STEPHANIE RAWLINGS-BLAKE
MAYOR

City of Baltimore
Annual Water Quality Report
Baltimore City Department of Public Works

BALTIMORE CITY DPW
DEPARTMENT OF PUBLIC WORKS
ALFRED H. FOXX
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Reporting Period: January 1, 2010 to December 31, 2010

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Important Health Information

Water systems that store finished drinking water in uncovered reservoirs are required to either cover these reservoirs or treat the discharge from them. The City currently has five uncovered finished water reservoirs: Towson, Montebello 2, Guilford, Druid Lake and Ashburton Lake. The first three of these reservoirs will be replaced by covered tanks, all of which are expected to be completed in 2013, 2014 and 2016 respectively. Druid and Ashburton Lakes will have post- treatment facilities in place by the end of 2018.

An uncovered reservoir used to store treated drinking water can be susceptible to contamination from animals, such as birds or insects. Inadequately treated water may contain disease-causing organisms including bacteria, viruses, and parasites that can cause such symptoms as nausea, cramps, diarrhea, and associated headaches. These symptoms are also caused by other factors.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised people such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants,

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Resource Protection and Recreation at Reservoir Watersheds

The City of Baltimore Reservoir Watersheds were established as a part of the municipal drinking water supply system in 1881 when the Gunpowder Falls was developed as a source of drinking water for the City. Since that time, Baltimore has expanded its system to maintain an ample supply of the highest quality water for treatment and distribution to 1.8 million people in the Baltimore Metropolitan area.

Baltimore City currently owns and manages approximately 24,580 acres of watershed property which includes the Liberty, Loch Raven and Prettyboy Reservoirs and 17,580 acres of forest buffer. These reservoirs store surface water from rainfall and snowmelt; the sources of our drinking water. The forests prevent erosion and runoff, support natural settling and biological processes that improve the quality of the stored water, and reduce treatment costs. For the natural purification to be effective the reservoirs' natural processes must be uninhibited, therefore it is essential to protect the water and the forest buffer from impacts that would adversely affect these natural processes.

The City of Baltimore also recognizes the value of the reservoirs and watershed lands for recreation and provides access to these areas through a system of watershed regulations. The regulations allow us to provide recreational opportunities to the public while minimizing negative impacts. These include limiting access and activities.

Although ***these lands are not parks*** and do not provide the same level of access that you may find on other public lands, the City does allow boating, fishing, hunting, biking, hiking, horseback riding, and picnicking on reservoir property. These activities are enjoyed by thousands of people each year and provide a unique opportunity to visit a natural setting close to the metropolitan area. ***Swimming is strictly prohibited.***

Watershed regulations allow rowing-type boats propelled by oars or battery-powered motors, canoes, kayaks and shells with the purchase of a boating permit issued by the City of Baltimore. Bank fishing is enjoyed by many along the shorelines but is not allowed in areas with steep slopes and rock cliffs.

Over 50 miles of designated woods roads provide a unique opportunity to explore the reservoir watersheds by bike. These also provide an opportunity for horseback riders looking to explore the watersheds. Horseback riders and bikers are restricted to the woods roads and are not allowed to ride when the roads are wet or muddy.

Hunters looking for opportunities close to home have access to the watersheds during Maryland's bow hunting season. Designated areas on each of the City watersheds provide a chance for sportsmen to hunt. This also helps the City manage its deer population and reduce browse pressure on the reservoir forest buffer.

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In order to provide accurate billing, water meters must be accessible.

Please do not obstruct your meter with vehicles, plantings or other items.

Do not pave over your meter. Call 410-396-5398 for help in locating your meter.

Thank you for your cooperation.

BALTIMORE CITY WATER QUALITY REPORT FOR 2010

In the year 2010, the City performed approximately 150,000 water quality analyses as part of a continuous effort to assure the water you drink meets or exceeds regulatory standards. The water is analyzed for over 90 different drinking water contaminants. A summary of the finished water quality results is provided below. The data represents the most recent testing done in accordance with the requirements of EPA's Water Testing Regulations and were the only regulated substances found in your drinking water. Baltimore City's excellent drinking water meets or exceeds all these standards.

