

2015 Annual Drinking Water Quality Report

Richmond County Water System

PWS ID# 03-77-109

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.

We are pleased to report that our drinking water is safe and meets federal and state requirements.

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. Immunocompromised 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).

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 homes plumbing. Richmond County Water System 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 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 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.

When You Turn on Your Tap, Consider the Source

Richmond County uses surface water from Blewett Falls Lake or Pee Dee River. We also purchase water from Anson County, which also uses water from the same source.

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 Richmond County Water System 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
Pee Dee River	Moderate

The complete SWAP Assessment report for Richmond County Water System may be viewed on the Web at: <http://www.deh.enr.state.nc.us/pws/swap> To obtain a printed copy of this report, please mail a written request to: Source Water Assessment Program – Report Request, 1634 Mail Service Center, Raleigh NC 27699-1634, or email request to swap@ncmail.net. Please indicate your system name, PWSID, 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 919-715-2633.

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.

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

If you have any questions about this report or concerning water treatment, please contact Lee P. Butler at the Richmond County Water Treatment Plant at 997-8339 between the hours of 7am and 3pm Monday-Friday. Any general or overall Water Department questions should be directed to Director of Public Works, Bryan Land at 997-8234. Specific water maintenance questions should be directed to Water Maintenance Supervisor Jerry Austin at 997-8290. If you have any water billing questions, you should call the Water Administration personnel at 997-8202. General information is also available on Richmond County's web site <http://www.richmondnc.com>

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, 2014. 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.

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 regulation is warranted.

Violations that Your Water System Received for the Report Year

During 2014, or during any compliance period that ended in 2015, we received a Treatment Technique violation that covered the time period of 3rd quarter 2014 through 2nd quarter 2015. We have implemented several corrective actions that have been effective and returned the TTHM level in all areas of the system below the standard for the December 2014 sampling and all periods since to assure this does not happen again. Those include: reduced chlorine usage, regular flushing of system water lines and close monitoring of water tank levels.

Treatment Technique Violations

TT Violation	Explanation	Length of Violation	Steps Taken to Correct the Violation	Health Effects Language
MCL Exceedance of TTHM and HAA5	Increased levels in 3 rd quarter 2014 sampling	2 quarters	Reduced bleach usage, flushing of system and water tank age.	Problems with their liver, kidneys, or central nervous system, and increased risk of cancer.

Inorganic Contaminants

Contaminant (units)	Sample Date	MCL Violation Y/N	Your Water	Range		MCLG	MCL	Likely Source of Contamination
				Low	High			
Antimony (ppb)	10/20/15	N	ND	ND	ND	6	6	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder
Arsenic (ppb)	10/20/15	N	ND	ND	ND	0	10	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
Barium (ppm)	10/20/15	N	.016	.016	.016	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Beryllium (ppb)	10/20/15	N	ND	ND	ND	4	4	Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense industries
Cadmium (ppb)	10/20/15	N	ND	ND	ND	5	5	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paints
Chromium (ppb)	10/20/15	N	ND	ND	ND	100	100	Discharge from steel and pulp mills; erosion of natural deposits
Cyanide (ppb)	10/20/15	N	ND	ND	ND	200	200	Discharge from steel/metal factories; discharge from plastic and fertilizer factories
Fluoride (ppm)	10/20/15	N	.082	.082	.082	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Mercury (inorganic) (ppb)	10/20/15	N	ND	ND	ND	2	2	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills; runoff from cropland
Selenium (ppb)	10/20/15	N	ND	ND	ND	50	50	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines
Thallium (ppb)	10/20/15	N	ND	ND	ND	0.5	2	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories

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 - one part per billion corresponds to one minute in 2,000 years, or a single penny in \$10,000,000.

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 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.

