



Cannonsville Reservoir Spillway



**Environmental  
Protection**

Michael R. Bloomberg  
Mayor

Carter H. Strickland, Jr.  
Commissioner

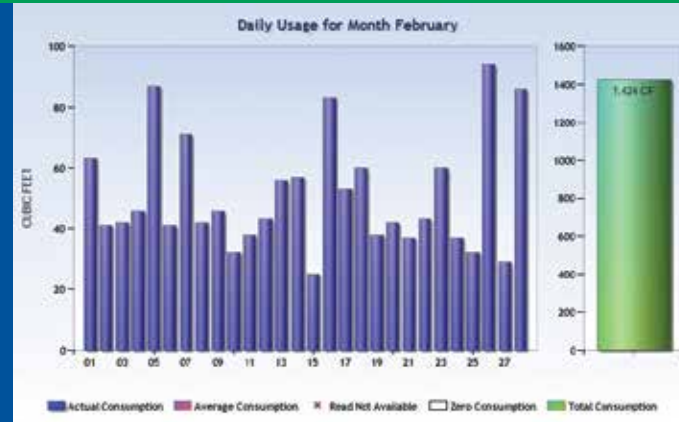
# New York City 2012 Drinking Water Supply and Quality Report

# Customer Service

[www.nyc.gov/dep](http://www.nyc.gov/dep)

## TRACK YOUR WATER USE

Did you know that you can track your water use online? If you have a wireless meter reader installed, you can go online to see your daily water usage. The online tracking system enables you as a customer to manage your water use, reduce your water bills, and detect leaks more quickly. In addition, you can view your meter readings and see your payment and billing history online.



## IDENTIFY COSTLY LEAKS

Get alerts when your water use spikes unexpectedly

The Leak Notification Program enables you to be alerted about potential water leaks on your property. Sign up online to receive email notifications when your water use increases significantly over a period of several days. This will enable you to quickly respond to potential leaks and fix them before they become a serious billing problem. Since 2011, the program has saved 37,000 customers \$31 million in leak-related charges.

## GO GREEN

Sign up for paperless billing

DEP is now offering its customers the convenience of paperless billing. By signing up to receive your bills online you'll save time and help improve our environment by reducing paper consumption. Instead of a paper bill, you'll receive an email notification when your next bill is due. You can then log in to My DEP Account to see an electronic copy of your bill.

*Enroll  
online*

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Dear Friends:

New York City's drinking water is recognized throughout the world for its quality and purity. Every day, the Department of Environmental Protection provides approximately one billion gallons of water to our city's millions of residents and visitors, while ensuring that our water supply remains safe for future generations.

To protect our drinking water, we continue to invest in a number of long-term strategies, including sustainable farming and stream restoration and management. Since 1997, the City also has acquired thousands of acres of new watershed lands. And just as important for our watershed's communities, we have made more than 115,000 acres of City-owned land and water available for recreation, protecting these invaluable resources and spurring local economic development as well.

Our city already is safer and healthier than it has ever been. Thanks to DEP and our strong partnerships with State and local stakeholders, we will ensure that New Yorkers enjoy healthy, high quality drinking water for years to come.

Sincerely,

*Michael R. Bloomberg*  
Michael R. Bloomberg  
Mayor



Dear Friends:

At the New York City Department of Environmental Protection we take great pride in providing clean and healthy drinking water to more than nine million New Yorkers each day. In fact, due to our extensive monitoring program and programs to stop erosion and other sources of pollution before they become potential problems, New York is just one of five cities in the entire country that is not required to filter our water from the Catskill and Delaware watersheds.

We are also making significant investments now to ensure the vitality of our drinking water for the future. This past year, the City began operating the \$1.6 billion Catskill/Delaware Ultraviolet Disinfection Facility, which provides an additional barrier of protection to our water supply. By the end of this year the City will activate Stage 2 of City Water Tunnel No. 3 and will start to operate a plant to filter water from the Croton system, the City's oldest, smallest, but most developed watershed. Coupled with our source control programs to protect and maintain our Catskill and Delaware systems, and investments in dam upkeep and our distribution network, DEP is making sure that drinking water will remain safe and abundant for current and future generations of New Yorkers.