TERMS AND ABBREVIATIONS — What They Mean in Plain English

Term / Abbreviation	Definition	What it Means
PPM	Parts per million	1 ppm is the same as one drop in 10 gallons of water.
PPB	Parts per billion	1 ppb is the same as one drop in 10,000 gallons of water.
HLD	Highest Level Detected	Same as defined.
MCL	Maximum Contaminant Level	The highest level of a contaminant allowed by health regulations established by the Environmental Protection Agency.
MCLG	Maximum Contaminant Level Goal	Health related goals. The MCL is set as close to this "goal" as possible but with consideration to achievability and cost.
NTU	Nephelometric Turbidity Units	Units of measurement used to report the level of turbidity or "cloudiness" in the water.
AL	Action Level	If the "Action Level" for a particular contaminant is exceeded, a response that may include additional treatment steps and/or public education may have to be initiated by the water system.
TT	Treatment Technique	A "Treatment Technique" is a required process that is intended to reduce the amount of a specific contaminant in drinking water.
pCi/L	picoCuries per Liter	A measure of the level of radioactivity in the water.
TURBIDITY	Relates to a condition where suspended particles are present in the water.	Turbidity measurements are a way to describe the level of "cloudiness" of the water.
TOTAL/FECAL COLIFORMS	Indicator Bacteria	Type of bacteriological tests routinely used to determine if contamination has occurred in a drinking water system.
MRDL	Maximum Residual Disinfectant Level	Disinfectant level beyond which some people may experience irritating effects. Based on running annual average of monthly averages of distribution system samples computed quarterly.

MICROBIOLOGICAL CONTAMINANTS

SUBSTANCE	MCLG	MCL	ASHBURTON PLANT	MONTEBELLO PLANTS	MAJOR SOURCES
TOTAL COLIFORMS	0	The presence of coliform bacteria in more than 5% of monthly samples will exceed the MCL.	Highest monthly percentage of positive samples: 0%	Highest monthly percentage of positive samples: 0%	Naturally present in the environment.
FECAL COLIFORMS and E. COLI	0	A routine sample and a repeat sample are total coliform positive, and one is also fecal coliform or E. Coli positive.	Highest monthly percentage of positive samples: 0%	Highest monthly percentage of positive samples: 0%	Human and animal fecal waste.

TURBIDITY

SUBSTANCE	MCLG	MCL	ASHBURTON PLANT		MONTEBELLO PLANTS		MAJOR SOURCES
TURBIDITY[1]	None	Treatment Technique (TT)	HLD	LOWEST %	HLD	LOWEST %	Soil run-off.
		Filtration	0.07 NTU	100	0.26 NTU	100	

1. Turbidity cannot exceed 1 NTU and must be less than or equal to 0.3 NTU in at least 95% of measurements taken each month. Lowest % is the lowest percentage of monthly filtered water turbidity samples less than 0.3 NTU.

ARSENIC RESULTS

SUBSTANCE	MCL	ASHBURTON PLANT	MONTEBELLO PLANTS	MAJOR SOURCES
ARSENIC	0.010 ppm	<0.002 ppm	<0.002ppm	Erosion of natural deposits.

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LEAD AND COPPER TESTING

Lead and copper testing was last required by regulatory standards in 2009. During that year, the testing involved 53 "tier 1" or high risks homes. To determine compliance, the 53 test results were arranged from the lowest value to the highest. The 90th percentile value is identified by: 53 x 0.9 = 47.7. Therefore, the 48th value, arranged from lowest to highest, must be below the "action level" for lead and copper. Our system met this compliance standard. Testing will be required again in 2012.

LEAD AND COPPER TESTING RESULTS (2009)

SUBSTANCE	ACTION LEVEL	90TH PERCENTILE	SAMPLE RESULTS GREATER THAN ACTION LEVEL
LEAD	15 ppb	7.6 ppb	2
COPPER	1,300 ppb	357 ppb	0

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. The City of Baltimore is responsible for providing high quality drinking water, but 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 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://www.epa.gov/safewater/lead."

INORGANIC CONTAMINANTS

SUBSTANCE	MCLG	MCL	ASHBURTON PLANT		MONTEBELLO PLANTS		MAJOR SOURCES
			HLD	RANGE	HLD	RANGE	
BARIUM	2 ppm	2 ppm	0.02 ppm	0.02 ppm	0.07 ppm	0.03 - 0.07 ppm	Discharge of drilling wastes & metal refineries; erosion of natural deposits.
NITRATE (AS NITROGEN)	10 ppm	10 ppm	2.40 ppm	1.61-2.40 ppm	3.00 ppm	1.02-3.00 ppm	Run-off from fertilizer use; leaching from septic tanks; erosion of natural deposits.

