Town of Middleburg
2021 Annual Drinking Water Quality Report

INTRODUCTION

This Annual Drinking Water Quality Report for the calendar year **2021** is designed to inform you about your drinking water quality. Our goal is to provide 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 must meet state and federal requirements administered by the Virginia Department of Health (VDH). We are happy to report that our drinking water continues to meet or exceed all quality standards established by the Federal Safe Drinking Water Act.

If you have questions about this report, or if you 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:

Danny Davis, Town Manager
10 West Marshall Street, P.O. Box 187, Middleburg, VA 20118
Telephone: (540) 687-5152 Email: ddavis@middleburgva.gov

The times and location of regularly scheduled Town Council meetings are as follows:
Second and Fourth Thursday of every month, 6:00 PM, at the Middleburg Town Office
10 West Marshall Street, Middleburg, Virginia

GENERAL INFORMATION

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 about contaminants and potential health effects 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. Immuno-compromised persons such as those 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 previously mentioned Safe Drinking Water Hotline.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive materials and can pick up substances resulting from the presence of animals or from human activity. Water from surface sources is treated to make it safe to drink while groundwater may or may not have any treatment.

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 by-products 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, the U. S. Environmental Protection Agency (EPA) prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

SOURCES AND TREATMENT OF YOUR DRINKING WATER

The sources for your drinking water are five groundwater wells located in or near the Town of Middleburg. All wells are treated by chlorination for disinfection and phosphate is added to prevent oxidation in the distribution system. In addition, water softening, and greensand filtration is provided for three of the Town's wells to reduce the levels of iron and manganese and radiological contaminants.

The Virginia Department of Health conducted a source water assessment of Wells #2 and #3 in 2002. The wells were determined to be highly susceptible 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 of the date of the report. The report is available by contacting your water system representative at the phone number and address given elsewhere in this drinking water quality report.

SOURCEWATER PROTECTION

The Town of Middleburg has adopted a Source Water Protection Plan, which includes recommendations (action items) for protecting the Town's source water. Copies of the plan, information on protecting your drinking water and tips regarding causes of high-water bills are available at the Town Office, 10 West Marshall Street, Middleburg, Virginia 20118 or on the Town's website at www.middleburgva.gov.

The Source Water Protection Team (SWPT) is responsible for advising the Town Council on the implementation of action items recommended in the Source Water Protection Plan. The SWPT meets on a quarterly basis. Meetings are open to the public. More information on the SWPT and/or its meetings can be obtained by contacting the Town Manager at the phone number and address given in this drinking water quality report.

DEFINITIONS

Contaminants in your drinking water are routinely monitored according to Federal and State regulations. We are allowed to monitor some contaminants less than once per year. Where that is the case, the most recent results are reported. In the tables 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:

Unit Descriptions	
Term	**Definition**
ppm	ppm: parts per million, or milligrams per liter (mg/L)
ppb	ppb: parts per billion, or micrograms per liter (µg/L)
pCi/L	pCi/L: picocuries per liter (a measure of radioactivity)
% positive samples/month	% positive samples/month: Percent of samples taken monthly that were positive
NA	NA: not applicable
ND	ND: Not detected
NR	NR: Monitoring not required, but recommended.
positive samples	positive samples/yr: The number of positive samples taken that year

Important Drinking Water Definitions	
Term	**Definition**
MCLG	MCLG: Maximum Contaminant Level Goal: 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.
MCL	MCL: Maximum Contaminant Level: 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.
TT	TT: Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water.
AL	AL: Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
Variances and Exemptions	Variances and Exemptions: State or EPA permission not to meet an MCL or a treatment technique under certain conditions.
MRDLG	MRDLG: Maximum residual disinfection level goal. 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.
MRDL	MRDL: Maximum residual disinfectant level. 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.
MNR	MNR: Monitored Not Regulated
MPL	MPL: State Assigned Maximum Permissible Level

WATER QUALITY RESULTS

Microbiological Contaminants

We are pleased to announce that the Town of Middleburg did not have any detection of total coliform or E. Coli in the treated water for the 2021 calendar year. All monthly samples complied with EPA standards.