Microbiological Contaminants: Richmond County

Contaminant (units)	MCL Violation Y/N	MCLG	MCL	Likely Source of Contamination
Total Coliform Bacteria (presence or absence)	N	0	one monthly positive	Naturally present in the environment
Fecal Coliform or E. coli (presence or absence)	N	0	a routine sample and repeat sample are total coliform positive, and one is also fecal coliform or E. coli positive	Human and animal fecal waste

Microbiological Contaminants: Anson County

Contaminant (units)	MCL Violation Y/N	MCLG	MCL	Likely Source of Contamination
Total Coliform Bacteria (presence or absence)	N	0	one monthly positive	Naturally present in the environment
Fecal Coliform or E. coli (presence or absence)	N	0	a routine sample and repeat sample are total coliform positive, and one is also fecal coliform or E. coli positive	Human and animal fecal waste

Turbidity-Systems with population >10,000

Contaminant (units)	MCL Violation Y/N	Richmond County	Anson County	MCLG	MCL	Likely Source of Contamination
Turbidity (NTU)	N	.25	.11	N/A	TT = 1NTU	Soil Runoff
Turbidity (Lowest monthly percent of samples meeting limit)	N	99%	99%	%	TT = percentage of samples <0.3 NTU	

Inorganics Contaminants

Contaminant (units)	Sample Date	MCL Violation	Richmond County	Anson County	Range Low/High	MCLG	MCL	Likely Source of Contamination
Flouride (ppm)	2015	N	.082	.61	Anson (0-1.36)	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories

Unregulated Inorganics Contaminant

Contaminant (units)	Sample Date	Richmond County	Anson County	Range Low/High	Proposed MCL
Sulfate (ppm)	2015	28.9	23.3	23.3	500

Nitrate/Nitrite Contaminants

Contaminant (units)	MCL Violation	Richmond County	Range Low/High	MCLG	MCL	Likely Source of Contamination
Nitrate (as Nitrogen) (ppm)	N	.064	N/A	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits

Lead and Copper Contaminants

Contaminant (units)	Sample Date	Your Water	Anson County	# of sites found above the AL	MCLG	MCL	Likely Source of Contamination
Copper (ppm) (90th percentile)	2015	.204	.078	0	1.3	AL=1.0	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead (ppm) (90th percentile)	2015	ND	.0012	0	0	AL=.0010	Corrosion of household plumbing, erosion of natural deposits

Radiological Contaminants

Contaminant (units)	Sample Date	MCL Violation Y/N	Your Water	MCLG	MCL	Likely Source of Contamination
Beta/photon emitters (pCi/l)	2006	N	2.12	0	50	Decay of natural and man-made deposits
Beta/photon emitters (pCi/l) Anson County	2004	N	N/A	0	50	Decay of natural and man-made deposits

	Source Water Alkalinity Mg/L as CaCO3 (in percentages)		
Source Water TOC (mg/L)	0 – 60	>60 – 120	>120
2.0 – 4.0	35.0	25.0	15.0
3.0 – 8.0	45.0	35.0	25.0
4.0 > 8.0	50.0	40.0	30.0

STEP 1 TOC Removal Requirements

Our water system used Step 1 as the method used to comply with d/DBP treatment technique requirements.

Disinfection By-Product Precursors Contaminants

Contaminant (units)	Sample Date	MCL/TT Violation Y/N	Your Water	Range Low /High	MCLG	MCL	Likely Source of Contamination
Total Organic Carbon (ppm) (TOCs)- TREATED	2015	N	1.6	1.4/1.7	N/A	TT	Naturally present in the environment

Note: Depending on the TOC in our source water the system MUST have a certain % removal of TOC or must achieve alternative compliance criteria. If we do not achieve that % removal there is an "alternative % removal". If we fail to meet that, we are in violation of a Treatment Technique.