FLUORIDE

SUBSTANCE	MCLG	MCL	ASHBURTON PLANT			MONTEBELLO PLANTS			MAJOR SOURCES
			HLD	RANGE	AVERAGE	HLD	RANGE	AVERAGE	
FLUORIDE	4 ppm	4 ppm	0.97 ppm	0.88 - 0.97 ppm	0.92 ppm	1.31 ppm	0.37 - 1.33 ppm	0.96 ppm	Water additive that promotes strong teeth.

CHLORINE

SUBSTANCE	MRDLG	MRDL	RUNNING ANNUAL AVG. OF MONTHLY SAMPLES COMPUTED QUARTERLY	MAJOR SOURCE
CHLORINE	4 ppm	4 ppm	0.50 ppm (Based on 4,668 distribution system samples collected in 2010)	Water treatment additive to disinfect supply.

RADIOACTIVE CONTAMINANTS

SUBSTANCE	MCLG	MCL	ASHBURTON PLANT	MONTEBELLO PLANTS	MAJOR SOURCES
BETA PHOTON EMITTERS	0 mrem/yr	50 pCi/L*	<1.5 pCi/L	3+/-2 pCi/L	Erosion of natural deposits.
ALPHA EMITTERS	0 pCi/L	15 pCi/L	<1 pCi/L	1+/-1 pCi/L	Erosion of natural deposits.

*The MCL for Beta Photon Emitters is 4 millirems per year (a measure of radiation absorbed by the body). The EPA considers 50 pCi/l to be a level of concern for this contaminant.

VOLATILE ORGANIC CHEMICALS

SUBSTANCE	MCLG	MCL	ASHBURTON PLANT			MONTEBELLO PLANTS			MAJOR SOURCES
			HLD	RANGE	*AVERAGE	HLD	RANGE	*AVERAGE	
TOTAL THM'S	N/A[1]	80 ppb	63 ppb	19 - 63 ppb	38 ppb	78 ppb	20-78 ppb	40 ppb	By-product of drinking water chlorination.
HAA(5)	N/A[1]	60 ppb	67 ppb	5-67 ppb	37 ppb	89 ppb	22-89 ppb	44 ppb	By-product of drinking water chlorination.

1. Not applicable because there are individual MCLG's for individual THM's and HAA(5)'s. *The averages listed are running annual averages. Compliance is based on these values.

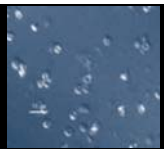
Cryptosporidium (crip-toe-spor-ID-ee-um) is a protozoan, a single-celled parasite that can invade and reside in the intestines of animals and people. This organism is found in some surface water (lakes, reservoirs, rivers, etc.) And also groundwater under the influence of surface water. Infection of healthy individuals by this organism can cause a gastrointestinal illness referred to as cryptosporidiosis (crip-toe-spor-id-ee-o-sis), which may produce symptoms including diarrhea, headache, abdominal cramps, nausea, vomiting and low-grade fever. The symptoms usually last one to two weeks.

For immunocompromised people, however, the infection can continue and last for several months. Because there are no effective medical treatments, prolonged infection can be fatal for severely immunocompromised individuals. Human transmission routes include ingestion of contaminated food or drinking water or through direct contact with fecal matter.

The City monitors its raw water sources for the presence of Cryptosporidium using the services of environmental laboratories employing the latest available and approved analytical methods.

CRYPTOSPORIDIUM RESULTS RANGE

Liberty: <0.1 - .1 Oocyst/Liter
Loch Raven: <0.1 - .1 Oocyst/Liter
Susquehanna River: <0.1 - .3 Oocyst/Liter



Microscopic view of Cryptosporidium oocysts

SECONDARY CONTAMINANTS

Sodium levels in the water supply are often of concern to consumers who contact our facilities. Sodium naturally occurs in raw waters but the concentration can be increased due to the influence of run-off from road surfaces treated with rock salt during snow and ice removal efforts. During the year 2010, the average sodium concentrations measured in the finished water from the Ashburton and Montebello Water Treatment Plants were 15.5 ppm and 16.1 ppm respectively and are considered low.

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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 healthcare providers. EPA/CDC guideline on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline at 1 (800) 426-4791. If you have specific health concerns, consult your doctor.

For questions or Customer Service call 311 in Baltimore City or 410-396-5352 outside Baltimore City.

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While the City does not provide restrooms or allow open flames, such as camp fires or charcoal grills, there are many places for visitors to picnic and relax enjoying the outdoor experience provided by the watershed properties. Many take advantage of the vistas and quiet beauty of the reservoirs to paint a picture or simply read while soaking in the natural world. We encourage you to read the watershed regulations on-line and to visit the reservoir watersheds to enjoy this wonderful resource.