Lead and Copper Contaminants – The Town of Middleburg monitors for lead and copper contaminants in your drinking water every three years to ensure our drinking water meets all State and Federal standards.

Contaminant	Units of Measurement	Action level	MCLG	Results of samples for the 90th Percentile Value	Action Level Exceedance?	Sampling Year	# of Sampling Sites Exceeding Action level	Typical Source of Contamination
Lead	ppb	15	0	ND	No	2021	0	Corrosion of household plumbing systems. Erosion of natural deposits.
Copper	ppm	1.3	1.3	0.73	No	2020	0	Corrosion of household plumbing systems. Erosion of natural deposits.

Other Chemical and Radiological Contaminants:

Contaminant	Units of Measurement	MCLG	MCL	Level Detected	Violation	Range of Detection at Sampling Points	Sampling Year	Typical Source of Contamination
Radium 228 Combined Radium (228/226)	pCi/L	0	5	2.4	No	1.0 2.4	2017 & 2021	Erosion of natural deposits
Gross Alpha	pCi/L	0	15	13.6	No	0.9 – 13.6	2017 & 2021	Erosion of natural deposits
Gross Beta	pCi/L	0	50	25.2	No	2.7 – 25.2	2017 & 2021	Erosion of natural deposits
Fluoride	ppm	4	4	0.35	No	ND– 0.35	2017, 2019 & 2020	Erosion of natural deposits.

Barium	ppm	2	2	0.108	No	ND – 0.108	2017, 2019 & 2020	Erosion of natural deposits.
Nitrate+ Nitrite	ppm	10	10	0.12	No	ND – 0.12	2021	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion from natural deposits

Secondary Contaminant(s):

Contaminant	Units of Measurement	MCLG	MCL	Level Detected	Violation	Range of Detection at Sampling Points	Sampling Year	Typical Source of Contamination
Sodium	mg/L	N/A	N/A	86.5	No	20.4-86.5	2017, 2019 & 2020	Erosion of natural deposits

Disinfection and Disinfection Byproducts

Contaminant	Units of Measurement	MCLG	MCL	Level Detected*	Violation	Range of Detection at Sampling Points	Sampling Year	Typical Source of Contamination
Free Chlorine	ppm	MRDLG=4	MRDL=4	1.40	No	0.98 – 1.65	2021	Water additive used to control microbes.
TTHM	ppb	N/A	80	8.0	No	NA	2021	By-product of drinking water disinfection.
HAA5	ppb	N/A	60	1.0	No	NA	2021	By-product of drinking water disinfection.

*The level detected for free chlorine is based on a quarterly running average.

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.

The U.S. Environmental Protection Agency sets MCL's at very stringent levels. In developing the standards, the EPA assumes 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.

VIOLATION INFORMATION

We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not our drinking water meets health standards. During the 2021 monitoring period, we did not monitor for nitrate+nitrite (combined) and radionuclides at entry point 4 (well 4); therefore, we cannot be sure of the quality of our drinking water from that source during that time. However, this is no reason to believe these contaminants exceeded the maximum contamination level, as all tests – before and after – have been satisfactory.

There is nothing you need to do at this time. We have collected one (1) nitrate+nitrite (combined) sample and one (1) radionuclide sample during the first quarter 2022 monitoring period, all of which were satisfactory or below the MCL. We will continue to collect one (1) radionuclide sample each quarter thereafter, and one (1) nitrate+nitrite yearly sample, from entry point 4. We are attempting to prevent further violations by ensuring that all required sampling in our water system is done in accordance with the state drinking water regulations.

ADDITIONAL HEALTH INFORMATION

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 Middleburg 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 15 to 30 seconds or until it becomes cold or 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.

This Drinking Water Quality Report was prepared by:

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