Anne Arundel County
Drinking Water Quality Report

2014

WATER
Our Most Precious Resource
USE IT WISELY!

GET STARTED NOW !

- **Check faucets and pipes for leaks.**
- **Checking your toilets for leaks.**
- **Install water-saving shower heads and low-flow faucet aerators.**
- **Put plastic bottles or float booster in your toilet tank.**
- **Use your dishwasher and clothes washer for only full loads.**
- **Plant drought-resistant lawns, shrubs and plants.**
- **Use a broom, not a hose, to clean driveways and sidewalks.**

Waste Per Quarter at 60 PSI Water Pressure

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

Save Water
One Drop at a Time!

2014 Drinking Water Quality

Anne Arundel County Department of Public Works' Bureau of Utility Operations is proud to present the 2014 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 2014 Anne Arundel County collected 10,214 water samples and over 42,000 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.

Anne Arundel County maintained approximately 1,300 miles of water mains in 2014!

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 118,951 homes and businesses throughout Anne Arundel County. The water distribution system is comprised of a network of over 1,300 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.

2014 System Improvements - Gibson Island WTP

In keeping with the county's mission of providing clean, safe drinking water to its citizens, the following upgrades were made to the Gibson Island WTP during 2013 to 2014: (3) new high service pumps; (4) new pressure filters; (4) new filter control valves; a chemical building with related equipment replacement; a new generator with related electrical upgrades to include upgrades to the PLC/MCC; and upgrades to the mixing tanks.

The purpose of the recent upgrade to the Gibson Island Water Treatment Plant was to remove high concentrations of iron from the groundwater supplied from on-site wells but along the way, more changes were needed.

In addition, sodium hypochlorite is added in order to oxidize the iron and provide a disinfectant residual in the distribution system. Lime is also added to control the pH and then fluoride, which inhibits tooth decay

Since the original construction sixty years ago, the Gibson Island Water Treatment Plant has undergone numerous upgrades and expansions. Even with these changes, the overall treatment process has remained unchanged and consists of oxidation, chemical mixing/flocculation, sedimentation and lastly filtration.

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 provided in *"Customer Updates"* which are included in your utility bill, as well as comprehensive information 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.

Most printed informational materials are also available under the Customer Relations link on the web site. In addition, 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)

