

2017 Annual

Water Quality Report

Glade Springs District

PWS ID: WV3304111



WEST VIRGINIA
AMERICAN WATER



This report contains important information about your drinking water. We encourage you to read and share this annual Water Quality Report that can be viewed electronically at www.amwater.com/ccr/bluestone.pdf



A Message from the West Virginia American Water President

To Our Valued Customer:

Water. We all need it. Not just to live but to feel alive. At West Virginia American Water, water is all we think about. Your local West Virginia American Water team works around the clock to constantly monitor our treatment facilities,

maintain miles of pipeline, and perform countless quality tests each year. We do all of this to provide you with safe, clean, affordable and reliable water services to make sure we keep your life flowing.

I am pleased to share with you another excellent report on the quality of your drinking water. As you read through our Annual Water Quality Report, you will see that we continue to supply water that meets or surpasses state and federal water quality standards. We are the providers and protectors of a precious resource, and we run thousands of tests each year to make sure our water meets the highest standards: Ours.

Last year, we invested \$73 million to upgrade our water treatment and pipeline systems across West Virginia to further improve water quality and reduce emergency service interruptions. Here are some highlights of how we put your water bill to work in 2017:

- **Water Mains, Service Lines and Hydrants:** We invested \$22.5 million to replace 155,532 feet (nearly 30 miles) of aging pipe primarily installed between the early 1900s and the 1940s with new pipe, as well as numerous service lines and fire hydrants. These improvement projects help improve water quality, pressure, fire protection and service reliability. Over the past few years, we've dramatically accelerated our water main replacement program. **Today, we're investing at about a 100-year replacement rate.**
- **Water Tanks:** We invested \$9 million to build two new water storage tanks in the St. Albans area, adding 8 million gallons of water storage to our Kanawha Valley system. We also spent \$1.5 million to rehabilitate and paint six water storage tanks in

Charleston, Chelyan, Dunbar, Eskdale, Nitro, Salt Rock and to extend the life of the tanks and bring them up to current industry standards.

- **Water Treatment:** Our treatment plants received upgrades to intakes, pumps, filters, instrumentation, SCADA systems, and chemical feed systems. We completed a multi-year project to fully automate the New River water treatment plant and installed air-stripping systems at two tanks in our Huntington system to reduce the potential for harmful disinfection byproducts.
- **Pumping Stations:** We improved or replaced multiple booster stations and pressure reducing stations across our system to maintain proper flows and water pressure across mountainous terrain.
- **Source Water Protection:** We installed a new continuous monitoring system for organic contaminants at our Kanawha Valley treatment plant, which became part of ORSANCO's Organic Detection System – a network we've participated in for decades at our Huntington plant. We also conducted a location study for upstream monitors on the Elk River and invested in equipment to better view and evaluate data from online source water monitors at all of our treatment facilities.

We take water quality so seriously that seven of our eight water treatment plants have been nationally recognized with prestigious Directors Awards from the U.S. EPA's Partnership for Safe Water program for surpassing federal and state drinking water standards. All of our plants that have received this award have maintained it in every subsequent year – some as many as 20 consecutive years.

We hope our commitment to you and our passion for water shines through in this report detailing the source and quality of your drinking water over the last year. We will continue to work around the clock to keep life flowing – today and for future generations.

Proud to be your local water service provider,

Brian Bruce
President, West Virginia American Water



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WE CARE ABOUT WATER. IT'S WHAT WE DO.®

Share This Report

Landlords, businesses, schools, hospitals and other groups are encouraged to share this important information with water users at their location who are not billed customers of West Virginia American Water and therefore do not receive this report directly.

Commonly Asked Questions

Is there lead in my water?

Although we regularly test lead levels in your drinking water, it is possible that lead and/or copper levels at your home are higher because of materials used in your plumbing. If present, elevated levels of lead can potentially cause health problems, especially for pregnant women and young children. If you are concerned about possible elevated levels, run your faucet for 30 seconds to 2 minutes before using your water; use cold water for cooking, drinking, or making baby formula; use low lead containing faucets; and when replacing or working on pipes, use lead-free solder. West Virginia American Water remains in full compliance with all of the requirements dealing with lead in drinking water. More information is available from the National Lead Information Center (800) 424-5323, Safe Drinking Water Hotline (800) 426-4791 or at <http://www.epa.gov/safewater/lead>.

