

Annual Drinking Water Quality Report

Town of Stephens City

INTRODUCTION

This Annual Drinking Water Quality Report for calendar year 2014 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. Michael Kehoe, Town Manager at 540-869-3087

You can obtain additional information by attending Town Council meetings held at 7:30 p.m. the first 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 surface water purchased from the Frederick County Sanitation Authority (FCSA) and obtained from the quarries located on the west side Stephens City. Water is distributed to the Town from master meter connections to the FCSA system through variously sized distribution pipes. Storage for the Town is provided by the FCSA.

All water supplied to the Town undergoes treatment. This treatment is accomplished at the James H. Diehl Water Treatment Plant and the James T Anderson Water Treatment Plant. The water is treated prior to entering the distribution system and consists of chemical addition, flocculation, sedimentation and filtration to remove turbidity, chlorination to disinfect the water and fluoridation to aid in reducing tooth decay.

SOURCE WATER ASSESSMENT

A source water assessment for the Frederick County Service Authority was completed by the Virginia Department of Health (VDH) on April 10, 2002. This assessment determined that the Authority's Stephens City water source may be susceptible to contamination because it is surface water exposed to a wide array of contaminants at varying concentrations. Changing hydrologic, hydraulic and atmospheric conditions promote migration of contaminants from land use activities of concern within the assessment area. More specific information may be obtained by the Frederick County Sanitation Authority at 540-868-1061.

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, 2014 to December 31, 2014

Most of the results in the table are from testing done in 2014. 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.

Variations 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.

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.

REGULATED IN THE DISTRIBUTION SYSTEM:

Microbiological

Contaminant	MCL G	MCL	Level Found	Unit Measurement	Violation	Date of Sample	Typical Source of Contamination
Total Coliform Bacteria (1) Town of Stephens City	-- 0	-- Presence of Coliform bacteria in > 1 sample per month	-- 0	Presence or Absence	-- NO	Monthly	Naturally present in the environment
Frederick Co. Sanitary Authority	0	Presence of coliform bacteria in >5% of samples per month	0		NO	Monthly	

(1) Total Coliform. Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, bacteria may be present. Total Coliform bacteria were found in more samples than allowed and this was a warning of potential problems.

Disinfection Byproduct Contaminants

Contaminant	MCLG	MCL	Level Found	Unit Measurement	Violation	Date of Sample	Typical Source of Contamination
Total Trihalomethanes (TTHM) Town of Stephens City	0	80	-- 21.3 (avg.) Range 14 - 26	ppb	-- NO	-- 10/2014	By-product of drinking water chlorination
Frederick County Sanitation Authority			13.5 (avg.) Range 8.2 - 44		NO	10/2014	
Haloacetic Acid (HAA5) Town of Stephens City	0	60	-- 15.0 (avg.) Range 8.9 - 20	ppb	-- NO	-- 10/2014	By-product of drinking water chlorination
Frederick Co. Sanitation Authority			13.0 (avg.) Range 9.6 - 28		NO	10/2014	

Disinfection Residual Contaminants

Contaminant	MCLG	MCL	Level Found	Unit Measurement	Violation	Date of Sample	Typical Source of Contamination
Chlorine Town of Stephens City	4	4	-- 2.11 (avg.) Range 1.5 - 2.4	mg/l	-- NO	-- Monthly	Water additive used to control microbes
Frederick Co. Sanitation Authority			2.45 (avg.) Range 1.0 - 3.25		NO	Monthly	

Lead and Copper (Most Recent Monitoring Period – Stephens City September 2014 / FCSA June 2012)

Contaminant	MCLG	MCL	Level Found	Unit Measurement	AL Exceeded	Samples > AL	Typical Source of Contamination
Lead Town of Stephens City Frederick Co, Sanitation Authority	0	AL = 15	-- <2.0 1.0	ppb	-- NO NO	-- 0 0	Corrosion of household plumbing systems; Erosion of natural deposits
Copper Town of Stephens City Frederick Co. Sanitation Authority	1.3	AL = 1.3	-- 0.034 0.085	mg/l	-- NO NO	-- 0 0	Corrosion of household plumbing systems; 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 Stephens City 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>.

REGULATED AT THE WATER FILTRATION PLANTS:

Turbidity

Contaminant	MCLG	MCL	Highest Single Level Found	Unit Measurement	Lowest Monthly % <0.3 NTU	Violation	Date of Sample	Typical Source of Contamination
Turbidity (2), (3) James Diehl WTP James T. Anderson WTP	NA	TT	-- 0.15 0.12	NTU	100 100	NO NO	03/2014 07/2014	Soil Runoff

(2) 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.

(3) Turbidity Treatment Technique (TT) MCL: 1 NTU max; ≤ 0.3 NTU in at least 95% of all samples tested

Total Organic Carbon

Contaminant	MCLG	MCL	Level Found	Unit Measurement	Violation	Date of Sample	Typical Source of Contamination
Total Organic Carbon (4) James Diehl WTP James T. Anderson WTP	NA	TT	-- 1.00 (avg.) Range 1.00 – 1.00 1.0 (avg.) Range 1.00 – 1.00	Ratio of Actual to Required Removals	-- NO NO	-- Monthly Monthly	Naturally Present in the environment

(4) Total Organic Carbon (TOC) has no health effects but provides formation medium for disinfection byproducts. These byproducts include trihalomethanes (TTHM) and haloacetic acids (HAA5).

Radiological Contaminants

Contaminant	MCLG	MCL	Level Found	Unit Measurement	Violation	Date of Sample	Typical Source of Contamination
Gross Alpha James Diehl WTP James T. Anderson WTP	0	15	-- 2.0 < 1.2	pCi/l	-- NO NO	-- 07/2014 04/2013	Erosion of natural deposits
Beta Emitters James Diehl WTP James T. Anderson WTP	0	50	-- 2.7 2.9	pCi/l	-- NO NO	-- 07/2008 04/2013	Decay of natural or manmade deposits
Combined Radium James Diehl WTP James T. Anderson WTP	0	5	-- <0.7 < 0.6	pCi/l	-- NO NO	-- 07/2014 04/2013	Erosion of natural deposits

Inorganic Contaminants

Contaminant	MCLG	MCL	Highest Level Found	Unit Measurement	Violation	Date of Sample	Typical Source of Contamination
Barium James Diehl WTP James Anderson WTP	2	2	-- 0.048 0.068	mg/l	-- NO NO	-- 10/2014 07/2014	Runoff from fertilizer use; leaching from septic tanks, sewage; Erosion of natural deposits
Nitrate James Diehl WTP James Anderson WTP	10	10	-- 1.83 2.78	mg/l	-- NO NO	-- 10/2014 07/2014	Runoff from fertilizer use; leaching from septic tanks, sewage; Erosion of natural deposits.
Fluoride James Diehl WTP James Anderson WTP	4	4	-- 1.15 0.94	mg/l	-- NO NO	-- 03/2014 07/2014	Erosion of natural deposits; Discharge from fertilizer and aluminum factories; Water additive which promotes strong teeth

VIOLATION INFORMATION

The Town of Stephens City was in full compliance with all water quality, monitoring and reporting requirements and no violations occurred during the calendar year 2014.

The Frederick County Sanitation Authority was in full compliance with all water quality, monitoring and reporting requirements and no violations occurred during the calendar year 2014.

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: Michael Kehoe

Date: May 12, 2015