



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 (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 microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791.

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 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:

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 be the result of oil and gas production and mining activities.

Facts About...

Radium...

Radium is a naturally occurring substance which can, if exposed to acidic conditions (low pH), leach into groundwater. The EPA has set maximum contaminant levels for radium. The County monitors the public water system, and as in past years, the analysis results were within the acceptable levels set by the EPA.

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 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 web site at www.epa.gov/iaq/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 gastrointestinal 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 raw water sources 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 proposed EPA level for this contaminant is 10 mg/l. Testing has indicated that there is no arsenic in the public water system.

Lead...

The source of lead in drinking water is normally from leaching in individual home plumbing systems and not from source water, water treatment processes, or the water distribution system. Testing has indicated that lead is not present in the public water system at concentrations which would cause any health concerns.

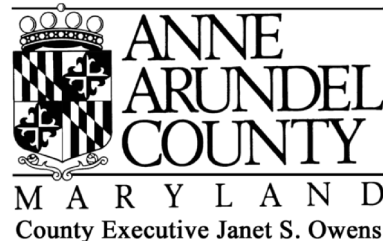
Contact us...

<i>24 Hour Emergency Hotline (from South County)</i>	410-222-8400
<i>Billing Office</i>	410-451-4118
<i>DPW Customer Relations</i>	410-222-1144
<i>DPW General Information</i>	410-222-7582
	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 informacion muy importante. Traduscalo o bable con un amigo quien lo entienda bien.



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Anne Arundel County Department of Public Works



2003 Drinking Water Quality Report

Anne Arundel County recognizes that water is a precious and essential resource and is committed to providing ample supplies of drinking water that is superior to state and federal water quality standards. Safe, reliable drinking water delivered by the Bureau of Utility Operations met all health and safety requirements in 2003. This report summarizes the sources, treatment, health considerations and test results regarding public drinking water in Anne Arundel County.

More than 11.0 billion gallons of drinking water were delivered to 400,000 customers in 2003. More than 9.1 billion gallons were treated and distributed after being taken from deep wells throughout the County. About 1.9 billion gallons were purchased from Baltimore City.

Your Drinking Water: Sources, Treatment, Distribution

The County's public water system consists of eight water service areas as seen on the map on page 2. Drinking water purchased from Baltimore City is surface water taken from reservoirs. Drinking water produced in the County is drawn from the Patuxent, Patapsco, or Aquia aquifers via deep wells ranging in depth from 150 to more than 1000 feet deep. These aquifers are underground sand layers through which water travels at a slow rate from the recharge area to the wells. The groundwater delivered by Anne Arundel County is typically treated at our treatment facilities by the following processes: aeration for oxidation of iron; chlorine addition for disinfection; lime addition for pH

adjustment; sedimentation for iron and particle removal; filtration for iron and particle removal, and fluoride addition to prevent dental decay. From the treatment plants, the treated or "finished" water enters the distribution system which contains more than 1,175 miles of water mains that deliver water directly to customers.

Testing

Water produced by the Department of Public Works' Bureau of Utility Operations is tested at our state certified laboratory. In addition, some complex water quality analyses are performed by the State of Maryland and private laboratories. These tests are performed to ensure that superior quality drinking water is consistently delivered to our customers. In 2003, more than 13,100 samples were collected and 45,500 analyses performed for approximately 130 parameters. This report summarizes the results of these tests, which we perform throughout the year to measure for both regulated and unregulated contaminants.

What is Anne Arundel County doing to improve our drinking water?

Every year, the county includes in its Capital Improvement Program, projects designed to improve production and distribution of drinking water by responding to and anticipating future growth as well as maintaining and/or replacing existing water infrastructure. Current significant initiatives include several transmission main projects that will build the infrastructure

to carry water from the Arnold water treatment plant north to the Sun Valley area where it can be distributed north and east throughout already existing infrastructure.

What is Anne Arundel County doing to remain a leader in the drinking water community?

