Annual Drinking Water Quality Report

Town of Luray

INTRODUCTION

This Annual Drinking Water Quality Report for calendar year 2016 is designed to provide you with valuable information about your drinking water quality. We are committed to providing you with a safe and dependable supply of drinking water, and we want you to understand the efforts we make to protect your water supply. The quality of your drinking water meets all state and federal requirements administered by the Virginia Department of Health (VDH).

If you have questions about this report, want additional information about any aspect of your drinking water, or want to know how to participate in decisions that may affect the quality of your drinking water, please contact one of the following:

Mr. Joseph Haddock, Superintendent WTP, Town of Luray at 540-743-1974

You can obtain additional information by attending Town Council meetings held at 7 p.m. the second Monday of each month in the Town Council Chambers.

GENERAL INFORMATION

As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and can pick up substances resulting from the presence of animals or from human activity. Substances (referred to as contaminants) in source water may come from septic systems, discharges from domestic or industrial wastewater treatment facilities, agricultural and farming activities, urban storm water runoff, residential uses, and many other types of activities. Water from surface sources is treated to make it drinkable while groundwater may or may not have any treatment.

All drinking water, including bottled drinking 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 can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).

Some people may be more vulnerable to contaminants in drinking water than the general population. Immune-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/CDC guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbiological contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

SOURCES AND TREATMENT OF YOUR DRINKING WATER

Your drinking water is groundwater and groundwater under the influence of surface water obtained from two springs and a drilled well. Water is distributed throughout the town by two finished water pump stations, one booster pump station, four storage tanks and variously sized distribution piping.

All water supplied to the Town of Luray undergoes treatment. Treatment of Hite Spring and Well No. 6 is accomplished at the Stoney Brook Lane Water Treatment Plant prior to distribution and consists of membrane filtration to remove turbidity, chlorination to disinfect the water, and fluoridation to aid in reducing tooth decay. The Hudson Spring has not been used since November 2009; however, this spring is maintained as an emergency source and the water would be treated prior to distribution. Treatment would consist of chlorination to disinfect the water and fluoridation to aid in reducing tooth decay.

SOURCE WATER ASSESSMENTS

A source water assessment has been completed by the Virginia Department of Health (VDH). The assessment determined that the springs serving our community may be susceptible to contamination because they are located in an area that promotes migration of contaminants from certain land use activities of concern. More specific information may be obtained by contacting the water system representative referenced within this report.

QUALITY OF YOUR DRINKING WATER

Your drinking water is routinely monitored according to Federal and State Regulations for a variety of contaminants. The table on the next page shows the results of our monitoring for the period of January 1, 2016 through December 31, 2016.

Most of the results in the table are from testing done in 2016. However, the state allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though accurate, is more than one year old.

DEFINITIONS

In the table and elsewhere in this report you will find many terms and abbreviations you might not be familiar with. The following definitions are provided to help you better understand these terms:

Non-detects (ND) - lab analysis indicates that the contaminant is not present

Parts per million (ppm) or Milligrams per liter (mg/l) - one part per million corresponds to one minute in two years or a single penny in $10,000.

Parts per billion (ppb) or Micrograms per liter - one part per billion corresponds to one minute in 2,000 years, or a single penny in $10,000,000.

Picocuries per liter (pCi/L) - picocuries per liter is a measure of the radioactivity in water.

Nephelometric Turbidity Unit (NTU) - nephelometric turbidity unit is a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

Action Level - the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

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

Maximum Contaminant Level, or MCL - 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.

Maximum Contaminant Level Goal, or 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.

Variances and exemptions - state or EPA permission not to meet an MCL or a treatment technique under certain conditions.

Entry Point (EP) – place where water from the source or sources after the application of any treatment is delivered to the distribution system.

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.

WATER QUALITY RESULTS

We constantly monitor for various contaminants in the water supply to meet all regulatory requirements. The tables list only those contaminants that had some level of detection. Many other contaminants have been analyzed but were not present or were below the detection limits of the lab equipment.

Maximum Contaminant Levels (MCL's) are set at very stringent levels by the U.S. Environmental Protection Agency. In developing the standards EPA assumes that the average adult drinks 2 liters of water each day throughout a 70-year life span. EPA generally sets MCL's at levels that will result in no adverse health effects for some contaminants or a one-in-ten-thousand to one-in-a-million chance of having the described health effect for other contaminants.

WATER QUALITY RESULTS

Microbiological

Contaminant	MCLG	MCL	Level Found	Unit Measurement	Violation	Date of Sample	Typical Source of Contamination
Total Coliform Bacteria (1)	0	Presence of coliform bacteria in > 1 sample per month	2	Presence or Absence	YES	07/2016	Naturally present in the environment

(1) Total Coliform. 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 waterworks.

Contaminant	MCLG	PMCL	Level Found	Unit Measurement	Violation	Date of Sample	Typical Source of Contamination
E. Coli (2)	0	(2)	1	Presence or Absence	YES	07/2016	Human and animal fecal waste

(2) E. Coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely-compromised immune systems. We found E. Coli bacteria, indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessments to identify problems and to correct any problems that were found during these assessments.

