

ANNUAL

WATER QUALITY REPORT

Water testing performed in 2008



HARRISONBURG VA
PUBLIC UTILITIES

PWS ID#: VA2660345

Meeting the Challenge

We are once again proud to present to you our annual water quality report. This edition covers all testing completed from January 1 through December 31, 2008. Over the years, we have dedicated ourselves to producing drinking water that meets all state and federal drinking water standards. We continually strive to adopt new and better methods for delivering the best quality drinking water to you. As new challenges to drinking water safety emerge, we remain vigilant in meeting the challenges 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 about the information in this report. After all, well-informed customers are our best allies.

Important 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. 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 at (800) 426-4791.

Community Participation

We encourage consumers to report all concerns regarding water quality. It is important that we recognize, investigate, and record each event. This information will be used to guide future operation strategies and capital improvements. Please report your concerns to (540) 434-9959, extension 112.

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, 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.

City of Harrisonburg Increased Water Quality Monitoring

During the 2008 calendar year the City of Harrisonburg participated in increased water quality monitoring at the direction of the Environmental Protection Agency (EPA) and Virginia Department of Health (VDH). In addition to our extensive routine testing the City was asked to begin sampling in accordance with the second cycle of Unregulated Contaminant Monitoring Regulations, stage 2 Disinfection Byproducts Rule and the LT2 Enhanced Surface Water Treatment Rule.

The Unregulated Contaminant Monitoring Regulations require that qualifying waterworks systems check their water for the presence of substances that are currently not regulated by state standards. The intent of this sampling is to provide the EPA with data to support decisions

concerning whether or not to regulate these substances. The City's first sampling occurred in December 2008 and results were either not detected or within the acceptable ranges provided by the EPA.

The Disinfection Byproducts Rule requires that waterworks sample their water for the presence of substances that are created during disinfection. The disinfection of water is necessary to ensure that you receive clean drinkable water. The City has faithfully collected and tested samples in accordance with the approved plan. These results are within the acceptable limits defined by the EPA.

The LT2 Enhanced Surface Water Treatment Rule requires that waterworks sample their source waters for the presence of harmful contaminants. Since April 2008 the City has collected monthly samples of our source waters and found no evidence of the harmful contaminants that the rule is intending to monitor.

Where Does My 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, 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 the 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.

Testing for 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. In April 2008 the City of Harrisonburg began monthly testing for *Cryptosporidium* in its source waters. During the 2008 sampling period *Cryptosporidium* was not detected in the city's source waters. 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, immunocompromised people, infants and small children, and the elderly are at greater risk of developing life-threatening illness. We encourage immunocompromised 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.

Questions?

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. You may see updates of this report on our Web site: www.harrisonburgva.gov.



HARRISONBURG WATER AND SEWER EXPENSES AND SERVICES PROVIDED				
2007-2008 WATER AND SEWER ITEMIZATION OF EXPENSES	WATER FUND		SEWER FUND	
	COST PER 1000 GALS.	SERVICES PROVIDED	COST PER 1000 GALS.	SERVICES PROVIDED
ADMINISTRATION	\$0.14	customer service administrative functions	\$0.36	executive services engineering services
PUMPS, STORAGE, MONITORING	\$0.26	water operations water maintenance	\$0.08	sewer operations sewer maintenance
TRANSMISSION, COLLECTION, DISTRIBUTION	\$0.31	support programs, repairs to water system, assist road paving, water system reliability, water system accountability, water system quality, equipment & vehicles, buildings and grounds, Miss Utility, assist other departments, new water services, construction	\$0.54	support programs, repairs to sewer system, assist road paving, sewer system reliability, I&I abatement, equipment & vehicles, buildings and grounds, Miss Utility, assist other departments, new sewer services, construction
UTILITY BILLING	\$0.11	utility bills and accounting	\$0.15	utility billing field services
MISCELLANEOUS	\$0.17	equivalent taxes	\$0.17	equivalent taxes
PURIFICATION OR TREATMENT	\$0.45	water plant operations water plant maintenance	\$1.25	HRRSA operations HRRSA maintenance
TOTAL OPERATING	\$1.44		\$2.55	
CAPITAL	\$2.11	capital outlay, capital replacements, capital additions	\$1.33	capital outlay, capital replacements, capital additions
TOTAL DEBT SERVICE	\$0.34	raw water project debt storage tank debt	\$0.73	HRRSA debt
TOTAL TRANSFERS	\$0.34	support general fund	\$0.36	support general fund
TOTAL WATER FUND	\$4.23		\$4.97	
UTILITY PROVIDER	RESIDENTIAL WATER UNITS	WATER \$/5000 GAL	SEWER \$/5000 GAL	W & S RATE \$/5000 GAL
City of Harrisonburg	12,955	13.08	18.86	31.94
Virginia Control Group	N/A	22.50	27.74	50.24

Courtesy of Draper Aden Associates 2008 Study.

The Virginia Control Group is a randomly selected average among water purveyors representing the overall state geographic and demographic diversity.

