



2017 Annual Water Quality Report

Eastern District
Berkley / Ebb Tide Beach
PWSID: VA4193120



Este informe contiene información muy importante sobre su agua potable. Tradúzcalo o hable con alguien que lo entienda bien.

This report contains important information about your drinking water. If you do not understand it, please have someone translate it for you.

A Message from the Virginia American Water President



To Our Valued Customers:

Virginia American Water is proud to be your local water service provider, and I am pleased to share with you good news about the quality of your drinking water. Each year, we provide you with our Annual Water Quality Report, and Virginia American Water continues to supply drinking water that meets or surpasses all state and federal water quality regulations.

Virginia American Water delivers high-quality water to your homes and businesses by maintaining and improving the miles of pipeline hidden below the ground, the facilities that draw water from the source and the plants where the water is treated and tested.

Our plant operators, water quality experts, engineers and maintenance crews work 24/7 to ensure that water is always there when you need it. Delivering reliable water service to your tap also requires significant investment to upgrade the aging water infrastructure. In 2017 alone, we invested more than \$20 million in water system improvements statewide.

We do this because Virginia American Water delivers more than just water service. We distribute a key resource for public health, fire protection, the economy and overall quality of life. Our job is to ensure that quality water keeps flowing not only today, but well into the future. It's part of our commitment to you and the communities we serve. We hope you agree that your water quality is worth every penny, and worth learning more about.

Please spend time reviewing this report. You'll learn details about the source and quality of your drinking water using data from water quality testing conducted for your local water system from January through December 2017.

Thanks for allowing us to serve you.

Sincerely,

Barry Suits
President

WE CARE ABOUT WATER. IT'S WHAT WE DO.®

Information on the Internet

Virginia American Water, a subsidiary of American Water (NYSE: AWK), is the largest investor-owned water utility in the state, providing high-quality and reliable water services to approximately 320,000 people.

With a history dating back to 1886, American Water is the largest and most geographically diverse U.S. publicly traded water and wastewater utility company. The company employs more than 6,900 dedicated professionals who provide regulated and market-based drinking water, wastewater and other related services to an estimated 15 million people in 46 states and Ontario, Canada. American Water provides safe, clean, affordable and reliable water services to our customers to make sure we keep their lives flowing. For more information, visit amwater.com.

The U.S. EPA Office of Water (www.epa.gov/safewater) and the Center for Disease Control and Prevention (www.cdc.gov) websites provide a substantial amount of information on many issues relating to water resources, water conservation and public health. Also, the Virginia Department of Health and the Virginia Department of Environmental Quality have websites that provide complete and current information on water issues in Virginia. These websites are located at (www.vdh.virginia.gov) and (www.deq.state.va.us). All these websites have numerous links that will direct you to other professional organizations, public education and public health topics related to water.

SOURCE WATER and TREATMENT

The source of your drinking water is groundwater. The system has 3 wells that draw water from the Potomac aquifer. The only treatment provided is chlorination. This provides disinfection and prevents bacteriological growth in the distribution system. As a first step toward protection of our sources of drinking water, the Virginia Department of Health (VDH) evaluated the susceptibility of Virginia's water supplies to contamination. Contamination sources and pathways were reviewed using maps, known & observed activities, water quality data and information about the water source. Using criteria developed by the State in its EPA-approved Source Water Assessment Programs, it was determined that, on a relative basis our wells are of low susceptibility to contamination. Your current water quality is described in the rest of this report. A copy of the source water assessment report is available by contacting J. Creel at the phone number or address given elsewhere in this drinking water quality report.

Water Quality: What You Can Do

Everyone can play a role in improving the health of the source water and the Chesapeake Bay watershed:

- Avoid overuse of pesticides, herbicides and fertilizers, which contribute to the growth of algae that can cause taste and odor in drinking water.
- Clean up after your pet so the rain won't wash pet waste into the watershed through storm sewers.
- Dispose of pharmaceutical and personal care products in the trash, not down the toilet.
- Properly dispose of chemicals, paints and hazardous waste products so they don't enter the watershed through storm sewers.
- If you have a boat, keep it clean to avoid bringing algae, dirty water or contaminants into your marina.
- Support regulations and other efforts to reduce nutrients in the watershed.

