

2022 Annual Drinking Water Quality Report “Appalachian State University”

PWS ID# 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 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 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 home plumbing. Appalachian State University Water Treatment Plant (App State WTP) 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>.

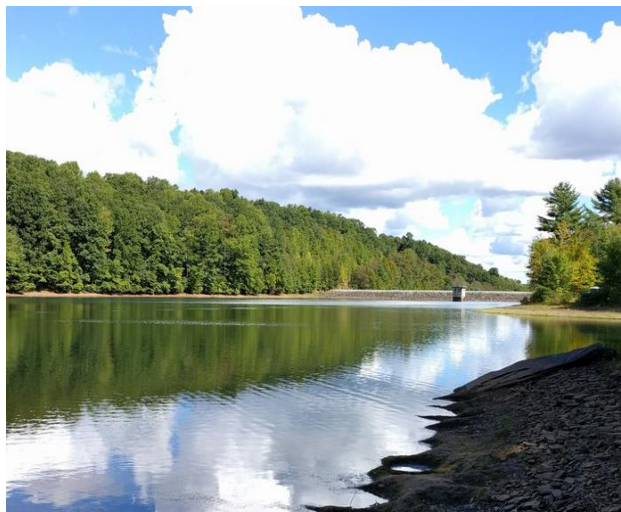
The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick 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 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 (PCSs)

Source Name	Susceptibility Rating
Norris Branch	Moderate
Howards Creek	Moderate

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 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 919-707-9098. 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 PCS's 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 Table of Detected Contaminants

We routinely monitor for over 150 contaminants in your drinking water according to Federal and State laws. The following table lists 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. 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, 2022.** 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. Secondary contaminants like iron and manganese, which are required for testing 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.

Contaminant (units)	MCL Violation Y/N	Your Water (ppm)	Range Low - High	Allowable Limits (AL)	Reporting Level	Likely Source of Contamination
Manganese (mg/L)	N	<0.01	N/A	N/A	0.01	Naturally Occurring
Iron (mg/L)	N	<0.06	N/A	N/A	0.06	Treatment Processes / Distribution Piping

Radiological Analysis

App State WTP is required by the NC Public Water Supply Section to perform a radiological analysis every 6 years.

Contaminant	Method Code	Required Reporting Limit (pCi/L)	Not Detected (i.e. < RRL)	Quantified Results (pCi/L)	Allowable Limits (pCi/L)
Gross Alpha	435	3	Not Detected	<15	15

Appalachian State University did not find any radiological test results above the maximum allowable limit. The analysis was started on 09/30/19 and concluded on 10/01/19.

Water Characteristics

Water Characteristics (units)	Sample Date	Your Water	Range Low/High	Secondary MCL
pH	10/25/22	7.5	7 - 8	6.5 to 8.5
Sodium (mg/L)	7/12/22	4.69	1 - 20	NA
Alkalinity (mg/L)	10/25/22	16	Low Hardness	NA

Alkalinity is used to measure hardness in the water. The scale commonly used is 0 – 250 mg/L, with anything greater than 200 mg/L considered hard water. There are no related health concerns with Alkalinity levels.

Lead and Copper

Appalachian State University is required to test for lead and copper every three years. The results from the last required test, in 2021 are listed below.

Contaminant (units)	Sample Date	Your Water (average)	# of sites above AL	MCL Violation Y/N	MCL	Likely Source of Contamination
Copper (ppm) (90 th percentile)	2021	0.183 ppm	0	N	AL = 1.3ppm	Corrosion of plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead (ppb) (90 th percentile)	2021	2 ppb	2	N	AL = 15ppb	Corrosion of household plumbing systems, erosion of natural deposits

Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested and flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the Safe Drinking Water Hotline (800-426-4791).

In 2021, all buildings on campus were tested for lead. Less than 10 percent of the buildings had detectable lead concentration. Currently, we have a routine campus wide flushing procedure in place.

Nitrate/Nitrite Analysis

Appalachian State University is required to test for Nitrate and Nitrite Nitrogen every year.

Contaminant (units)	Sample Date	Your Water Quantified Results	Reporting Limit	MCL Violation Y/N	MCL	Likely Source of Contamination
Nitrate Nitrogen (mg/L)	7/12/2022	<1	1	N	10	Animal waste in watershed runoff
Nitrite Nitrogen (mg/L)	7/12/2022	<0.1	0.1	N	1	Animal waste in watershed runoff

Infants and young children who are exposed to high levels of Nitrate and/or Nitrite in their drinking water can develop life threatening health problems. Nitrates and Nitrites usually contaminate drinking water from run off contaminated by animal waste, over fertilization, and waste management site seepage.

Disinfection Byproduct 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) (TOC)-TREATED	Quarterly	N	< 1	1.0 to 1.1	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 the alternative % removal, we are in violation of a Treatment Technique. App State's water system used Alternative Compliance Criteria 2 as the method to comply with the disinfectants/disinfectant byproducts treatment technique requirements.

The Appalachian State University TOC testing results were generally below the required reporting level of 1.0 mg/L. No test results were above the maximum contaminant level.

Disinfectants and Disinfection Byproducts Contaminants

Disinfection Byproduct (parts per million)	MCL Violation Y/N	MCL	Your Water (LRAA)	Highest (LRAA)	Range Low High	Current (OEL)	Likely Source of Contamination
TTHM (ppm) [Total Trihalomethanes]	N	0.08	0.033	0.034	0.021 - 0.050	0.034	By-product of drinking water disinfection
HAA5 (ppm) [Total Haloacetic Acids]	N	0.06	0.035	0.038	0.020 - 0.052	0.036	By-product 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, like 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.

Public Notices

When the water plant has a reporting violation, a notice must be supplied to the public. App State WTP received no violations in 2022.

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.

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.

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.

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.

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

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.

Locational Running Annual Average (LRAA) – A running average of the last four quarters.

Operation Evaluation Level (OEL) – A weighted average of the last three quarters with the most recent quarter receiving double weighting.

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:

<u>Responsible Person</u>	<u>System Name</u>	<u>System Address (Street)</u>
Mr. Jason Harkey	Appalachian State Univ WTP	265 Dale Street
<u>Phone Number</u>	<u>System PWSID #</u>	<u>System Address (City, State, Zip)</u>
(828) 262-3197	NC 01-95-101	Boone, NC 28608