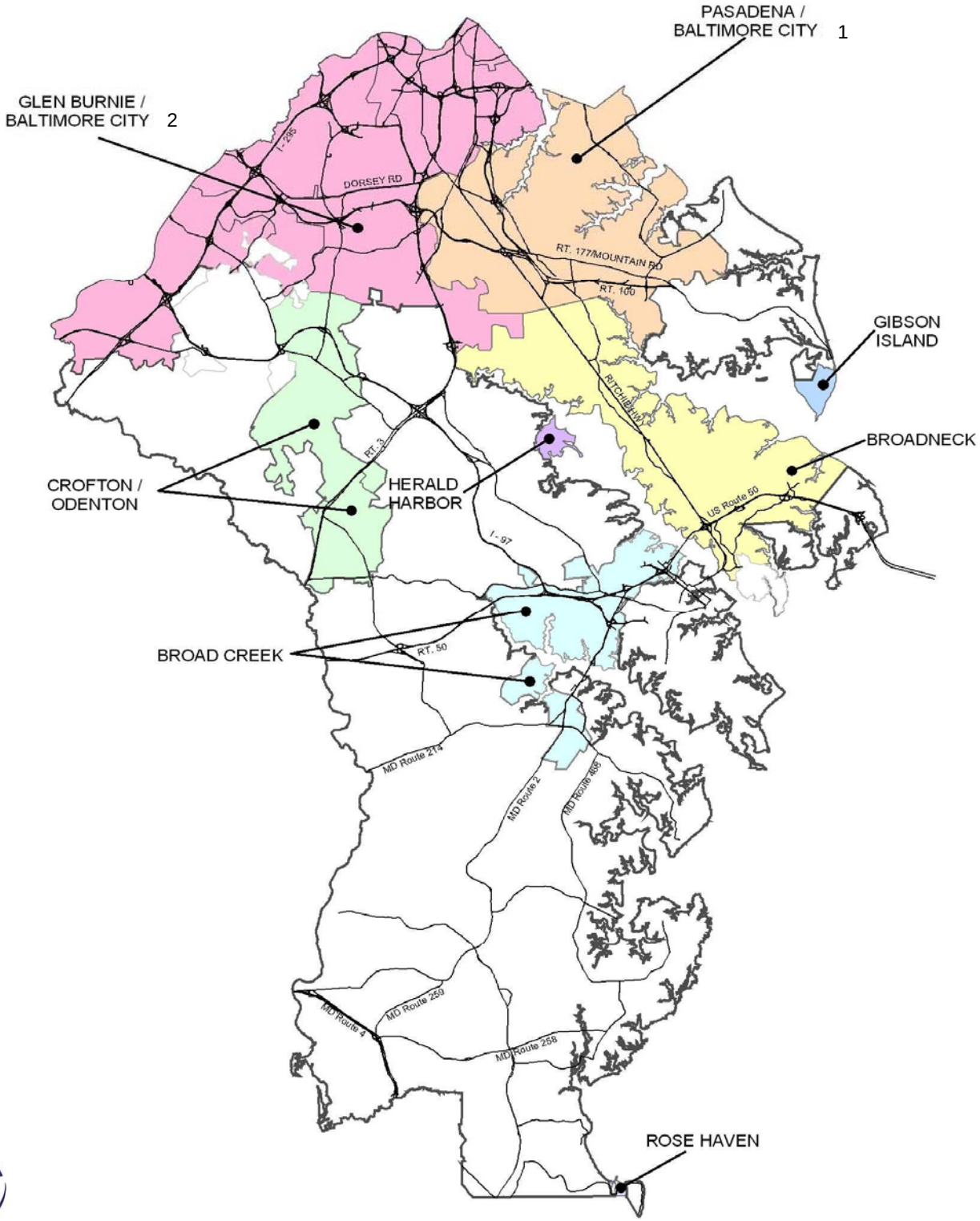
NTU: Nephelometric turbidity units (a measure of water clarity)

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

Anne Arundel County 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 --- 2014

