Anne Arundel County Drinking Water Quality Report

2015

WATER

OUR MOST PRECIOUS RESOURCE

USE IT WISELY!

GET STARTED NOW!

- Toilet leaks can be silent! Be sure to test your toilet for leaks at least once a year.
- If your dishwasher is new, cut back on rinsing. Newer models clean more thoroughly than older ones.
- When you give your pet fresh water, don't throw the old water down the drain. Use it to water your trees or shrubs.
- Water only when necessary. More plants die from over watering than from under watering.

SAVE WATER

ONE DROP AT A TIME!

Diameter of Stream	Gallons
1/4" drip	1,181,500
3/16" drip	666,000
1/8" drip	296,000
1/16" drip	74,000

Waste Per Quarter at 60 PSI Water Pressure

2015 Drinking Water Quality

Anne Arundel County Department of Public Works' Bureau of Utility Operations is proud to present the 2015 Drinking Water Quality Report. In this report you will find information about the sources, treatment, and delivery of your drinking water. Additionally, this report contains important information about the quality of your drinking water. Inside you will find the results of water quality analyses performed throughout the year.

In 2015 Anne Arundel County collected 9,746 water samples and approximately 41,000 water quality analyses were performed. No water quality violations were found.

Anne Arundel County is committed to providing its citizens with drinking water that meets or exceeds all state and federal drinking water standards. As these standards and regulations evolve, we have strived to adopt new and better methods to deliver the best quality drinking water in the most cost-effective manner. We encourage you to take the time to read this report to learn more about the quality of your drinking water.

The Water Treatment Process

The County's public water system is divided into 8 water service areas, as is illustrated in the map inside of this report. All of the service areas receive drinking water produced at County water treatment facilities. Two of the service areas also receive drinking water that is purchased by the County from Baltimore City. The City facilities use surface water from reservoirs as a supply source. The County facilities only use ground water from wells as a supply source. Like the majority of the water utilities in the United States, Anne Arundel County uses a multi-step treatment process to ensure that the water delivered to our citizens is of the highest quality. Below is a brief description of the various steps in the water treatment process:

WELLS
Water is taken from underground wells (150-1,550 ft deep) in the Patapsco, Patuxent, and Aquia aquifers

→

AERATION
Once removed from the ground, water is then passed through large aerators to add oxygen and remove dissolved gasses

→

CHEMICAL ADDITION
Chemicals such as chlorine and lime are added to adjust the pH and to disinfect the water

↓

COAGULATION, FLOCCULATION, SEDIMENTATION
These processes remove solid particles such as iron

→

FILTRATION
Filtration further removes suspended matter by passing the water through filter media

→

FLUORIDE ADDITION
Fluoride is added to the water to aid in the prevention of tooth decay

↓

DISTRIBUTION
After undergoing the treatment process, finished water enters the distribution system. It is then delivered to over 112,000 homes and businesses throughout Anne Arundel County. The water distribution system is comprised of a network of over 1,400 miles of water mains. In addition to water mains, the distribution system consists of fire hydrants, valves, elevated storage tanks, and various other components that make it possible for the finished water to be delivered to the County's homes and businesses.

Disney Road Water Booster Station Limits Baltimore City Water Usage

Anne Arundel County has been purchasing finished drinking water from Baltimore City for over 45 years to serve the northern and western portions of Anne Arundel County. Since 2005 the cost of Baltimore City water has increased over 147% and is expected to increase by 382% in the next few years, while Anne Arundel County water rates have only increased by 49% in the same time period. To reduce costs and improve service, Anne Arundel County has implemented strategies to reduce its reliance on Baltimore City Water. In May of 2015 Anne Arundel County commissioned the Disney Road Water Booster Station in Severn, which pumps water from the Crofton Meadows II Water Treatment Plant to the Northwest and Western parts of Anne Arundel County including the communities of Jessup, Maryland City and Hanover and parts of the BWI service corridor. Since the start-up of this facility, Water Operations has reduced the use of Baltimore City Water while at the same time eliminating the use of other smaller Water Booster Stations.

Other strategies the County has implemented to reduce reliance on Baltimore City include increasing capacity at our Water Treatment Plants, commissioning a second large booster station in Arnold, and installing automatic control valves at key locations in the distribution system to be able to move water wherever it is needed in the system. These strategies not only reduce our water purchase expenditures, but they also reduce our energy and chemical costs. Currently, there are only two areas of Anne Arundel County served exclusively by Baltimore City including, Brooklyn Park and a small section near the Baltimore City line on Fort Smallwood Road. Capital projects are underway to give us the ability to move Anne Arundel County water to these locations.

