

2016 Annual Drinking Water Quality Report Daniel Morgan Water District – North Carolina

North Carolina Water System Number: 10-81-016

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 and is designed to inform you about the quality of water and services we deliver to you every day. 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 Sandra Vickers at (864) 461-2235. 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 the third Tuesday of every month at 8:30 a.m. at the Daniel Morgan Water District office at 3329 Chesnee Hwy Gaffney, SC 29341.**

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 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. Daniel Morgan Water District 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. 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 Daniel Morgan Water District is purchased from Grassy Pond Water who also purchases their water. Their sources are as follows: The Gaffney Board of Public Works which uses surface water from both the Broad River and Cherokee Creek. This water is treated at the Gaffney Water Treatment Plant. The Broad River Water Authority, who also uses surface water from the Broad River and then treats it at the Rutherford County Water Treatment Facility located in Rutherford County, North Carolina. The Broad River originates above Lake Lure, NC in the Hickory Nut Gorge area, flowing southeast through Rutherford County, North Carolina.

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 Daniel Morgan Water District 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
Broad River	Moderate	July 14, 2015

The complete SWAP Assessment report for Broad River Water Authority 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.

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. You can help protect your community’s drinking water source(s) in several ways: (examples: pick up after your pets, limit or eliminate the use of harsh lawn and garden fertilizers and pesticides, dispose of chemicals properly; take used motor oil to a recycling center, volunteer in your community to participate in group efforts to protect your source, etc.).

Violations that Your Water System Received for the Report Year

During 2016, or during any compliance period that ended in 2016, we received no violations. We are proud that your drinking water meets all Federal and State requirements.

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.

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 (ug/L) - One part per billion corresponds to one minute in 2,000 years, or a single penny in \$10,000,000.

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

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.

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.

Tables of Detected Contaminants

Turbidity* Broad River Water Authority

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	No	0.12 NTU	N/A	Turbidity > 1 NTU	Soil runoff
Turbidity (NTU) - Lowest monthly percentage (%) of samples meeting turbidity limits	No	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.

Turbidity* Gaffney Board of Public Works

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	No	0.171 NTU	N/A	Turbidity > 1 NTU	Soil runoff
Turbidity (NTU) - Lowest monthly	No	0.018 NTU	N/A	Turbidity > 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		MCLG	MCL	Likely Source of Contamination
				Low	High			
Fluoride (ppm) Grassy Pond Water Company - SC	2014	N	0.1	N/A		4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Fluoride (ppm) Broad River Water Authority	February 2016	N	0.66	0.25 / 0.79		4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories

Nitrate/Nitrite Contaminants

Contaminant (units)	Sample Date	MCL Violation Y/N	Your Water	Range		MCLG	MCL	Likely Source of Contamination
				Low	High			
Nitrate (as Nitrogen) (ppm) Gaffney Board of Public Works	2016	No	0.5	0.5 / 0.5		10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits

Nitrate: Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant you should ask advice from your health care provider.

Synthetic Organic Chemical (SOC) Contaminants Including Pesticides and Herbicides

Contaminant (units)	Sample Date	MCL Violation Y/N	Your Water	Range		MCLG	MCL	Likely Source of Contamination
				Low	High			
Atrazine (ppb) : Gaffney Board of Public Works	2014	N	0.98	N/A		3	3	Runoff from herbicide used on row crops
Simazine (ppb) : Gaffney Board of Public Works	2014	N	0.36	N/A		4	4	Herbicide runoff

Lead and Copper Contaminants – Daniel Morgan Water District – North Carolina Sites

Contaminant (units)	Sample Date	Your Water – 90 th Percentile	Number of sites found above the AL	MCLG	AL	Likely Source of Contamination
Copper (ppm) (90 th percentile)	August 2015	0.098	0	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits
Lead (ppb) (90 th percentile)	August 2015	8	1	0	AL=15	Corrosion of household plumbing systems; erosion of natural deposits

Lead and Copper Contaminants – Daniel Morgan water District – South Carolina Sites