Lead and Drinking Water

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 City of Harrisonburg 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 or at www.epa.gov/safewater/lead.

The City of Harrisonburg had only one of thirty-one samples indicate the presence of lead within a residential home. This is not a violation. Lead has not been detected within the source water from the City of Harrisonburg Water Treatment Plant.

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 Director of Public Utilities, Michael Collins, at (540) 434-9959.

Chesapeake Bay Preservation Effort to Affect City Sewer Rates

Harrisonburg (along with Bridgewater, Dayton, Mt. Crawford and Rockingham County) is a member of the Harrisonburg Rockingham Regional Sewer Authority (HRRSA) for the purpose of providing treatment to the sanitary sewer before discharging it into the North River. As reported to you in the 2005 Annual Water Quality Report (see www.harrisonburgva.gov), Virginia has enacted regulations that will mandate HRRSA to further reduce the discharge of nitrogen and phosphorous pollutants by 2010 to levels that will approach the "limits of technology" for sewer treatment plants. The purpose is to address the Chesapeake Bay ecosystem deterioration that has been traced to the inflow of the referenced nutrient pollutants.

The sewer enterprise fund currently pays approximately \$900,000 annually as loan payments for previously completed projects that have expanded the capacity and have enhanced effluent quality at HRRSA. At current status, the HRRSA facility is again under active construction for both expansion and enhancement, with revised target goals to meet the "Chesapeake Bay Strategy". The following is a general summary of capital costs for the project:

- City of Harrisonburg share \$44,000,000
- State funded share \$27,000,000
- Other member shares \$20,000,000
- Total \$91,000,000

To fulfill future obligations in repaying the city's share above, the sewer enterprise fund annual debt payment will increase to approximately \$2,850,000 by 2012. This will require the cost per 1000 gallons to increase simultaneously from \$0.73 per 1000 gallons (as shown above) to \$1.82 per 1000 gallons. The following are components that have and will be considered within overall rate increases to maintain and expand total level of service:

- 2007 \$0.29 per 1000 gallons
- 2008 \$0.29 per 1000 gallons
- 2009 \$0.29 per 1000 gallons
- 2010 \$0.11 per 1000 gallons
- 2011 \$0.11 per 1000 gallons

Sampling Results

We are pleased to report that during the past year, the water delivered to your home or business complied with, or did better than, all state and federal drinking water requirements. For your information, we have compiled the table below to show what substances were detected in our drinking water during 2008. Although all of the substances listed below 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. 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 SUBSTANCES¹

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Alpha Emitters (pCi/L)	2008	15	0	1.2	NA	No	Erosion of natural deposits
Beta/Photon Emitters² (pCi/L)	2008	50	0	0.4	NA	No	Decay of natural and man-made deposits
Combined Radium (pCi/L)	2008	5	0	0.4	NA	No	Erosion of natural deposits
Fluoride (ppm)	2008	4	4	0.99	0.62–1.09	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAA]³ (ppb)	2008	60	NA	23	5–42	No	By-product of drinking water disinfection
Nitrate (ppm)	2008	10	10	0.64	NA	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
TTHMs [Total Trihalomethanes]³ (ppb)	2008	80	NA	29	7–67	No	By-product of drinking water chlorination
Total Coliform Bacteria (% positive samples)	2008	5% of monthly samples are positive	0	2	NA	No	Naturally present in the environment
Total Organic Carbon (ppm)	2008	TT	NA	NA	ND–1.47	No	Naturally present in the environment
Turbidity⁴ (NTU)	2008	TT	NA	0.12	0.04–0.12	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2008	TT	NA	100	NA	No	Soil runoff

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

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH%TILE)	SITES ABOVE AL/TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2008	1.3	1.3	0.039	0/31	No	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Lead (ppb)	2008	15	0	ND	1/31	No	Corrosion of household plumbing systems; Erosion of natural deposits

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 Disinfectant 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 Disinfectant 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): laboratory analysis indicates that the constituent is not present.

NTU (Nephelometric Turbidity Units): Measurement of the clarity, or turbidity, of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

pCi/L (picocuries per liter): A measure of the radioactivity in water.

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

ppm (parts per million): One part

Footnotes:

¹ Variances and Exemptions (State or U.S. EPA permission not to meet an MCL or a treatment technique under certain conditions): On May 29, 2007, the Virginia Department of Health issued the City of Harrisonburg a waiver for the sampling of diquat until December 31, 2010.

² The MCL for beta particles is 4 mrem/year. The U.S. EPA considers 50 pCi/L to be the level of concern for beta particles.

³ We were required by the U.S. EPA to conduct an evaluation of our distribution system. This is known as an Initial Distribution System Evaluation (IDSE) and is intended to identify locations in our distribution system that have elevated disinfection by-product concentrations. Disinfection by-products (e.g., HAAs and TTHMs) result from continuous disinfection of drinking water and form when disinfectants combine with organic matter that naturally occurs in the source water.

⁴ 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.

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.