Important Information from the EPA

Radium is a naturally occurring substance which, if exposed to acidic conditions (low pH), can leach into groundwater. The EPA has set maximum contaminant levels for radium that are based on lifetime exposure. The County and State monitor the public water system. Some people, who drink water containing combined radium in excess of the MCL over many years, may have an increased risk of getting cancer. However, the risk is very small.

Radon is a naturally occurring radioactive gas that may cause cancer, and may be found in drinking water and indoor air. The EPA advises that some people who are exposed to radon in drinking water may have an increased risk of cancer over the course of their lifetime, especially lung cancer. Radon in soil under homes is the biggest source of radon in indoor air, and a greater risk of lung cancer than radon in drinking water. For more information, call EPA's Radon Hotline (800-SOS-RADON) or visit www.epa.gov/radon. Testing has indicated that radon is not present the public water system at concentrations which would cause any health concerns.

Cryptosporidium is a microscopic parasite that may cause diarrhea, fever and gastroenteric disorders. Cryptosporidium may be found in drinking water that comes from surface water, not from underground aquifers. Baltimore City uses reservoirs and monitors its raw water sources for cryptosporidium. Samples were analyzed and determined to be free of viable organisms. The City protects its' reservoirs to prevent these organisms from entering the water supply.

Arsenic is a naturally occurring substance, which, if contained in drinking water, could increase the risk of serious health concerns such as circulatory problems. The current EPA level for this contaminant is 0.01 mg/l. Testing has indicated that there is no arsenic in the public water system.

Lead, when in elevated levels, can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials associated with service lines and home plumbing. The County is responsible for providing high quality drinking water, but cannot control the materials used in plumbing components. Testing shows that lead is not present in the public drinking water system at concentrations that would cause health concerns. Information on lead in drinking water, testing methods, and steps to minimize exposure is available from the EPA Safe Drinking Water Hotline at 1-800-426-4791 or at http://epa.gov/safewater/lead.

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.

Drinking water, including bottled water, may reasonably be expected to contain 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 at 1-800- 426-4791 or by visiting www.epa.gov/safewater.

Some people are more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as those with cancer, undergoing chemotherapy, those having 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 microbial contaminants are available from the Safe Drinking Water Hotline.

The sources of drinking water (both tap 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. Contaminants that may be present in source water include:

Microbial contaminants, such as viruses and bacteria, which may come from waste 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 runoff, industrial or domestic discharges, oil and gas production, mining or farming.

Pesticides & herbicides, come from a variety of sources such as agriculture, 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 can also come from gas stations, urban stormwater runoff, and septic systems.

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

Contact Us:

More information about the Department of Public Works can be found by visiting online:
www.aacounty.org/dpw

Important Phone #'s:

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**

EN ESPANOL: ESTE INFORME CONTIENE INFORMATION MUY IMPORTANTE. TRADUSCALO O HABLE CON UN AMIGO QUIEN LO ENTIENDA BIEN.

Information about your Water System

In addition to this annual report, information about your water system is on the Department of Public Works' internet site at www.aacounty.org/dpw. Additional informational materials may be obtained from the Public Works' Customer Relations staff by calling 410-222-7582.

All capital projects, which include improvements and/or additions to the water supply system, are included in the annual budget presented by the County Executive to the County Council each spring. Public hearings are held within the County and public comment is welcome.

The County also maintains a "Ten Year Master Plan for Water Supply and Sewage Systems". The County Budget and Master Plan can be reviewed at any branch of the County library. For information on the Master Plan, contact the Long Range Planning Section, Office of Planning and Zoning at 410-222-7432

Definitions of Terms Used in the Water Quality Data Table

Maximum Contaminant Level (MCL): Highest level of a contaminant allowed in drinking water. MCLs are set as close to MCLG's as feasible using the best available treatment technology.

Maximum Contaminant Level Goal (MCLG): Level of contaminant in drinking water below which there is no known or expected risk to health, MCLG's allow for a margin of safety.

Action Level: Concentration of a contaminant which, if exceeded, triggers a treatment or other requirement which a water system must follow.

