Annual Drinking Water Quality Report *Town of Mount Jackson*

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:

Mr. Kevin Fauber, Town Manager, Town of Mount Jackson at 540-477-2121

You can obtain additional information by attending Town Council meetings held at 7:30 p.m. the second Tuesday 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 obtained from four drilled wells. Water is distributed throughout the town by means of submersible well pumps, three storage tanks, and variously sized distribution pipes.

All water entering the Town distribution system is treated. Each well is equipped with a chlorine solution feeder. The solution feeder is used to inject a chlorine solution into the water to disinfect it prior to distribution.

SOURCE WATER ASSESSMENT

A source water assessment was completed by the ENSAT Corporation in cooperation with the County of Shenandoah and Shenandoah County Water Resources Advisory Committee. The assessment determined that the wells 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 to 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.

Parts per trillion (ppt) or Nanograms per liter (nanograms/l) - one part per trillion corresponds to one minute in 2,000,000 years, or a single penny in $10,000,000,000.

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.

Microbiological

Contaminant	MCLG	MCL	Level Found	Unit Measurement	Violation	Date of Sample	Typical Source of Contamination
Total Coliform Bacteria (1)(2)	0	Presence of Coliform bacteria in > 1 sample per month	2	Presence or Absence	No (2)	Monthly	Naturally present in the environment

(1) 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.
(2) We were required to complete a Level 1 Assessment because we found Total Coliform Bacteria in two of the August 2016 samples. Four of the five sanitary defects found during the assessment have been corrected and we are in the process of completing the fifth.

Microbiological (Untreated Water)

Contaminant	MCLG	MCL	Level Found	Unit Measurement	Date of Sample	Typical Source of Contamination
E. Coli (3)						
Well 2A	0	TT	--	MPN (4)	--	Human and animal fecal
Well 2A			1		06/08/2016	waste
			1		08/09/2016	
E. Coli (3)(5)						
Well 2A	0	TT	--	Presence or Absence	--	Human and animal fecal
Ashby Lee Well			Presence		08/16/2016	waste
Well 2A 10:50			Presence		08/16/2016	
Well 2A 11:05			Presence		08/29/2016	
Well 2A 11:20			Presence		08/29/2016	
Well 2A 11:35			Presence		08/29/2016	
Well 2A 11:50			Presence		08/29/2016	
			Absence		08/29/2016	

(3) 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.
(4) Most probable number "(MPN)" means that number of organisms per unit volume that, in accordance with statistical theory, would be more likely than any other number to yield the observed test result or that would yield the observed test result with the greatest frequency, expressed as density of organisms per 100 milliliters. Results are computed from the number of positive findings of coliform group organisms resulting from multiple-portion decimal-dilution plantings. Both of the raw (untreated) MPN water samples collected from Well 2A in June and August indicated the presence of 1 colony of *E. coli* bacteria. The VDH requires that we collect routine raw water samples for the wells quarterly to assess raw water quality.

(5) Because one of the August 8, 2016 routine bacteriological samples was positive for coliform bacteria, we were required to collect raw water samples from Well 2A and the Ashby Lee Well. The VDH requires that we collect raw triggered water samples from each source in use when a positive routine sample occurs. Both raw water samples indicated the presence of *E. coli* bacteria. No additional monitoring of Well 2A was required as Well 2A is already provided with 4-log virus inactivation disinfection treatment; however, five additional source water samples were required to be collected from the Ashby Lee Well to confirm the presence of and *E. coli* bacteria. Four of the five samples tested indicated the presence E-Coli bacteria. Because of the confirmed presence of *E. coli* bacteria in the Ashby Lee Well, we were required us to complete a Treatment Technique Requirements / Corrective Action Plan. We are required to four corrective actions and we have completed three of these actions and are in the process of completing the fourth action. The three completed actions have determined that the Ashby Lee Well disinfection system meets 4-log virus inactivation disinfection treatment requirements and the fourth corrective action is schedule for completion within the next several months.

