Once again, we proudly present our Annual Water Quality Report, also referred to as a Consumer Confidence Report (CCR). CCRs let consumers know what contaminants, if any, were detected in their drinking water as well as related potential health effects. CCRs also include details about where your water comes from and how it is treated. Additionally, they educate customers on what it takes to deliver safe drinking water and highlight the need to protect drinking water sources.

We are committed to delivering high quality drinking water service. To that end, we remain vigilant in meeting the challenges of source water protection, water conservation, environmental compliance, sustainability and community education while continuing to serve the needs of all our water users.

This report contains important information about your drinking water. Translate it, or speak with someone who understands it at 1-800-685-8660.

Este informe contiene información muy importante sobre su agua potable. Tradúzcalo o hable con alguien que lo entienda bien al 1-800-685-8660.

Ntawm no yob cib cib luam qhia tseem ceeb hheev txog koy cov dej seb huv npaum lics. Yog tias koy xav tau kev pab txhais cov lus qhia no, thow hau rau peb ntawm 1-800-685-8660.

これはあなたの水質の十分重要な情報です。もし必要ある場合は翻訳してください 1-800-685-8660と私たちに連絡してください。

आपके पानी की गुणवत्ता के बारे में यह बहुत महत्वपूर्ण सूचना है। यदि इस सूचना के अनुसार आपके सहायक की जरूरत हो आप को 1-800-685-8660 के माध्यम से कृपया कूच लें।

Это очень важная информация о качестве Вашей воды. Если Вам требуется перевод этой информации, позвоните нам по телефону 1-800-685-8660.

Ito ay isang napakahalagang impormasyon tungkol sa kalidad ng iyong tubig. Kung iyong kailangan ng tulong sa pagsalin ng impormasyon na ito, maniyaring tumawag sa amin sa 1-800-685-8660.

Đây là thông tin rất quan trọng về chất lượng nước của quý vị. Nếu quý vị cần thông dịch thông tin này, xin gọi chúng tôi theo số 1-800-685-8660.
Dear West Virginia American Water Customer,

At West Virginia American Water, it’s our top priority to provide safe, clean and reliable water service to over 560,000 West Virginians in 368 communities.

I am pleased to share with you our 2021 Consumer Confidence Report, which showcases the hard work and dedication of our employees to meet the needs of our customers. As you read through this annual water quality information, you will see that we continue to supply high quality drinking water service to keep your life flowing.

Each day, our team of highly skilled water quality specialists monitor and test your water at multiple points throughout our process of drawing it from its source, treating it to meet drinking water standards, and distributing it through our pipeline systems. In fact, we test for about 100 regulated contaminants as required by state and federal drinking water standards.

QUALITY: We take water quality seriously. Seven of our eight water treatment plants have been nationally recognized with Directors Awards from the U.S. Environmental Protection Agency’s (EPA) Partnership for Safe Water program for surpassing federal and state drinking water standards. Additionally, we remain committed to protecting our sources of drinking water in West Virginia. We utilize advanced technology and detection methods that are paving the way for source water protection across the country. We’re proud to share that in 2021, West Virginia American Water earned the Exemplary Source Water Protection Program of the Year from the American Water Works Association, signifying how our program stands out among all large water systems in the United States.

SERVICE: Last year, we invested more than $112 million to upgrade our water and wastewater treatment and pipeline systems in the communities we serve. These investments allowed us to improve water quality, water pressure and service reliability for our customers.

VALUE: Costs to provide water service continue to increase across the country, but our investments help us provide high quality water service that remains an exceptional value for such an essential service.

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 in 2021. We will continue to work to keep your life flowing – today, tomorrow and for future generations.

Proud to be your local water service provider,

Robert Burton
West Virginia American Water
EVERY STEP OF THE WAY.
Our team monitors and tests your water at multiple points throughout our process of drawing it from its source, treating it to meet drinking water standards, and distributing it through our pipeline systems. In fact, American Water performs over one million tests annually for about 100 regulated contaminants, nationwide.

EXPERTISE. RECOGNIZED AT THE HIGHEST LEVEL.
American Water is an expert in water quality testing, compliance and treatment and has established industry-leading water testing facilities. Our dedicated team of scientists and researchers are committed to finding solutions for water quality challenges and implementing new technologies. We are recognized as an industry leader in water quality and work cooperatively with the EPA so that drinking water standards and new regulations produce benefits for customers and public water suppliers. American Water has earned awards from the EPA’s Partnership for Safe Water as well as awards for superior water quality from state regulators, industry organizations, individual communities, and government and environmental agencies.

WATER QUALITY. DOWN TO A SCIENCE.
Our team also has access to American Water’s Central Laboratory in Belleville, Illinois, which conducts sophisticated drinking water testing and analysis. American Water scientists refine testing procedures, innovate new methods, and set new standards for detecting potentially new contaminants—even before regulations are in place.

MAINTAINING QUALITY FOR FUTURE GENERATIONS.
Just as West Virginia American Water is investing in research and testing, we also understand the importance of investing in the infrastructure that provides high-quality water service to you. Last year alone, we invested more than $78 million to improve our water and wastewater treatment and pipeline systems.

