City of Baltimore Annual Water Quality Report

Baltimore City Department of Public Works

Mayor Sheila Dixon **Shirley A. Williams, Acting Director**

Reporting Period: January 1, 2007 to December 31, 2007

INSIDE THIS ISSUE:

Tenth Annual Water Quality Report

This is the tenth 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 2007, 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 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: http://www.baltimorecity.gov

City of Baltimore Water Management: Saving Every Drop of Water

Water Supply Management

The City of Baltimore water supply system consists of three major sources: the Gunpowder Falls, North Branch Patapsco River and the Susquehanna River.

The Gunpowder Falls has a watershed area of 303 square miles supplying the Loch Raven and Prettyboy Reservoirs. The storage capacity of Loch Raven and Prettyboy Reservoirs is 23.7 and 19.7 billion gallons (BG) respectively. Prettyboy is located upstream of Loch Raven and its primary function is to replenish Loch Raven Reservoir.

Prettyboy Reservoir

Loch Raven Reservoir

Liberty Reservoir, on the North Branch Patapsco River, has a watershed of 164 square miles and holds 43 BG of water. It exclusively supplies the Ashburton Water Filtration Plant.

The Susquehanna River is used as an alternate source of supply during drought conditions.

Liberty Reservoir

Susquehanna River

The Water Filtration Plants

The City operates three water filtration plants to meet current and future demands of the metropolitan area's 1.8 million consumers.

Montebello Plants I and II are normally supplied by the Gunpowder Falls Reservoirs. Water from Loch Raven flows by gravity to the Montebello plants through a 12' tunnel. The capacity of Plant I is 128 million gallons per day (MGD) while Plant II is rated at 112 MGD.

In times of drought, the Deer Creek Pumping Station supplements Loch Raven by pumping water from the Susquehanna 37 miles through a 9' transmission main to Montebello.

The third filtration plant, Ashburton, located on the west side of the City, is supplied by Liberty Reservoir through a 10' wide tunnel 13 miles long. This plant can treat up to 165 MGD.

The City's water supply system must not only meet everyday water demands but also the maximum projected needs of consumers. The combined safe treatment capacity of the three plants is well over 300 MGD in warmer weather.

Coping with Dry Weather

With severely reduced rainfall in the mid-Atlantic region since 2007, and in an effort to avert possible water shortages in the summer of 2008, the City began using the Susquehanna as a source of raw water in mid-December. Initial withdrawal was 50 MGD and the City increased its draw to over 90 MGD in mid-January.

The Susquehanna supply enabled the Montebello plants to maintain current production levels while at the same time preserving storage at Loch Raven and Prettyboy Reservoirs. It also made it possible to reduce output at Ashburton, further conserving supply at Liberty Reservoir.

Reaping the Benefits of Conservation

The City's proactive management of its raw water system is well worth the effort to help its usual supply sources recover in a timely manner. As of February 20, 2008 since switching to the Susquehanna, Prettyboy Reservoir has recovered 9.24 feet which represents 3.36 billion gallons. In spite of a daily draw-down of 70 MG for blending needs with the Susquehanna water, the Loch Raven Reservoir gained more than 4 feet in elevation which is equivalent to 2.9 BG in storage or an uninterrupted supply of 12 days to the Montebello plants. Liberty Reservoir also gained 4.35 feet in elevation (3.3 billion gallons), in spite of withdrawing 64 MGD for Ashburton.

The Citizens Part: How Can You help?

Residents and businesses in the surrounding area are urged to do their part to conserve water. This is the most cost-effective and environmentally friendly way to reduce demand. For tips and techniques on how to use water wisely, go to: www.mde.state.md.us/Programs/WaterPrograms/Water_Conservation/index.asp.

BALTIMORE CITY WATER QUALITY REPORT FOR 2007

During 2007, 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 PLANTS	MAJOR SOURCES
TOTAL COLIFORMS	0	< 5% of monthly samples positive	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	0.08 NTU	100	0.47 NTU	95.7	

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 ush 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.

ARSENIC RESULTS

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

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	0.04 ppm	<0.02 - 0.04 ppm	Erosion of natural deposits.
NITRATE (AS NITROGEN)	10 ppm	10 ppm	2.23 ppm	1.22 – 2.23 ppm	2.59 ppm	1.03 – 2.59 ppm	Run-off from fertilizer use; Leaching from septic tanks, sewage; 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	1.27 ppm	<0.1 – 1.27 ppm	0.99 ppm	1.50 ppm	<0.1 – 1.50 ppm	0.88 ppm	Water additive which promotes strong teeth.

CHLORINE

SUBSTANCE	MCLG	MCL	RUNNING ANNUAL AVG. OF MONTHLY SAMPLES COMPUTED QUARTERLY	MAJOR SOURCES
CHLORINE	4 ppm	4 ppm	0.56 ppm (Based on 4,667 distribution system samples collected in 2007)	Water additive for disinfection.

