

# ANNUAL WATER QUALITY REPORT

Reporting Year 2021



AACO  
Water Operations



*Presented By*  
**Anne Arundel County,  
Department of Public Works**

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## County Executive Stuart Pittman's Message

I am proud to share the Anne Arundel County Drinking Water Quality Report for calendar year 2021 with you. This report is a testament to our commitment to providing clean, safe, and reliable water to everyone who lives or works in Anne Arundel County.

This year, we continued our long-standing record of exceeding all state and federal standards. This is no small task as we safely produce and deliver more than 12 billion gallons of water annually to the residents and businesses in our County. This report provides the results of the thousands of water quality tests completed by our dedicated team of professionals in the Department of Public Works (DPW) Bureau of Utilities.

Please take a few minutes to read about the important work DPW performs each and every day to manage our public water infrastructure and to protect public health by providing clean, safe, and reliable drinking water to our more than 122,000 customers.

## PFAS

PFAS—short for per- and polyfluoroalkyl substances—refers to a large group of more than 4,000 human-made chemicals that have been used since the 1940s in a range of products, including stain- and water-resistant fabrics and carpeting, cleaning products, paints, cookware, food packaging and fire-fighting foams. These uses of PFAS have led to PFAS entering our environment, where they have been measured by several states in soil, surface water, groundwater and seafood. Some PFAS can last a long time in the environment and in the human body and can accumulate in the food chain.

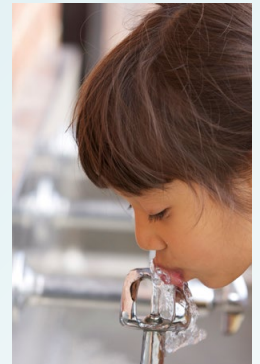
Currently, there are no federal regulations (i.e., Maximum Contaminant Levels [MCLs]) for PFAS in drinking water. However, the U.S. Environmental Protection Agency (EPA) has issued a Health Advisory Level (HAL) of 70 parts per trillion (ppt) for the sum of perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) concentrations in drinking water. While not an enforceable regulatory standard, when followed, the EPA HAL does provide drinking water customers, even the most sensitive populations, with a margin of protection from lifetime exposure to PFOA and PFOS in drinking water. Beginning in 2020, the Maryland Department of the Environment (MDE) initiated a PFAS monitoring program. The combined PFOA and PFAS concentration from samples taken from our water system was below the detection limit. MDE anticipates that EPA will establish an MCL for PFOA and PFOS in the near future. This would entail additional monitoring. Additional information about PFAS can be found on the MDE website at [mde.maryland.gov](http://mde.maryland.gov).

## Where Does My Water Come From?

Anne Arundel County DPW customers enjoy an abundant water supply from four deep aquifers. Our 12 Water Treatment Facilities draw water from the Patapsco, Patuxent, and Aquia aquifers. Combined, our treatment facilities provide roughly 12.6 billion gallons of clean drinking water every year.

## Substances That Could Be in Water

To ensure that tap water is safe to drink, the U.S. EPA prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk.



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, in some cases, radioactive material, and substances resulting from the presence of animals or from human activity. Substances 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, or wildlife;

Inorganic Contaminants, such as salts and metals, which can be naturally occurring or may result from urban stormwater 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 stormwater runoff, and residential uses;

Organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production and may also come from gas stations, urban stormwater runoff, and septic systems;

Radioactive Contaminants, which can be naturally occurring or may be the result of oil and gas production and mining activities.

For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

## Contact DPW:

Visit us online: [www.DPWandYou.com](http://www.DPWandYou.com)

24 Hour Emergency Hotline: (410) 222-8400

(from South County): (410) 451-4118

Billing Office: (410) 222-1144

DPW Customer Relations: (410) 222-7582

DPW General Information: (410) 222-7500

2021 CCR URL Link: [www.aacounty.org/departments/public-works/utilities/forms-and-publications/WaterQuality2021.pdf](http://www.aacounty.org/departments/public-works/utilities/forms-and-publications/WaterQuality2021.pdf)

## Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised 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 may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791 or <http://water.epa.gov/drink/hotline>.

