



2009

Anne Arundel County Drinking Water Quality Report

2009 Performance

Anne Arundel County Department of Public Works' Bureau of Utility Operations is proud to present the 2009 Drinking Water Quality Report. Over the years, we have been dedicated to consistently providing drinking water that meets or exceeds all state and federal drinking water standards. As regulations and standards change and new challenges face the drinking water industry, we will continue to strive to adopt new and better methods to deliver the best quality drinking water to our customers in the most cost-effective manner.

In 2009, the drinking water provided by Anne Arundel County met all health and safety regulations. This report contains information about the sources, treatment and delivery of your drinking water, as well as the results of numerous tests performed throughout the year.



Lab Tech conducting a water quality analysis

We encourage you to take the time to read this report to learn more about the quality of your drinking water. Water treated and distributed by Anne Arundel County is continually monitored for quality by the County's state certified laboratory, the State and private laboratories. In 2009 approximately 10,067 water quality samples were collected and approximately 40,468 analyses performed for 142 parameters. There were no water quality violations (regulatory non-compliances).

2009 System Improvements

Each year, through the Capital Improvement Program, the County manages projects designed to improve the drinking water system by responding to and anticipating future growth, as well as preventing the deterioration of the County's



Crofton Meadows Water Treatment Plant

existing system. More than 25 projects at an estimated cost of over \$50 million are on-going at any time. Current projects in which design work has been completed include new elevated water storage tanks in the Elvaton, and Severn areas; design work is nearing completion on other elevated storage tanks, a new water booster pumping station in the Severn area, expansion of the Broad Creek WTP (Water Treatment Plant), and new water transmission mains.

During 2009, significant progress was made on two major construction projects, both of which involve the production capacity of water treatment plants. The Crofton Meadows WTP capacity is being tripled from 5 to 15 mgd (million gallons per day). The Arnold WTP capacity is being doubled from 8 to 16 mgd. The completion of these projects in late 2010 will greatly enhance the County's ability to produce a greater percentage of the drinking water supplied to our customers. Other ongoing projects include new or replacement wells, the cleaning and lining of existing distribution pipes, rehabilitation of water services, valves, fire hydrants, and other components of the water distribution system.

Information on 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. Other 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



Millersville Tank

A Leader in the Drinking Water Community

Anne Arundel County maintains active memberships in several national organizations related to drinking water systems, including:



- Association of Metropolitan Water Agencies
- American Water Works Association
- Water Research Foundation
- American Public Works Association

In addition, the County has been a major supporter of the annual Water and Wastewater Operators "Short Course" training sessions, which are attended by more than 250 utility employees in the Chesapeake region. The County regularly provides course coordinators and instructors on a volunteer basis to ensure the success of these courses.



Did you know that there are more than 14,000 fire hydrants in the Anne Arundel County water distribution system ?

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: 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.

Contact Us:

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

For more information about the Department of Public Works or to contact us by email, visit our website at:

www.aacounty.org/dpw

En Espanol: Este informe contiene information muy importante. Traduscalo o hable con un amigo quien lo entienda bien.



