

2024 Annual Drinking Water Quality Report

“Appalachian State University WTP”

Water System Number: “01-95-101”



We are pleased to present to you this year's Annual Drinking Water Quality Report. This report is a snapshot of last year's water quality. Included are details about from where your water comes, what it contains, and how it compares to standards set by regulatory agencies. Our constant goal is to provide you with a safe and dependable supply of drinking water. We want you to understand the efforts we make to continually improve the water treatment process and protect our water resources. We are committed to ensuring the quality of your water and to providing you with this information, because informed customers are our best allies.

What EPA Wants You to Know

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as people with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbiological contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife; inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming; pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses; organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems; and radioactive contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities. In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

When You Turn on Your Tap, Consider the Source

App State WTP uses surface water for the source of all water produced. The primary water source is the Norris Branch stream, which is located off Rainbow Trail Road. This small stream is fed from the Howards Knob watershed. There is no industrial activity within the Howards Knob watershed with limited residential development, so there is little danger from contaminants associated with those activities. Our large reservoir stores approximately 300 million gallons of water. The secondary water source, used periodically in dry conditions, is Howards Creek which is fed from the Rich Mountain watershed.

Source Water Assessment Program (SWAP) Results



The North Carolina Department of Environmental Quality (DEQ), Public Water Supply (PWS) Section, Source Water Assessment Program (SWAP) has 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 App State WTP 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:

Source Name	Susceptibility Rating	SWAP Report Date
Norris Branch	Moderate	9/9/2020
Howards Creek	Moderate	9/9/2020

The complete SWAP Assessment report for Appalachian State University may be viewed on the web at: https://www.ncwater.org/?page=600&Action=Swap_Search with the specific report searchable by using the search terms “Appalachian State Univ WTP” or the ID# 0195101. Please 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. 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 requests to swap@deq.nc.gov. 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 919-707-9098. It is important to understand that a susceptibility rating of “higher” does not imply poor water quality, only the systems’ potential to become contaminated by 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: 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.).

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

App State WTP is administered through the Facility Operations Department. All operational data is stored on site at the Water Treatment Facility on Rainbow Trail and is open for public inspection. If you have any questions about this report or your water utility, please contact Jason Harkey, Water Plant Supervisor at 828-262-3197.

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 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. As required by the EPA or the State, asbestos, lead, and copper are monitored less than annually. These tests are not performed annually because the concentrations of these contaminants do not vary significantly from year to year. Except as discussed above or otherwise noted, the data presented in this table is for testing completed January 1 through December 31, 2024. Some of the data, though representative of the water quality, is more than one year old.

Lead and Copper Contaminants

App State WTP is required to test for lead and copper every three years. The results from the last required test were in 2024 and are listed below.

Contaminant (units)	Sample Date	Your Water (90th Percentile)	# of sites above AL	Range Low - High	MCLG	AL	Likely Source of Contamination
Copper (ppm) (90th percentile)	2024	0.398	0	0.000 - 0.494	1.3	AL = 1.3	Corrosion of household plumbing systems; erosion of natural deposits
Lead (ppb) (90th percentile)	2024	0	0	0 - 9	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 appstate.water.plant@gmail.com.

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. Appalachian State University's distribution system has no lead service lines or galvanized requiring replacement service lines on campus. A copy of the Lead Service Line Inventory is available upon request by emailing App State WTP at appstate.water.plant@gmail.com.

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. App State WTP 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 App State WTP via email at appstate.water.plant@gmail.com. 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>.

Total Trihalomethanes (TTHM) and Haloacetic Acids (five) (HAA5)

Disinfection Byproduct	Year Sampled	MCL Violation Y/N	Your Water	Range Low - High	MCLG	MCL	Likely Source of Contamination
TTHM (ppb)	2024	N	47	22 - 78	N/A	80	Byproduct of drinking water disinfection
HAA5 (ppb)	2024	N	60	30 - 129	N/A	60	Byproduct of drinking water disinfection

Disinfection byproducts (DBPs) are chemicals that form, during drinking water treatment and distribution, when naturally occurring organic matter reacts with chlorine or other disinfectants used to kill pathogenic organisms. The EPA has determined that four of these chemicals, or classes of chemicals, pose potential health risks and must be regulated. DBP's are also more likely to form as water age in the supply pipes and tanks increases, such as, between semesters when water use drops dramatically. Facility Operations flushes the distribution system when water usage is lowest to minimize the formation of DBP's. We have also made additional adjustments in production and pumping to cycle water storage to minimize the water age.

Disinfectant Residuals Summary

	MRDL Violation Y/N	Your Water (RAA)	Range Low - High	MRDLG	MRDL	Likely Source of Contamination
Chlorine (ppm)	N	0.97	0.30 – 1.74	4	4.0	Water additive used to control microbes

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	N	0.03 NTU	N/A	Turbidity > 1 NTU	Soil runoff
Turbidity (%) - Lowest monthly percentage (%) of samples meeting turbidity limits	N	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.

Total Organic Carbon (TOC)

Contaminant (units)	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 (TOC) Removal Ratio (no units)	N	< 1.00	< 1.0 – 1.8	N/A	Removal Ratio RAA <1.00 and alternative compliance criteria was not met	Naturally present in the environment

The RAA of our removal ratio was below 1.00 during the 1st, 2nd, and 3rd quarter of 2024, but this was not a treatment technique violation because we met the alternative compliance criteria for TOC removal by using Alternative Compliance Criteria 2 as the method to comply with the disinfectants/disinfectant byproducts treatment technique requirements.

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

Contaminant (units)	Sample Date	Your Water	Range Low - High	SMCL
Iron (ppm)	2024	< 0.060	N/A	0.3
Manganese (ppm)	2024	< 0.010	N/A	0.05
Nickel (ppm)	2024	< 0.100	N/A	N/A
Sodium (ppm)	2024	5.51	N/A	N/A
Sulfate (ppm)	2024	< 15	N/A	250
pH	2024	7.4	N/A	6.5 to 8.5

Public Notices

When the water treatment plant has a reporting violation, a notice must be supplied to the public.

In October 2024 App State received 4 water samples with an elevated disinfection byproduct concentration. A special public notice was issued for each sample that was not within compliance. Disinfection byproducts are regulated based on a running annual average that incorporates all of the samples taken within one year of the current sample. If the disinfection byproduct annual running average is elevated above the maximum contaminant level, a violation will be issued to the App State Water Treatment Plant. The 4 samples that did not meet compliance in October 2024 did not elevate the annual running average above the maximum contaminant level (MCL).

App State Water Treatment Plant received no violations in 2024.

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

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. MCLG's 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.

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

Important Drinking Water Definitions:

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.

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 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.

Running Annual Average (RAA) – The average of sample analytical results for samples taken during the previous four calendar quarters.

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

Variances and Exceptions – State or EPA permission not to meet an MCL or Treatment Technique under certain conditions.

Extra Note: MCLs 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.

For more information, please contact:

Responsible Person Mr. Jason Harkey	System Name Appalachian State University WTP	System Address (Street) 800 Rainbow Trail
Phone Number (828) 262-3197	System PWSID # NC 01-95-101	System Address (City, State, Zip) Boone, NC 28607