How much sodium is in my water?

The sodium level is approximately 22 ppm (or mg/L).

Is there fluoride in my water?

Fluoride is added to the water to a level of near 0.7 ppm to assist in the prevention of dental cavities.

Where Does My Water Come From?

The Glade Springs District of West Virginia American Water purchases water for its customers from the Beckley Water Company and produced at the Glade Creek Water Treatment Plant. The Glade Creek Plant draws surface water from the Glade Creek Reservoir, which holds about 1.3 billion gallons of water. This water supply is part of the Lower New Watershed, which covers an area of roughly 692 square miles around Beckley. Forested lands cover most (98%) of the watershed. To learn more about this watershed on the Internet, go to U.S. EPA's Surf Your Watershed at www.epa.gov/surf.

How Is My Water Treated and Purified?

At the Glade Creek Plant, raw water is drawn from the Glade Creek Reservoir into an inline mixer where an oxidant and a coagulant are added. Water then goes to the flocculators where the addition of the coagulant causes small particles to adhere to one another (called floc). Water is then sent to the Dissolved Air Flotation (DAF) unit, where air under pressure is released into water forming micro bubbles, which attach to the floc and float to the surface for removal. Chlorine is then added for disinfection. At this point, water at the Glade Plant is filtered through layers of fine coal and silicate sand. As smaller, suspended particles are removed, turbidity disappears and clear water emerges. Chlorine is added again as a precaution against any bacteria that may still be present. Beckley Water Company staff carefully monitors the amount of chlorine, adding the

lowest quantity necessary to protect the safety of your water without compromising taste. Finally, caustic soda (used to adjust the final pH), fluoride (used to prevent tooth decay), and orthophosphate (used to protect distribution and residential system pipes) are added before the water is pumped to sanitized, underground reservoirs, water towers, and into your home or business.

Information on the Internet

The U.S. EPA Office of Water and the Centers for Disease Control and Prevention websites provide a substantial amount of information on many issues relating to water resources, water conservation and public health. You may visit these sites or West Virginia American Water's website at the web addresses below:

West Virginia American Water
www.westvirginiaamwater.com

West Virginia Bureau for Public Health
www.wvdhhr.org/oehs

United States Environmental Protection Agency
www.epa.gov/safewater

Safe Drinking Water Hotline: (800) 426-4791

Centers for Disease Control and Prevention
www.cdc.gov

Source Water Assessment Completed

The West Virginia Bureau for Public Health (WV BPH) performed a source water assessment of our drinking water sources. The purpose of the assessment was to determine the susceptibility of potential contamination and assign a susceptibility ranking of lower, medium or higher to each of the sources. The intake that supplies drinking water to the Glade Creek Treatment Plant has a higher susceptibility to contamination, due to the sensitive nature of surface water supplies and the potential contaminant sources identified within the area. This does not mean that this water source will become contaminated; only that conditions are such that it could be impacted by a potential contaminant source. Future contamination may be avoided by implementing protective measures. The Source Water Assessment Report, which includes more detailed information, is available by calling Beckley Water Company or WV BPH at (304) 558-2981.

Additional Regulatory Requirements

Cryptosporidium is a microbial pathogen found in surface water throughout the US. Although *Cryptosporidium* can be removed through commonly-used filtration methods, US EPA issued a new rule in January 2006 that requires systems with higher *Cryptosporidium* levels in their source water to provide additional treatment. In compliance with this rule, Beckley's Glade Creek Treatment Plant monitored for *Cryptosporidium* in its raw water in 2007, 2008 and 2009. Sample results do not show a need to provide additional treatment.



Special Health Information

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 may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC (Centers for Disease Control and Prevention) 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 or by calling our Customer Service Center at (800) 685-8660.