I am proud to present this report and share with you some of the initiatives that help keep our drinking water world-class, and to encourage you to continue drinking healthy and affordable New York City tap water. You can keep up to date on all DEP news by liking us on [www.facebook.com/nycwater](http://www.facebook.com/nycwater) and [www.twitter.com/nycwater](http://www.twitter.com/nycwater).

Sincerely,

*Carter H. Strickland, Jr.*  
Carter H. Strickland, Jr.  
Commissioner





West Branch Delaware River

## NEW YORK CITY 2012 DRINKING WATER SUPPLY AND QUALITY REPORT

*The New York City Department of Environmental Protection (DEP) is pleased to present its 2012 Annual Water Supply and Quality Report. This report was prepared in accordance with the New York State Sanitary Code and the National Primary Drinking Water Regulations of the United States Environmental Protection Agency (EPA), which require every drinking water supplier to provide the public with an annual statement describing the water supply and the quality of its water.*

### New York City's Water Supply

The New York City Water Supply System provides approximately one billion gallons of safe drinking water daily to more than eight million residents of New York City and to the millions of tourists and commuters who visit the City throughout the year, as well as about 110 million gallons a day to one million people living in Westchester, Putnam, Ulster, and Orange counties. In all, the New York City Water Supply System provides nearly half the population of New York State with high quality drinking water.

### Source of New York City's Drinking Water

New York City's surface water is supplied from a network of 19 reservoirs and three controlled lakes in a nearly 2,000 square-mile watershed, roughly the size of Delaware State, that extends 125 miles north and west of New York City. The New York City Water Supply System (PWSID NY7003493) consists of three individual water supplies: the Catskill/Delaware supply, located in Delaware, Greene, Schoharie, Sullivan, and Ulster counties; the Croton supply, the City's original upstate supply, made up of 12 reservoir basins in Putnam, Westchester, and Dutchess counties; and a groundwater supply in southeastern Queens. In 2012, 100% of the City's drinking water came from the Catskill/Delaware supply.

### Regulation of Drinking Water

The sources of drinking water (both tap water 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 materials and can pick up substances resulting from the presence of animals or from human activities. Contaminants that may be present in source water include: microbial contaminants, inorganic contaminants, pesticides and herbicides, organic chemical contaminants, and radioactive contaminants.

In order to ensure that tap water is safe to drink, the New York State Department of Health (NYSDOH) and EPA prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The NYSDOH and the federal Food and Drug Administration's (FDA) regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

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 EPA's Safe Drinking Water Hotline at (800) 426-4791.

# New York City's Water Supply System







### **NYC Water-On-the-Go**

Throughout the summer months, DEP's Water-On-the-Go program brings portable drinking fountains to transit hubs, highly trafficked pedestrian areas, and special events throughout the five boroughs to educate New Yorkers about the high quality of the City's drinking water and to promote environmental stewardship. In 2012, DEP tripled the number of recurring Water-On-the-Go locations, rotating fountains among 30 different locations throughout the five boroughs, and more than 500,000 people visited the drinking fountains, more than doubling the number of visitors from 2011.

## **Ensuring a Safe, Reliable, and Sufficient Water Supply**

### **Source Water Assessment Program**

Federal regulations require states to develop and implement Source Water Assessment Programs to: identify the areas that supply public tap water; inventory contaminants and assess water system susceptibility to contamination; and inform the public of the results. The states are given a great deal of flexibility on how to implement Source Water Assessment Programs. These assessments are created using available information to help estimate the potential for source water contamination. Elevated susceptibility ratings do not mean that source water contamination has occurred or will occur in the water supply; rather, they indicate the need for water suppliers to implement additional precautionary measures.