Please remember that our reservoirs were established for the sole purpose of protecting our water supply. Protecting these lands is a full-time job for our team of Watershed Rangers, biologists and maintenance personnel. This must also be a priority for all of our visitors.

For more information: www.baltimorecity.gov or call 410-795-6151.

Thirteenth Annual Water Quality Report

This is the thirteenth edition of Baltimore City's Annual Water Quality Report that the Department of Public Works is pleased to make available to Baltimore's customers. This report for our Water System (PWSID#:0300002) contains information regarding the quality of the water you drink, as well as educational and important public health notices and contacts. The information in this Drinking Water Quality Report, covering the year 2010, is being provided to you in addition to other notices that may be required by law.

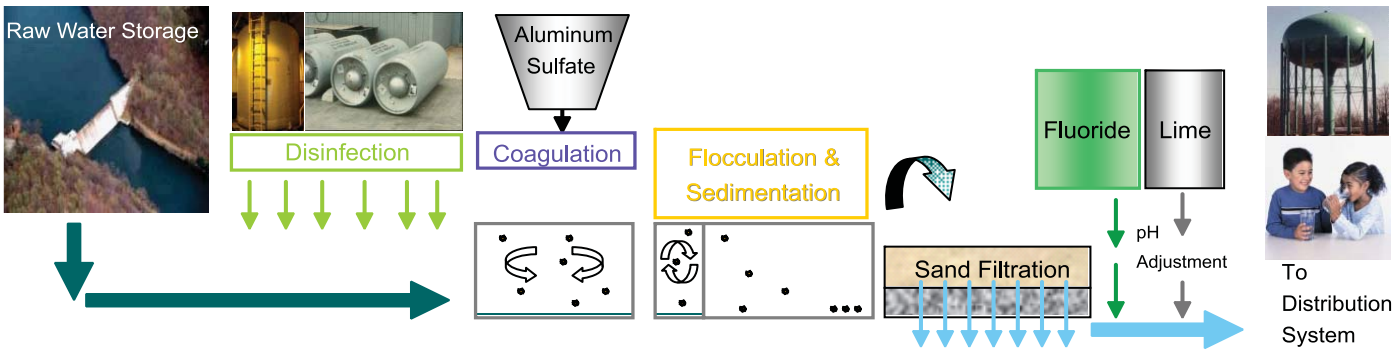
Questions about this report, questions about drinking water quality, or information on source water assessments and requests for additional copies should be directed to one of the City's Water Quality Laboratories (Ashburton - 410-396-0150 or Montebello - 410-396-6040).

We are pleased to inform you that tours of the treatment plants are again being offered; however, some restrictions may continue to be observed based on ongoing facility security requirements.

This report, along with more information about water quality, system history and common water quality concerns, can be accessed through the Baltimore City Department of Public Works' Web Site at: www.baltimorecity.gov

Baltimore's Water Treatment Process

When the water reaches the filtration plants, sufficient chlorine is added to kill many of the microorganisms that could otherwise potentially cause illness...



Consumers should be aware that drinking water, including bottled water, might reasonably be expected to contain at least small amounts of some contaminants.

How Can Impurities Get In the Water Supply?

As water travels over the surface of the land, it dissolves naturally-occurring minerals and can pick up substances resulting from the presence of animals or from human activity. Contaminants may include:

- *Viruses and bacteria that may come from sewage treatment plants, septic systems, live-stock, and wildlife*
- *Salts and metals that can be naturally-occurring or result from storm water runoff, wastewater discharges, and farming*
- *Organic chemicals that are by-products of industrial processes and petroleum production, agriculture, gas stations, storm water runoff, and septic systems*
- *Radioactive contaminants, which can be naturally occurring.*

In order to assure that tap water is safe to drink, the Environmental Protection Agency (EPA) sets regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration (FDA) regulations set limits for contaminants in bottled water that must provide the same protection for public health. Consumers should be aware that drinking water, including bottled water, might 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 (800-426-4791).

You Can Help with Water System Security

Water system security continues to be an enormously important issue. If you notice suspicious activities in or around local water utilities, such as persons cutting, or climbing facility fencing, loitering, tampering with equipment or other similar activities, please contact your local law enforcement agency immediately by dialing 911. For other suspicious activities that may appear non-threatening such as persons videotaping or photographing facilities, equipment or structures, please call 410-396-6762.