Annual Drinking Water Quality Report
Brookneal Water Treatment Facility

PWSID # 5031175

2022

INTRODUCTION

We're very pleased to provide you with the 2022 Annual Water Quality Report. We want to keep you informed about the excellent water and services we have delivered to you over the past year. Our goal is and always has been, to provide to you a safe and dependable supply of drinking water. The quality of your drinking water must meet state and federal requirements administered by the Virginia Department of Health (VDH).

I'm pleased to report that our drinking water is safe and meets federal and state requirements; except as outlined here in.

If you have any questions about this report or concerning your water utility, please contact **William Samples at 434 579 2564** We want our valued customers to be informed about their water utility. If you want to learn more, please attend any of our regularly scheduled meetings. They are held on the second Tuesday of each month in the town hall.

GENERAL INFORMATION

See Attached sheet with 3 paragraphs entitled Educational Info.

The Brookneal Water Treatment Plant routinely monitors for constituents in your drinking water according to Federal and State laws. The water is surface water and comes from the Phelps Creek Reservoir. The water is treated by coagulation, filtration and disinfection. A source water assessment of our system was conducted in 2002 by the Virginia Department of Health. The source was determined to be of high susceptibility to contamination using the criteria developed by the State in its approved Source Water Assessment Program. The assessment report consists of maps showing the source water assessment area, an inventory of known land use activities of concern, and documentation of any known contamination within the last 5 years. The report is available by contacting your water system representative at the phone number given elsewhere in this drinking water quality report. This table shows the results of our monitoring for the period of January 1st to December 31st, 2022**.** All drinking water, including bottled drinking water, may be reasonably expected to contain at least small amounts of some constituents. It's important to remember that the presence of these constituents does not necessarily pose a health risk.

LEAD & COPPER

The Town's last required sampling for lead and copper was in September 2020. The 90th percentile concentration of lead, 0.0012 mg/L was below the action level of 0.015 mg/L. The 90th percentile concentration of copper, 0.273 mg/L was below the action level of 1.3 mg/L. The waterworks continues to demonstrate optimized control treatment.

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking is primarily from materials and components associated with service lines and home plumbing. The Town of Brookneal 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 by flushing your tap for 15 to 30 seconds or until it becomes cold and reaches a steady temperature 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 http://www.epa.gov/safewater/lead.

Disinfection By-Products (DBP)

Disinfection By-Products (DBP) Trihalomethane (TTHM) and Haloacetic acid (HAA5). The town collects TTHM and HAA5 samples from two separate, compliance sample sites. The compliance is based off of a four-quarter running average not a specific sample result. In 2022 one sample exceeded the TTHM MCL but the average did not, resulting in a non-violation. No HAA5 results exceeded the MCL during collection nor with the calculated running average.

DEFINITIONS

In this table you will find many terms and abbreviations you might not be familiar with. To help you better understand these terms we've provided the following definitions:

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

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

Maximum Contaminant Level - The “Maximum Allowed” (MCL) is the highest level of a contaminant that is allowed in drinking water. MCL’s are set as close to the MCLGs as feasible using the best available treatment technology.

Maximum Contaminant Level Goal - The “Goal” (MCLG) is 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 Goal or 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 contaminants.

Maximum Residual Disinfectant Level or 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.

TTHM – Total Trihalomethane (TTHM)--compounds formed during disinfection/using chlorine

HAA5 – Haloacetic Acid (HAA5) – compounds formed during disinfection/using chlorine

WHAT DOES THIS MEAN?

Contaminants 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, and wildlife.
- **Inorganic contaminants**, such as salts and metals, which can be naturally occurring or result from urban storm water 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 storm water runoff, and residential uses.
- **Organic chemical contaminants**, including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and can, also, come from gas stations, urban storm water runoff, and septic systems.
- **Radioactive contaminants**, which can be naturally occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791.

MCL's are set at very stringent levels. To understand the possible health effects described for many regulated constituents, a person would have to drink 2 liters of water every day at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect.
Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-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).