NOT JUST MEETING DRINKING WATER STANDARDS—SURPASSING THEM.
The EPA regulates about 100 potential contaminants and sets stringent standards for each one. West Virginia American Water takes water quality so seriously that:

- Seven of our water treatment plants, have been nationally recognized with Directors Awards from the EPA’s Partnership for Safe Water program for surpassing federal and state drinking water standards.
- Most of our water treatment plants have received the Directors Award year after year for more than a decade including Bluefield, Bluestone, Gassaway, Huntington, Kanawha Valley, New River and Weston.
About Your Drinking Water Supply

WHERE YOUR WATER COMES FROM
West Virginia American Water and its customers in the Kanawha Valley Regional Water system are fortunate because we enjoy an abundant water supply from the Elk River, which is a surface water source. The current treatment plant provided roughly 10 billion gallons of water throughout the year to customers in Kanawha, Boone, Putnam, Lincoln, Logan and Cabell counties. The water supply is distributed for residential, commercial and industrial use. Learn more about the Elk River and local waterways at https://mywaterway.epa.gov/

QUICK FACTS ABOUT THE KANAWHA VALLEY WATER SYSTEM

- **Communities served:** Kanawha, Putnam, Boone, Cabell, Lincoln, Logan, Fayette and Clay Counties
- **Water source:** Elk River
- **Average amount of water supplied to customers on a daily basis:** 25.5 million gallons per day
- **Current treatment:** The surface water supply is treated with coagulation, flocculation and sedimentation followed by filtration and disinfection. An inhibitor is added for corrosion control and fluoridation is proved for reduction of dental cavities.

SOURCE OF SUPPLY FOR WEST VIRGINIA AMERICAN WATER SYSTEMS

- Surface Water: 98%
- Purchased Water: 2%
What are the Sources of Contaminants?

To provide tap water that is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

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).

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, aquifers and/or groundwater. 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.

<table>
<thead>
<tr>
<th>CONTAMINANTS THAT MAY BE PRESENT IN SOURCE WATER INCLUDE:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Microbial Contaminants</strong></td>
</tr>
<tr>
<td><strong>Inorganic Contaminants</strong></td>
</tr>
<tr>
<td><strong>Pesticides and Herbicides</strong></td>
</tr>
<tr>
<td><strong>Organic Chemical Contaminants</strong></td>
</tr>
<tr>
<td><strong>Radioactive Contaminants</strong></td>
</tr>
</tbody>
</table>

SPECIAL HEALTH INFORMATION

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/Centers for Disease Control and Prevention (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).
Protecting Your Drinking Water Supply

Protecting drinking water at its source is an important part of the process to treat and deliver high quality water. It takes a community effort to protect our shared water resources. This includes utilities, businesses, residents, government agencies and organizations. Everyone who lives, works, and plays in the area has a role and stake in clean water supplies.

WHAT CAN YOU DO?
Quality drinking water starts upstream. Everyone can help maintain and improve drinking water supplies through the following actions:

- Properly dispose of pharmaceuticals, household chemicals, oils and paints. Materials can impact water ways if poured down the drain, flushed down the toilet, or dumped on the ground.
- Check for leaks from automobiles and heating fuel tanks. Clean up any spills using an absorbent material like cat litter. Sweep up the material and put it in a sealed bag in the trash.
- Clean up after your pets and limit the use of fertilizers and pesticides.
- Take part in watershed activities.

Report any spills, illegal dumping or suspicious activity to the West Virginia DEP Spill Line at 1-800-642-3074.

FOR MORE INFORMATION
To learn more about your water supply and local activities, visit us online at westvirginiaamwater.com or contact our Source Water Protection Program Manager, Erica Pauken, at erica.pauken@amwater.com.

WHAT ARE WE DOING?
Our priority is to provide reliable, quality drinking water service for customers. The source of supply is an important part of that mission. We work to understand and reduce potential risks to your drinking water supply. We have developed a Source Water Protection Plan for each West Virginia American Water system, and those plans are publicly available at westvirginiaamwater.com. These plans proactively identify and address potential threats to drinking water supplies. Stakeholder involvement is an important part of the program, and we partner with external stakeholders to host regular meetings to review progress on the plans. We also welcome input on the plan or local water supplies through our online feedback form.

Here are a few of the efforts underway to protect our shared water resources:

Community Involvement: We have a proactive public outreach program to help spread the word and get people involved. This includes school education, contests, and other community activities.

Environmental Grant Program: Each year, we fund projects that improve water resources in our local communities.

Protect Our Watersheds Art Contest: Open to fourth, fifth and sixth graders, the contest encourages students to use their artistic skills to express the importance of protecting our water resources.
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. Your water utility 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 at http://www.epa.gov/safewater/lead.

**CHECK YOUR PLUMBING AND SERVICE LINE**

If you live in an older home, consider having a licensed plumber check your plumbing for lead. If your service line is made of lead, and you’re planning to replace it, be sure to contact us at 1-800-685-8660.

**1. Flush your taps.** The longer the water lies dormant in your home’s plumbing, the more lead it might contain. If the water in your faucet has gone unused for more than six hours, flush the tap with cold water for 30 seconds to two minutes before drinking or using it to cook. To conserve water, catch the running water and use it to water your plants.

**2. Use cold water for drinking and cooking.** Hot water has the potential to contain more lead than cold water. If hot water is needed for cooking, heat cold water on the stove or in the microwave.

**3. Routinely remove and clean all faucet aerators.**

**4. Look for the “Lead Free” label** when replacing or installing plumbing fixtures.

**5. Follow manufacturer’s instructions for replacing water filters** in household appliances, such as refrigerators and ice makers, as well as home water treatment units and pitchers. Look for NSF 53 certified filters.

**6. Flush after plumbing changes.** Changes to your service line, meter, or interior plumbing may result in sediment, possibly containing lead, in your water supply. Remove the strainers from each faucet and run the water for 3 to 5 minutes.
WATER HARDNESS
Hardness is a measure of the concentration of two minerals, calcium and magnesium, naturally present in water. Hardness levels range from 14 – 69 ppm or 1 – 5 grains per gallon of water.