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																					
Total Coliforms	#	< 5% positive	0% positive	N/A	4.6%	N/A	4.6%	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	0.1	100%	0.3	97%	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	3	1 - 3	21.5	2 - 21.5	2	1 - 2	NT	N/A	1	1 - 1	NT	N/A	ND	N/A	NT	N/A	3, 6	Erosion and/or decay of natural deposits.
Combined Radium	pCi/l	5	0	3	1 - 3	13.1	2 - 13.1	1	1 - 1	NT	N/A	1	1 - 1	NT	N/A	1	1 - 1	NT	N/A	3, 6	Erosion and/or decay of natural deposits.
Inorganic Contaminants																					
Barium	ppb	2000	2000	20	12 - 20	30	30 - 30	61	15 - 61	16	16 - 16	34	34 - 34	16	16 - 16	5	5 - 5	74	74 - 74	6	Erosion and/or decay of natural deposits; discharge of drilling wastes; discharge from metal refineries.
Cadmium	ppb	5	5	2	ND - 2	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.
Fluoride	ppm	4	4	1.5	0.1 - 1.5	1.6	0.1 - 1.6	1.4	ND - 1.4	1.1	ND - 1.1	NT	N/A	1.8	0.1 - 1.8	0.1	0.1 - 1.1	1.2	ND - 1.2		Erosion and/or decay of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories.
Nitrate	ppm	10	10	2.3	ND - 2.3	2.9	0.2 - 2.9	ND	N/A	ND	N/A	N/D	N/A	ND	N/A	ND	N/A	ND	N/A		Erosion and/or decay of natural deposits; leaching from septic tanks; sewage.
Lead	ppb	AL = 15	0	2	ND - 2.9	2	ND - 4.6	2	ND - 8.3	1	ND - 4.2	2	ND - 8.6	1	ND - 4.3	4.6	ND - 5	7.8	ND - 8.2	5, 6	Erosion and/or decay of natural deposits; corrosion of household plumbing systems.
Copper	ppb	AL = 1300	1300	150	ND - 300	150	ND - 300	150	ND - 300	9.4	ND - 13.8	23.8	ND - 73	15.9	ND - 52	74.5	ND - 94	230	ND - 250	5, 6	Erosion and/or decay of natural deposits; corrosion of household plumbing systems.
Selenium	ppb	50	50	ND	N/A	2	ND - 2	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	ppb	80	N/A	52.2	ND - 71.4	3.6	ND - 4.4	ND	N/A	4.7	ND - 7.5	7.8	ND - 10.1	3.0	2.0 - 4.9	0.5	ND - 2.5	11.8	8.0 - 14.7	4, 6	By-product of drinking water treatment processes.
Total Haloacetic Acids	ppb	60	N/A	33.3	ND - 42.4	ND	N/A	ND	N/A	0.6	ND - 1.1	1.9	ND - 2.2	ND	N/A	ND	N/A	6.7	4.5 - 9.2	4, 6	By-product of drinking water treatment processes.
Volatile Organic Contaminants / Synthetic Organic Contaminants																					
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	ND	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	2.9	2.7 - 2.9	12.3	5.5 - 12.3	2.8	2.8 - 9.1	4.4	4.4 - 4.4	4.9	4.9 - 4.9	4.5	4.5 - 4.5	4.2	4.2 - 4.2	9.0	8.0 - 9.0	6, 7	Naturally present in the environment; by-product of drinking water treatment processes.
Nickel	ppb	100	N/A	13	4 - 13	18	11 - 18	11	ND - 11	ND	N/A	11	11 - 11	NT	N/A	ND	N/A	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		
Chromium-6	ppb	N/A	N/A	0.1	0.1 - 0.1	0.1	0.1 - 0.1	0.1	ND - 0.1	0.1	0.1 - 0.1	0.1	0.1 - 0.1	NT	N/A	NT	N/A	NT	N/A		
Chromium-Total	ppb	N/A	N/A	ND	N/A	0.2	0.2 - 0.2	ND	N/A	ND	N/A	ND	N/A	NT	N/A	NT	N/A	NT	N/A		
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		
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		
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		
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		

Elevated radiation readings for the Pasadena/Baltimore City #1 zone was due to production wells being out of service for a period of nine months for the Harundale Water Treatment Facility. When wells were returned to service, for the second quarter of 2014, higher than normal readings were detected for a period of two days. The radiation readings returned to normal levels within a few days after the wells were placed back in service. At no time during this period was the public water supply at risk for public consumption.

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 2011 and 2013.

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

General Note: The drinking water was analyzed for more than 160 other parameters. These contaminants do not appear in the data table because they were not detected.

ANNE ARUNDEL COUNTY
MARYLAND

County Executive Steven Schuh

Postal
Permit

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

2014 Drinking Water Quality Report

A Message from the County Executive
June 2015

Dear Residents,

I am pleased to present the 2014 Drinking Water Quality Report and announce that the nearly 12 billion gallons of drinking water produced, treated, and delivered each year to residential and commercial customers in Anne Arundel County is clean and reliable. Please review this report and the important information regarding the thousands of water quality tests administered by the Department of Public Works Bureau of Utility Operations in the 2014 calendar year.

I encourage everyone living and working in our County to review this information to learn more about the quality of your drinking water and important work taking place each day by our DPW employees to manage and maintain our public water infrastructure. These efforts protect this valuable resource, protect our public safety, and enable us to continue our long-standing record of exceeding all Federal standards for drinking water quality and safety.

Sincerely,

Steve

Printed on recycled paper…
Please recycle this report…

County Executive Steven Schuh