DRINKING WATER QUALITY DATA --- 2009																					
PARAMETER	UNITS	MAXIMUM CONTAMINANT LEVELS		GLEN BURNIE / BALTIMORE CITY #1 ZONE		PASADENA / BALTIMORE CITY #2 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	0.0%	N/A	0.8%	NA	0.0%	NA	0.0%	NA	0.0%	NA	0.0%	NA	0.0%	NA	0.0%	1	Naturally present in the environment.
Turbidity	NTU	TT	N/A	0.06	100%	0.27	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	4	1 - 4	3	1 - 3	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	3	2 - 3	4	1 - 4	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.
Inorganic Contaminants																					
Barium	ppb	2000	2000	20	12 - 20	40	18 - 40	32	6 - 32	16	16 - 16	11	11 - 11	9	9 - 9	6	6 - 6	70	70 - 70	6	Erosion and/or decay of natural deposits; discharge of drilling wastes; discharge from metal refineries.
Fluoride	ppm	4	4	1.4	0.0 - 1.4	1.7	0.0 - 1.7	1.7	0.0 - 1.7	1.3	0.0 - 1.3	1.4	0.5 - 1.4	1.5	0.0 - 1.5	1.9	0.3 - 1.9	1.4	0.0 - 1.4		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	0.6 - 2.2	2.5	1.5 - 2.5	0.2	ND - 0.2	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A		Erosion and/or decay of natural deposits; leaching from septic tanks; sewage.
Nickel	ppb	100	N/A	6	ND - 6	12	ND - 12	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; discharge of drilling wastes; discharge from metal refineries.
Lead	ppb	AL = 15	0	ND	1	ND	1	ND	1	ND	0	4	0	ND	0	ND	0	ND	0	5, 6	Erosion and/or decay of natural deposits; corrosion of household plumbing systems.
Copper	ppb	AL = 1300	1300	60	0	60	0	60	0	30	0	38	0	71	0	360	0	270	0	5, 6	Erosion and/or decay of natural deposits; corrosion of household plumbing systems.
Disinfection By-Products																					
Total Trihalomethanes	ppb	80	N/A	5.6	ND - 10.3	53.9	22.1 - 78	ND	N/A	3.5	0.7 - 7.9	2.6	1.1 - 3.1	1.4	ND - 3.8	4.2	ND - 11.3	14.7	10.4 - 19.4	4, 6	By-product of drinking water treatment processes.
Total Haloacetic Acids	ppb	60	N/A	4.1	ND - 10.5	44.6	34 - 58.1	ND	N/A	0.1	ND - 0.9	ND	N/A	ND	N/A	2.2	ND-3.3	10.4	8.1 - 13.3	4, 6	By-product of drinking water treatment processes.
Volatile Organic Contaminants / Synthetic Organic Contaminants																					
Tetrachloroethene	ppb	5	0	ND	N/A	2.1	ND - 2.1	ND	N/A	ND	N/A	NT	N/A	NT	N/A	NT	N/A	ND	N/A	6	Leaching from pvc pipes; discharge from factories and dry cleaners.
Unregulated Contaminants																					
Sodium	ppm	N/A	N/A	16.1	0.1 - 16.1	16.5	5.4 - 16.5	2.6	1.3 - 2.6	2.8	2.8 - 2.8	0.8	0.8 - 0.8	4.5	4.5 - 4.5	3.2	3.2 - 3.2	6.1	6.1 - 6.1	6, 7	Naturally present in the environment; by-product of drinking water treatment processes.
Sulfate	ppm	N/A	N/A	17.0	5.5 - 17.0	20.0	ND - 20	14.5	8.0 - 14.5	8.8	8.8 - 8.8	7.9	7.9 - 7.9	19.4	19.4 - 19.4	6.5	6.5 - 6.5	10.9	10.9 - 10.9	6, 7	Naturally present in the environment.

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 represent 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 2007-2009.

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 120 other parameters. These contaminants do not appear in the data table because they were not detected.

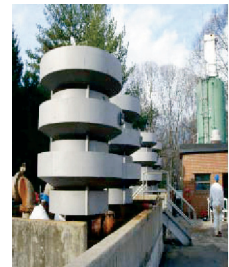
From the Ground to Your Glass: Water's Journey through the Treatment and Distribution Processes

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.

Water produced in the County is taken from deep wells (150-1,200 feet deep) in the Patapsco, Patuxent, and Aquia aquifers. 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:

The Water Treatment Process

1. **Wells-** Water is removed from deep underground aquifers by well pumps.
2. **Aeration-** Water is passed through large aerators to add oxygen and remove dissolved gasses.
3. **Chemical Addition-** Chemicals such as chlorine and lime are added to disinfect the water and to adjust the pH.
4. **Coagulation, Flocculation, Sedimentation-** These processes are used to remove solid particles from the water, such as iron.
5. **Filtration-** Further removal of suspended matter by passing the water through filter media.
6. **Fluoride Addition-** Fluoride is added to the water to aid in the prevention of tooth decay.
7. **Distribution-** After undergoing the treatment process, finished water enters the distribution system.



