City of Baltimore Annual Water Quality Report

Baltimore City Department of Public Works

Sheila Dixon, Mayor **George L. Winfield, Director**

Reporting Period: January 1, 2006 to December 31, 2006

INSIDE THIS ISSUE:

Major Improvements to your Drinking Water	1
Upgrades to Montebello	1
2006 Water Quality Testing Results	2 - 3
Residuals Removal	4
You Can Help With Water System Security	4

Ninth Annual Water Quality Report

This is the ninth 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 2006, is being provided to you in addition to other notices that may be required by law.

Questions about this report 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 also wish to take this opportunity 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:

http://www.baltimorecity.gov/

MAJOR IMPROVEMENTS TO OUR ASHBURTON FACILITY!

Ashburton Filtration Plant Renovations

Baltimore City's Department of Public Works (DPW) is making major improvements to the Ashburton Water Treatment Plant. The plant's conventional sand filters are being replaced with more efficient, deep bed dual media filters. This project is 83% complete and on schedule to be finished in July, 2008. This work includes complete renovation of the water treatment processes and improvements to the plant's structural, mechanical, electrical and architectural components.

The rehabilitation work of the 20 sand filters and associated components will significantly enhance water quality and contribute to higher performance of the system's process. This work includes, but is not limited to, structural repairs and modifications of the existing concrete filter cells and backwash channels, replacement of underdrain and filter media, and repairs and replacement of filter piping, valves and flow control gates. Additional work includes replacing the backwash system, installing a new filter control system and removing lime deposits from the clearwell.

Final improvements involve revamping the chemical application system which entails improving the existing feed systems for aluminum sulfate (for water clarification), dry lime (for corrosion prevention) and fluoride (to prevent tooth decay).

Ashburton Plant is indispensable for maintaining a continuous supply of the highest quality water to the Baltimore metropolitan water system's 1.8 million consumers. During the course of this project, the Ashburton Water Treatment Plant is being kept operational at all times.

UPGRADES TO MONTEBELLO PLANTS I AND II

Filter Control Improvements

DPW has undertaken a comprehensive project to upgrade filter valve controls, instrumentation, electrical and mechanical systems, and other components associated with filter operations.

In this work, filter actuators were replaced, electrically actuated solenoid valves were installed, the electric supply was upgraded to a more reliable electric power service, and instrumentation and control equipment was refurbished or replaced.

The completion of this contract allows operations personnel to better monitor filter performance, optimize production, and improve data recording and analysis.

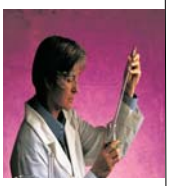
Montebello Filtration Improvements

The work under this on-going project includes: refurbishing three filters at Plant-II, replacing surface wash water supply piping, replacing and/or upgrading heating, ventilation and exhaust systems in both plants, and replacing chemical delivery and supply piping and the dry chemical dust collection system.

After completion of this project, the City will be in a position to utilize the plant's full capacity to continually meet system-wide water supply demands.

BALTIMORE CITY WATER QUALITY REPORT FOR 2006

During 2006, the City performed approximately 150,000 water quality analyses...



Coliform bacteria indicate the potential presence of disease-causing organisms

Turbidity measurements are a way to describe the level of "cloudiness" of the water

Lead and Copper Testing was last required in 2006. That evaluation involved 53 "tier 1" or high risk homes.

During 2006, 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 represent 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.

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
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 PLANT	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	HLD	LOWEST %	HLD	LOWEST %	*Soil run-off.*
		Filtration	0.14 NTU	100	0.28 NTU	100	

1. Turbidity cannot exceed 1 NTU and must be less than or equal to 0.30 NTU in at least 95% of measurements taken each month. Lowest % is the lowest percentage of monthly filtered water turbidity samples less than 0.30 NTU.

LEAD AND COPPER TESTING

Lead and copper testing was last required by regulatory standards in 2006. 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.

LEAD AND COPPER TESTING RESULTS (2006)

SUBSTANCE	ACTION LEVEL	90TH PERCENTILE	SAMPLE RESULTS GREATER THAN ACTION LEVEL
LEAD	15 ppb	12 ppb	3
COPPER	1,300 ppb	209 ppb	0

To minimize your exposure to lead and copper, if the tap has not been used for several hours, it is recommended that you flush your tap for at least 30 seconds before using water for drinking or cooking and don't consume hot water from the tap. To conserve water, consider keeping a container of drinking water in your refrigerator.

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	0.03 ppm	0.02 - 0.03 ppm	*Discharge of drilling wastes & metal refineries; erosion of natural deposits.*
NITRATE (AS NITROGEN)	10 ppm	10 ppm	1.99 ppm	1.45 - 1.99 ppm	2.38 ppm	1.02 - 2.38 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	2.26 ppm	0.10 - 2.26 ppm	0.99 ppm	1.41 ppm	0.00 - 1.41 ppm	0.90 ppm	*Water additive that promotes strong teeth; erosion of natural deposits.*

CHLORINE

SUBSTANCE	MRDLG	MRDL	RUNNING ANNUAL AVG. OF MONTHLY SAMPLES COMPUTED QUARTERLY	SOURCE
CHLORINE	4 ppm	4 ppm	0.50 ppm (Based on 4,929 distribution system samples collected in 2006).	*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*	3+/-2 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 CONTAMINANTS