Anne Arundel County's active membership in various professional water-related organizations keeps the county abreast of the best and most up-to-date industry practices. The County actively participates as a member of the following organizations:

*Association of Metropolitan Water Agencies (AMWA) works with large publicly owned drinking water systems that provide clean, safe drinking water to more than 110 million Americans. AMWA works with Congress and federal agencies to help ensure safe and cost-effective federal drinking water laws and regulations.

*American Water Works Association (AWWA) is a clearinghouse for information and expertise and an advocate for large water suppliers for public health and water quality issues. With its broad based knowledge and proven experience, AWWA, with its 56,000 members, acts as an advocate and voice for the drinking water community.

*American Water Works Association Research Foundation (AWWARF), is an international non-profit research organization whose mission is to enable water utilities and other profes-

2003 Drinking Water Quality Report

Water is a precious resource.
Please use it wisely!

A Message from the County Executive

Continuing Our Commitment to Excellence...

Greetings Anne Arundel County Public Water Customers,

I am once again proud to present your Annual Drinking Water Quality Report from the Department of Public Works (DPW). Over the years, the employees of DPW have dedicated themselves to delivering to our public water customers, an abundant supply of safe, healthy drinking water that meets all state and federal drinking water standards. We continually work to adopt new and better methods of delivering the best quality water to you. As technology advances, regulations and standards change, we are committed to remaining one of the leading public water systems in the nation.

This report is based on the results of our monitoring for the period of January 1, 2003 to December 31, 2003. The report reflects the outstanding efforts of our employees as they continue to strive for excellence. As new challenges to drinking water safety emerge, we will continue to be diligent in maintaining our objective to provide quality drinking water now and for future generations in an efficient and cost effective manner.

Please remember to teach your children to respect water as a precious resource. Water conservation is everyone's responsibility! I hope you enjoy this report and find it informative.

Sincerely,

Janet S. Owens
County Executive



sionals to provide safe and affordable drinking water to consumers.

*WaterISAC, is the primary source of sensitive information to support drinking water and wastewater utilities in an effort to protect critical water infrastructure.

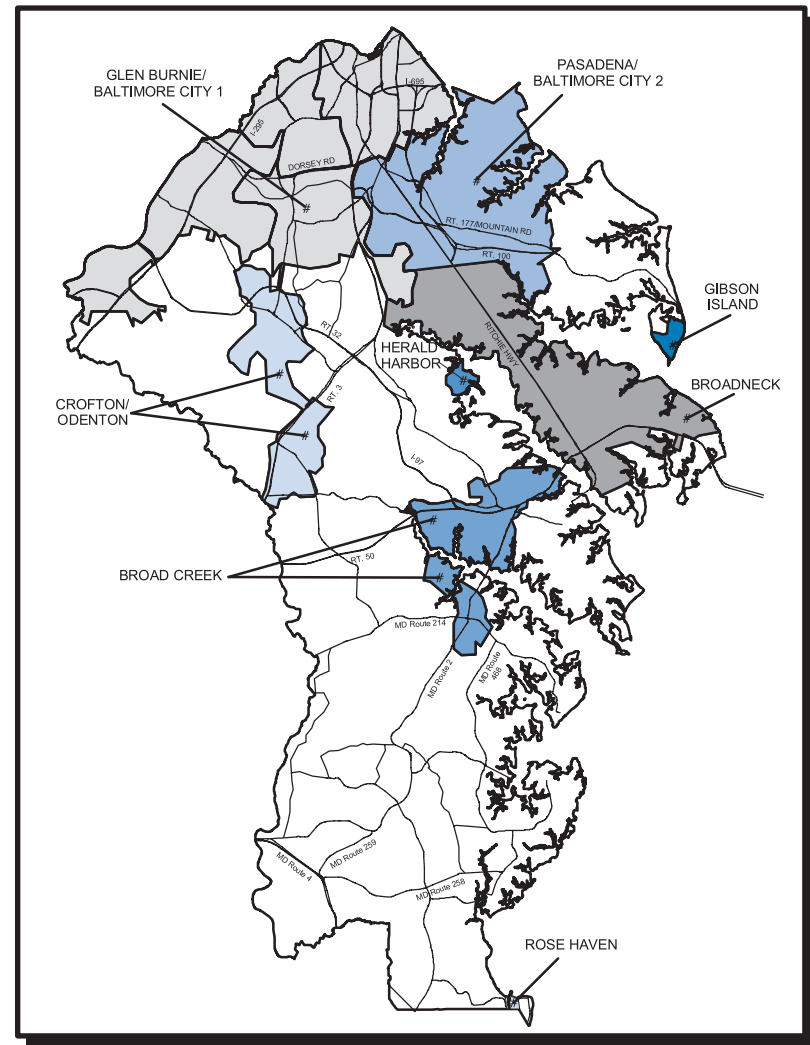
Where can I get more information on our public drinking water system?

