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DEPARTMENT OF PUBLIC WORKS  
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# City of Baltimore Department of Public Works Annual Water Quality Report



KUMASI VINES  
ACTING BUREAU HEAD

Reporting Period: January 1, 2013 to December 31, 2013

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## Important Health Information

Water systems that store finished drinking water in uncovered reservoirs are now required by the Safe Drinking Water Act to be protected from potential environmental contaminants. At present the City has three uncovered finished-water reservoirs: Guilford, Druid Lake and Lake Ashburton.

The Towson reservoir tanks are complete and Montebello Filtration Plant II reservoir tanks are under construction. Guilford Reservoir will be converted to underground tanks and be extensively landscaped by the end of 2016. Druid and Ashburton will remain as lakes; however they will no longer be used as drinking-water storage facilities. Buried tanks will serve that purpose.

Baltimore's drinking water meets or exceeds all federal drinking water standards, however, 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 result in such symptoms as nausea, cramps, diarrhea, and associated headaches.

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## Meeting Our Future Water Needs

Each year the Baltimore City Department of Public Works (DPW), through the Capital Improvement Program, anticipates and acts on future water needs by building important drinking water projects. While the Baltimore Metropolitan Area is known for its abundant and high quality drinking water resources, our water supply is dependent on the average annual precipitation and the storage capacity available within the reservoirs.



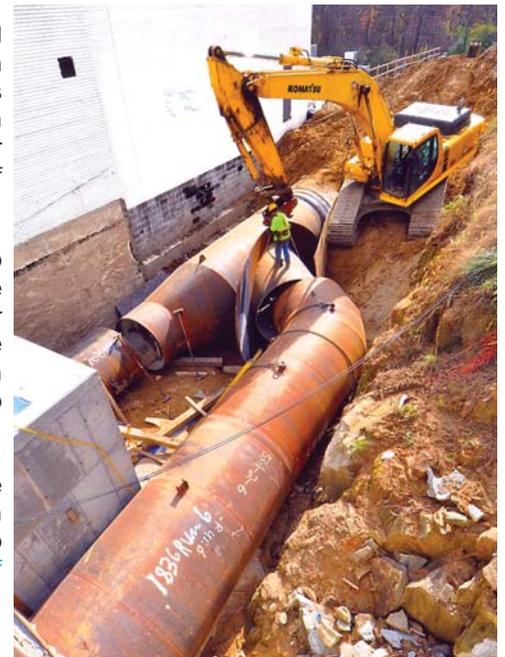
*The Deer Creek Pumping Station rehabilitation and upgrade will help us supply abundant water for our growing region.*

In 1966 DPW completed construction of the 12-foot diameter Susquehanna Pipeline and the Deer Creek Pumping Station, both designed to convey water from the Susquehanna River in Harford County to the Montebello Water Treatment Plants in East Baltimore. These provide a secondary source of water that can be used to meet demand during times of drought. This system, together with the City's Loch Raven and Prettyboy reservoirs, supplies the Abingdon Water Treatment Plant with 70 percent of Harford County's total public water supply.

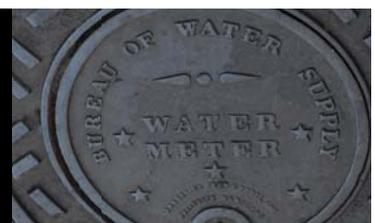
A major rehabilitation of the Deer Creek Pumping Station will soon be completed. We upgraded the capacity of the facility from 107 million gallons per day (MGD) to 190 MGD. Improvements also include the rehabilitation of the existing pumps, the addition of one new pump, comprehensive upgrades in electrical power supply, and installation of new control systems. The total cost of the project is approximately \$25 million.

The availability of water from the Susquehanna River to supplement the reservoir system is an important part of the water infrastructure. In addition to providing supplemental water in times of drought, it provides water for population growth. The Deer Creek project prepares the way for a new water filtration plant in Fullerton. This plant will enable Baltimore to continue to provide excellent, abundant water for our growing region.

To learn more about this and other DPW water initiatives, please visit [www.cleanwaterbaltimore.org](http://www.cleanwaterbaltimore.org). For additional information about DPW please go to [publicworks@baltimorecity.gov](mailto:publicworks@baltimorecity.gov) and also check in with us on Facebook ([Baltimore City Department of Public Works](#)), and on Twitter ([@BaltimoreDPW](#)).



**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 2013

In the year 2013, 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:<br>0.27%*<br>*Not a violation.<br>All repeat samples were negative. | Highest monthly percentage of positive samples:<br>0.27%*<br>*Not a violation.<br>All repeat samples were negative. | 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:<br>0%   | Highest monthly percentage of positive samples:<br>0%   | Human and animal fecal waste.         |

### TURBIDITY

| SUBSTANCE              | MCLG | MCL                      | ASHBURTON PLANT |          | MONTEBELLO PLANTS |          | MAJOR SOURCES |
|------------------------|------|--------------------------|-----------------|----------|-------------------|----------|---------------|
| TURBIDITY <sup>1</sup> | None | Treatment Technique (TT) | HLD             | LOWEST % | HLD               | LOWEST % | Soil run-off. |
|                        |      | Filtration               | 0.08 NTU        | 100      | 0.19 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. |

## Baltimore City Water Quality Report

**LEAD AND COPPER TESTING**

Lead and copper testing was last required by regulatory standards in 2012. During that year, the testing involved 52 "tier 1" or high risks homes. To determine compliance, the 52 test results were arranged from the lowest value to the highest. The 90th percentile value is identified by:  $52 \times 0.9 = 46.8$ . Therefore, the 47th 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 2015.

