Byproduct of drinking water disinfection
B01	2016	N	52	35-89			
B02	2016	N	8	0-13			
B03	2016	N	46	37-64			
B04	2016	N	46	35-68			
B05	2016	N	16	12-22			
B06	2016	N	14	10-18			
B07	2016	N	45	35-66			
B08	2016	N	15	9-21			

Other Disinfection Byproducts Contaminants

Contaminant (units)	MCL/MRDL Violation Y/N	Your Water	Range Low High	MCLG	MCL	Likely Source of Contamination
Chlorite (ppm) Catawba	N	0.53	0.28 – 0.77	0.8	1.0	By-product of drinking water chlorination

= within acceptable limits = exceeds acceptable limits

****NOTE (Spanish) Para más información o explicación sobre la cualidad de agua por favor llame (704) 296-4229 para expañol.**