The Customer Update newsletter, which contains news and information

on your public water and wastewater system, is enclosed in customers' quarterly bills. The Public Works' web page on the County web site, www.aacounty.org/dpw provides comprehensive information. Other informational materials are available from DPW Customer Relations at 410-222-7582. 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 advertised and conducted throughout the County. Public

comment is welcome. Copies of the budget are available for review on the County's web site at www.aacounty.org, at the County Council offices and local branches of the County library. The County also maintains a "Ten Year Master Plan for Water Supply and Sewage Systems." This plan can be reviewed at any branch of the County library or at the Office of Planning and Zoning at 2664 Riva Road, Annapolis, or by contacting the Long Range Planning Section at 410-222-7432.

Anne Arundel County Water Service Areas



Definitions of Terms Used in Water Quality Data Table

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

Maximum Contaminant Level (MCL) - highest level of a contaminant allowed in drinking water. MCLs are set as close to MCLGs as feasible using the best available treatment technology.

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)

mrems/l - millirems per liter (a measure of radiation)

NTU - nephelometric turbidity units (a measure of clarity)

TT - treatment technique, a required process intended to reduce the level of a contaminant in drinking water

DRINKING WATER QUALITY DATA - 2003

PARAMETER	UNITS	DRINKING WATER QUALITY DATA --- 2003																		NOTES	TYPICAL SOURCES OF CONTAMINATION
		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			
		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	0%	N/A	0%	N/A	0%	N/A	0%	N/A	0%	N/A	0%	N/A	0%	N/A	0%	N/A	1	Naturally present in the environment.
Turbidity	NTU	TT	N/A	0.17	100%	0.29	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	0.9-3.5	6	1.8-9.9	NT	N/A	NT	N/A	1	1.0-1.0	NT	N/A	1	1.0-1.0	3	ND-3.2	3, 5	Erosion and/or decay of natural deposits.
Beta Emitters	pCi/l	50	0	3	3.0-3.0	3	1.6-3.0	NT	N/A	NT	N/A	4	4.0-4.0	NT	N/A	3	3.0-3.0	7	7.0-7.3	3, 5, 8	Erosion and/or decay of natural deposits.
Combined Radium	pCi/l	5	0	3	1.2-2.7	5	2.9-9.1	NT	N/A	NT	N/A	NT	N/A	NT	N/A	NT	N/A	1	ND-1.2	3, 5	Erosion and/or decay of natural deposits.
Inorganic Contaminants																					
Barium	ppb	2000	2000	20	9-20	37	18-37	28	ND-28	19	19-19	10	10-10	5	5-5	3	3-3	7	7-7	5	Erosion and/or decay of natural deposits; discharge of drilling wastes; discharge from metal refineries.
Fluoride	ppm	4	4	1.60	0.25-1.60	1.55	ND-1.55	2.50	0.47-2.50	178	ND-1.78	1.40	0.61-1.40	2.10	0.58-2.10	1.80	0.95-1.80	0.50	0.26-0.50		Erosion and/or decay of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories.
Nitrate	ppm	10	10	2.03	0.34-2.03	2.31	1.21-2.31	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	2.20	ND-2.20		Erosion and/or decay of natural deposits; leaching from septic tanks; sewage.
