



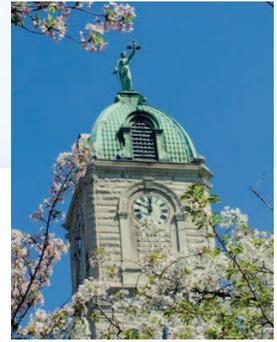
Annual WATER
QUALITY
REPORT

Reporting Year 2014



Presented by
Harrisonburg VA Public Utilities
PWS ID# 2660345

Dedication 24 / 7 / 365



Most of us take our tap water for granted. We turn on the faucet at work or at home and clean, fresh drinking water flows out. And we expect that to happen *every* time.

The Harrisonburg Public Utilities Department employees work around the clock to ensure that the drinking water is one of the many things that add to our quality of life in the beautiful Shenandoah Valley. We remain persistent in meeting or exceeding all state and federal standards for drinking water. We are proud to present this report that covers all testing performed between January 1 and December 31, 2014. As new challenges to drinking water safety emerge, we remain vigilant in meeting the goals of source water protection, water conservation, and community education while continuing to serve the needs of all our water users. Please share with us your thoughts or concerns about the information in this report. After all, well-informed customers are our best allies.

Source Water Assessment

A Source Water Assessment for the City of Harrisonburg was completed by the Virginia Department of Health on May 24, 2002. 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.



Where does the water in your faucet 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, which can supply the piping network at capacity with 4 million gallons per day (except during drought) of highest quality water at the most cost-effective price. The North River in Bridgewater is also a surface water source and provides up to 7.5 million gallons per day and 5.5 million gallons per day during drought. The water quantity and quality of North River fluctuates due to runoff conditions at the withdrawal site.

Because our treatment facility has the capacity to provide 15 million gallons of clean drinking water every day, 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.

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: **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.



Important 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. 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 website:

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



Lead in Home Plumbing

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

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

Sampling Results

Contaminants detected January 2014 through December 2014

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)	2014	2	2	0.034	NA	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Haloacetic Acids [HAA] (ppb)	2014	60	NA	27.0	13-38	No	By-product of drinking water disinfection
Nitrate (ppm)	2014	10	10	1.39	NA	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
TTHMs [Total Trihalomethanes] (ppb)	2014	80	NA	33.0	14-51	No	By-product of drinking water disinfection
Total Coliform Bacteria (% positive samples)	2014	2% of monthly samples are positive	0	2 positive samples in 2014 (2%)	NA	No	Naturally present in the environment
Total Organic Carbon (ppm)	2014	TT	NA	NA	0.55-0.81	No	Naturally present in the environment
Turbidity ¹ (NTU)	2014	TT	NA	NA	0.02-0.09	No	Soil Runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2014	<0.3 NTU	NA	100%	NA	No	Soil Runoff
Radiological							
Beta Emitters (mrem/yr)	2010	4	0	< 1.2	NA	No	Decay of natural and man-made deposits
Alpha Emitters (pCi/l)	2010	15	0	< 0.4	NA	No	Erosion of natural deposits
Combined Radium(pCi/l)	2010	5	0	< 0.4	NA	No	Erosion of natural deposits
Secondary Substances							
Substance (Unit of Measure)	Year Sampled	AL	MCLG	Amount Detected (90th%tile)	Sites Above AL/Total Sites	Violation	Typical Source
Copper ² (ppm)	2013	1.3	1.3	<0.020	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead ² (ppb)	2013	15	0	< 0.02	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits
Secondary Substances							
Substance (Unit of Measure)	Year Sampled	SMCL	MCLG	Amount Detected	Range Low-High	Violation	Typical Source
Fluoride (ppm)	2014	2	NA	NA	0.81-1.02	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories

¹ 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.

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

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.



**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
City of Harrisonburg	15,231	13.03	27.26	40.29
City of Petersburg	10,056	13.87	30.23	44.10
Town of Leesburg	16,021	23.10	30.05	53.15
City of Danville	15,112	25.18	30.25	55.43
James City Service Authority	19,848	14.25	41.81	56.06
Spotsylvania County	27,515	28.31	27.85	56.16
City of Lynchburg	22,000	19.41	42.30	61.71
Frederick Co. Sanitation Auth.	13,429	27.78	35.27	63.05
Henry County Public Service Auth	12,599	34.70	34.70	69.40
City of Portsmouth	29,616	28.83	42.21	71.04
Albermarle Co Service Auth.	16,768	33.01	39.30	72.31
Augusta Co. Service Auth.	16,054	30.37	50.22	80.59
City of Charlottesville	13,030	37.68	45.04	82.72
Washington Co Service Auth.	19,281	42.37	64.54	106.91
Virginia Control Group		27.25	35.34	62.59

This Control Group is comprised of 20 water and wastewater providers who represent a cross section of utilities across the Commonwealth.
Courtesy of Draper Aden Associates 2014 Study

**CALL 811
(Miss Utility)
BEFORE YOU DIG**

It's Free

Allow 24-48 hours before you dig. Utilities will mark your property by using special spray paint or flags. Respect the marks. Excavate carefully. You can prevent inconvenient and potentially deadly utility outages.

CEASE THE GREASE
Place cooled grease and cooking oil in your trash – not down your drain.

Frequent Questions

Is my water hard or soft?

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.

The U.S. Geological Survey uses the following ranges of measurements to classify water into hard and soft water:

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

In 2014, our water was between 9-118 mg/l (milligrams per liter) which would be soft to moderately hard. You should not have scale build-up or have to use additional soap for laundry or other washing purposes.

What is the pH of my water?

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 2014, our pH levels were between 7.4 and 9.9.

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

Is there fluoride in my water?

Yes, a little less than 1 part per million (ppm). It is sufficient to prevent tooth decay in children. No additional fluoride supplements are needed.



Water Treatment Plant settlement basins

Ebola... makes news in 2014

Some water utilities have received inquiries regarding Ebola. We want to assure you that Ebola cannot spread through the water supply. **Ebola** is not a foodborne, waterborne, or airborne illness. The virus is transmitted to humans from wild animals and spreads in the human population through human-to-human transmission. Ebola is transmitted through direct contact with infected bodily fluids (e.g., blood, vomit, feces). The Ebola virus can only replicate within host cells. Therefore, it cannot survive long in water because it does not have its host — either a human or an animal. Because of Ebola's fragility when separated from its host, bodily fluids flushed by an infected person would not contaminate the water supply. Researchers believe that Ebola survives in water for only a matter of minutes. This is because water does not provide the same environment as our bodily fluids, which have higher salt concentrations. Once in water, the virus will take in water in an attempt to equalize the osmotic pressure, causing the cells to swell and burst, thus killing the virus.

For more information, visit their website: <http://www.who.int/csr/disease/ebola/en/>

Courtesy of World Health Organization (WHO)

If you have questions about this report or want additional information about the quality of your drinking water, please contact our Engineering Superintendent, David Gray at 540.434.9959