SUBSTANCE	MCLG	MCL	ASHBURTON PLANT			MONTEBELLO PLANTS			MAJOR SOURCES
			HLD	RANGE	*AVERAGE	HLD	RANGE	*AVERAGE	
TOTAL THM'S	N/A[1]	80 ppb	95 ppb	15 - 95 ppb	43 ppb	85 ppb	18-85 ppb	45 ppb	*By-product of drinking water chlorination.*
HAA(5)	N/A[1]	60 ppb	71 ppb	3-71 ppb	34 ppb	106 ppb	2-106 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.*

Chlorine's reaction with decomposing vegetation - such as leaves can result in by-product formation

Important Health Information

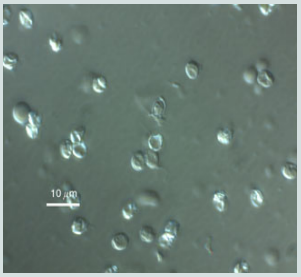
Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised people such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly citizens and infants can be particularly at risk from infections. These people should seek advice about drinking water from their healthcare 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 (800-426-4791).

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.

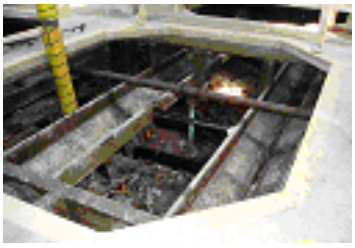
For immunocompromised people, however, the infection can continue and last for several months. Because there are no effective medical treatments, prolonged infection can be fatal for severely immunocompromised individuals. Human transmission routes include ingestion of contaminated food or drinking water or through direct contact with contaminated 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. Analyses for cryptosporidium performed in the year 2006 on water samples obtained from each of the City's raw water sources (see page 4 of this report) showed an average of <0.075 cryptosporidium oocyst / Liter.

Microscopic view of Cryptosporidium oocysts

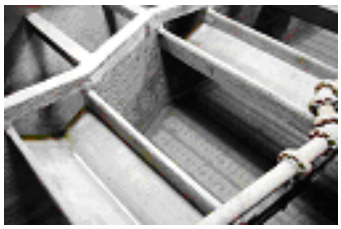


Lake Montebello Residuals Removal



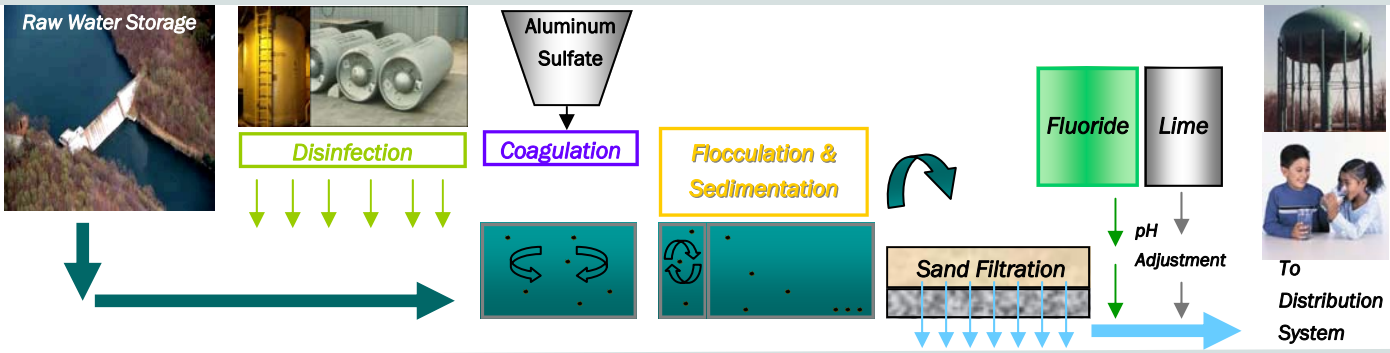
The City of Baltimore has successfully completed the removal and disposal of over 25,000 tons of residuals from Lake Montebello and 7,300 tons from the Montebello wash water lake. With the involvement, cooperation and full consultation of neighboring community associations and citizens, it was possible to reclaim the beauty and the charm of this important landmark.

This work consists of dredging and removing residuals, improving the site and lake perimeter, and restoring lake storage capacity. The resurfacing of Curran and Whitman Drives will be completed this spring.



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...



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 facilities such as persons cutting or climbing utility 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.

We Love our Water and So Does Men's Health Magazine

According to a study in the March 2007 edition of Men's Health, Baltimore, along with 10 other major cities, scored an ***" A", placing it in the top tier for having the best drinking water in the country.*** *According to the study, all 100 ranked cities had perfectly safe drinking water, but, not-surprisingly to us,* ***Baltimore's water is among the very, VERY best.***

The ranking is based on recent data regarding levels of arsenic, lead, haloacetic acids and total trihalomethanes, and total coliform bacteria, as well as the number of EPA violations for each water system from 1995 to 2005. The article points out that the nation's "water supply is generally first rate," and that "all the water supplies came in below the EPA's Maximum Contaminant Levels (MCLs)..."

The magazine also notes that consumers should be wary of disreputable water-testing companies trying to sell you a product because your "water might be contaminated." WE know better!