Beryllium	ppb	4	4	0.5	ND-0.5	0.5	ND-0.5	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	5	Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense industries.
Lead	ppm	AL=15	0	ND	1	ND	1	ND	1	ND	0	ND	0	6	0	6	1	NT	N/A	4, 5	Erosion and/or decay of natural deposits; corrosion of household plumbing systems.
Copper	ppm	AL=1.3	1.3	0.07	0	0.07	0	0.07	0	0.07	0	0.14	0	ND	0	ND	0	NT	N/A	4, 5	Erosion and/or decay of natural deposits; corrosion of household plumbing systems.
Selenium	ppb	50	50	ND	N/A	ND	N/A	4	4-4	ND	N/A	4	4-4	ND	N/A	3	3-3	ND	N/A		Run-off from herbicide.
Disinfection By-Products																					
Total Trihalomethanes	ppb	80	N/A	28	ND-91	54	21-104	26	ND-72	2	ND-4	6	4-8	NT	N/A	NT	N/A	ND	N/A	3, 5	By-product of drinking water treatment processes.
Total Haloacetic Acids	ppb	60	N/A	29	2-65	28	2-69	NT	N/A	NT	N/A	NT	N/A	NT	N/A	NT	N/A	NT	N/A	3, 5	By-product of drinking water treatment processes.
Volatile Organic Contaminants / Synthetic Organic Contaminants																					
Tetrachloroethene	ppb	5	0	ND	N/A	2.8	ND-2.8	NT	N/A	ND	N/A	NT	N/A	NT	N/A	NT	N/A	NT	N/A	5	Leaching from pvc pipes; discharge from factories and dry cleaners.
Di(2-ethylhexyl)phthalate	ppb	6	0	2.94	ND-2.94	2.15	ND-2.15	NT	N/A	NT	N/A	NT	N/A	NT	N/A	NT	N/A	NT	N/A	5	Discharge from rubber and chemical factories.
Unregulated Contaminants																					
Radon	pCi/l	N/A	N/A	NT	N/A	NT	N/A	NT	N/A	NT	N/A	ND	N/A	ND	N/A	NT	N/A	171	165-171	6, 7	Erosion and/or decay of natural deposits.
Sodium	ppm	N/A	N/A	12.8	0.3-12.8	18.5	0.8-18.5	6.3	0.5-6.3	2.4	1.4-2.4	1.2	0.6-1.2	6.5	1.3-6.5	2.60	0.7-2.6	3.4	2.3-3.4	5, 6	Naturally present in the environment; by-product of drinking water treatment processes.
Sulfate	ppm	N/A	N/A	15.1	1.1-15.1	18.0	7.7-18.0	16.4	9.1-16.4	NT	N/A	8.9	8.9-8.9	18.1	18.1-18.1	7.4	7.4-7.4	8	8.0-8.0	5, 6	Naturally present in the environment.

TABLE NOTES:

Note 1: The "MCL" and "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 "highest level" 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 5 NTU, and 95% of the results must be less than 0.5 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. The "range of detection" numbers represent individual analysis results, not an average. There were no MCL violations at any facility.

Note 4: 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 5: Testing for some parameters is not required on an annual basis. Some results reflect the most recent testing between 2001 - 2003.

Note 6: Testing required by EPA to determine if an MCL/health standard should be set.

Note 7: Currently, there is no MCL for Radon. The proposed MCL is 300 pCi/l.

Note 8: EPA considers a level of 50 pCi/l equivalent to the actual MCL of 4 mrems/l.

General Note: The drinking water was analyzed for more than 100 other parameters. These contaminants do not appear in the data table because they were not detected.