Town of Buchanan
Annual Drinking Water Quality Report

INTRODUCTION

This Annual Drinking Water Quality Report for calendar year 2020 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:

Susan McCulloch, Town Manager at (540) 254-1212

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 stormwater 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 currently obtained from four wells. Water is distributed throughout the system by one concrete reservoir, two storage tanks, three booster pumping stations, and the distribution piping. Wells 3 and 4 are filtered through a membrane treatment system before entering the system. Disinfection treatment is provided for all wells.

SOURCE WATER ASSESSMENTS

A source water assessment has been completed by VDH. The assessment determined that the wells may be susceptible to contamination because they are located in areas that promote migration of contaminants with land use activities of concern. More specific information may be obtained by contacting the number listed above.

QUALITY OF YOUR DRINKING WATER

Your drinking water is routinely monitored according to Federal and State Regulations for a variety of contaminants. The tables that follow show the results of our monitoring for the period of January 1st through December 31st 2020.

Most of the results in the table are from testing done in 2020. 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:

Action Level (AL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

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.

Maximum Contaminant Level (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 (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.

Maximum Residual Disinfectant Level (MRDL): 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.

Maximum Residual Disinfectant Level Goal (MRDLG): 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 contamination.

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

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

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

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.

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

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

WATER QUALITY RESULTS

Microbiological

Contaminant	Unit of Measurement	MCLG	MCL	Level Found	Violation	Sample Date(s)	Typical Source of Contamination
Total Coliform bacteria	Presence or Absence	0	presence of coliform bacteria in >1 sample per month	0	no	monthly	naturally present in the environment

Total coliforms are analyzed monthly. Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other potentially harmful bacteria may be present.

Inorganic & Metal Contaminants

Contaminant	Unit of Measurement	MCLG	MCL	Level Found	Violation	Sample Date(s)	Typical Source of Contamination
Turbidity – Wells 3 & 4							soil runoff
a. highest measurement	NTU	NA	TT	0.13	no	daily	
b. lowest monthly % meeting 0.3 NTU limits	%	NA	TT	100%	no	monthly	
Nitrate	ppm	10	10				runoff from fertilizer
Well 1				<0.1	no	9/10/20	use; leaching from septic
Well 2				0.43	no	9/10/20	tanks, sewage; erosion of
Wells 3 & 4				0.39	no	9/10/20	natural deposits
Fluoride	ppm	4	4				erosion of natural
Well 1				< 0.05	no	7/19/18	deposits; discharge from
Well 2				0.1	no	7/19/18	fertilizer and aluminum
Wells 3 & 4				<0.2	no	8/27/20	factories
Barium	ppm	2	2				discharge of drilling
Well 1				0.062	no	7/19/18	wastes; discharge from
Well 2				0.059	no	7/9/18	metal refineries; erosion
Wells 3 & 4				0.049 – 0.12	no	8/20, 1/21*	of natural deposits
Chromium	ppb	100	100				discharge from steel and
Well 1				<1	no	7/19/18	pulp mills; erosion of
Well 2				1.0	no	7/19/18	natural deposits
Wells 3 & 4				<5 – 3.4	no	8/20, 1/21*	
Sodium	ppm	NA	NA				erosion of natural
Well 1				3.99	no	7/19/18	deposits; de-icing salt
Well 2				6.86	no	7/19/18	runoff; water softeners
Wells 3 & 4				3.91 - 5.56	no	8/20, 1/21*	

Inorganic contaminants are analyzed every three years for Wells 1 & 2 and annually for Wells 3 & 4. Nitrates are analyzed annually for all wells.

Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system.

* Due to a lab error, we were required to resample for metals. The resample occurred in 2021 but was used to help meet 2020 monitoring requirements. Relevant results are included in the table above.

Lead and Copper (2019)

Contaminant	Unit of Measurement	MCLG	MCL	90% Level	AL Exceeded	Samples > AL	Typical Source of Contamination
Lead Copper	ppb ppm	0 1.3	AL = 15 AL = 1.3	1.7 0.078	no no	0 0	corrosion of household plumbing systems; erosion of natural deposits

Current analysis frequency for lead and copper is every three years.

Radiological Contaminants

Contaminant	Unit of Measurement	MCLG	MCL	Level Found	Violation	Sample Date(s)	Typical Source of Contamination
Gross Alpha radiation	pCi/L	0	15	--	--	--	erosion of natural deposits
Well 1				-2.0	no	8/24/16	
Well 2				2.2	no	8/24/16	
Wells 3 & 4				0.82	no	9/26/18	
Gross Beta radiation	pCi/L	0	50*	--	--	--	erosion of natural deposits
Well 1				-0.11	no	8/24/16	
Well 2				5.0	no	8/24/16	
Wells 3 & 4				3.4	no	9/26/18	
Radium 228	pCi/L	0	5	--	--	--	erosion of natural deposits
Well 1				0.98	no	8/24/16	
Well 2				0.96	no	8/24/16	
Wells 3 & 4				0.60	no	9/26/18	

Analysis frequency for radiological is every six years for Wells 1 & 2; three years for Well 3 & 4.
* The MCL for beta particles is 4 mrem/yr. EPA considers 50 pCi/L to be the level of concern for beta particles.

Disinfection Byproduct Contaminants

Contaminant	Unit of Measurement	MCLG	MCL	Highest Average (Range)	Violation	Date of Sample(s)	Typical Source of Contamination
Total Trihalomethanes	ppb	0	80	4 (2.2 to 5.6)	no	2/11/20 5/12/20 8/11/20 11/19/20	by-product of drinking water chlorination
Total Haloacetic Acids	ppb	0	60	8 (1.0 - 22.1)	no	2/11/20 5/12/20 8/11/20 11/19/20	by-product of drinking water chlorination

Disinfection Byproducts are analyzed quarterly.

Disinfection Residual

Contaminant	MRDLG	MRDL	Average Level Found (Range)	Unit Measurement	Violation	Date of Sample	Typical Source of Contamination
Chlorine	4	4	1.11 (0.89 – 1.26)	mg/L	no	monthly	water additive used to control microbes

We constantly monitor for various contaminants in the water supply to meet all regulatory requirements. The table lists 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 (MCLs) 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 MCLs 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.

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 Buchanan 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 of at http://www.epa.gov/safewater/lead.

Sodium - There is presently no established standard for sodium in drinking water. An EPA advisory recommends water containing 30 to 60 mg/L should not be used as drinking water due to esthetics such as taste and color. Water containing more than 20 mg/L should not be used by persons whose physician has placed them on severely restricted sodium diets.

VIOLATION INFORMATION

Water Quality Violations – None

Monitoring and Reporting Violations – None

This Drinking Water Quality Report was prepared by the town with the assistance and approval of the Virginia Department of Health. Please call if you have questions.

Signature: _____ Date: _____