Aerator

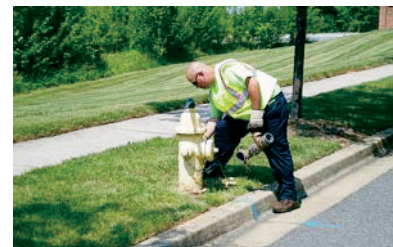
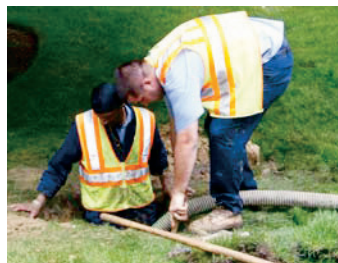
THE COUNTY'S WATER DISTRIBUTION SYSTEM

Once it leaves the treatment plant, finished water is pumped through the distribution system and is delivered to over 100,000 homes and businesses throughout the County. The water distribution system is comprised of a network of over 1,250 miles of water mains. In addition to water mains, the distribution system consists of fire hydrants, valves, elevated storage tanks, and various other components which make it possible for the treated water to be delivered to the County's homes and businesses.

Anne Arundel County takes pride in its efforts to maintain and repair the water distribution system so that citizens have a safe and reliable source of drinking water.



Employees work to repair a water line.



A water line is being flushed to clean out any sediment that has built up over time. This is part of the routine maintenance that Anne Arundel County performs to keep the water distribution system functioning at its highest level.



Learn more about...

Radium...

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...

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 the website at www.epa.gov/radon. Testing has indicated that radon is not present in the public water system at concentrations which would cause any health concerns.

Cryptosporidium...

Cryptosporidium is a microscopic parasite that may cause diarrhea, fever and related gastroenteric disorders in infected humans and animals. Cryptosporidium may find its way into drinking water that comes from surface water, such as reservoirs, rivers or lakes. Cryptosporidium is not a problem in drinking water taken from aquifers via deep wells. Since the source of drinking water from Baltimore City is reservoirs, the City monitors its raw water sources for cryptosporidium. Samples from the reservoirs were analyzed and determined to be free of viable organisms. The City protects its' water supply reservoirs to help prevent these organisms from entering the water supply.

Arsenic...

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 .01 mg/l. Testing has indicated that there is no arsenic in the public water system.

Lead...

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. Anne Arundel County is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. Testing has indicated that lead is not present in the public drinking water system at concentrations that would cause any health concerns. 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 drinking 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 EPA Safe Drinking Water Hotline at 1-800-426-4791 or at <http://epa.gov/safewater/lead>.

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 process, or the storage and 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. Source Water Assessments are in progress but have not yet been completed for all of the County's water systems.

Additional Information from the EPA

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 at 1-800-426-4791 or visiting www.epa.gov/safewater.

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 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 and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff and residential uses.