SODIUM
For healthy individuals, the sodium intake from water is not important because a much greater intake of sodium takes place from salt in the diet. However, sodium levels above the recommended upper limit of 250 ppm may be of concern to individuals on a sodium restricted diet. The sodium level of the Kanawha Valley Water System is approximately 7.9 ppm.

pH
Water in the Kanawha Valley Water System averages 7.2. A pH of 7.0 is considered neutral, neither acidic nor alkaline.

FLUORIDE
Fluoride is a naturally occurring substance. It can be present in drinking water from two sources:

1. **By nature**, when groundwater comes into contact with fluoride-containing minerals naturally present in the earth; or

2. **By a water purveyor** through addition of fluoride to the water they are providing in the distribution system.

The Kanawha Valley treatment plant has naturally-occurring fluoride in the source water and also receives fluoridated water from fluoride additive. Beginning February 19, 2018, the fluoride level at the Kanawha Valley Water treatment plant was adjusted to achieve an optimal fluoride level of 0.7 parts per million (ppm) and a control range of 0.6 ppm to 0.8 ppm to comply with the state’s Water Fluoridation Standards. The naturally-occurring fluoride levels in the Elk River are close to optimal levels (approximately 0.2 ppm) and with the Kanawha Valley treatment plant fluoride addition, the fluoride levels in the entire system are consistent year-round.

If you have any questions on fluoride, please call West Virginia American Water’s Customer Service Center at 1-800-685-8660.
CRYPTOSPORIDIUM
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.

NITRATES
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.
**UNREGULATED CONTAMINANT MONITORING RULE (UCMR)**

The EPA created the Unregulated Contaminants Monitoring Rule (UCMR) to assist them in determining the occurrence of unregulated contaminants in drinking water and whether new regulations are warranted. The first Unregulated Contaminants Monitoring Rule (UCMR1) testing was completed in 2003 for a list of contaminants specified by the EPA. Unregulated contaminants are those for which the EPA has not established drinking water standards. UCMR2 testing was conducted between November 2008 and August 2009, and UCMR3 assessment monitoring was conducted between January 2013 and December 2016. The fourth list of contaminants to monitor as part of the UCMR was published by the EPA in December 2016. UCMR4 testing began in 2016 and continued until 2018. The results from the UCMR monitoring are reported directly to the EPA. The results of this monitoring are incorporated in the data tables in this report as appropriate. For more information, contact our Customer Service Center at 1-800-685-8660.

**PFAS Monitoring**

PFAS refers to per- and polyfluoroalkyl substances, a class of synthetic chemicals, manufactured for industrial applications and commercial household products such as: non-stick cookware; waterproof and stain resistant fabrics and carpets; firefighting foam and cleaning products. The properties that make these chemicals useful in so many of our every-day products also resist breaking down and therefore persist in the environment. Exposure may be from food, food packaging, consumer products, house dust, indoor and outdoor air, drinking water and at workplaces where PFAS are made or used.

West Virginia American Water is currently performing voluntary sampling to better understand certain occurrence of PFAS levels in drinking water sources. This testing allows us to understand how our water compares against the non-enforceable Health Advisory Level set by USEPA of 70 nanograms per liter or parts per trillion for a combination of two PFAS compounds, PFOA and PFOS. Testing also allows West Virginia American Water to be better prepared if the USEPA or state environmental regulator develop a drinking water standard for those PFAS for which we have USEPA approved testing methods.

The science and regulation of PFAS and other contaminants is always evolving, and West Virginia American Water strives to be a leader in research and development. PFAS contamination is one of the most rapidly changing areas in the drinking water field. We have invested in our own independent research, as well as engaging with other experts in the field to understand PFAS occurrence in the environment. We are also actively assessing treatment technologies that can effectively remove PFAS from drinking water, because we believe that investment in research is critically important to addressing this issue.

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This is one of the most rapidly changing landscapes in drinking water contamination. We have invested time and effort on our own independent research, as well as engaging with other experts in the field to understand PFAS occurrence, fate and transport in the environment. We are also actively assessing treatment technologies that can effectively remove PFAS from drinking water, because we believe that investment in research is critical for addressing this issue.

Lauren Wolinrich
Principal Scientist,
Water Research and Development
WATER QUALITY STATEMENT
We are pleased to report that during calendar year 2021, the results of testing of your drinking water complied with all state and federal drinking water requirements.

For your information, we have compiled a list in the table below showing the testing of your drinking water during 2021. The WV Bureau for Public Health allows us to monitor for some contaminants less than once per year because the concentration of the contaminants does not change frequently. Some of our data, though representative, are more than one year old.
Definition of Terms

These are terms that may appear in your report.

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

**Level 1 Assessment:** A Level 1 assessment is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.

**Level 2 Assessment:** A Level 2 assessment is a very detailed study of the water system to identify potential problems and determine (if possible) why an E. coli MCL violation has occurred and/or why total coliform bacteria have been found in our water system on multiple occasions.

**LRAA:** Locational Running Annual Average

**Maximum Contaminant Level (MCL):** The highest level of a contaminant that is allowed in drinking water. MCLs are set as close as the MCLGs as feasible using the best available treatment technology. See also Secondary Maximum Contaminant Level (SMCL).

**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.

**Maximum Residual Disinfectant Level (MRDL):** The highest level of disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

**Maximum Residual Disinfectant 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.

**MFL:** Million fibers per liter.

**micromhos per centimeter (μmhos/cm):** A measure of electrical conductance.

**Minimum Residual Disinfectant Level (MinRDL):** The minimum level of residual disinfectant required at the entry point to the distribution system.