**LEAD AND COPPER TESTING RESULTS (2012)**

| SUBSTANCE | ACTION LEVEL | 90TH PERCENTILE | SAMPLE RESULTS GREATER THAN ACTION LEVEL |
|-----------|--------------|-----------------|--|
| LEAD      | 15 ppb       | 5.38 ppb        | 0  |
| COPPER    | 1,300 ppb    | 256 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       | 0.03ppm           | 0.03 ppm      | Discharge of drilling wastes & metal refineries; erosion of natural deposits.         |
| NITRATE (AS NITROGEN) | 10 ppm | 10 ppm | 2.10 ppm        | 1.45- 2.10 ppm | 2.36 ppm          | 1.44-2.36 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 | 0.79ppm         | 0.70 - 0.79 ppm | 0.74 ppm | 1.07 ppm          | <0.20 - 1.07 ppm | 0.70 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 | 0.59 ppm (Based on 4,722 distribution system samples collected in 2013) | 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       | -4 pCi/L          | Erosion of natural deposits. |
| ALPHA EMITTERS       | 0 pCi/L   | 15 pCi/L  | -1 pCi/L        | -2 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 <sup>1</sup> | 80 ppb | 54 ppb          | 28-54 ppb | 42 ppb   | 53 ppb            | 32-53 ppb | 45 ppb   | By-product of drinking water chlorination. |
| HAA(5)      | N/A <sup>1</sup> | 60 ppb | 62 ppb**        | 35-62 ppb | 48 ppb   | 58 ppb            | 33-58 ppb | 44 ppb   | By-product of drinking water chlorination. |

\*\*The Lutherville sample site exceeded the HAA (5) MCL in September. The locational running annual average (LRAA) was 62 ppb

**Violation**

Testing results from January 2013- December 2013 indicate that our system exceeded the (MCL) maximum contamination level for Haloacetic acids. (HAA(5)) The HAA(5) MCL is 60 ppb while the Lutherville site LRAA was 62 ppb. HAA's are a type of disinfection byproduct that is formed when chlorine reacts with natural organic matter in the water. We are working to minimize the formation of HAA(5) while ensuring an adequate level of disinfection to protect consumers from exposure to bacteria. We have since taken samples at this location and throughout the system. They currently show that we meet required standards.

**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.

**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 2013, the average sodium concentrations measured in the finished water from the Ashburton and Montebello Water Treatment Plants were 13.1 ppm and 14.8 ppm respectively and are considered low.

**CRYPTOSPORIDIUM RESULTS RANGE**

Liberty: 0.0 Oocyst/Liter  
Loch Raven: 0.0 Oocyst/Liter  
Susquehanna River: 0.0 Oocyst/Liter

*Microscopic view of  
Cryptosporidium oocysts*



**Continued from Page 1**

These symptoms are also caused by other factors. Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised people, such as persons with cancer having 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 healthcare providers.

The United States Environmental Protection Agency and Centers for Disease Control and Prevention 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 1-800-426-4791. If you have specific health concerns, consult your doctor.

**Protecting and Preserving Our Watersheds**

Baltimore uses surface water from rainfall and snowmelt as the source of its water. This water, approximately 75 billion gallons of storage volume at maximum capacity, is collected and stored in the City owned and operated watersheds: Liberty, Loch Raven and Prettyboy.

These reservoir lands were established for the sole purpose of protecting our drinking water supply. The forests and other vegetation remove nutrients and prevent erosion and runoff. Protecting these lands is a full-time job for our team of Environmental Police Officers, biologists and maintenance personnel.

**Sixteenth Annual Water Quality Report**

This is the sixteenth 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 2013, 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).

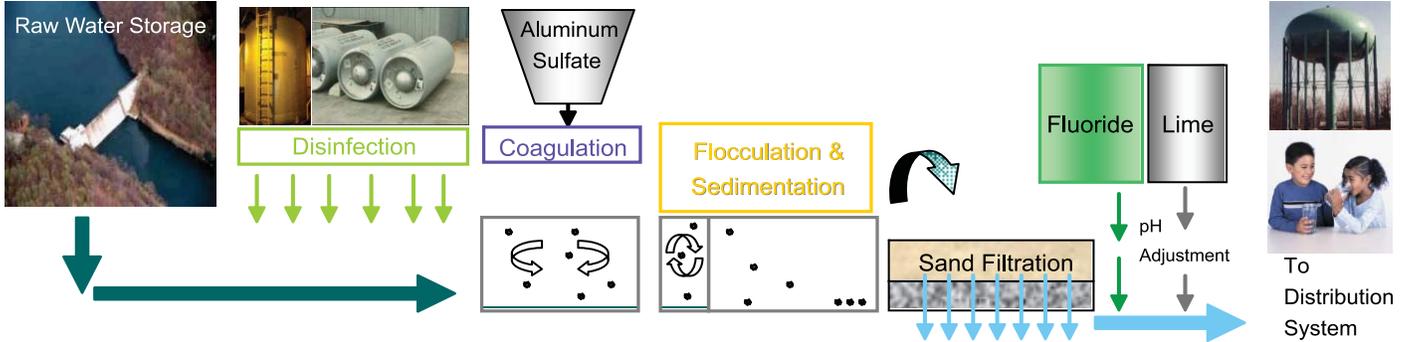
We are pleased to inform you that tours of the treatment plants are being offered; however, some restrictions may need to be observed based on ongoing facility security requirements.

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](http://www.baltimorecity.gov)

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

**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 stormwater runoff, wastewater discharges, and farming
- Organic chemicals that are by-products of industrial processes and petroleum production, agriculture, gas stations, stormwater 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.