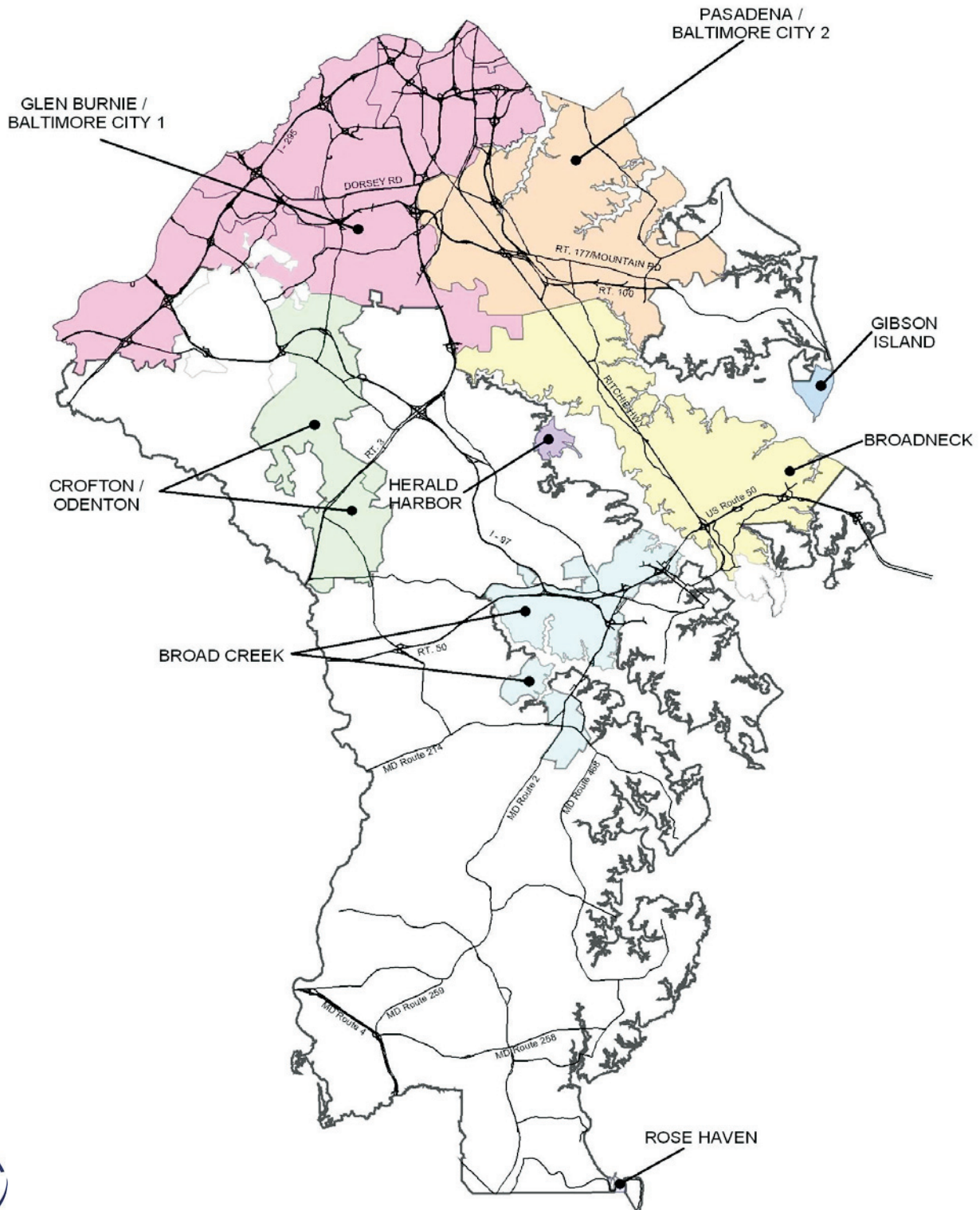
Organic chemical contaminants, Including synthetic and volatile organic chemicals, which are by products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.

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

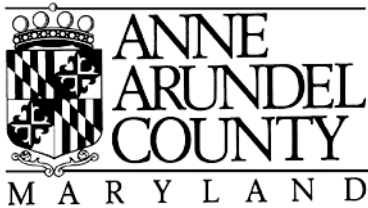
Anne Arundel County Water Service Areas

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

Broad Creek
Gibson Island
Herald Harbor
Rose Haven



A Commitment to Excellence!



Postal
Permit

County Executive John R. Leopold

*Anne Arundel County
Department of Public Works
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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*

2009 Drinking Water Quality Report

A Message from the County Executive June 2009

Dear Residents,

Anne Arundel County not only meets water quality standards, we exceed them. Clean and safe drinking water is an absolute must.

The 2009 Drinking Water Report includes our water quality testing results from the last calendar year. Year in and year out, Anne Arundel County has met or exceeded state and federal regulatory standards. Last year was no different.



To ensure our drinking water remains clean and safe, I will see that all necessary resources are provided to maintain and upgrade our water treatment system. Providing safe drinking water for the citizens of Anne Arundel County continues to be a priority of my Administration.

Please take time to read the important information.

Sincerely,

JOHN R. LEOPOLD
County Executive

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Please recycle this report...