**NA:** Not applicable

**ND:** Not detected

**Nephelometric Turbidity Units (NTU):** Measurement of the clarity, or turbidity, of the water.

**pH:** A measurement of acidity, 7.0 being neutral.

**picocuries per liter (pCi/L):** Measurement of the natural rate of disintegration of radioactive contaminants in water (also beta particles).

**parts per billion (ppb):** One part substance per billion parts water, or micrograms per liter.

**parts per million (ppm):** One part substance per million parts water, or milligrams per liter.

**parts per trillion (ppt):** One part substance per trillion parts water, or nanograms per liter.

**Secondary Maximum Contaminant Level (SMCL):** Secondary MCLs are set to protect the odor, taste, and appearance of drinking water.

**TON:** Threshold Odor Number

**Treatment Technique (TT):** A required process intended to reduce the level of a contaminant in drinking water.

**%:** Percent
West Virginia American Water conducts extensive monitoring to determine if your water meets all water quality standards. The detections of our monitoring are reported in the following tables. While most monitoring was conducted in 2021, certain substances are monitored less than once per year because the levels do not change frequently. For help with interpreting the tables below, see the “Definition of Terms” on the previous page. Some unregulated substances are measured, but maximum contaminant levels have not been established by the government. These contaminants are shown for your information.

NOTE: Regulated contaminants not listed in this table were not found in the treated water supply.

### LEAD AND COPPER MONITORING PROGRAM
At least 50 tap water samples collected at customers’ taps every [time period]

<table>
<thead>
<tr>
<th>Substance (with units)</th>
<th>Year Sampled</th>
<th>Compliance Achieved</th>
<th>MCLG</th>
<th>Action Level (AL)</th>
<th>90th Percentile</th>
<th>No. of Homes Sampled</th>
<th>Homes Above Action Level</th>
<th>Typical Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead (ppb)</td>
<td>2021</td>
<td>Yes</td>
<td>15</td>
<td>15</td>
<td>&lt;1.0</td>
<td>50</td>
<td>0</td>
<td>Corrosion of household plumbing systems.</td>
</tr>
<tr>
<td>Copper (ppm)</td>
<td>2021</td>
<td>Yes</td>
<td>0</td>
<td>1.3</td>
<td>0.094</td>
<td>50</td>
<td>0</td>
<td>Corrosion of household plumbing systems.</td>
</tr>
</tbody>
</table>

### TOTAL COLIFORM RULE
At least 120 samples collected each month in the distribution system

<table>
<thead>
<tr>
<th>Substance (with units)</th>
<th>Year Sampled</th>
<th>Compliance Achieved</th>
<th>MCLG</th>
<th>MCL</th>
<th>Highest Monthly Percentage</th>
<th>Typical Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Coliform</td>
<td>2021</td>
<td>Yes</td>
<td>NA</td>
<td>*MCL = Less than 5%</td>
<td>0%</td>
<td>Naturally present in the environment.</td>
</tr>
<tr>
<td>E. Coli</td>
<td>2021</td>
<td>Yes</td>
<td>0</td>
<td>TT = No confirmed samples</td>
<td>0</td>
<td>Human and animal fecal waste.</td>
</tr>
</tbody>
</table>

NOTE: Coliforms are bacteria that are naturally present in the environment and are used as an indicator of the general bacteriological quality of the water. We are reporting the highest percentage of positive samples / highest number of positive samples in any month.

1 The Treatment Technique for Total Coliforms requires that if the maximum percentage OR number of total coliform positive samples are exceeded a system assessment must be conducted, any sanitary defects identified, and corrective actions completed. Additional Level 1 Assessments or Level 2 Assessments are required depending on the circumstances.