Contaminant (units)	Sample Date	Your Water - 90 th Percentile	Number of sites found above the AL	MCLG	AL	Likely Source of Contamination
Copper (ppm) (90 th percentile)	2015	0.053	0	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits
Lead (ppb) (90 th percentile)	2015	2	0	0	AL=15	Corrosion of household plumbing systems; erosion of natural deposits

Lead and Copper Contaminants – Broad River Water Authority

Contaminant (units)	Sample Date	Your Water	Number of sites found above the AL	MCLG	AL	Likely Source of Contamination
Copper (ppm) (90 th percentile)	2014	0.09	0	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits
Lead (ppb) (90 th percentile)	2014	ND	0	0	AL=15	Corrosion of household plumbing systems; erosion of natural deposits

Lead and Copper Contaminants – Grassy Pond Water Company – North Carolina Sites

Contaminant (units)	Sample Date	Your Water	Number of sites found above the AL	MCLG	AL	Likely Source of Contamination
Copper (ppm) (90 th percentile)	2015	0	0	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits
Lead (ppb) (90 th percentile)	2015	0	0	0	AL=15	Corrosion of household plumbing systems; erosion of natural deposits

Lead and Copper Contaminants – Grassy Pond Water Company – South Carolina Sites

Contaminant (units)	Sample Date	Your Water	Number of sites found above the AL	MCLG	AL	Likely Source of Contamination
Copper (ppm) (90 th percentile)	2014	0.176	0	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits
Lead (ppb) (90 th percentile)	2014	4.0	1	0	AL=15	Corrosion of household plumbing systems; erosion of natural deposits

Lead and Copper Contaminants – Gaffney Board of Public Works

Contaminant (units)	Sample Date	Your Water	Number of sites found above the AL	MCLG	AL	Likely Source of Contamination
Copper (ppm) (90 th percentile)	2015	0.065	0	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits
Lead (ppb) (90 th percentile)	2015	0	0	0	AL=15	Corrosion of household plumbing systems; erosion of natural deposits

Total Organic Carbon (TOC): Broad River Water Authority

Contaminant (units)	Sample Date	TT Violation Y/N	Your Water	Range Low - High	MCLG	TT	Likely Source of Contamination
Total Organic Carbon (ppm) – RAW	Monthly 2016	No	0.99	<1.0 – 1.58	N/A	TT	Naturally present in the environment
Total Organic Carbon (ppm)-TREATED	Monthly 2015	No	ND	<1.0 – ND	N/A	TT	Naturally present in the environment

Note: Depending on the TOC in our source water the system MUST have a certain % of removal of TOC or must achieve alternative compliance criteria. If we do not achieve that % of removal there is an alternative % of removal. If we fail to meet that requirement, we are then in violation of a Treatment Technique. Our water contains very little Total Organic Carbon (TOC) so instead of using the % of removal criteria, we use an alternative (Alt 2), treated water TOC <2.0 mg/l as the method to comply with DBP treatment technique requirements.

Total Organic Carbon (TOC): Gaffney Board of Public Works

Contaminant (units)	TT Violation Y/N	Your Water (RAA Removal Ratio)	Range Monthly Removal Ratio Low - High	MCLG	TT	Likely Source of Contamination
Total Organic Carbon (removal ratio) (TOC)-TREATED	No	51.2%	34.7% – 69.4%	N/A	TT	Naturally present in the environment

Your water is treated by disinfection. Disinfection involves the addition of chlorine to kill dangerous bacteria and microorganisms that may be in the water. Disinfection is considered to be one of the major public health advances of the 20th century.

Disinfectant Residuals Summary

	Year Sampled	MRDL Violation Y/N	Your Water (highest RAA)	Range		MRDLG	MRDL	Likely Source of Contamination
				Low	High			
Chlorine (ppm) Daniel Morgan - NC	2016	N	1.04	0.6	2.3	4	4.0	Water additive used to control microbes
Chlorine (ppm) Daniel Morgan - SC	2016	N	1.20	1.1	1.2	4	4.0	Water additive used to control microbes
Chlorine (ppm) Grassy Pond - NC	2016	N	1.2	0.7	1.6	4	4.0	Water additive used to control microbes
Chlorine (ppm) Grassy Pond - SC	2016	N	1.00	1.0	1.0	4	4.0	Water additive used to control microbes
Chlorine (ppm) Broad River Water	2016	N	1.60	0.20	1.9	4	4.0	Water additive used to control microbes
Chlorine (ppm) Gaffney BPW	2016	N	1.21	0.64	1.53	4	4.0	Water additive used to control microbes