N/A: Not applicable

ND: Not detectable at testing limit

NT: Not tested

ppm: Parts per million or milligrams per liter. One part per million is the equivalent of 1 cent in $10,000 or one minute in two years.

ppb: Parts per billion or micrograms per liter. One part per billion is the equivalent of 1 cent in $10,000,000 or one minute in two thousand years.

pCi/l: Parts per trillion or picocuries per liter (a measure of radiation)

NTU: Nephelometric turbidity units (a measure of water clarity)

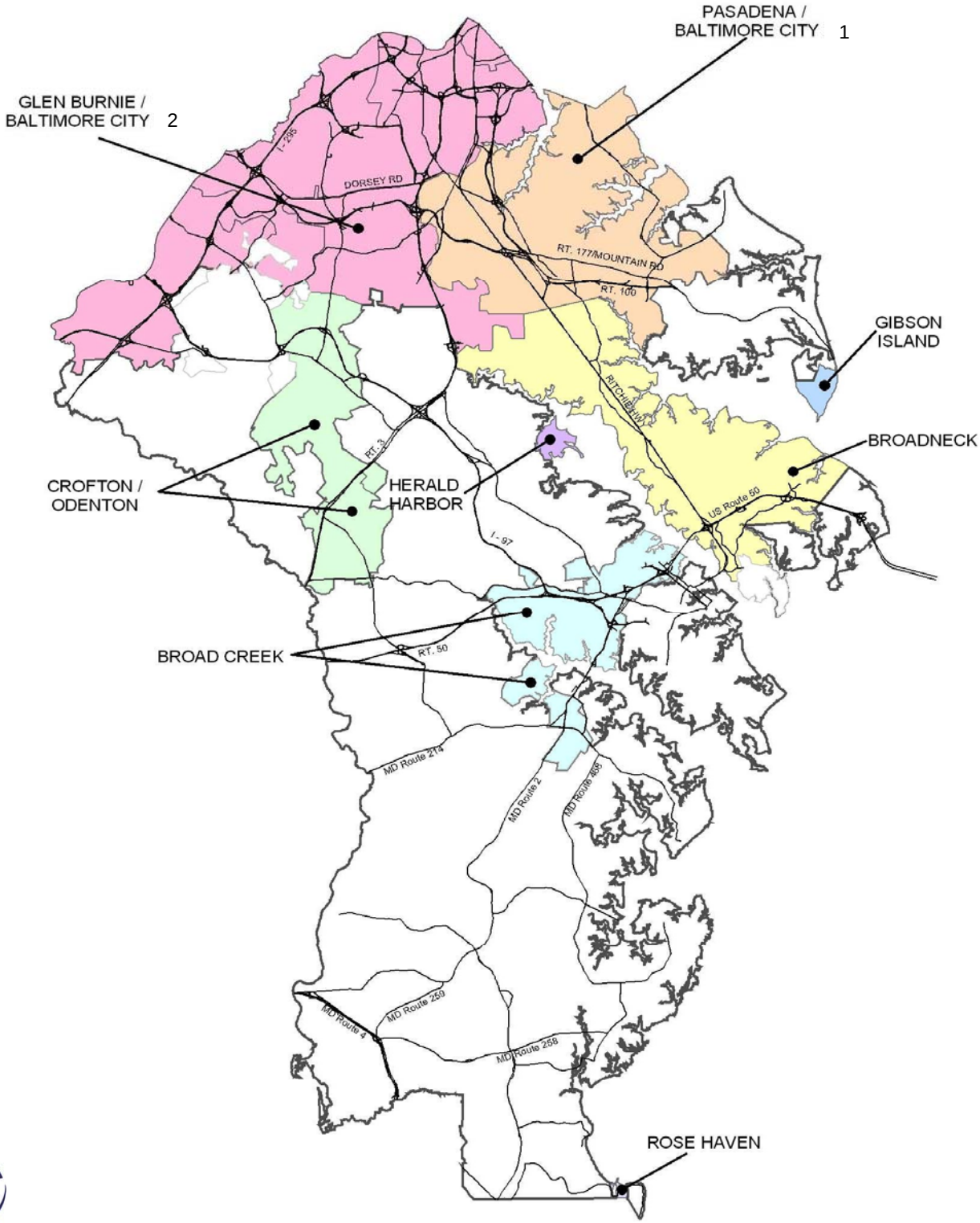
TT: Treatment technique, a required process intended to reduce the level of a contaminant in drinking water.

Anne Arundel County maintained approximately 1,400 miles of water mains in 2015!