Disinfection By-Product Locational Running Average

Disinfection Byproduct	Year Sampled	MCL Violation Y/N	Your Water (highest LRAA)	Range		MCLG	MCL	Likely Source of Contamination
				Low	High			
TTHM (ppb)	2015	N	70.7	47.7	70.7	N/A	80	Byproduct of drinking water disinfection
HAA5 (ppb)	2015	Y	62.0	29.0	62.0	N/A	60	Byproduct of drinking water disinfection

HAA5 Quarterly 2015 Concentration					
	~ COUNTY HOME &	~ 008 CORDOVA ~	~ HOFF US 1 BOX	~ SHARON CH RD	MCL

	WIREGRASS LOC 017		SITE LOC 081 --	LOC. 109 --	
1st Quarter	0.028	0.029	0.039	0.042	0.06
2nd Quarter	0.029	0.034	0.062	0.047	0.06
3rd Quarter	0.037	0.043	0.011	0.031	0.06
4th Quarter	0.054	0.042	0.0052	0.003	0.06
TTHM Quarterly 2015 Concentration					
	~ COUNTY HOME & WIREGRASS LOC 017	~ 008 CORDOVA --	~ HOFF US 1 BOX SITE LOC 081 --	~ SHARON CH RD LOC. 109 --	MCL
1st Quarter	0.054	0.048	0.058	0.061	0.08
2nd Quarter	0.045	0.041	0.073	0.057	0.08
3rd Quarter	0.059	0.063	0.083	0.085	0.08
4th Quarter	0.0667	0.0388	0.0689	0.0759	0.08

HAA5 Quarterly 2015 LRAA					
	~ COUNTY HOME & WIREGRASS LOC 017	~ 008 CORDOVA --	~ HOFF US 1 BOX SITE LOC 081 --	~ SHARON CH RD LOC. 109 --	MCL
1st Quarter	0.062	0.039	0.037	0.049	0.06
2nd Quarter	0.057	0.038	0.034	0.045	0.06
3rd Quarter	0.034	0.034	0.036	0.036	0.06
4th Quarter	0.037	0.037	0.029	0.031	0.06
TTHM Quarterly 2015 LRAA					
	~ COUNTY HOME & WIREGRASS LOC 017	~ 008 CORDOVA --	~ HOFF US 1 BOX SITE LOC 081 --	~ SHARON CH RD LOC. 109 --	MCL
1st Quarter	0.054	0.072	0.080	0.079	0.08
2nd Quarter	0.053	0.068	0.079	0.075	0.08
3rd Quarter	0.050	0.053	0.070	0.066	0.08
4th Quarter	0.048	0.056	0.071	0.070	0.08

For 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.*

For HAA5: *Because of an elevated level in the 3rd quarter 2014, the result raised the LRAA through the 1st quarter 2015. Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.*

Disinfection By-Product Contaminants: Anson County

Contaminant (units)	MCL/MRDL Violation Y/N	Anson Water (High Avg)	Range Low High	MCLG	MCL	Likely Source of Contamination
TTHM (ppb) [Total Trihalomethanes]	N	62	32-98	N/A	80	By-product of drinking water chlorination
HAA5 (ppb) [Total Haloacetic Acids]	N	51	25-64	N/A	60	By-product of drinking water disinfection
Chlorine (ppm)	N	1.2	.7-2.2	MRDLG = 4	MRDL = 4	Water additive used to control microbes
Chloramines (ppm)	N	3.2	1.22-3.77	4	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	Anson County	Range Low/ High	Secondary MCL	Typical Source
Iron (ppm)	2015	Not detected	.023	N/A	.3	Leaching from natural deposits; Industrial wastes
Manganese (ppm)	2015	.026	.011	N/A	.05	Leaching from natural deposits
Nickel (ppm)	2015	Not Detected	N/A	N/A	N/A	N/A
Sodium (ppm)	2015	20.0	12.4	N/A	N/A	N/A
pH	2015	7.0	7.6	N/A	6.5 to 8.5	Naturally occurring

For more information, please contact:

Responsible Person Lee P. Butler	System Name Richmond County Water	System Address (street) 326 Old Charlotte Hwy
Phone Number (910)997-8339	System PWSID# NC0377109	System Address (city/ state/zip) Rockingham, NC 28379