2 The Treatment Technique for E. Coli requires that for any total coliform positive routine sample with one or more total coliform positive check samples and an E. coli positive result for any of the samples a Level 2 Assessment must be conducted, any sanitary defects identified, and corrective actions completed. The E. Coli MCL is exceeded if routine and repeat samples are total coliform-positive and either is E. coli-positive, or the system fails to take repeat samples following an E. coli-positive routine sample, or the system fails to analyze total coliform-positive repeat samples for E. coli.
<table>
<thead>
<tr>
<th>Substance (with units)</th>
<th>Sample Point</th>
<th>Year Sampled</th>
<th>Compliance Achieved</th>
<th>MCLG</th>
<th>MCL</th>
<th>Highest Compliance Result</th>
<th>Range Detected</th>
<th>Typical Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Trihalomethanes (TTHMs) (ppb)</td>
<td>Pond Gap Booster</td>
<td>2021</td>
<td>Yes</td>
<td>NA</td>
<td>80</td>
<td>40.3</td>
<td>15.7 to 75.9</td>
<td>By-product of drinking water disinfection.</td>
</tr>
<tr>
<td>Total Trihalomethanes (TTHMs) (ppb)</td>
<td>Cicerone Sample Hydrant</td>
<td>2021</td>
<td>Yes</td>
<td>NA</td>
<td>80</td>
<td>33.1</td>
<td>11 to 60.8</td>
<td>By-product of drinking water disinfection.</td>
</tr>
<tr>
<td>Total Trihalomethanes (TTHMs) (ppb)</td>
<td>Raymond City Sample Hydrant</td>
<td>2021</td>
<td>Yes</td>
<td>NA</td>
<td>80</td>
<td>28.7</td>
<td>17.5 to 42.3</td>
<td>By-product of drinking water disinfection.</td>
</tr>
<tr>
<td>Total Trihalomethanes (TTHMs) (ppb)</td>
<td>Liberty Post Office</td>
<td>2021</td>
<td>Yes</td>
<td>NA</td>
<td>80</td>
<td>34.1</td>
<td>17.5 to 52.5</td>
<td>By-product of drinking water disinfection.</td>
</tr>
<tr>
<td>Total Trihalomethanes (TTHMs) (ppb)</td>
<td>Julian Mini Mart</td>
<td>2021</td>
<td>Yes</td>
<td>NA</td>
<td>80</td>
<td>48.0</td>
<td>18.6 to 84.8</td>
<td>By-product of drinking water disinfection.</td>
</tr>
<tr>
<td>Total Trihalomethanes (TTHMs) (ppb)</td>
<td>Frogs Creek Sample Hydrant</td>
<td>2021</td>
<td>Yes</td>
<td>NA</td>
<td>80</td>
<td>52.0</td>
<td>21.3 to 74.2</td>
<td>By-product of drinking water disinfection.</td>
</tr>
<tr>
<td>Total Trihalomethanes (TTHMs) (ppb)</td>
<td>Belle</td>
<td>2021</td>
<td>Yes</td>
<td>NA</td>
<td>80</td>
<td>17.8</td>
<td>6.5 to 27.9</td>
<td>By-product of drinking water disinfection.</td>
</tr>
<tr>
<td>Total Trihalomethanes (TTHMs) (ppb)</td>
<td>Clinton Area</td>
<td>2021</td>
<td>Yes</td>
<td>NA</td>
<td>80</td>
<td>59.5</td>
<td>16.4 to 117.7</td>
<td>By-product of drinking water disinfection.</td>
</tr>
</tbody>
</table>

NOTE: Compliance is based on the running annual average at each location. The Highest Compliance Result reflects the highest average at any location and the Range Detected reflects all samples from this year used to calculate the running annual average.
### DISINFECTION BYPRODUCTS - Collected in the Distribution System

<table>
<thead>
<tr>
<th>Substance (with units)</th>
<th>Sample Point</th>
<th>Year Sampled</th>
<th>Compliance Achieved</th>
<th>MCLG</th>
<th>MCL</th>
<th>Highest Compliance Result</th>
<th>Range Detected</th>
<th>Typical Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haloacetic Acids (HAAs) (ppb)</td>
<td>Pond Gap Booster</td>
<td>2021</td>
<td>Yes</td>
<td>NA</td>
<td>60</td>
<td>22.4</td>
<td>11.9 to 32.9</td>
<td>By-product of drinking water disinfection.</td>
</tr>
<tr>
<td>Haloacetic Acids (HAAs) (ppb)</td>
<td>Cicerone Sample Hydrant</td>
<td>2021</td>
<td>Yes</td>
<td>NA</td>
<td>60</td>
<td>17.3</td>
<td>9.5 to 26.0</td>
<td>By-product of drinking water disinfection.</td>
</tr>
<tr>
<td>Haloacetic Acids (HAAs) (ppb)</td>
<td>Raymond City Sample Hydrant</td>
<td>2021</td>
<td>Yes</td>
<td>NA</td>
<td>60</td>
<td>18.7</td>
<td>12.9 to 19.6</td>
<td>By-product of drinking water disinfection.</td>
</tr>
<tr>
<td>Haloacetic Acids (HAAs) (ppb)</td>
<td>Liberty Post Office</td>
<td>2021</td>
<td>Yes</td>
<td>NA</td>
<td>60</td>
<td>21.7</td>
<td>11.9 to 27.0</td>
<td>By-product of drinking water disinfection.</td>
</tr>
<tr>
<td>Haloacetic Acids (HAAs) (ppb)</td>
<td>Julian Mini Mart</td>
<td>2021</td>
<td>Yes</td>
<td>NA</td>
<td>60</td>
<td>26.0</td>
<td>12.4 to 36.1</td>
<td>By-product of drinking water disinfection.</td>
</tr>
<tr>
<td>Haloacetic Acids (HAAs) (ppb)</td>
<td>Frogs Creek Sample Hydrant</td>
<td>2021</td>
<td>Yes</td>
<td>NA</td>
<td>60</td>
<td>23.9</td>
<td>12.9 to 34.6</td>
<td>By-product of drinking water disinfection.</td>
</tr>
<tr>
<td>Haloacetic Acids (HAAs) (ppb)</td>
<td>Belle</td>
<td>2021</td>
<td>Yes</td>
<td>NA</td>
<td>60</td>
<td>12.1</td>
<td>6.9 to 14.7</td>
<td>By-product of drinking water disinfection.</td>
</tr>
<tr>
<td>Haloacetic Acids (HAAs) (ppb)</td>
<td>Clinton Area</td>
<td>2021</td>
<td>Yes</td>
<td>NA</td>
<td>60</td>
<td>22.3</td>
<td>13.0 to 39.8</td>
<td>By-product of drinking water disinfection.</td>
</tr>
</tbody>
</table>

**NOTE:** Compliance is based on the running annual average at each location. The Highest Compliance Result reflects the highest average at any location and the Range Detected reflects all samples from this year used to calculate the running annual average.
## DISINFECTANTS - Collected in the Distribution System and at the Treatment Plant