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 PCil/L	<1 pCi/L	1+/-1 pCi/L	Erosion of natural deposits

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	81 ppb	22 - 81 ppb	42 ppb	67 ppb	23-67 ppb	42 ppb	By-product of drinking water chlorination.
HAA(5)	N/A[1]	60[2] ppb	68 ppb	11-68 ppb	35 ppb	60 ppb	11-60 ppb	40 ppb	By-product of drinking water chlorination.

1. Not applicable because there are individual MCLGs for individual THMs and HAAs.
2. MCL under Stage 2 Disinfectants and Disinfection Byproducts Rule (D/DBP Rule). Compliance required by January 2006., Compliance is based on running annual averages.
3. Lead & Copper Testing performed in 2006 and required again in 2009.
4. 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.
5. The City of Baltimore failed to submit a February filter excursion report, as required, by March 10,2007. On February 14,15,and 16, the ef uent turbidity at six Montebello Plant #1 filters exceeded 0.5 NTU in between two and five consecutive readings taken 15 minutes apart. Cold weather and unusually windy conditions may have contributed to the elevated turbidity during these three days.

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).

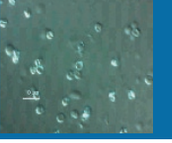
CRYPTOSPORIDIUM RESULTS

Liberty: 0.0 Oocyst/Liter

Loch Raven: 0.09 Oocyst/Liter

Susquehanna River: 3.0 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 in uence of run-off from road surfaces treated with rock salt during snow and ice removal efforts. During the year 2007, the average sodium concentrations measured in the finished water from the Ashburton and Montebello Water Treatment Plants were 14.4 ppm and 17.0 ppm respectively and are considered low.

City takes steps to conserve reservoir water

Acting Director Williams urges those who receive water bills from Baltimore City to voluntarily reduce water use by 5%. Ms. Williams stated: "This is by no means a water emergency. We are basically conserving some of our reservoir water and using the Susquehanna while the river is running high. The water quality is excellent. By doing this we hope to avoid shortages come warm weather, and all citizens can help by using water wisely."

Water is our most vital resource and here are a few tips to conserve every day:

- Do not take extended showers. Even a one or two minute reduction can save up to 700 gallons per month.
- Only use washing machines when you have full loads.
- Wipe rather than rinse dinnerware before placing in the dishwasher. Fill the dishwasher before running it.
- Don't defrost frozen foods with running water. Place frozen items in the refrigerator overnight or defrost them in the microwave.
- Do not continuously run the water when shaving or brushing your teeth.
- Fix leaks around your home and business.
- For more ways to conserve go to: http://www.mde.state.md.us/Programs/WaterPrograms/Water_Conservation/index.asp

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, livestock and wildlife; salts and metals that can be naturally-occurring or result from storm water run-off, wastewater discharges, and farming; organic chemicals that are by-products of industrial processes and petroleum production, agriculture, gas stations, storm water run-off and septic systems and 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 these waters pose 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).

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

Conserve today...

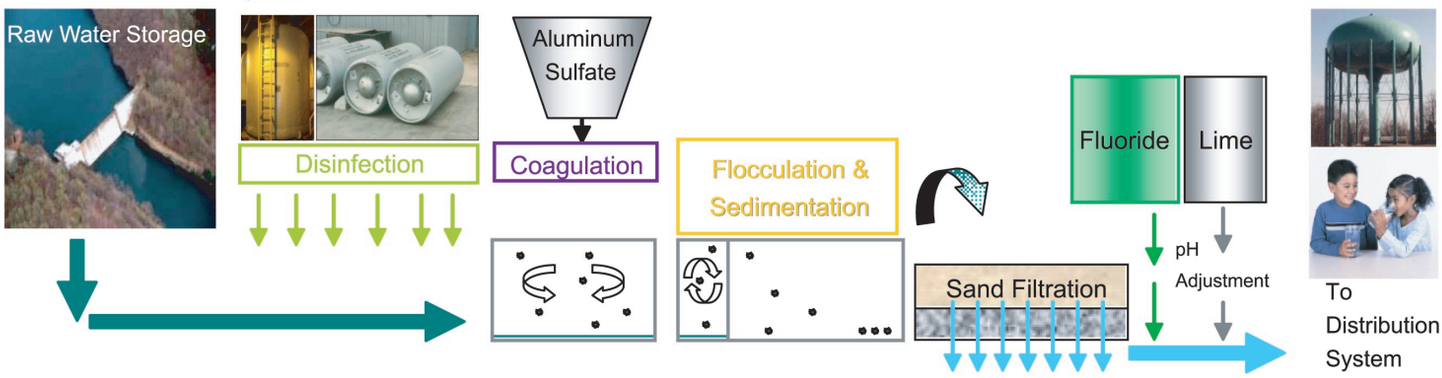
CITY OF BALTIMORE 1797

for tomorrow.

SHEILA DIXON
MAYOR

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 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.

Born into a world where you have water on demand?
Learn more about this important public works service
Come visit!
Baltimore Public Works Museum
Pier 7 Inner Harbor Tuesday-Sunday 10am to 4pm