We were required to complete a Level 2 Assessment because we found E. Coli in our water system. In addition, we were required to take one corrective action and we completed this action.

We had a total coliform-positive repeat sample following the E. Coli-positive routine sample collected on 18 July 2016.

Turbidity

Contaminant	MCLG	MCL	Highest Single Level Found	Lowest Monthly % <0.3 NTU	Unit Measurement	Violation	Date of Sample	Typical Source of Contamination
Turbidity (3), (4) Stoney Brook Lane WTP	NA	TT	0.10	100	NTU	NO	09/09/2016	Soil Runoff

(3) Turbidity is measure of the cloudiness of the water. We monitor it because it is a good indicator of our water quality and the effectiveness of filtration process.
(4) Turbidity Treatment Technique (TT) MCL: 1 NTU max; ≤ 0.3 NTU in at least 95% of all samples tested.

Radiological Contaminants

Contaminant	MCLG	MCL	Level Found	Unit Measurement	Violation	Date of Sample	Typical Source of Contamination
Gross Alpha Emitters	0	15	--	pCi/l	NO	--	Erosion of natural deposits
Stoney Brook Lane WTP			ND			08/2011	
Hudson Spring EP			ND			12/2012	
Beta Emitters	0	50	--	pCi/l	NO	--	Decay of natural or man-made deposits
Stoney Brook Lane WTP			2.3			08/2011	
Hudson Spring EP			3.3			12/2012	
Combined Radium	0	5	--	pCi/l	NO	--	Erosion of natural deposits
Stoney Brook Lane WTP			2.7			08/2011	
Hudson Spring EP			ND			12/2012	

Inorganic Contaminants

Contaminant	MCLG	MCL	Level Found	Unit Measurement	Violation	Date of Sample	Typical Source of Contamination
Barium	2	2	--	mg/l	--	--	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Stoney Brook Lane WTP			0.053		NO	07/2016	
Hudson Spring EP			0.044		NO	12/2015	
Copper	1.3	AL = 1.3	--	mg/l	--	--	Corrosion of household plumbing systems; Erosion of natural deposits
Stoney Brook Lane WTP			0.071		NO	07/2016	
Hudson Spring EP			ND		NO	12/2015	

Inorganic Contaminants

Contaminant	MCLG	MCL	Level Found	Unit Measurement	Violation	Date of Sample	Typical Source of Contamination
Nitrates	10	10	--	mg/l	--	--	Runoff from fertilizer use; leaching from septic tanks, sewage; Erosion of natural deposits
Stoney Brook Lane WTP			1.48		NO	06/2016	
Hudson Spring EP			0.82		NO	12/2016	
Fluoride	4	4	--	mg/l	--	--	Erosion of natural deposits; Discharge from fertilizer and aluminum factories; Water additive which promotes strong teeth
Stoney Brook Lane WTP			0.42		NO	09/2016	
Hudson Spring EP			ND		NO	12/2015	

Disinfection Residual Contaminants

Contaminant	MRDLG	MRDL	Level Found	Unit Measurement	Violation	Date of Sample	Typical Source of Contamination
Chlorine	4	4	0.56 (avg.) Range 0.21 – 1.06	mg/l	NO	Monthly	Water additive to control microbes

Disinfection Byproduct Contaminants

Contaminant	MCLG	MCL	Locational Running Annual Average	Unit Measurement	Violation	Date of Sample	Typical Source of Contamination
Total Trihalomethanes (TTHM)	0	80	6.2 (Avg.) Range 3.8 – 8.4	ppb	NO	12/2016	By-product of drinking water chlorination
Haloacetic Acid (HAA5)	0	60	3.5 (Avg.) Range ND – 14.0	ppb	NO	12/2016	By-product of drinking water chlorination

Lead and Copper (Most Recent Monitoring Period – June 2015)

Contaminant	MCLG	MCL	Level Found	Unit Measurement	AL Exceeded	Samples > AL	Typical Source of Contamination
Lead	0	AL = 15	< 2	ppb	NO	0	Corrosion of household plumbing systems; Erosion of natural deposits
Copper	1.3	AL = 1.3	0.107	mg/l	NO	0	

Lead Contaminants

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 Town of Luray is responsible for providing high quality drinking water, but cannot control the variety of materials used in the 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 the 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.

VIOLATION INFORMATION

Monitoring and Reporting:
We were in full compliance with all monitoring and reporting requirements and no violations occurred during the calendar year 2016.

Water Quality:
In July 2016, one E. Coli MCL violation occurred when we had a total coliform-positive repeat sample following an E. Coli-positive routine sample. The duration of this violation was one month.

The waterworks owners prepared this Drinking Water Quality Report with the assistance and approval of the Virginia Department of Health (VDH). Please call if you have questions.

Signature: Joseph K Haddle

Date: 4/2/17