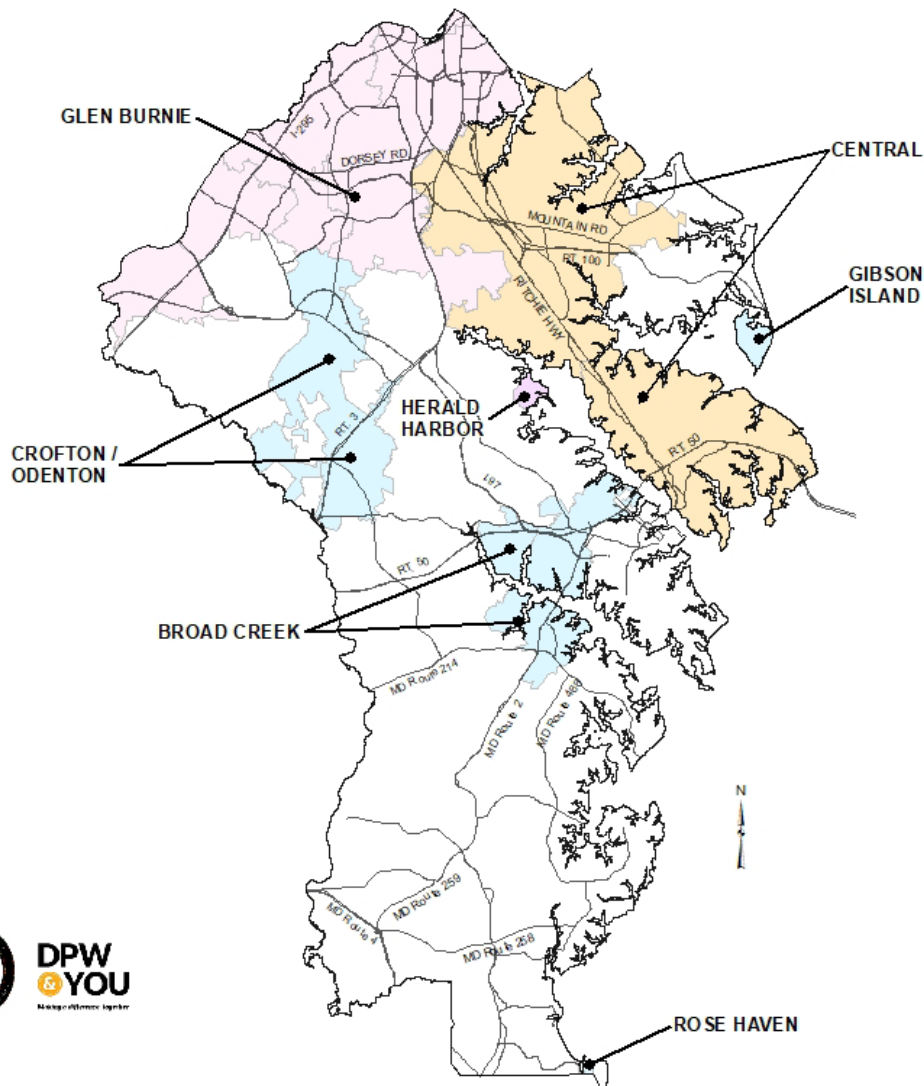
## Lead in Home Plumbing

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. We are responsible for providing high-quality drinking water, but we 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 at (800) 426-4791 or at [www.epa.gov/safewater/lead](http://www.epa.gov/safewater/lead).

### Anne Arundel County Water Service Areas

Central  
Glen Burnie  
Crofton / Odenton  
Broad Creek

Herald Harbor  
Gibson Island  
Rose Haven



## Source Water Assessment

Source Water Assessment is a process for evaluating the vulnerability to contamination of the source of a public drinking water supply. The assessment does not address the treatment or distribution aspects of the water system, which are covered under separate provisions of the Safe Drinking Water Act. The Maryland Department of the Environment is the lead agency in developing these Assessments, which have been completed for all of the County's water systems. To receive more information, contact the Maryland Department of the Environment, Water Supply Division, at [water.supply@maryland.gov](mailto:water.supply@maryland.gov).