Anne Arundel County Water Service Areas

Pasadena/Baltimore City # 1
Glen Burnie/Baltimore City # 2
Broadneck
Crofton/Odenton

Broad Creek
Gibson Island
Herald Harbor
Rose Haven



A Commitment to Excellence!

DRINKING WATER QUALITY DATA --- 2015

PARAMETER	UNITS	MAXIMUM CONTAMINANT LEVELS		GLEN BURNIE / BALTIMORE CITY #2 ZONE		PASADENA / BALTIMORE CITY #1 ZONE		BROADNECK ZONE		CROFTON / ODENTON ZONE		BROAD CREEK ZONE		GIBSON ISLAND ZONE		HERALD HARBOR ZONE		ROSE HAVEN ZONE		NOTES	TYPICAL SOURCES OF CONTAMINATION
		MCL	MCLG	highest level	range of detection	highest level	range of detection	highest level	range of detection	highest level	range of detection	highest level	range of detection	highest level	range of detection	highest level	range of detection	highest level	range of detection		
Microbiological Contaminants																					
	#	< 5% positive	0% positive	N/A	2.8%	N/A	2.8%	N/A	0%	N/A	0%	N/A	0%	N/A	0%	N/A	0%	N/A	0%	1	Naturally present in the environment.
Turbidity	NTU	TT	N/A	0.06	100%	0.25	100%	NT	N/A	NT	N/A	NT	N/A	NT	N/A	NT	N/A	NT	N/A	2	Soil run-off.
Radioactive Contaminants																					
Alpha Emitters	pCi/l	15	0	2	1 - 2	9.5	1.4 - 9.5	2	1 - 2	NT	N/A	NT	N/A	NT	N/A	NT	N/A	NT	N/A	3, 6	Erosion and/or decay of natural deposits.
Combined Radium	pCi/l	5	0	1	1 - 1	7.1	0.3 - 7.1	2	1 - 2	NT	N/A	0.2	0.2 - 0.2	1	1 - 1	NT	N/A	NT	N/A	3, 6	Erosion and/or decay of natural deposits.
Inorganic Contaminants																					
Arsenic	ppb	10	0	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	3	3 - 3	ND	N/A	1	1 - 1	3, 6	Erosion and/or decay of natural deposits.
Barium	ppb	2000	2000	20	7 - 20	40	25 - 40	61	15 - 61	12	12 - 12	34	34 - 34	19	19 - 19	7	7-7	68	68 - 68	6	Erosion and/or decay of natural deposits; discharge of drilling wastes; discharge from metal refineries.
Cadmium	ppb	5	5	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	6	Erosion and/or decay of natural deposits; corrosion of household plumbing systems, discharge from metal refineries.
Chromium-Total	ppb	100	0	0.1	0.1 - 0.1	0.3	0.3	0.3 - 0.3	ND - 0.1	0.1	0.1 - 0.1	0.1	0.1 - 0.1	2	2 - 2	2.3	2.3 - 2.3	6.80	6.8 - 6.8	7	Paint and welding industry
Fluoride	ppm	4	4	1.4	ND - 1.4	1.3	ND - 1.3	1.8	ND - 1.8	1.2	ND - 1.2	1.2	ND - 1.2	1.4	0.2 - 1.4	1.2	0.3 - 1.2	1.1	0.4 - 1.1		Erosion and/or decay of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories.
Nitrate	ppm	10	10	2.2	ND - 2.2	3	3 - 3	0.2	0.1 - 0.2	ND	N/A	ND	N/A	0.1	0.1 - 0.1	ND	N/A	0.10	0.1 - 0.1		Erosion and/or decay of natural deposits; leaching from septic tanks; sewage.
Lead (A)	ppb	AL = 15	0	ND	ND - 3	ND	ND - 3	ND	ND - 3	0.5	ND - 4.2	1.6	ND - 8.6	2.5	ND - 4.3	4.6	ND - 5	3.7	ND - 6.3	5, 6	Erosion and/or decay of natural deposits; corrosion of household plumbing systems.