Stage 2 Disinfection Byproduct Compliance - Based upon Locational Running Annual Average (LRAA): Daniel Morgan - NC

Disinfection Byproduct	Year Sampled	MCL Violation Y/N	Your Water (highest LRAA)	Range Low High	MCLG	MCL	Likely Source of Contamination
TTHM (ppb) B01 location	2016	N	44 ppb	18.4 / 66.5	N/A	80	Byproduct of drinking water disinfection
HAA5 (ppb) B01 location	2016	N	36 ppb	24.1 / 45	N/A	60	Byproduct of drinking water disinfection

Disinfection Byproduct Compliance: Daniel Morgan - SC

Disinfection Byproduct	Year Sampled	MCL Violation Y/N	Your Water (highest LRAA)	Range		MCLG	MCL	Likely Source of Contamination
				Low	High			
TTHM	2016	N	50 ppb	18.2	75.5	N/A	80	Byproduct of drinking water disinfection
HAA5	2016	N	39 ppb	24.4	50.9	N/A	60	Byproduct of drinking water disinfection

**Stage 2 Disinfection Byproduct Compliance - Based upon Locational Running Annual Average (LRAA)
Grassy Pond Water Corporation - NC**

Disinfection Byproduct	Year Sampled	MCL Violation	Your Water (highest LRAA)	Range		MCLG	MCL	Likely Source of Contamination
				Low	High			
TTHM (B01 location)	2016	N	40 ppb	14	67	N/A	80	Byproduct of drinking water disinfection
TTHM (B02 location)	2016	N	28 ppb	11	38	N/A	80	Byproduct of drinking water disinfection
HAA5 (B01 location)	2016	N	37 ppb	20	53	N/A	60	Byproduct of drinking water disinfection
HAA5 (B02 location)	2016	N	33 ppb	17	44	N/A	60	Byproduct of drinking water disinfection

Disinfection Byproduct Compliance: Grassy Pond SC

Disinfection Byproduct	Year Sampled	MCL Violation Y/N	Your Water (highest LRAA)	Range		MCLG	MCL	Likely Source of Contamination
				Low	High			
TTHM	2016	N	44 ppb	15.5	72.8	N/A	80	Byproduct of drinking water disinfection
HAA5	2016	N	35 ppb	22.8	38.5	N/A	60	Byproduct of drinking water disinfection

Disinfection Byproduct Compliance: Broad River Water Authority

Disinfection Byproduct	Year Sampled	MCL Violation Y/N	Your Water (highest LRAA)	Range		MCLG	MCL	Likely Source of Contamination
				Low	High			
TTHM	2016	N	40 ppb	14	86	N/A	80	Byproduct of drinking water disinfection
HAA5	2016	N	30 ppb	19	45	N/A	60	Byproduct of drinking water disinfection

Disinfection Byproduct Compliance: Gaffney Board of Public Works

Disinfection Byproduct	Year Sampled	MCL Violation Y/N	Your Water (highest LRAA)	Range		MCLG	MCL	Likely Source of Contamination
				Low	High			
TTHM	2016	N	60 ppb	31.4	89.5	N/A	80	Byproduct of drinking water disinfection
HAA5	2016	N	31 ppb	23.5	37.0	N/A	60	Byproduct of drinking water disinfection

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

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. These are listed on the following page.

Other Miscellaneous Water Characteristics Contaminants: Broad River Water Authority

Contaminant (units)	Sample Date	Your Water	Range		SMCL
			Low	High	
Sodium (ppm)	February 1, 2016	ND	N/A		N/A
pH	Hourly	7.3	N/A		6.5 to 8.5

Cryptosporidium

The Broad River Water Authority monitored for *Cryptosporidium* monthly (Oct - Dec) in 2016 and found an average level of 0.34. The highest level detected was 0.91 and the lowest level detected was 0.00.

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.