<table>
<thead>
<tr>
<th>Substance (with units)</th>
<th>Year Sampled</th>
<th>Compliance Achieved</th>
<th>MCLG</th>
<th>MCL</th>
<th>Highest Compliance Result</th>
<th>Range Detected</th>
<th>Typical Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlorine (ppm) (Distribution System)</td>
<td>2021</td>
<td>Yes</td>
<td>MRDLG = 4</td>
<td>4.0</td>
<td>2.1&lt;sup&gt;1&lt;/sup&gt;</td>
<td>0.5 to 3.1</td>
<td>Water additive used to control microbes.</td>
</tr>
<tr>
<td>Chlorine (ppm) (Surface Water)</td>
<td>2021</td>
<td>Yes</td>
<td>NMRDLG = 4</td>
<td>4.0</td>
<td>1.4&lt;sup&gt;2&lt;/sup&gt;</td>
<td>1.4 to 3.0</td>
<td>Water additive used to control microbes.</td>
</tr>
</tbody>
</table>

1 - Data represents the highest monthly average of chlorine residuals measured throughout our distribution system.
2 - Data represents the lowest residual entering the distribution system from our surface water treatment plant.

## TREATMENT BYPRODUCTS PRECURSOR REMOVAL - Collected at the Treatment Plant

<table>
<thead>
<tr>
<th>Substance (with units)</th>
<th>Year Sampled</th>
<th>Compliance Achieved</th>
<th>MCLG</th>
<th>MCL</th>
<th>Lowest Compliance Result</th>
<th>Range Detected</th>
<th>Typical Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Organic Carbon (TOC)</td>
<td>2021</td>
<td>Yes</td>
<td>NA</td>
<td>TT: ≥ 35% removal</td>
<td>35%</td>
<td>35% to 43%</td>
<td>Naturally present in the environment.</td>
</tr>
<tr>
<td>Ratio of Actual / Required TOC Removal</td>
<td>2021</td>
<td>Yes</td>
<td>NA</td>
<td>TT: Running annual average ≥ 1.00</td>
<td>1.00</td>
<td>0.82 to 1.22</td>
<td>Naturally present in the environment.</td>
</tr>
</tbody>
</table>
### TURBIDITY - Collected at the Treatment Plant

<table>
<thead>
<tr>
<th>Substance (with units)</th>
<th>Year Sampled</th>
<th>Compliance Achieved</th>
<th>MCLG</th>
<th>MCL</th>
<th>Highest Compliance Result</th>
<th>Range Detected</th>
<th>Typical Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turbidity (NTU)</td>
<td>2021</td>
<td>Yes</td>
<td>NA</td>
<td>TT: Results &gt; 1.0 NTU</td>
<td>0.13</td>
<td>0.01 to 0.13</td>
<td>Soil runoff.</td>
</tr>
<tr>
<td></td>
<td>2021</td>
<td>Yes</td>
<td>NA</td>
<td>TT: At least 95% of samples &lt;0.3 NTU</td>
<td>100%</td>
<td>NA</td>
<td>Soil runoff.</td>
</tr>
</tbody>
</table>

### REGULATED SUBSTANCE - Collected at the Treatment Plant

<table>
<thead>
<tr>
<th>Substance (with units)</th>
<th>Year Sampled</th>
<th>Compliance Achieved</th>
<th>MCLG</th>
<th>MCL</th>
<th>Highest Compliance Result</th>
<th>Range Detected</th>
<th>Typical Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barium (ppm)</td>
<td>2021</td>
<td>Yes</td>
<td>2.0</td>
<td>2.0</td>
<td>&lt;0.1</td>
<td>NA</td>
<td>Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits.</td>
</tr>
<tr>
<td>Fluoride (ppm)</td>
<td>2021</td>
<td>Yes</td>
<td>4.0</td>
<td>4.0</td>
<td>1.2</td>
<td>0.5 – 1.2</td>
<td>Water additive which promotes strong teeth</td>
</tr>
<tr>
<td>Nitrite (ppm)</td>
<td>2021</td>
<td>Yes</td>
<td>1.0</td>
<td>1.0</td>
<td>&lt;0.1</td>
<td>NA</td>
<td>Runoff from fertilizer use; industrial or domestic wastewater discharges; erosion of natural deposits.</td>
</tr>
<tr>
<td>Nitrate (ppm)</td>
<td>2021</td>
<td>Yes</td>
<td>10</td>
<td>10</td>
<td>0.26</td>
<td>NA</td>
<td>Runoff from fertilizer use; industrial or domestic wastewater discharges; erosion of natural deposits.</td>
</tr>
<tr>
<td>Gross Alpha (pCi/L)</td>
<td>2020</td>
<td>Yes</td>
<td>0</td>
<td>15</td>
<td>1.3</td>
<td>NA</td>
<td>Radioactive decay of natural deposits</td>
</tr>
<tr>
<td>Gross Alpha – excluding Uranium (pCi/L)</td>
<td>2020</td>
<td>Yes</td>
<td>0</td>
<td>15</td>
<td>1.3</td>
<td>NA</td>
<td>Radioactive decay of natural deposits</td>
</tr>
<tr>
<td>Radium – 228 (pCi/L)</td>
<td>2020</td>
<td>Yes</td>
<td>0</td>
<td>5</td>
<td>&lt;0.8</td>
<td>NA</td>
<td>Radioactive decay of natural deposits</td>
</tr>
<tr>
<td>Uranium (ppb)</td>
<td>2020</td>
<td>Yes</td>
<td>0</td>
<td>30</td>
<td>&lt;0.2</td>
<td>NA</td>
<td>Radioactive decay of natural deposits</td>
</tr>
</tbody>
</table>
## OTHER SUBSTANCES OF INTEREST - Collected at the Treatment Plant

