



2017 Annual Water Quality Report

Bluestone District
PWS ID: WV3304513



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.®

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 hard is my water?

Hardness is a measure of the concentration of two minerals, calcium and magnesium, naturally present in water. Hardness levels range from 50 to 64 ppm, or 3 to 4 grains per gallon of water.

How much sodium is in my water?

The sodium level is approximately 8.1 ppm (or mg/L).

What is the pH (acidity) range of my water?

Water in the distribution system averages 7.0 pH units. A pH of 7.0 is considered neutral, neither acidic nor alkaline.

Is there fluoride in my water?

West Virginia American Water adds fluoride to a level of near 0.64 ppm to assist in the prevention of dental cavities.

Where Does My Water Come From?

West Virginia American Water and its customers in the Bluestone system are fortunate because we enjoy an abundant water supply from the Bluestone Reservoir (an impoundment of the New River) which is a surface water source. The current treatment plant provided roughly 869 million gallons of clean drinking water in 2017. To learn more about our watershed on the internet, go to the U.S. EPA's Search Your Watershed at www.epa.gov/owow/.

How Is My Water Treated And Purified?

Current treatment processes include coagulation and settling followed by filtration and disinfection. An inhibitor is added for corrosion control and fluoridation is provided for reduction of dental cavities. Throughout the process, dedicated plant operations and water quality staff continuously monitor and control these plant processes to assure you, our customers, a superior quality water.

Partnership for Safe Drinking Water Program

West Virginia American Water is a member of the national Partnership for Safe Water (an association of water utilities and government) which is committed to providing drinking water quality that is far better than what is required by federal regulation.



This facility has completed its self-assessment and, in 2017, received the prestigious "15 Year Director's Award", presented by the administrator of the US Environmental Protection Agency.

Source Water Assessment and Protection

A Source Water Assessment describes the source of drinking water supply for a public water system and potential contaminant sources that could affect that source. The West Virginia Bureau for Public Health developed a Source Water Assessment for the Bluestone System under the 1996 amendments to the Federal Safe Drinking Water Act (SDWA). West Virginia American Water has since updated the Source Water Assessment as part of our source water protection planning efforts in accordance with State regulatory requirements established in 2014 under Senate Bill 373. Information about the Bluestone System and Source Water Assessment is included in the approved Source Water Protection Plan, which is available online at www.westvirginiaamwater.com under the Water Quality Source Water Protection menu. A copy can also be obtained by contacting our Source Water Protection Manager at (800) 685-8660.

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.

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.



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.

Special Monitoring

In addition to the regulated contaminants normally monitored by our facility, in 2013 the Bluestone system also sampled for a series of unregulated contaminants in accordance with the Unregulated Contaminant Monitoring Rule (UCMR3). Unregulated contaminants are those that don't yet have a drinking water standard set by USEPA. The purpose of monitoring for these contaminants is to help the EPA decide whether the contaminants should have a standard. None of these contaminants were found in the Bluestone water system in 2013. Specific UCMR3 results are available at West Virginia American Water, 1087 Edwards Road, Hinton, WV 25951 or may be requested by calling (800) 685-8660.

Chromium, a metallic element, is found in rocks, soil, plants, and animals. Chromium is also used in steel making, metal plating, leather tanning, paints, dyes and wood preservatives. The most common forms of chromium in the environment are trivalent (chromium-3), hexavalent (chromium-6) and the metal form, chromium-0. EPA currently regulates chromium-6 as part of the total chromium drinking water standard. New health effects information has become available since the original standard was set, and EPA is reviewing this information to determine whether there are new health risks that need to be addressed. While this review is underway, the EPA suggested that systems begin voluntary monitoring for chromium-6. Additional information can be found at <http://water.epa.gov/drink/info/chromium/index.cfm>. We began voluntary monitoring in your system in 2011. Detects of this element are listed in the data tables.

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, WVAW's Bluestone Treatment Plant monitored for Cryptosporidium in its raw water in 2005-2007. A second 2-year study began in September 2016. Cryptosporidium was detected in 1 of the 12 source water samples tested. Based on the results of our Cryptosporidium monitoring, no additional treatment will be required under the new US EPA regulation.

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

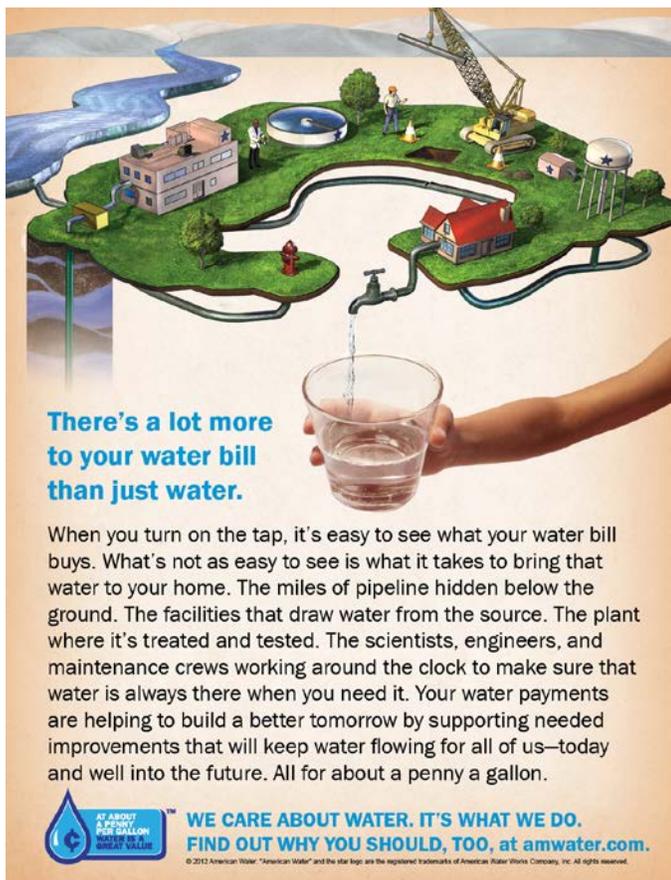
West Virginia Bureau for Public Health
www.wvdhhr.org/oehs

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





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.