In 1993, New York City secured its first Filtration Avoidance Determination (FAD) for the Catskill/Delaware supply, and, in 1997, the historic New York City Watershed Memorandum of Agreement was signed. Since that time, New York City has been implementing a series of programs to reduce the susceptibility of all of its surface water supply to contamination from a variety of sources. These ongoing programs operate under the close scrutiny of both NYSDOH and EPA. Because of these efforts, which are reported on in the Watershed Water Quality Annual Report, NYSDOH did not deem it necessary to perform a Source Water Assessment Program on the New York City Water Supply.

## **Maintaining New York City's World-Renowned Water Supply**

### **10-Year Filtration Avoidance Determination from EPA**

Two thousand and twelve marked the fifth year of DEP's implementation of the latest 10-year FAD, issued by EPA in July 2007. The FAD maintains New York City's status as one of only five large cities in the country with a surface drinking water supply of such high quality that filtration is not required. As part of the agreement, New York City continues to enhance existing watershed protection programs while developing new efforts, including an agreement to continue to acquire certain undeveloped land in the Catskill/Delaware watershed as a means of watershed protection. In 2007, the City allocated an additional \$241 million (beyond the \$300 million committed in 1997) to be spent over a 10-year period for this purpose. Every five years, at the midpoint of the existing determination, New York City is required to reassess the programs comprising the FAD. In December 2011, DEP submitted a plan for the remaining five years of the existing FAD – also known as the Long-Term Watershed Protection Program for 2012-2017 – to our State and federal regulators. DEP also secured a 15-year water supply permit in 2010 from the NYS Department of Environmental Conservation that allows New York City to continue acquisition of sensitive watershed land to protect the largest unfiltered drinking water supply in the world. Over the past 20 years of source water protection, New York City has consistently demonstrated the commitment and ability to deliver effective programs to ensure the long-term purity of the water supply. For more information on DEP's watershed protection programs visit [www.nyc.gov/dep](http://www.nyc.gov/dep).

Key programs and selected accomplishments include:

- **Land Acquisition** - New York City acquires real property interests from willing sellers to further protect and buffer its 19 reservoirs and three controlled lakes in the Catskill/Delaware and Croton watersheds. In 2012, New York City signed contracts with landowners to purchase more than 5,800 acres of sensitive watershed land. Since 1997, DEP has secured more than 128,000 acres of land and easements, adding to the roughly 45,000 acres surrounding the reservoirs that New York City owned in 1997. The property DEP owns is protected from development, which helps create natural buffers and reduce degradation of the water supply. The State of New York also owns and protects more than 200,000 acres of land in the New York City watershed.
- **Land Management** - With the acquisition of land over the past 15 years, New York City has become one of the largest landowners in the watershed region. DEP manages these properties to ensure that water quality is protected. DEP believes that protecting the watershed lands does not conflict with providing recreational access to members of the surrounding communities. Since 1997, DEP has increased the acreage of land and water open for recreation every year, and approximately 115,000 acres are now available for fishing, hiking, hunting, trapping, cross-country skiing and other activities. In 2012, DEP expanded the recreational boating program by opening the Neversink, Pepacton and Schoharie reservoirs to rowboats, canoes, kayaks, and small sailboats and issued almost 1,000 boating permits.
- **Partnership Programs** - Many of New York City's watershed protection programs west of the Hudson River are administered by a nonprofit organization called the Catskill Watershed Corporation. Together DEP and the Catskill Watershed Corporation have repaired or replaced more than 4,000 failing septic systems and authorized the construction of more

than 70 stormwater control measures on properties in the watershed. New York City has also committed ~\$185 million for new community wastewater projects. When all projects are completed, they will be capable of treating a total of 1.7 million gallons of wastewater per day. Another partnership program is the Stream Management Program which encourages the stewardship of streams and floodplains in the watershed west of the Hudson River. Additionally, the Watershed Agricultural Program and Watershed Forestry Program both represent long-term successful partnerships between DEP and the nonprofit Watershed Agricultural Council. The underlying goal of both programs is to support and maintain well-managed family farms and working forests as beneficial land uses for water quality protection and rural economic viability. Together, these partnerships work with watershed residents to identify and eliminate potential pollution sources

### **Catskill/Delaware Water Ultraviolet Disinfection Facility**

The Catskill/Delaware Ultraviolet (UV) Disinfection Facility began treating Catskill/Delaware water in the fall of 2012, and was granted disinfection credit by NYSDOH beginning December 1, 2012. This accreditation was the culmination of work that began with site preparations in 2006, followed by the start of construction in 2008. The facility is located on a New York City-owned, 153-acre property in the towns of Mount Pleasant and Greenburgh in Westchester County. The UV Disinfection Facility, the largest of its kind in the world, consists of fifty-six 40-million-gallons-per-day UV disinfection units and is designed to disinfect a maximum of 2.4 billion gallons of water per day.