DRINKING WATER NOTICE

Lead Education Statement

Although we regularly test lead levels in your drinking water, it is possible that lead and/or copper levels at your home are higher because of materials used in your plumbing. 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. Virginia American Water 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 two minutes before using the water for drinking or cooking.

Virginia American Water remains in full compliance with all of the requirements dealing with lead in drinking water. 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 (800) 426-4791 or at <http://www.epa.gov/safewater/lead>.

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 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 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).

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: (1) Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife. (2) 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. (3) Pesticides and herbicides, which may come from a variety of sources such as agricultural, urban stormwater runoff, and residential uses. (4) 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. (5) Radioactive contaminants, which can be naturally occurring or be the results of oil and gas production and mining activities. To ensure that tap water is safe to drink, EPA prescribes regulations, which 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, which must provide the same protection for public health.

Other Drinking Water Constituents You May Be Interested In Are As Follows:

Sodium: The average sodium concentration in the samples collected in 2017 was 112.7 ppm. This concentration exceeds the recommended maximum contaminant level (MCL) guideline of 20 ppm for persons on a "strict" sodium intake diet.

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 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.

Fluoride: This is an alert about your drinking water and a cosmetic dental problem that might affect children under nine years of age. At low levels, fluoride can help prevent cavities, but children drinking water containing more than 2 milligrams per liter (mg/L) of fluoride may develop cosmetic discoloration of their permanent teeth (dental fluorosis) The drinking water provided by your community water system has a fluoride concentration of 1.98 mg/L.

Dental fluorosis in its moderate or severe forms may result in a brown staining and or pitting of their permanent teeth. This problem occurs only in developing teeth, before they erupt from the gums. Children under nine should be provided with alternative sources of drinking water or water that has been treated to remove the fluoride to avoid the possibility of staining and pitting of their permanent teeth. You may also want to contact your dentist about proper use by young children of fluoride containing products. Older children and adults may safely drink the water.

Drinking water containing more than 4 mg/L of fluoride (the U.S. Environmental Protection Agency's drinking water standard) can increase your risk of developing bone disease. Your drinking water does not contain more than 4 mg/L of fluoride, but we're required to notify you when we discover that the fluoride levels in your drinking water exceed 2 mg/L because of the cosmetic dental problem.

Some home water treatment units are also available to remove fluoride from drinking water. To learn more about available home water treatment units, you may call NSF International at 1-877-8-NSF-HELP.

How to Read the Data Tables

Virginia American Water conducts extensive monitoring to ensure that your water meets all water quality standards. The results of our monitoring are reported in the tables on the following pages. While most monitoring was conducted in 2017, certain substances are required to be monitored less than once per year and represent the most current results available. For help with interpreting this table, see the “Table Definitions” section.

Starting with **Contaminant**, read across. **Units of measure** is the unit that the contaminant is measured in. **MCLG** is the goal level for that substance (this may be lower than what is allowed). **MCL** shows the highest level of substance (contaminant) allowed. **Level Detected** represents the measured amount (less is better). A **No** under **Violation** means the amount of the substance met government requirements. **Range** tells the highest and lowest amounts measured. **Date of sample** indicates when the sample was collected. **Typical Source** tells where the substance usually originates.

Unregulated substances are measured, but maximum allowed contaminant levels have not been established by the government.

Definitions

Contaminants in your drinking water are routinely monitored according to Federal and State regulations. The tables show the results of our monitoring. 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:

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.

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 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.

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 contaminants.

Millirems per year (mrem/year): the measure of radiation absorbed by the body.

Water Quality Statement

This Annual Drinking Water Quality Report for 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).

This Drinking Water Quality Report was prepared by K. Ryan, Water Quality Supervisor. If you have questions about this report, 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: J. Creel, Network Supervisor, Virginia American Water, Eastern District, 621 Oldhams Road, PO Box 1150, Warsaw, VA 22572, Telephone: 1-800-452-6863, email: joyce.creel@amwater.com or K. Ryan, Water Quality Supervisor, kelly.ryan@amwater.com.