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.

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).

The staff and management of West Virginia American Water are pleased to report that the water provided to our Bluestone customers during the past year met all the state and federal standards set for drinking water.

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



Regulated Substances (Measured on the Water Leaving the Treatment Facility)

Substance (units)	Year Sampled	MCL	MCLG	Amount Detected	Range Low-High	Compliance Achieved	Typical Source
Alpha emitters (pCi/L)	2011	15	0	2.0	NA	Yes	Radioactive decay of natural deposits
Chlorine (ppm)	2017	MRDL=4	MRDLG=4	1.7	0.5 – 2.4	Yes	Water additive used to control microbes.
Combined radium (pCi/L)	2011	5	0	0.0	NA	Yes	Radioactive decay of natural deposits
Fluoride (ppm)	2017	4	4	0.64	0.5 – 1.0	Yes	Water additive which promotes strong teeth
Haloacetic Acids (HAA5s) (ppb) 1	2017	60	0	37	19 - 67	Yes	By-product of drinking water chlorination
Nitrate (ppm)	2017	10	10	0.78	NA	Yes	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Total Trihalomethanes (TTHMs)(ppb) 2	2017	80	0	69	31 - 101	Yes	By-product of drinking water chlorination
Total Organic Carbon (Removal Ratio) 3	2017	TT	NA	1.1	1.0 – 1.3	Yes	Naturally decaying vegetation
Turbidity (NTU) 4	2017	TT	NA	0.08	0.02–0.08	Yes	Soil runoff

Unregulated Substances (Measured on the Water Leaving the Treatment Facility)

Substance (units)	Year Sampled	Secondary MCL	Average Results	Range Low-High	Typical Source
Aluminum (ppm)	2017	0.2	0.03	NA	Mineral that occurs naturally in the soil, constituent of coagulant used in treatment
Calcium (ppm)	2017	NA	16	NA	Mineral that occurs naturally in the soil
Chloride (ppm)	2017	250	19.7	NA	Mineral that occurs naturally in the soil, road salt, and water softeners
Magnesium (PPM)	2017	NA	6	NA	Mineral that occurs naturally in the soil
Sodium (ppm)	2017	NA	8.1	NA	Element that occurs naturally in water and soil; road salt; water softeners
Sulfate (ppm)	2017	250	13.3	NA	Mineral that occurs naturally in the soil
Zinc (ppm)	2017	5	0.09	0.02 – 0.14	Element that occurs naturally in the water; constituent of corrosion control additive

Unregulated Substances (Measured on the Water Leaving the Treatment Facility and in the Distribution System) UCMR3

Substance (units)	Year Sampled	MCL/MCLG	SAMPLE LOCATION	Average Results	Range Low-High	Typical Source
Strontium (ppb)	2014	Not Regulated	Treatment Facility	84	NA	Naturally-occurring element ; historically, commercial use of strontium has been in the faceplate glass of cathode-ray tube televisions to block x-ray emissions.
			Distribution System	94	73.7 – 76.1	
Chromium-6 or Hexavalent Chromium (ppb) 5	2014	Not Regulated	Treatment Facility	0.06	0.06 – 0.07	Naturally-occurring element; used in making steel and other alloys; chromium-3 or-6 forms are used for chrome plating, dyes and pigments, leather tanning and wood preservation
			Distribution System	0.61	0.25 – 1.07	
Vanadium (ppb)	2014	Not Regulated	Treatment Facility	0.3	0.2 - .06	Synthetic industrial chemical that is completely miscible in water
			Distribution System	0.4	0.3 - 0.9	

1 Based on a yearly running average.

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, kidney, central nervous system, and may have an increased risk of getting cancer.

3 The Treatment Technique (TT) is met if the TOC Removal Ratio (based on a four quarter running annual average) is greater or equal to 1.0

4 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. During the reporting year, a minimum of 100% of all samples taken to measure turbidity met the treatment technique requirements.

5 The current federal drinking water standard for total chromium is 100 parts per billion (ppb) and includes all forms of chromium (e.g., chromium-3 and chromium-6). Chromium-6 is currently regulated as an individual compound.



Tap Water Samples: Lead and Copper Results

Substance (units)	Year Sampled	Action Level	MCLG	Amount Detected 90 th Percentile	Number of Samples	Homes Above Action Level	Compliance Achieved	Typical Source
Copper (ppm)	2015	1.3	1.3	0.13	30	0	Yes	Corrosion of household plumbing
Lead (ppb)	2015	15	0	2	30	2	Yes	Corrosion of household plumbing

Bacterial Results (from the Distribution System)

Substance (units)	Year Sampled	MCL	MCLG	Highest Percentage Detected	Compliance Achieved	Typical Source
Total coliform (% Positive samples)	2017	5 % Positive samples	0	0%	Yes	Bacteria naturally present in the environment

Additional Constituents

Substance (Units)	Year Sampled	Average Amount Detected	Range Low-High
Alkalinity, Total (ppm)	2017	56	40 – 62
Hardness, Total (ppm)	2017	53	50 – 64
pH (standard units)	2017	7.0	6.8 – 7.6