Copper (B)	ppb	AL = 1300	1300	43	ND - 130	43	ND - 130	43	ND - 130	9.4	ND - 13.8	23.8	5.6 - 72.9	23	1.4 - 52.1	74.5	14.6 - 94	210	1 - 450	5, 6	Erosion and/or decay of natural deposits; corrosion of household plumbing systems.
Selenium	ppb	50	50	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A		Erosion and/or decay of natural deposits; discharge of drilling wastes; discharge from metal refineries.
Disinfection By-Products																					
Total Trihalomethanes (C)	ppb	80	N/A	57.8	0.6 - 90.9	3.7	0.8 - 4.9	ND	N/A	6.2	ND - 9.1	9.8	0.9 - 14.0	3.8	3.8 - 3.8	7.5	7.5 - 7.5	13.3	13.3 - 13.3	4, 6	By-product of drinking water treatment processes.
Total Haloacetic Acids (D)	ppb	60	N/A	44.8	ND - 55.4	1.3	ND - 2.9	ND	N/A	6.7	ND - 13.2	7.1	ND - 13.3	1.1	1.1 - 1.1	3.0	3.0 - 3.0	7.0	4.5 - 9.2	4, 6	By-product of drinking water treatment processes.
Volatile Organic Contaminants / Synthetic Organic Contaminants																					
Ethylbenzene	ppb	700	0	NT	N/A	2	2 - 2	NT	N/A	NT	N/A	NT	N/A	NT	N/A	NT	N/A	1.20	1.2 - 1.2	6	Used in the petrochemical industry & gasoline
Tetrachloroethylene	ppb	5	0	NT	N/A	2	2 - 2	NT	N/A	NT	N/A	NT	N/A	NT	N/A	NT	N/A	NT	N/A	6	Leaching from pvc pipes; discharge from factories and dry cleaners.
Unregulated Contaminants																					
Methyl-tert-butyl-ether	ppb	N/A	N/A	NT	N/A	0.6	0.6 - 0.6	NT	N/A	NT	N/A	NT	N/A	NT	N/A	NT	N/A	NT	N/A		Octane enhancer of fuel products.
Sodium	ppm	N/A	N/A	ND	N/A	6.9	6.9 - 6.9	9.1	2.8 - 9.1	3.6	3.6 - 3.6	4.9	4.9 - 4.9	ND	N/A	ND	N/A	7.4	7.4 - 7.4	6, 7	Naturally present in the environment; by-product of drinking water treatment processes.
Nickel	ppb	N/A	N/A	8	8 - 8	19	19 - 19	11	ND - 11	ND	N/A	11	11 - 11	7	7 - 7	30	30 - 30	ND	N/A	6	Erosion and/or decay of natural deposits; discharge of drilling wastes; discharge from metal refineries.
Chlorate	ppb	N/A	N/A	310	71 - 310	190	190 - 190	240	140 - 240	590	190 - 590	180	160 - 180	NT	N/A	NT	N/A	NT	N/A	7	By-product of drinking water treatment processes; discharge from manufacturing industry.
Cobalt	ppb	N/A	N/A	9.9	ND - 9.9	4	4 - 4	1.6	ND - 1.6	ND	N/A	ND	N/A	NT	N/A	NT	N/A	NT	N/A	7	Erosion and/or decay of natural deposits.
1,1-Dichlorethane	ppb	N/A	N/A	0.1	0.1 - 0.1	ND	N/A	ND	NA	ND	NA	ND	NA	NT	N/A	NT	N/A	NT	N/A	7	Discharge from factories and dry cleaners.
Strontium	ppb	N/A	N/A	76	13 - 76	47	47 - 47	68	12 - 68	34	17 - 34	20	18 - 20	NT	N/A	NT	N/A	NT	N/A	7	Erosion and/or decay of natural deposits.
Vanadium	ppb	N/A	N/A	1.4	ND - 1.4	0.2	0.2 - 0.2	2.2	ND - 2.2	0.4	0.2 - 0.4	ND	NA	NT	N/A	NT	N/A	NT	N/A	7	Erosion and/or decay of natural deposits.
Chloromethane	ppb	N/A	N/A	NT	N/A	2.2	2.2 - 2.2	NT	N/A	NT	N/A	NT	N/A	NT	N/A	NT	N/A	NT	N/A	6	Nature, petroleum industry and refridgerant.
o-Xylene	ppb	N/A	N/A	NT	N/A	2	2 - 2	NT	N/A	NT	N/A	NT	N/A	NT	N/A	NT	N/A	2	2 - 2	6	Plastic industry
m,p-Xylene	ppb	N/A	N/A	NT	N/A	2	2 - 2	NT	N/A	NT	N/A	NT	N/A	NT	N/A	NT	N/A	5.10	5.1 - 5.1	6	Plastic industry, assist with manufacturing plastic bottles.