<table>
<thead>
<tr>
<th>Substance (with units)</th>
<th>Year Sampled</th>
<th>Compliance Achieved</th>
<th>MCLG</th>
<th>Limit[1]</th>
<th>Highest Result</th>
<th>Range Detected</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum (ppm)</td>
<td>2021</td>
<td>NA</td>
<td>NA</td>
<td>0.05 to 0.2</td>
<td>0.02</td>
<td>NA</td>
<td>Mineral that occurs naturally in the soil</td>
</tr>
<tr>
<td>Chloride (ppm)</td>
<td>2021</td>
<td>NA</td>
<td>NA</td>
<td>250</td>
<td>11.6</td>
<td>NA</td>
<td>Mineral that occurs naturally in the soil and runoff from road deicing</td>
</tr>
<tr>
<td>Iron (ppb)</td>
<td>2021</td>
<td>NA</td>
<td>NA</td>
<td>300</td>
<td>12</td>
<td>0 – 12</td>
<td>Mineral that occurs naturally in the soil and runoff from mining operations</td>
</tr>
<tr>
<td>Manganese (ppb)</td>
<td>2021</td>
<td>NA</td>
<td>NA</td>
<td>50</td>
<td>16</td>
<td>0 – 16</td>
<td>Mineral that occurs naturally in the soil and runoff from mining operations</td>
</tr>
<tr>
<td>Nickel (ppb)</td>
<td>2021</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>&lt; 5.0</td>
<td>NA</td>
<td>Industrial sources such as metal reclamation and production of certain alloys</td>
</tr>
<tr>
<td>pH</td>
<td>2021</td>
<td>NA</td>
<td>NA</td>
<td>&lt;6.5 or 8.5&gt;</td>
<td>7.4</td>
<td>7.0 – 7.4</td>
<td>Acidity or basicity of water from natural sources or constituent of water treatment</td>
</tr>
<tr>
<td>Total Chromium (ppb)</td>
<td>2021</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>&lt;7.0</td>
<td>NA</td>
<td>Industrial sources such as metal reclamation and production of certain alloys</td>
</tr>
<tr>
<td>Sodium (ppm)[2]</td>
<td>2021</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>7.9</td>
<td>NA</td>
<td>Element that occurs naturally in water and soil; road salt; water softeners</td>
</tr>
<tr>
<td>Sulfate (ppm)</td>
<td>2021</td>
<td>NA</td>
<td>NA</td>
<td>250</td>
<td>25.7</td>
<td>NA</td>
<td>Mineral that occurs naturally in the soil</td>
</tr>
<tr>
<td>Zinc (ppm)</td>
<td>2021</td>
<td>NA</td>
<td>NA</td>
<td>5</td>
<td>0.7</td>
<td>0.0 to 0.7</td>
<td>Element that occurs naturally in the water; constituent of corrosion control additive</td>
</tr>
</tbody>
</table>

1 - Substances with Secondary MCLs do not have MCLGs and are not legally enforceable; these limits are primarily established to address aesthetic concerns.

2 - For healthy individuals the sodium intake from water is not important because a much greater intake of sodium takes place from salt in the diet. However, sodium levels above the recommended upper limit may be of concern to individuals on a sodium restricted diet.

3 - USEPA's Health Advisories are non-enforceable and provide technical guidance to states agencies and other public health officials on health effects, analytical methodologies, and treatment technologies associated with drinking water contamination.
### UNREGULATED CONTAMINANT MONITORING RULE

Unregulated contaminants are those for which the EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist the EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulation is necessary. Every five years, the EPA issues a new list of no more than 30 unregulated contaminants to be monitored.

### ADDITIONAL WATER QUALITY PARAMETERS OF INTEREST – Collected in the Distribution System

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Year</th>
<th>Average Result</th>
<th>Range Detected</th>
<th>Typical Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monochloroacetic Acid</td>
<td>ppb</td>
<td>2018</td>
<td>&lt;2.0</td>
<td>&lt;2.0 to 3.8</td>
<td>By-product of drinking water disinfection</td>
</tr>
<tr>
<td>Bromodichloroacetic acid</td>
<td>ppb</td>
<td>2018</td>
<td>2.6</td>
<td>0.6 to 5.1</td>
<td>By-product of drinking water disinfection</td>
</tr>
<tr>
<td>Chlorodibromoacetic acid</td>
<td>ppb</td>
<td>2018</td>
<td>0.5</td>
<td>&lt;0.3 to 1.2</td>
<td>By-product of drinking water disinfection</td>
</tr>
<tr>
<td>Dibromoacetic Acid</td>
<td>ppb</td>
<td>2018</td>
<td>0.5</td>
<td>&lt;0.3 to 0.9</td>
<td>By-product of drinking water disinfection</td>
</tr>
<tr>
<td>Dichloroacetic Acid</td>
<td>ppb</td>
<td>2018</td>
<td>8.9</td>
<td>2.4 to 39</td>
<td>By-product of drinking water disinfection</td>
</tr>
<tr>
<td>Monobromoacetic Acid</td>
<td>ppb</td>
<td>2018</td>
<td>&lt;0.3</td>
<td>&lt;0.3 to 0.5</td>
<td>By-product of drinking water disinfection</td>
</tr>
<tr>
<td>Total Haloacetic Acids</td>
<td>ppb</td>
<td>2018</td>
<td>17.5</td>
<td>4.5 to 71</td>
<td>By-product of drinking water disinfection</td>
</tr>
<tr>
<td>Total Haloacetic Acids - Br</td>
<td>ppb</td>
<td>2018</td>
<td>5.4</td>
<td>1.5 to 11</td>
<td>By-product of drinking water disinfection</td>
</tr>
<tr>
<td>Total Haloacetic Acids-UCMR4</td>
<td>ppb</td>
<td>2018</td>
<td>22.7</td>
<td>6 to 76</td>
<td>By-product of drinking water disinfection</td>
</tr>
<tr>
<td>Trichloroacetic Acid</td>
<td>ppb</td>
<td>2018</td>
<td>8.1</td>
<td>2.2 to 28</td>
<td>By-product of drinking water disinfection</td>
</tr>
</tbody>
</table>