The facility was built in part to fulfill the requirements of the Long Term 2 Enhanced Surface Water Treatment Rule, which requires additional treatment by many water suppliers that use surface water sources. For unfiltered surface water sources, such as the Catskill/Delaware system, the Long Term 2 Enhanced Surface Water Treatment Rule requires two types of disinfection. First, water is disinfected with chlorine before it arrives at the UV Disinfection Facility. Once at the facility, the water flows under UV light as an additional disinfection measure to protect against potentially harmful microbiological contaminants, such as *Cryptosporidium* and *Giardia*.

Although EPA now requires most surface drinking water to be filtered, due to New York City's \$1.5 billion investment in watershed protection programs and operation of the UV Disinfection Facility, the federal government allows New York City to continue receiving unfiltered drinking water from the Catskill/Delaware watershed. This comprehensive and adaptive approach exempts New York City from building a mandated filtration plant estimated to cost \$10 billion or more.

### **Croton Water Filtration Plant**

The Croton water supply, because of factors related to the surrounding area and water quality, is not covered by the Filtration Avoidance Determination. Therefore, New York City is building a filtration plant for the Croton water supply under a Consent Decree entered into with the United States and the State of New York. The Croton Water Filtration Plant is also expected to reduce color levels, the risk of microbiological contamination, and disinfection by-products, and to ensure compliance with stricter water quality standards.

In addition to constructing the filtration plant, New York City remains committed to maintaining a comprehensive watershed protection program for the Croton water supply. Although

the Croton water supply is not currently being used and is not anticipated to provide any drinking water to New York City until DEP begins to filter Croton water, DEP is required by law to make the following statement: Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites, which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.

### **City Water Tunnel No. 3**

For over 30 years, the City has been building City Water Tunnel No. 3. Being built in stages, City Water Tunnel No. 3 is one of the largest capital projects in New York City's history. Begun in 1970, City Water Tunnel No. 3 will enhance and improve New York City's water delivery system and allow the City to inspect and repair City Water Tunnels Nos. 1 and 2 for the first time since they were put into service in 1917 and 1936, respectively.

- The 13-mile Stage 1 section of City Water Tunnel No. 3 went into service in August 1998. It runs from Hillview Reservoir in Yonkers, through the Bronx, down Manhattan across Central Park, and into Astoria, Queens.
- Stage 2 of City Water Tunnel No. 3 consists of the Brooklyn/Queens leg and the Manhattan leg.
  - The Brooklyn/Queens leg is a 5.5-mile section in Brooklyn that connects to a 5-mile section in Queens. The City completed the Brooklyn/Queens leg of the tunnel in May 2001, and substantially completed the shafts in 2006. The project is on hold, and is expected to be online by 2023. When activated, the Brooklyn/Queens leg will deliver water to Staten Island, Brooklyn, and Queens.
  - Tunneling on the 9-mile Manhattan leg of Stage 2 began in 2003 and was completed in 2008. Ten new supply shafts have been constructed that will integrate the new tunnel section with the existing distribution system. Work on installing the equipment in the distribution chambers, which are underground facilities atop the shafts, was completed in early 2013. The Manhattan leg is expected to begin water delivery in late 2013.