Please call our office if you have questions.

> We at the Brookneal Water Treatment Plant work to provide top quality water to every tap. We ask that all our customers help us protect our water sources, which are the heart of our community, our way of life.

WATER QUALITY RESULTS

Radiological Contaminants

Contaminant / Unit of Measurement	MCLG	MCL	Level Found	Violation	Date of Sample	Typical Source of Contamination
Alpha emitters pCi/L	0	15	2.31	No	7/2021	Erosion of natural deposits
Combined Radium pCi/L	0	5	0.76	No	July 2021	Erosion of natural deposits

Inorganic Contaminants

Contaminant / Unit of Measurement	MCLG	MCL	Level Found / Range	Exceedance	Date of Sample	Typical Source of Contamination
Nitrates & Nitrites ppm	10	10	0.35	No	December 2022	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
Lead ppb	0	AL = 15	1.2 (90^{th} percentile) Range: ND – 1.3 Of the samples none exceeded the AL.	No	September 2020	Corrosion of household plumbing systems; Erosion of natural deposits
Copper ppm	1.3	AL=1.3	0.273 (90^{th} percentile) Range: 0.0055 to 0.274 Of the samples collected none exceeded the AL.	No	September 2020	Corrosion of household plumbing systems; Erosion of natural deposits
Fluoride ppm	4	4	**<0.2 (Naturally occurring. Not fed)**	No	July 2022	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Barium ppm	2	2	0.022	No	December 2022	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits

Microbiological Contaminants

Contaminant / Unit of Measurement	MCLG	MCL	Level Found / Range	Violation	Date of Sample	Typical Source of Contamination

Turbidity / NTU	N/A	1.0 Max TT 0.3 in 95% of monthly samples	0.02-0.2 (Range) 100 % < or = to 0.2	No	Daily 2022	Soil Runoff
Total Coliform Bacteria	NA	TT	0	No	Monthly 2022	Naturally present in the environment
Disinfection Byproducts						
Contaminant / Unit of Measurement	**MCLG**	**MCL**	**Level Found / Range**	**Violation**	**Date of Sample**	**Typical Source of Contamination**
Chlorine ppm	MRDLG = 4	MRDL = 4.0	Avg. 1.0 Range: 0.20 – 1.75	No	Monthly at bacti sample points	Water additive used to control microbes
HAA5s (Total Haloacetic Acids) ppb	N/A	60 4 Qtr. Avg.	Highest Qtr. 54 Range: 40-49	No	Quarterly 2022	By-product of drinking water disinfection
TTHMs (Total Trihalomethanes) ppb	N/A	80 4 Qtr. Avg.	Highest Qtr. 56 Range: 31-53	No	Quarterly 2022	By-product of drinking water disinfection
Total Organic Carbon (TOC) ppm	N/A	TT-TOC removal ratio greater than or equal to 1.00	Lowest Quarterly Ave. Ratio: 1.00 Range: 1.00 to 1.55	No	Tested quarterly at raw and treated water	Naturally present in the environment

Crypto

Cryptosporidium are microscopic organisms that may enter surface waters from runoff containing animal wastes. If ingested, Cryptosporidium may cause diarrhea, fever and other gastrointestinal symptoms. The EPA Long Term 2 (LT2) Enhanced Surface Water Treatment Rule required the Town of Brookneal to test the raw water for Cryptosporidium. Beginning March 2019 until February 2020 the Town completed the collection of 25 samples. Based on the findings it was determined the mean value was 0.010 oocysts per liter, well below threshold requiring additional treatment. By VDH in a letter dated February 2021 the Town of Brookneal retains its' Bin 1 Classification.

Sodium

The Sodium concentration of 23.5 mg/L was detected December 2022 in our treated water. This level is slightly above the EPA recommended optimal level of less than 20 mg/L of sodium in drinking water for individuals on a "strict" sodium intake diet.