Town of Middleburg
2017 Annual Drinking Water Quality Report

INTRODUCTION

This Annual Drinking Water Quality Report for the calendar year **2017** 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 standard established by the Federal Safe Drinking Water Act. We are especially pleased to have been recognized by the Virginia Rural Water Association in April 2017 as Water System of the Year.

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:

Martha Mason Semmes, Town Administrator
10 West Marshall Street, P.O. Box 187, Middleburg, VA 20118
Telephone: (540) 687-5152 Email: townadmin@middleburgva.gov

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

GENERAL INFORMATION

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 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 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 material, and can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include: (i) microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife; (ii) inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming; (iii) pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses; (iv) 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 stormwater runoff, and septic systems; (v) 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. 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.

WELLHEAD PROTECTION

The Town of Middleburg has adopted a Wellhead 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 Wellhead Protection Advisory Committee is responsible for advising the Town Council on the implementation of action items recommended in the Wellhead Protection Plan. The Committee meets on a quarterly basis. Meetings are open to the public.

DEFINITIONS

Contaminants in your drinking water are routinely monitored according to Federal and State regulations. The table on the next few pages shows the highest results of our 2017 monitoring. In the tables and elsewhere in this report you will find many terms and abbreviations with which you might not be familiar. 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) – one part per million corresponds to one minute in two years, or a single penny in $10,000

Parts per billion (ppb) – 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.

Maximum Residual Disinfectant (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 drinking water disinfectant below which there is no know or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

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 required process intended to reduce the level of a contaminant in drinking water.

Maximum Contaminant Level, or MCL – the highest level of a contaminant 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.

WATER QUALITY RESULTS

1. Microbiological Contaminants:

Contaminant	MCLG	MCL	# of Samples Indicating Presence of Bacteria	Violation (Y/N)	Date of Sampling	Typical Source Of Contamination
Total Coliform Bacteria	0	Presence in more than 1 sample once a month	0	N	2017	Naturally present in the environment
Fecal Coliform Bacteria	0	A routine sample and a repeat sample are total coliform positive, and one is also fecal coliform positive	0	N	2017	Human and animal fecal waste

2. Lead and Copper Contaminants:

Contaminant (Units of Measurement)	**Action Level**	**MCLG**	**90th Percentile**	**Action Level Exceeded**	**# of Sites Exceeding Action Level**	**Date of Sampling**	**Typical Source of Contamination**
Lead action level at consumer taps (ppb)	15	0	15	No	0	2017	Corrosion of household plumbing systems; Erosion of natural deposits
Copper action level at consumer taps (ppm)	1.3	1.3	0.60	No	0	2017	Corrosion of household plumbing systems; Erosion of natural deposits

3. Other Chemical and Radiological Contaminants:

Contaminant (Unit of Measurement)	**MCLG**	**MCL**	**Level Detected**	**Violation**	**Range of Detection at Sampling Points**	**Date of Sampling**	**Typical Source of Contamination**
Nitrate plus Nitrite as Nitrogen (ppm)	10	10	< 0.05	N	ND – 1.02	2017	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion from natural deposits
Fluoride (ppm)	4	4	0.35	N	ND - 0.35	2017	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Barium (ppm)	2	2	< 0.01	N	ND - 0.01	2017	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.
Chromium (ppb)	100	100	< 0.01	N	ND – 0.01	2017	Erosion of natural deposits
Gross Alpha (pCi/L)	0	15	21.6	Y	1.25 – 21.6	2017	Erosion of natural deposits
Gross Beta (pCi/L)	0	50	9.3	N	1.4 – 9.3	2017	Decay of natural and man-made deposits
Combined Radium 226/228 (pCi/L)	0	5	4.3	N	0.17 – 4.3	2017	Erosion of natural deposits

Chlorine (ppm)	MRDLG 4	MRDL 4	1.33	N	1.05 – 1.87	2017	Water additive used to control microbes
TTHM (ppb)	N/A	80	0.08	N	N/A	2017	By-Product of drinking water chlorination
HAA5 (ppb)	N/A	60	0.06	N	N/A	2017	By-Product of drinking water chlorination

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 state allows the Town to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Even though some of our data may be more than one year old, it is accurate.

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

The following are other contaminants that we want to inform you about annually:

Iron: Iron is considered a secondary contaminant, which, in excess of 0.3 ppm, may cause aesthetic but not health problems. Iron may cause a metallic taste to the water and may cause staining of laundry. Typically, iron in the water supply is evidenced by a rusty color and/or sediment. In 2017, levels of iron in Middleburg Well #4 measured 0.30 ppm and Wells L&P measured <0.05 ppm.

Manganese: Manganese is considered a secondary contaminant, which, in excess of 0.05 ppm, may cause aesthetic but not health problems. Iron may affect the taste of the water and may cause staining of laundry. Typically, manganese in the water supply is evidenced by a black to brown color and/or black staining. In 2017, levels of manganese in Well #4 measured 0.50 ppm and Wells L&P measured 0.016 ppm.

NOTE: The Town of Middleburg has two water treatment facilities to remove these secondary contaminants at Well #4 and at Wells L & P. In addition, wells #2 and #3 are treated with a phosphate chemical to reduce the effects of iron and manganese.

VIOLATION INFORMATION – The water system did have a monitoring violation in 2017. A Radionuclide sample for Gross Alpha, collected from Well #4 during the 1st quarter of 2017, exceeded the Maximum Contaminant Level (MCL) established by the EPA. Gross Alpha measures the overall radioactivity in drinking water. Alpha radiation is the result of a naturally occurring process involving the decomposition of bedrock and soil. There can be varying levels of radiation in the water based on the time of sampling. Those who are exposed to drinking water containing an elevated Gross Alpha count for a long period of time may have an increased risk of getting cancer. Subsequent samples were collected throughout the year and all were well under the MCL of 15 PCI/L. The average Gross Alpha concentration for all Radiological samples collected, including the 1st quarter sample, was 6.8 PCI/L.

ADDITIONAL HEALTH INFORMATION

Although there were detections of other contaminants that have potential health effects, the levels detected were extremely small and did not approach the MCLG for these contaminants. By definition, the MCLG (Maximum Contaminant Level Goal) is the level of a contaminant in drinking water below which there is no known or expected risk to health. For more information on the health effects of these contaminants, please contact the Town's Utility Operator IES at (800) 648-1010.

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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