### ADDITIONAL WATER QUALITY PARAMETERS OF INTEREST - Water Leaving the Treatment Facility

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Year</th>
<th>Average Result</th>
<th>Range Detected</th>
<th>Typical Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese*</td>
<td>ppb</td>
<td>2018</td>
<td>0.88</td>
<td>0.55 to 1.2</td>
<td>Naturally-occurring elemental metal; largely used in aluminum alloy production. Essential dietary element.</td>
</tr>
</tbody>
</table>

*Manganese has a Secondary MCL of 50 ppb.

### PER- AND POLYFLUOROALKYL SUBSTANCES

Per- or polyfluoroalkyl substances (PFASs) are synthetic substances used in a variety of products, such as: stain resistant fabric, non-stick coatings, firefighting foam, paints, waxes, and cleaning products. They are also components in some industrial processes like electronics manufacturing and oil recovery. While the EPA has not developed drinking water standards for PFAS, West Virginia American Water recognizes the importance of testing for these contaminants. Compounds detected are tabulated below, along with typical sources.

### UNREGULATED PERFLUORINATED COMPOUNDS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Average Result</th>
<th>Range Detected</th>
<th>Typical Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perfluorooctanoic Acid (PFOA)</td>
<td>ppt</td>
<td>&lt;5.0</td>
<td>NA</td>
<td>Used for its emulsifier and surfactant properties in or as fluoropolymers (such as Teflon), fire fighting foams, cleaners, cosmetics, lubricants, paints, polishes, adhesives and photographic films</td>
</tr>
<tr>
<td>Perfluorooctanesulfonic Acid (PFOS)</td>
<td>ppt</td>
<td>&lt;5.0</td>
<td>NA</td>
<td>Synthetic chemical; used in products for stain, grease, heat and water resistance</td>
</tr>
</tbody>
</table>
### Tested for, but Not Detected

- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- 1,1-Dichloroethene
- 1,2,4-Trichlorobenzene
- 1,2-Dibromo-3-chloropropane
- 1,2-Dibromoethane (EDB)
- 1,2-Dichlorobenzene
- 1,2-Dichloroethane
- 1,2-Dichloropropane
- 1,4-Dichlorobenzene
- 2,4,5-T
- 2,4,5-TP (Silvex)
- 2,4-DB
- 3,5-Dichlorobenzoic Acid
- 3-Hydroxyacarbolofuran
- Acifluorfen
- Alachlor
- Aldicarb
- Aldicarb Sulfone
- Aldicarb Sulfoxide
- Antimony - Total
- Arochlor-1016
- Arochlor-1221
- Arochlor-1232
- Arochlor-1242
- Arochlor-1248
- Arochlor-1254
- Arochlor-1260
- Arsenic – Total
- Atrazine
- Barium – Total
- Bentazon
- Benzene
- Benzo(a)pyrene
- Beryllium – Total
- Boron – Total
- Bromoform
- Cadmium - Total
- Carbaryl (Sevin)
- Carbofuran
- Carbon tetrachloride
- Chlorobenzene
- Chromium - Total
- cis-1,2-Dichloroethene
- Cobalt - Total
- Copper - Total
- Cyanide, Total
- Dalathal
- Dalapon
- Di(2-ethylhexyl)adipate
- Di(2-ethylhexyl)phthalate
- Dicamba
- Dichloroprop
- Dinoseb
- Diquat
- Endothall
- Endrin
- Ethyl Benzene
- Gamma-BHC (Lindane)
- Glyphosate
- Heptachlor
- Heptachlor epoxide
- Hexachlorobenzene
- Hexachlorocyclopentadiene
- Lead - Total
- Mercury – Total
- Methiocarb
- Methomyl
- Methoxychlor
- Methyl tert-Butyl ether (MTBE)
- Methylene chloride
- Molybdenum – Total
- Monobromoaetic Acid
- Nickel - Total
- Oxamyl (Vydate)
- Pentachlorophenol
- Perchlorate
- Picloram
- Potassium – Total
- Selenium - Total
- Silica - Total
- Silver – Total
- Simazine (Princep)
- Strontium - Total
- Styrene
- Technical Chlordane
- Tetrachloroethene (PCE)
- Thallium - Total
- Toluene
- Total PCBs
- Toxaphene
- trans-1,2-Dichloroethene
- Trichloroethene (TCE)
- Vanadium - Total
- Vinyl chloride
- Xylene (total)
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With a history dating back to 1886, American Water (NYSE: AWK) is the largest and most geographically diverse U.S. publicly traded water and wastewater utility company. The company employs more than 7,000 dedicated professionals who provide regulated and market-based drinking water, wastewater and other related services to 15 million people in 46 states. American Water provides safe, clean, affordable and reliable water services to our customers to help make sure we keep their lives flowing.

West Virginia American Water, a subsidiary of American Water, is the largest investor-owned water utility in the state, providing high-quality and reliable water and/or wastewater services to approximately 545,000 people. For more information, visit westvirginiaamwater.com and follow us on Twitter, Facebook, Instagram and YouTube.
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