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.

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 the data in the tables below, though accurate, may be more than one year old.

Regulated Contaminants in the water storage tank

Contaminant	Units of Measure	MCLG	MCL	Level Detected	Violation (Y/N)	Range of Detection at Sampling Points	Date of Sample	Typical Source of Contamination
Fluoride	ppm	4	4	1.98	N	1.51 - 1.98	1/23/2017 2/21/2017	Erosion of natural deposits; Discharge from fertilizer and aluminum factories
Nitrate	ppm	10	10	1.99	N	ND - 1.99	1/23/2017 2/21/2017	Runoff from fertilizer use; leaking septic tanks, erosion of natural deposits
Lead	ppm	0	0.015	0.001	N	ND - 0.001	1/23/2017 2/21/2017	Erosion of natural deposits
Ethylbenzene	ppb	700	700	3.5	N	ND - 3.5	1/23/2017 2/21/2017	Discharge from petroleum refineries
Xylenes, Total	ppm	10	10	0.0279	N	ND - 0.0279	1/23/2017 2/21/2017	Discharge from petroleum factories; Discharge from chemical factories
Radium-288	pCi/L	0	5	0.6	N	<0.6 - 0.6	4/14/2015 5/10/2017	Erosion of natural deposits
Gross Alpha	pCi/L	0	15	<0.8	N	<0.4 - <0.8	4/14/2015 5/10/2017	Erosion of natural deposits
Gross Beta ¹	pCi/L	0	50	6.6	N	4.7 - 6.6	5/10/2017	Decay of natural and man-made deposits

¹The MCL for beta particles is 4 mrem/year. EPA considers 50 pCi/L to be the level of concern for beta particles.

Regulated Contaminants in the distribution system

Contaminant	Units of Measure	MCLG	MCL	Level Detected	Violation (Y/N)	Range of Detection at Sampling Points	Date of Sample	Typical Source of Contamination
Haloacetic Acids HAA5	ppb	NA	60	3.9	N	NA	8/22/2017	By-product of drinking water chlorination
Total Trihalomethanes (TTHM)	ppb	NA	80	12.3	N	NA	8/22/2017	By-product of drinking water chlorination

Unregulated Substances in the water storage tank

Contaminant	Units of Measure	MCLG	MCL	Level Detected	Violation (Y/N)	Range of Detection at Sampling Points	Date of Sample	Typical Source of Contamination
Calcium	ppm	NA	NA	5	N	ND - 5	1/23/2017 2/21/2017	Erosion of natural deposits
Chloride	ppm	NA	250	6.4	N	3.7 - 6.4	1/23/2017 2/21/2017	Erosion of natural deposits
Boron	ppm	NA	NA	0.704	N	0.584 - 0.704	1/23/2017 2/21/2017	Erosion of natural deposits
Magnesium	ppm	NA	NA	4	N	ND - 4	1/23/2017 2/21/2017	Naturally occurring
Sulfate	ppm	NA	250	8.4	N	7.2 - 8.4	1/23/2017 2/21/2017	Erosion of natural deposits
Potassium	ppm	NA	NA	12	N	ND - 12	1/23/2017 2/21/2017	Erosion of natural deposits

Lead and Copper contaminants in the distribution system

Substance	Units of Measure	Action Level	MCLG	Results of Samples for the 90 th Percentile Value	Action Level Exceedance (Y/N)	Year of Sampling	Number of Samples Above Action Level	Typical Source
Lead	ppb	15	0	2.0	N	2015	0	Corrosion of household plumbing systems, Erosion of natural deposits
Copper	ppm	1.3	1.3	0.185	N	2015	0	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives

Disinfectants in the distribution system

Disinfectant	Units of Measure	MRDLG	MRDL	Level Detected (Annual Average)	Violation (Y/N)	Range of Detection at Sampling Points	Year	Typical Source
Chlorine	ppm	4	4	1.08	N	0.50 - 1.38	2017	Water additive used to control microbes