UCMR3 Results

During the reporting year for 2015, Beckley Water Company was required by the US EPA under the Unregulated Contaminant Monitoring Rule 3 (UCMR3) to collect samples in your drinking water that are suspected to be contaminants but do not have a health based standard set under the Safe Drinking Water Act. The UCMR3 program is the primary source of drinking water contaminant occurrence data used by the EPA in regulatory determinations. Drinking Water Samples found to have contaminants in our system are reported below. These are unregulated contaminants and are used by the EPA to determine future standards, if any.

Substances Expected to be in Drinking Water

To ensure that tap water is of high quality, U.S. Environmental Protection Agency prescribes regulations limiting the amount of certain substances in water provided by public water systems. U.S. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. West Virginia American Water's advanced water treatment processes are designed to reduce any such substances to levels well below any health concern.

The source of drinking water (both tap water and bottled water) includes 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, or wildlife.

Inorganic contaminants, such as salts and metals, which can be naturally occurring or may 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 may also come from gas stations, urban stormwater runoff, and septic systems.

Radioactive contaminants, which can be naturally occurring or may be the result of oil and gas production and mining activities.

For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

There's a lot more to your water bill than just water.

When you turn on the tap, it's easy to see what your water bill buys. What's not as easy to see is what it takes to bring that water to your home. The miles of pipeline hidden below the ground. The facilities that draw water from the source. The plant where it's treated and tested. The scientists, engineers, and maintenance crews working around the clock to make sure that water is always there when you need it. Your water payments are helping to build a better tomorrow by supporting needed improvements that will keep water flowing for all of us—today and well into the future. All for about a penny a gallon.

AT ABOUT A PENNY PER GALLON WATER IS A GREAT VALUE™

WE CARE ABOUT WATER. IT'S WHAT WE DO. FIND OUT WHY YOU SHOULD, TOO, at amwater.com.

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Water Quality Statement

West Virginia American Water, a subsidiary of American Water (NYSE: AWK), is the largest investor-owned water utility in the state, providing high-quality and reliable water services to approximately 530,000 people. With a history dating back to 1886, American Water is the largest and most geographically diverse U.S. publicly traded water and wastewater utility company. The company employs more than 6,900 dedicated professionals who provide regulated and market-based drinking water, wastewater and other related services to an estimated 15 million people in 46 states and Ontario, Canada. American Water provides safe, clean, affordable and reliable water services to our customers to make sure we keep their lives flowing. For more information, visit amwater.com and follow American Water on [Twitter](https://twitter.com), [Facebook](https://facebook.com) and [LinkedIn](https://linkedin.com).



How to Read the Data Tables

For your information, we have compiled a list in the adjacent table showing what substances were detected in our drinking water during 2017. Although all of the substances listed are under the Maximum Contaminant Level (MCL) set by the U.S. EPA, we feel it is important that you know exactly what was detected and how much of the substance was present in the water. Please carefully review this report as it provides important information about drinking water and your health. The company remains committed to providing the highest quality water to our customers. For help with interpreting this table, see the “Table Definitions” section.

Table Definitions and Abbreviations

- **Action Level:** The concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a water system must follow.
- **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.
- **MRDL (Maximum Residual Disinfectant Level):** The highest level of disinfectant routinely allowed in drinking water. Addition of a disinfectant is necessary for control of microbial contaminants.
- **MRDLG (Maximum Residual Disinfectant Level Goal):** The level of 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 contamination.
- **NA:** Not applicable
- **NTU - Nephelometric Turbidity Units:** Measurement of the clarity, or turbidity, of water.
- **pCi/L (picocuries per liter):** Measurement of the natural rate of disintegration of radioactive contaminants in water (also beta particles).
- **ppm (parts per million):** One part substance per million parts water, or milligrams per liter.
- **ppb (parts per billion):** One part substance per billion parts water, or micrograms per liter.
- **ng/L (parts per trillion):** One part substance per trillion parts water, or nanograms per liter.
- **pH:** A measurement of acidity, 7.0 being neutral.
- **Secondary MCL (Secondary Maximum Contaminant Level):** Contaminants levels that may result in cosmetic or aesthetic effects in drinking water.
- **TT (Treatment Technique):** A required process intended to reduce the level of a contaminant in drinking water.