Contaminant Group List

- (BA) Total Coliform Bacteria- includes Fecal/E.coli bacteria is required if total coliform is present in the sample.
- (AS) Asbestos- includes testing for Chrysotile, Amphibole and Total Asbestos.
- (TTHM)-Total Trihalomethanes- include Chloroform, Bromoform, Bromodichloromethane, and Chlorodibromomethane.
- (TOC)-Total Organic Carbon-includes testing for Alkalinity, Dissolved Organic Carbon (DOC), Total Organic Carbon(TOC) and Ultraviolet Absorption 254 (UV254). Source water samples must be tested for both TOC and Alkalinity. Treated water samples must be tested for TOC. Source water samples and treated water samples must be collected on the same day.
- (HAA5)-Haloacetic Acids-include Monochloroacetic Acid, Dichloroacetic Acid, Trichloroacetic Acid, Monobromacetic Acid, Dibromoacetic Acid.
- (BB) Bromate/Bromid- includes testing for Bromate and/or Bromide.
- (CD) Chlorine Dioxide/Chlorite- includes testing for Chlorine Dioxide and/or Chlorite.
- (IC) Inorganic chemicals- include Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cyanide, Fluoride, Iron, Manganese, Mercury, Nickel, pH, Selenium, Sodium, Sulfate, and Thallium.
- (LC) Lead and copper- includes testing samples for both lead and copper.
- (NT) Nitrate/ (NI) Nitrite- includes testing for nitrate and/or nitrite.
- (RA) Radionuclides- includes Gross Alpha, Radon, Uranium, Combined Radium, Radium 226, Radium 228, Gross Beta, Tritium, Strontium 89, Strontium 90, Iodine 131, and Cesium 134.
- (SOC) Synthetic Organic Chemicals/Pesticides-SOC's are commonly used in industrial and manufacturing processes. SOC's include 2,4-D, 2,4,5-TP (Silvex), 3-Hydroxycarbofuran, Alachlor, Aldicarb, Aldicarb Sulfone, Aldicarb Sulfoxide, Aldrin, Atrazine, Benzo(a)pyrene, Butachlor, Carbaryl, Carbofuran, Chlordane, Dalapon, Dieldrin, Di(2-ethylhexyl)adipat, Di(2-ethylhexyl)phthalate, Dibromochloropropane (DBCP), Dicamba, Dinoseb, Endrin, Ethylene dibromide (EDB), Heptachlor, HHeptachlor Epoxide, Hexachlorobenzene, Hexachlorocyclopentadiene, Lindane, Methomyl, Metolachlor, Methoxychlor, Metribuzin, Oxamyl(vydate), PCBs, Propachlor, Pentachlorophenol, Picloram, Simazine, Toxaphene.
- (VOC)-Volatile Organic Chemicals- VOC's are commonly used in industrial and manufacturing processes. Voc's include p-Isopropyltoluene, Chloromethane, Dichlorodifluoromethane, Bromomethane, Chloroethane, Fluorotrichloromethane, Hexachlorobutadiene, Naphthalene, 1,2,4-Trichlorobenzene, Cis-1,2-Dichloroethylene, Dibromomethane, 1,1-Dichloropropene, 1,3-

Dichloropropane, 1,3-Dichloropropene, 1,2,3-Trichloropropane, 2,2Dichloropropane, 1,2,4-Trimethylbenzene, 1,2,3-Trichlorobenzene, n-Butylbenzene, 1,3,5-Trimethylbenzene, TertButylbenzene, Sec-Butylbenzene, Bromochloromethane, Chloroform, Bromoform, Bromodichloromethane, Chlorodibromomethane, Xylenes(Total), Dichloromethane, o-Chlorotoluene, p-Chlorotoluene, m-Dichlorobenzene, oDichlorobenzene, p-Dichlorobenzene, Vinyl Chloride, 1,2,1,-Dichloroethylene, 1,1-Dichloroethane, Trans-1,2Dichloroethylene, 1,2-Dichloroethane, 1,1,1-Trichloroethane, Carbon Tetrachloride, 1,2-Dichloropropane, Trichloroethylene, 1,1,2-Trichloroethane, 1,1,1,2-Tetrachloroethane, Tetrachloroethylene, 1,2,2-Tetrachloroethane, Chlorobenzene, Benzene, Toluene, Ethylbenzene, Bromobenzene, Isopropylbenze, Styrene, and n-Propylbenzene.
