

# Water Quality Report

City of Harrisonburg, VA

PWS ID 2660345

Reporting Year 2018

Dear Consumer,

Harrisonburg Public Utilities is proud to be your local water service provider and is pleased to take this opportunity to inform you about your drinking water. We are here to ensure that you receive safe drinking water **every** time you turn on the tap. Please consider all that this entails; the facilities and technology needed to draw water from the source and treat it, the miles of pipeline hidden below the ground, the pumping systems that transfer the water to every business and household, and the dedicated employees who make it all come to-

gether. Our treatment plant operators work around the clock monitoring water quality in the source water, treatment processes, and the distribution system. The field maintenance crews are responsive 24/7 to make emergency repairs on the water and sewer system before it affects you and your daily activities. And let's not forget the office staff who are here to answer your immediate questions and to plan for the future.

Thank you for taking the time to look through this Water Quality Report. You will find out where your water comes from, the results from the water quality

testing conducted on our water system between January and December 2018, and a market analysis of the water and sewer rates in comparison with similar water systems.

We want this report to be informative and of interest to you. Please contact us if you would like help understanding the information provided, would like more information about your drinking water, or have suggestions for future reports. We would be glad to hear from you.

David Gray

Engineering Division Superintendent

540-434-9959

## Where Does Your Water Come From?

The City of Harrisonburg has two reliable water supply sources. The Dry River in Rawley Springs is a surface water source. The watershed includes the Switzer Reservoir Impoundment and delivers the highest quality water at the most cost-effective price. The North River

in Bridgewater is also a surface water source. Approximately 50% of Harrisonburg's water comes from each source. Because of our commitment to long term economic sustainability and environmental stewardship, we are in the process of developing a supply line from the South Fork Shenandoah River. Once this project has been completed, we expect to provide a supply of 15 million gallons per day to our customers.



The water treatment plant took the fluoride system offline in July 2016 due to safety concerns from a leaking storage tank. City council members voted to reinstate the fluoridation of city water.

## Adding Fluoride

After months of hard work, planning and construction by city staff and local tradesmen, the treatment plant started to feed fluoride again on November 1, 2018.

Fluoride will be added at the Virginia Department of Health recommended dosage of 0.70 parts per million.



## Substances that could be in Water

To ensure that tap water is safe to drink, the U.S. EPA prescribes regulations limiting the amount of certain contaminants 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. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk. The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals, in some cases, radioactive material, and substances resulting from the presence of animals or from human activity. Substances that may be present in source water

include the following.

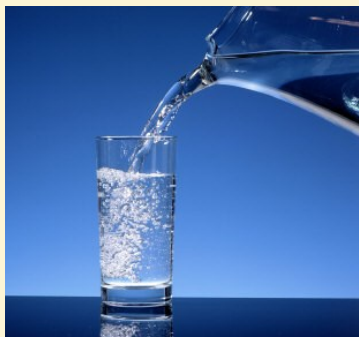
**Microbial Contaminants**, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife. **Inorganic Contaminants**, such as salts and metals, which can be naturally occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming. **Pesticides & Herbicides**, which may come from a variety of sources, such as agriculture, urban storm water runoff and residential uses. **Organic Chemical Contaminants**, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and may also come from gas stations, urban storm water 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**.

## Health Information for Special Populations

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. The U.S. 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 at



<http://water.epa.gov/drink/hotline>.

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. The Harrisonburg Public Utilities Department 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 15 to 30 seconds or until it becomes cold or reaches a steady temperature before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at

## Lead In Home Plumbing

<http://www.epa.gov/safewater/lead>.

## Sampling Results

Contaminants detected

January 2018—December 2018

During the past year, we have taken hundreds of water samples in order to determine the presence of any radioactive, biological, inorganic, volatile organic, or synthetic organic contaminants. The table below shows only those contaminants that were detected in the water. The state requires us 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							
Substance (Unit of Measure)	Year Sampled	MCL [MRDL]	MCLG [MRDLG]	Amount Detected	Range Low-High	Violation	Typical Source
Barium (ppm)	2018	2	2	0.0263	NA	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Haloacetic Acids [HAA5] (ppb)	2018	60	NA	36.0	20-53	No	By-product of drinking water disinfection
Nitrate (ppm)	2018	10	10	0.884	NA	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
TTHMs [Total Trihalomethanes] (ppb)	2018	80	NA	58.0	21-121	No	By-product of drinking water disinfection
Total Coliform Bacteria (% positive samples) <sup>3</sup>	2018	5% of monthly samples are positive	0	12 positive samples in 2018 (6%)	NA	No	Naturally present in the environment
Chlorine (mg/l)	2018	4	4	0.99	0.36-1.89	No	By-product of drinking water chlorination
Total Organic Carbon (mg/L)	2018	TT	NA	0.93	0.54-1.57	No	Naturally present in the environment
Turbidity <sup>1</sup> (NTU)	2018	TT	NA	NA	0.02-0.13	No	Soil Runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2018	<0.3 NTU	NA	100%	NA	No	Soil Runoff
Radiological							
Beta Emitters (mrem/yr)	2016	4	0	< 1.0	NA	No	Decay of natural and man-made deposits
Alpha Emitters (pCi/l)	2016	15	0	< 0.27	NA	No	Erosion of natural deposits
Combined Radium (pCi/l)	2016	5	0	< 0.4	NA	No	Erosion of natural deposits
Lead and Copper Sampling							
Substance (Unit of Measure)	Year Sampled	AL	MCLG	Amount Detected (90th percentile)	Sites Above AL /Total Sites	Violation	Typical Source
Copper <sup>2</sup> (ppm)	2016	1.3	1.3	0.054	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead <sup>2</sup> (ppb)	2016	15	0	< 2 ppb	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits

<sup>1</sup> Turbidity is a measure of the cloudiness of the water. It is monitored because it is a good indicator of the effectiveness of the filtration system.

<sup>2</sup> Tap water samples were collected for lead and copper analyses from sample sites throughout the community.

<sup>2</sup> The reported amount detected is the average of all samples in the current year.

<sup>3</sup> Coliform Bacteria & Level Assessment—see information below.



## Coliform Bacteria & Level 1 Assessment

Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. During the 2018 sampling we found coliforms indicating the need to look for potential problems in the distribution system. Any deficiencies found during the assessment must be corrected by the water operator.

During the past year Harrisonburg was required to conduct (1) Level 1 Assessment during the month of September 2018 due to three samples indicating the presence of total coliform in August 2018. The additional testing revealed no total coliforms or system deficiencies to be corrected in relation to this Level 1 Assessment.

We continue to supply water that meets or surpasses all state and federal water quality standards.

### Definitions

**AL (Action Level):** The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which 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 Disinfection Level):** The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

**MRDLG (Maximum Residual Disinfection Level Goal):** 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.

**NA:** Not applicable

**ND (Not Detected):** Indicates that the substance was not found by laboratory analysis.

**NTU (Nephelometric Turbidity Unit):** Measure of water clarity. Turbidity in excess of five NTUs is barely noticeable to the average person.

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

**Ppm (parts per million) or mg/l (milligrams per liter):** One part substance per million parts water or milligrams per liter.

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

### Do I Have Soft or Hard Water?

Water is soft when it falls from the sky as rain. It readily dissolves minerals as it travels through rock and soil. The treatment process removes some of the mineral content and impurities, but calcium and magnesium will generally not be removed. These minerals are not harmful to your health.

This chart is the measurement ranges used by the U.S.

Classification	Hardness in mg/L
Soft	0-60
Moderately Hard	61-120
Hard	121-180
Very Hard	≥ 181

Geological Survey to classify hard and soft water.

In 2018, our water was between 13-106 mg/l (milligrams per liter).

### pH

pH is measured on a scale of 0 to 14. Water with values lower than 6 are acidic and can have aesthetic problems such as a metallic or sour taste. Water with values greater than 8.5 is less corrosive to metal piping and efficiency with chlorine disinfection decreases.

While the ideal pH level of drinking water should be between 6-8.5, the human body maintains pH equilibrium on a constant basis and will not be affected by water consumption. For example our stomachs have a naturally low pH level of 2, which is a beneficial acidity that helps us with food digestion.

In 2018, our pH levels were between 6.2 and 10.6.

pH Examples	
Substances	pH
Apple Juice	3.0
Orange Juice	3.5
Coffee	5.5
Milk	6.2
Baking Soda	8.5
Soapy Water	10.0