Water Quality Results

The state requires a water utility to monitor for certain substances less than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

Regulated Substances (Measured in WVAW Glade Springs Water System)

Substance (units)	Year Sampled	MCLG	MCL	Amount Detected	Range Low-High	Compliance Achieved	Typical Source
Chlorine (ppm)	2017	MRDLG = 4	MRDL = 4	1.0	0.3 - 1.5	Yes	Water additive used to control microbes
Haloacetic Acids (HAA5) (ppb) 1	2017	0	60	42	29 - 49	Yes	By-product of drinking water chlorination
Total Trihalomethanes (TTHMs) (ppb) 2	2017	0	80	59	30 - 60	Yes	By-product of drinking water chlorination

Regulated Substances (Measured in Beckley's Water System)

Substance (units)	Year Sampled	MCLG	MCL	Amount Detected	Range Low-High	Compliance Achieved	Typical Source
Alpha emitters (pCi/L)	2013	0	15	0.27	NA	Yes	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Combined Radium	2013	0	5	0.41	NA	Yes	Erosion of natural deposits
Fluoride (ppm)	2017	4	4	0.76	NA	Yes	Water additive which promotes strong teeth
Barium (ppm)	2017	2	2	0.03	NA	Yes	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Nitrate (ppm)	2017	10	10	0.28	NA	Yes	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Total Organic Carbon (Removal Ratio) ³	2017	NA	TT	1.6	NA	Yes	Naturally occurring in the environment
Turbidity (NTU) ⁴	2017	NA	TT	0.12	NA	Yes	Soil runoff



Unregulated Substances (Measured on the Water Leaving Beckley's Glade Creek Water Treatment Facility)

Substance (units)	Year Sampled	Average Results	Secondary MCL	Range Low-High	Typical Source
Sodium (ppm) ⁵	2017	18.4	NA	NA	Element that occurs naturally in water and soil; Road salt; Water softeners
Sulfate (ppm)	2017	6.9	250	NA	Mineral that occurs naturally in the soil
Chlorate (UCMR3) (ppb)	2015	26.1	NA	NA	Agricultural defoliant or desiccant; disinfection by-product; used in production of chlorine dioxide
Strontium (UCMR3) (ppb)	2015	29.5	NA	24.6 – 33.3	Naturally occurring element; used in manufacture of faceplate glass for cathode-ray tubes
Total Chromium (UCMR3) (ppb)	2015	0.215	NA	0.21 – 0.22	Naturally occurring element; used in manufacturing of steel and other alloys; chrome plating; dyes, pigments, leather tanning and wood preservation

Bacterial Results (from WVAW's Glade Springs Distribution System)

Substance (units)	Year Sampled	MCL	MCLG	Highest Number Detected	Compliance Achieved	Typical Source
Total coliform (# of Positive samples per calendar month)	2017	≤ 1 Positive sample	0	0	Yes	Bacteria naturally present in the environment

Lead and Copper Results (From WVAW's Glade Springs Distribution system)

Substance (units)	Year Sampled	MCLG	Action Level	Amount Detected 90 th Percentile	Number of Samples	Homes Above Action Level	Compliance Achieved	Typical Source
Copper (ppm)	2015	1.3	1.3	0.126	10	0	Yes	Corrosion of household plumbing
Lead (ppb)	2015	0	15	< 1	10	0	Yes	Corrosion of household plumbing

¹ Based on a yearly running average. Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer. Results are from samples taken in the Glade Springs distribution system under Stage II of the Disinfection Byproducts Rule.

² Based on a yearly running average. 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 system, and may have an increased risk of getting cancer. Results are from samples taken in the Glade Springs distribution system under Stage II of the Disinfection Byproducts Rule

³ The Treatment Technique (TT) is met if the ratio of Actual TOC Removal to the Required TOC Removal is equal to or greater than 1.

⁴ Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of the filtration system at the Glade Creek Treatment Plant of Beckley Water Company, our supplier. During the reporting year, a minimum of 100 % of all samples taken to measure turbidity met the treatment technique requirements.

⁵ Sodium is an unregulated contaminant. Our sodium level exceeds the guidance MCL of 20 ppm. Anyone concerned about sodium in the water should contact their primary health care provider.