REGULATED SUBSTANCES													
				Glen Burnie Zone		Central Zone		Crofton/Odenton Zone		Broad Creek Zone			
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	HIGHEST LEVEL	RANGE LOW-HIGH	HIGHEST LEVEL	RANGE LOW-HIGH	HIGHEST LEVEL	RANGE LOW-HIGH	HIGHEST LEVEL	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Alpha Emitters (pCi/L)	2021	15	0	5.0	2.0–5.0	6.9	1.9–6.9	1.1	1.1–1.1	NA	NA	No	Erosion of natural deposits
Barium (ppm)	2019	2	2	0.02	0.01–0.02	0.03	0.03–0.03	0.02	0.02–0.02	0.02	0.02–0.02	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Cadmium (ppb)	2021	5	5	3.0	ND–3.0	ND	ND	ND	ND	ND	ND	No	Corrosion of galvanized pipes; Erosion of natural deposits; Discharge from metal refineries; Runoff from waste batteries and paints
Combined Radium (pCi/L)	2021	5	0	4.2	0.4–4.2	2.1	1.5–2.1	NA	NA	NA	NA	No	Erosion of natural deposits
Chlorine (ppm)	2021	4	4	1.59	0.57–1.59	2.11	0.70–2.11	1.84	0.68–1.84	2.10	0.70–2.10	No	Drinking water disinfection
Ethylbenzene (ppb)	2020	700	700	ND	ND	ND	ND	ND	ND	ND	ND -	No	Discharge from petroleum refineries
Fluoride (ppm)	2021	4	4	1.11	0.25–1.11	0.89	0.10–0.89	0.88	0.11–0.88	1.05	0.18–1.05	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAAs]–Stage 2 (ppb)	2021	60	NA	1.8	1.8–1.8	NA	NA	NA	NA	NA	NA	No	By-product of drinking water disinfection
Nitrate (ppm)	2021	10	10	1.5	ND–1.5	ND	ND	ND	ND	ND	ND	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
TTHMs [Total Trihalomethanes]– Stage 2 (ppb)	2021	80	NA	5.4	1.4–16.2	NA	NA	2.0	2.0–2.0	6.7	6.7–6.7	No	By-product of drinking water disinfection
Xylenes (ppm)	2020	10	10	NA	NA	NA	NA	NA	NA	NA	NA	No	Discharge from petroleum factories; Discharge from chemical factories

				Herald Harbor Zone		Gibson Island Zone		Rose Haven Zone					
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	HIGHEST LEVEL	RANGE LOW-HIGH	HIGHEST LEVEL	RANGE LOW-HIGH	HIGHEST LEVEL	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE		
Alpha Emitters (pCi/L)	2021	15	0	NA	NA	NA	NA	NA	NA	No	Erosion of natural deposits		
Barium (ppm)	2019	2	2	0.001	0.001–0.001	0.01	0.01–0.01	0.07	0.07–0.07	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits		
Cadmium (ppb)	2021	5	5	ND	ND	ND	ND	ND	ND	No	Corrosion of galvanized pipes; Erosion of natural deposits; Discharge from metal refineries; Runoff from waste batteries and paints		
Combined Radium (pCi/L)	2021	5	0	0.6	0.6–0.6	NA	NA	0.3	0.3–0.3	No	Erosion of natural deposits		
Chlorine (ppm)	2021	4	4	1.78	0.53–1.78	2.31	0.67–2.31	2.01	0.43–2.01	No	Drinking water disinfection		
Ethylbenzene (ppb)	2020	700	700	NA	NA	NA	NA	0.5	0.5–0.5	No	Discharge from petroleum refineries		
Fluoride (ppm)	2021	4	4	1.04	0.37–1.04	1.03	0.35–1.03	1.00	0.20–1.00	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories		
Haloacetic Acids [HAAs]–Stage 2 (ppb)	2021	60	NA	1.0	1.0–1.0	1.1	1.1–1.1	12.3	12.3–12.3	No	By-product of drinking water disinfection		
Nitrate (ppm)	2021	10	10	ND	ND	ND	ND	ND	ND	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits		
TTHMs [Total Trihalomethanes]–Stage 2 (ppb)	2021	80	NA	2.4	2.4–2.4	3.1	3.1–3.1	20.5	20.5–20.5	No	By-product of drinking water disinfection		
Xylenes (ppm)	2020	10	10	NA	NA	NA	NA	0.62	0.62–0.62	No	Discharge from petroleum factories; Discharge from chemical factories		

Tap water samples were collected for lead and copper analyses from sample sites throughout the community