**Market Analysis**  
**of**  
**Water and Sewer**  
**Rates**

VA Control Group Data

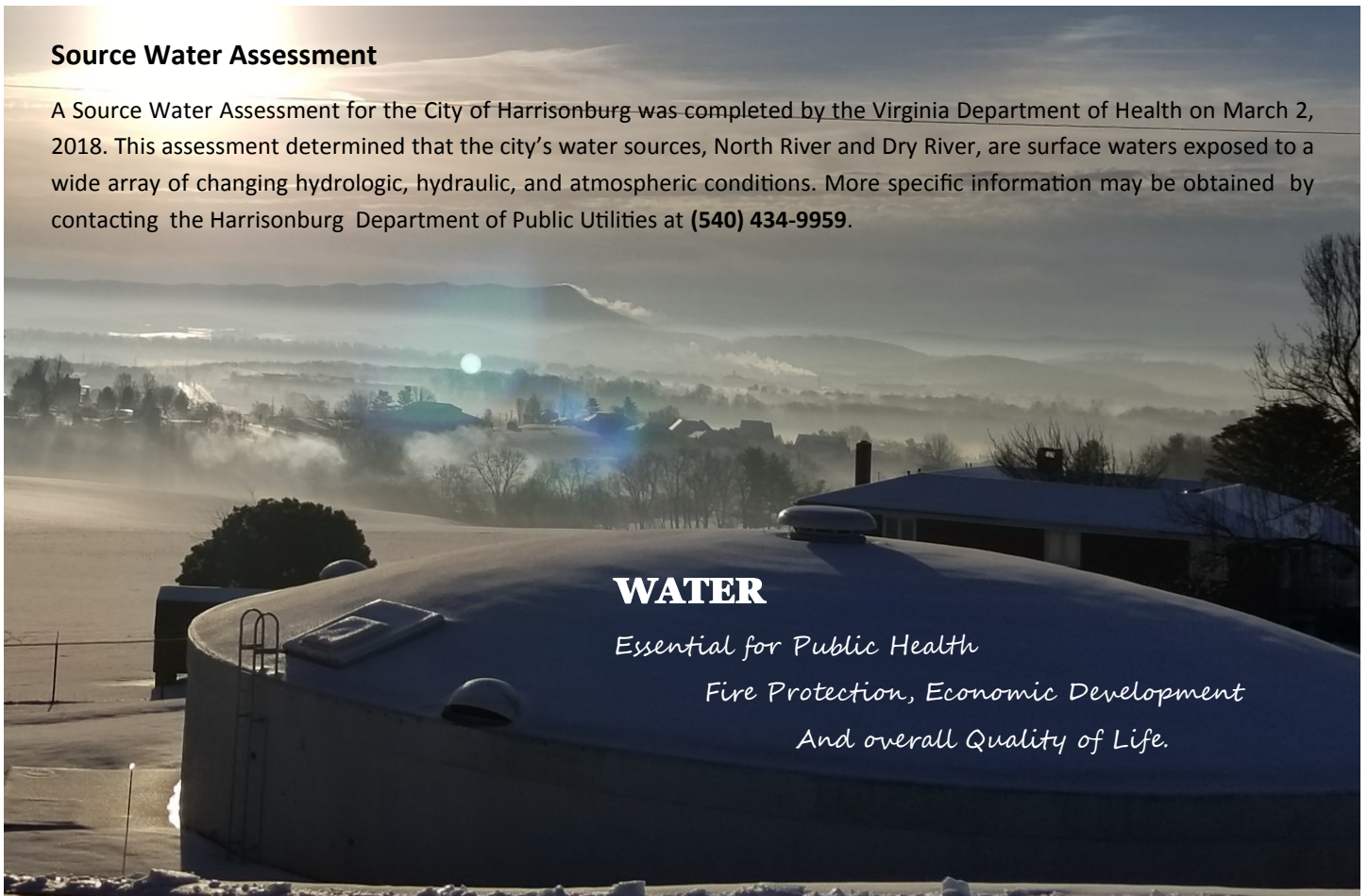
“For over 20 years, Draper Aden Associates has tracked a select group comprised of twenty water and wastewater providers who represent a cross section of utilities across the Commonwealth.”

Courtesy of  
 Draper Aden Associates  
 2018 Study

MARKET ANALYSIS OF WATER AND SEWER RATES AMONG WATER SYSTEMS OF 10,000-30,000 RESIDENTIAL WATER UNITS 5,000 GALLONS WATER AND SEWER CONSUMPTION				
UTILITY PROVIDER	RESIDENTIAL WATER UNITS	WATER \$/5000 GAL	SEWER \$/5000 GAL	W & S RATE \$/5000 GAL
<b>Harrisonburg , City of</b>	<b>12,935</b>	<b>\$18.50</b>	<b>\$28.30</b>	<b>\$46.80</b>
Frederick Water	14,948	\$30.33	\$21.96	\$52.29
Danville, City of	17,374	\$24.93	\$31.29	\$56.22
Spotsylvania County	29,213	\$31.34	\$30.71	\$62.05
Lynchburg, City of	22,000	\$21.09	\$44.75	\$65.84
Hanover County	19,593	\$23.51	\$44.69	\$68.20
James City Service Authority	21,571	\$21.60	\$53.28	\$74.88
Leesburg, Town of	15,000	\$38.03	\$39.64	\$77.67
<b>Virginia Control Group Average</b>		<b>\$33.07</b>	<b>\$44.70</b>	<b>\$77.77</b>
Campbell Co. Utilities & Service Auth.	10,156	\$39.09	\$38.76	\$77.85
Albermarle Co Service Authority	29,478	\$38.07	\$44.65	\$82.72
Charlottesville, City of	13,117	\$39.08	\$52.66	\$91.74
Augusta Co. Service Authority	13,989	\$35.27	\$58.42	\$93.69
Bedford Regional Water Authority	12,783	\$40.50	\$55.00	\$95.50
Henry Co Public Service Authority	12,496	\$34.70	\$69.40	\$104.10

**Source Water Assessment**

A Source Water Assessment for the City of Harrisonburg was completed by the Virginia Department of Health on March 2, 2018. This assessment determined that the city’s water sources, North River and Dry River, are surface waters exposed to a wide array of changing hydrologic, hydraulic, and atmospheric conditions. More specific information may be obtained by contacting the Harrisonburg Department of Public Utilities at **(540) 434-9959**.



**WATER**

*Essential for Public Health*

*Fire Protection, Economic Development*

*And overall Quality of Life.*