Inorganic Contaminants

Contaminant	MCLG	MCL	Highest Level Found	Unit Measurement	Violation	Date of Sample	Typical Source of Contamination
Barium	2	2	--	mg/l	--	--	Discharge of drilling
Ashby Lee Well EP			0.039		No	08/2016	wastes; Discharge from
Well 2A EP			0.055		No	04/2015	metal refineries;
Well 3 EP			0.055		No	01/2014	Erosion of natural
Well 4 EP			0.025		No	02/2016	deposits
Nitrate (6)	10	10	--	mg/l	--	--	Runoff from fertilizer
Ashby Lee Well EP			4.53		No	03/2016	use; leaching from
Well 2A EP			3.04		No	03/2016	septic tanks, sewage;
Well 3 EP			5.76		No	06/2016	Erosion of natural
			Range 5.03 – 5.76				deposits
Well 4 EP			10.8		Yes	10/2016	
			Range 5.53 – 10.8				

(6) Infants below the age of six months who drink water-containing nitrate in excess of the MCL could become seriously ill and if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.

Disinfection Byproduct Contaminants

Contaminant	MCLG	MCL	Level Found	Unit Measurement	Violation	Date of Sample	Typical Source of Contamination
Total Trihalomethanes (TTHM)	0	80	44.0 Range 2.3 – 44	ppb	No	07/2016	By-product of drinking water chlorination
Haloacetic Acid (HAA5)	0	60	4.2 Range 1.4 – 4.2	ppb	No	07/2016	By-product of drinking water chlorination

Disinfection Residual Contaminants

Contaminant	MRDLG	MRDL	Level Found	Unit Measurement	Violation	Date of Sample	Typical Source of Contamination
Chlorine	4	4	1.47 (avg.) Range 1.0 – 2.2	mg/l	No	Monthly	Water additive used to control microbes

Radiological Contaminants

Contaminant	MCLG	MCL	Level Found	Unit Measurement	Violation	Date of Sample	Typical Source of Contamination
Alpha Emitters	0	15	--	pCi/l	--	--	Erosion of natural deposits
Ashby Lee Well EP			ND		No	07/2014	
Well 2A EP			1.6		No	06/2016	
Well 3 EP			ND		No	03/2015	
Well 4 EP			3.1		No	03/2011	
Beta Emitters	0	50	--	pCi/l	--	--	Decay of natural or man-made deposits
Ashby Lee Well EP			2.7		No	07/2014	
Well 2A EP			1.4		No	06/2016	
Well 3 EP			3.8		No	03/2015	
Well 4 EP			ND		No	03/2011	
Combined Radium	0	5	--	pCi/l	--	--	Erosion of natural deposits
Ashby Lee Well EP			0.6		No	07/2014	
Well 2A EP			ND		No	06/2016	
Well 3 EP			0.7		No	03/2015	
Well 4 EP			1.1		No	03/2011	

Lead and Copper (Most Recent Monitoring Period – June 2014)

Contaminant	MCLG	MCL	Level Found	Unit Measurement	AL Exceeded	Samples > AL	Typical Source of Contamination
Lead (6)	0	AL = 15	8.75	ppb	No	0	Corrosion of household plumbing systems;
Copper	1.3	AL = 1.3	0.184	mg/l	No	0	Erosion of natural deposits

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 Mount Jackson 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:

We were required to complete a Level 1 assessment. One Level 1 assessment was required because of coliform bacteria found in two August 2016 samples. In addition, we were required to take three corrective actions and we completed the three corrective actions.

We were required to complete a Treatment Technique Requirement Corrective Action Plan because of the confirmed presence of *E-Coli* bacteria in our Ashby Lee Well. In addition we were required to take four corrective action items and we have completed three these actions and are in the process of completing fourth action.

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: *Kevin M. Fauber*

Date: *June 15, 2017*