				Glen Burnie Zone		Central Zone		Crofton/Odenton Zone		Broad Creek Zone			
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH %ILE)	SITES ABOVE AL/TOTAL SITES	AMOUNT DETECTED (90TH %ILE)	SITES ABOVE AL/TOTAL SITES	AMOUNT DETECTED (90TH %ILE)	SITES ABOVE AL/TOTAL SITES	AMOUNT DETECTED (90TH %ILE)	SITES ABOVE AL/TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2021	1.3	1.3	0.02	0/55	0.06	0/55	0.02	0/31	0.02	0/31	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2021	15	0	ND	0/55	ND	0/55	ND	0/31	NA	0/31	No	Lead services lines, corrosion of household plumbing systems including fittings and fixtures; erosion of natural deposits

				Herald Harbor Zone		Gibson Island Zone		Rose Haven Zone					
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH %ILE)	SITES ABOVE AL/TOTAL SITES	AMOUNT DETECTED (90TH %ILE)	SITES ABOVE AL/TOTAL SITES	AMOUNT DETECTED (90TH %ILE)	SITES ABOVE AL/TOTAL SITES	VIOLATION	TYPICAL SOURCE		
Copper (ppm)	2021	1.3	1.3	0.11	0/12	0.01	0/10	0.32	0/10	No	Corrosion of household plumbing systems; Erosion of natural deposits		
Lead (ppb)	2021	15	0	ND	0/12	ND	0/10	ND	0/10	No	Lead services lines, corrosion of household plumbing systems including fittings and fixtures; erosion of natural deposits		

## UNREGULATED SUBSTANCES

		Glen Burnie Zone		Central Zone		Crofton/Odenton Zone		Broad Creek Zone		
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	HIGHEST LEVEL	RANGE LOW-HIGH	HIGHEST LEVEL	RANGE LOW-HIGH	HIGHEST LEVEL	RANGE LOW-HIGH	HIGHEST LEVEL	RANGE LOW-HIGH	TYPICAL SOURCE
<b>Bromochloroacetic Acid</b> (ppb)	2020	ND	ND	ND	ND	0.58	ND-0.58	3.5	ND-3.5	By-product of drinking water disinfection
<b>Dichloroacetic Acid</b> (ppb)	2021	ND	ND	ND	ND	NA	NA	0.36	ND-0.36	By-product of drinking water disinfection
<b>Manganese</b> (ppb)	2020	17.0	1.91-17.0	3.29	ND-3.29	7.45	1.43-7.45	1.98	1.98-1.98	Naturally occurring
<b>Nickel</b> (ppb)	2019	15	5-15	22	22-22	12	12-12	ND	ND	Nickel is a natural element of the earth's crust; therefore, small amounts are found in food, water, soil, and air
<b>Sodium</b> (ppm)	2019	4.5	ND-4.5	6.2	ND-6.2	6.9	6.9-6.9	5.2	5.2-5.2	Naturally occurring
		Herald Harbor Zone		Gibson Island Zone		Rose Haven Zone				
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	HIGHEST LEVEL	RANGE LOW-HIGH	HIGHEST LEVEL	RANGE LOW-HIGH	HIGHEST LEVEL	RANGE LOW-HIGH	TYPICAL SOURCE		
<b>Bromochloroacetic Acid</b> (ppb)	2020	NA	NA	NA	NA	NA	NA	By-product of drinking water disinfection		
<b>Dichloroacetic Acid</b> (ppb)	2021	NA	NA	NA	NA	NA	NA	By-product of drinking water disinfection		
<b>Manganese</b> (ppb)	2020	NA	NA	NA	NA	NA	NA	Naturally occurring		
<b>Nickel</b> (ppb)	2019	1	1-1	ND	ND	ND	ND	Nickel is a natural element of the earth's crust; therefore, small amounts are found in food, water, soil, and air		
<b>Sodium</b> (ppm)	2019	ND	ND	3.5	3.5-3.5	ND	ND	Naturally occurring		

## Definitions

**90th %ile:** The levels reported for lead and copper represent the 90th percentile of the total number of sites tested. The 90th percentile is equal to or greater than 90% of our lead and copper detections.

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

**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.

**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.

**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.

**MRDLG (Maximum Residual Disinfectant 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.

**NA:** Not applicable

**ND:** Non detectable

**pCi/L (picocuries per liter):** A measure of radioactivity.

**ppb (parts per billion):** One part substance per billion parts water (or micrograms per liter).

**ppm (parts per million):** One part substance per million parts water (or milligrams per liter).

**SMCL (Secondary Maximum Contaminant Level):** These standards are developed to protect aesthetic qualities of drinking water and are not health based.