Testing results from calendar year 2015 indicate that our system exceeded the (MCL) maximum contamination level for Trihalomethanes (TTHM) at one sampling location. The TTHM MCL is 80 ppb and the Hammonds Lane Booster site for the third quarter of 2015 was 90.9 ppb. TTHM's are a type of disinfection by- product that is formed when chlorine reacts with natural organic matter in the water. We are working to minimize the formation of TTHM while ensuring an adequate level of disinfection to protect consumers from exposure to bacteria. We have since taken samples at this location and throughout the system. They currently show that we meet required standards. Anne Arundel County has begun a Capital Project to upgrade and supply water to that part of the distribution system and by doing so , reduce the formation of TTHM's and Haloacetic Acid (HAA5) drastically. Currently, this part of this system is receiving water from Baltimore City

Testing results from calendar year 2015 indicate that our system exceeded the (MCL) maximum contamination level for Combined Radium at one location. The Combined Radium MCL is 5 parts per trillion (ppt) and the Elvaton Self Contained Well site for the second quarter of 2015 was 7.1 ppt. Combined Radium (226/228) is a natural occuring element found in nature. Anne Arundel County has invested large sums of money to upgrade the distribution system to supply water from facilities that meet EPA Standards continously , while leaving wells like Elvaton out of service. Elvaton only ran for the second quarter of 2015.

(A) MDE requires that the 90th percentile result for lead be recorded in the highest level column.
(B) MDE requires that the 90th percentile result for copper be recorded in the highest level column.
(C) MDE requires that the Locational Running Annual Average (LRAA) for Total Trihalomethanes be recorded in the highest level column.
(D) MDE requires that the Locational Running Annual Average (LRAA) for Total Haloacetic Acids be recorded in the highest level column.

Notes for the Data Table:

Note 1: The MCL and the MCLG for Total Coliforms is based on the percentage of positive coliform results in a given month. The MCL requires that less than or equal to 5% of the samples test positive. The percentage of positive sample results is shown in the range of detection column.

Note 2: Turbidity standards are based on a treatment technique and are only applicable to systems using surface water as a source. The maximum Turbidity allowed in a given month is 1 NTU, and 95% of the results must be less than 0.3 NTU. This % is indicated in the range of detection column.

Note 3: Compliance with the MCL for these contaminants is based on the average of four quarterly samples.

Note 4: The range of detection numbers represents individual analysis results, not an average. There were no MCL violations at any facility.

Note 5: Compliance with the MCL for Lead and Copper is based on the 90th percentile value of all analysis results. The number of sample results exceeding the MCL for these parameters is indicated in the range of detection column.

Note 6: Testing for some parameters is not required on an annual basis. Some results reflect the most recent testing between 2009 and 2014.

Note 7: Testing required by EPA to determine if an MCL/health standard should be set.

General Notes: *The drinking water was analyzed for more than 145 other parameters. These contaminants do not appear in the data table because they were not detected.

Postal
Permit

County Executive Steven Schuh

Anne Arundel County
Department of Public Works
Christopher Phipps, Director
Heritage Office Complex
2662 Riva Road
Annapolis, MD 21401-7374

Contact us:
Phone: 410-222-7582
Fax: 410-222-4374
E-mail: pwcust00@aacounty.org
Web site: www.aacounty.org/dpw

2015 Drinking Water Quality Report

A Message from the County Executive
June 2016

Dear Residents,

Every day County workers strive to make Anne Arundel County the best place to live, work and start a business in Maryland. One way our citizens can be assured that we are meeting our mission is in the quality of the drinking water that we produce through our state-of-the-art water treatment infrastructure. Over the past year, Anne Arundel County produced, treated, and delivered over 12 billion gallons of drinking water. After thousands of water quality tests performed in the 2015 calendar year I am pleased to announce that the County once again produced exceptional water and achieved perfect regulatory compliance.

The 2015 Drinking Water Quality serves as a report card demonstrating our performance to treat and deliver safe drinking water from its source to your tap. I encourage you to review this report to learn more about the important work taking place each day by our Department of Public Works employees to manage and maintain our public water infrastructure. These continued efforts protect our public safety, protect this valuable resource, and enable us to continue our long-standing record of exceeding all Federal standards for drinking water quality.
Sincerely,

Steve

Printed on recycled paper…
Please recycle this report…

County Executive Steven Schuh