City Tunnel No. 3



## Hillview Reservoir

Hillview Reservoir is the last reservoir in the Catskill/Delaware system prior to distribution. On May 24, 2010, New York City and EPA entered into an Administrative Order on Consent which sets forth a milestone schedule to install a cover over the Hillview Reservoir by mid-2028. The milestones of a previous Administrative Order on Consent from 2008 between New York City and NYSDOH were incorporated into the 2010 Administrative Order on Consent. DEP is currently in compliance with the milestones set forth in the orders. Additionally, in August of 2011, EPA released a report called "Improving Our Regulations: Final Plan for Periodic Reviews of Existing Regulations," in which EPA indicated that it will evaluate the reservoir cover requirement of the Long Term 2 Enhanced Surface Water Treatment Rule. DEP has been actively involved in EPA's review process.

## Delaware Bypass Tunnel

One major component of DEP's Water for the Future Program is aimed at addressing the known leaks in the Rondout-West Branch Tunnel section of the Delaware Aqueduct, which conveys more than 50 percent of the daily drinking water for New York City. In November 2010, DEP unveiled a design to repair leaks in the 85-mile Delaware Aqueduct to ensure the integrity of New York City's vital infrastructure, which is fundamental to New York City's long-term growth and prosperity. The construction of the bypass tunnel and the repair of the lining will ensure that DEP can continue to deliver high quality drinking water every day for decades to come. DEP began work on the bypass tunnel in the spring of 2013, and plans to connect to the Delaware Aqueduct in 2021.

## Groundwater

As part of the Water for the Future Program, the City will implement additional projects to supplement DEP's water supply and to help meet water demands in an emergency. These projects include the repair and rehabilitation of the Catskill Aqueduct, conservation initiatives, and the reactivation of the City-owned groundwater supply system in Queens. DEP is currently planning upgrades to the facilities and treatment systems at existing groundwater facilities to provide high quality drinking water that will meet all State and federal drinking water standards. DEP plans to re-activate the groundwater supply system before 2021, when the Rondout-West Branch Tunnel is scheduled to be shut down for the connection of the new bypass tunnel to the Delaware Aqueduct.

## Water Conservation

The average single-family household in New York City uses approximately 80,000 gallons of water each year, at a cost of \$3.39 per 100 cubic feet of water (748 gallons), or about \$363 a year. Since nearly all New York City residences receive wastewater collection and treatment services in addition to water service, the combined annual water and sewer charge for the typical New York City household using 80,000 gallons per year is \$939, consisting of \$363 for water service and \$576 for wastewater services (based on the Fiscal Year 2013 rates).

New York City is fortunate to have reasonably priced drinking water as compared to other cities around the country. However, DEP asks that everyone do his or her part to conserve this important resource. All New Yorkers should observe good water conservation habits, and are required to obey New York City's year-round water use restrictions, which include a prohibition on watering sidewalks and lawns between November 1 and March 31, and between 11am and 7pm from April 1 to



## WATER FOR THE FUTURE

### Save Water!

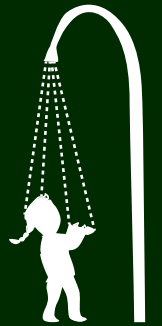
Water is an important resource for all New Yorkers, especially for kids. Water helps us stay hydrated, healthy, and keeps us cool on hot summer days. Water is also a vital element to the health of our City and our planet. It's important to make sure that we take care of the water we have and use only what we need, when we need it.



This spray shower has a special button that you can push to switch it on when you're ready to play in the water.



This way, the water is only being used when kids are playing in it, instead of the spray shower being on even when no one is around to enjoy it. This special spray shower is an important part of saving water in our City, and you are helping too by saving water as you play!



October 31. Remember, it is illegal to open fire hydrants at any time. However, during the summer, you can contact your local firehouse to have a City-approved spray cap installed on a hydrant.

DEP's investment in wireless water meter readers allows customers to view their water consumption in real time and helps to detect leaks. DEP has successfully installed more than 820,000 devices in less than 4 years. Since DEP charges water customers based on consumption, varied usage and leaks can drastically affect quarterly bills. Customers can sign up online under DEP's Leak Notification Program to receive email notifications when their water use increases significantly over a period of several days, enabling homeowners to quickly respond to potential leaks and to fix them before they become a serious billing problem. In the first year of the program, DEP estimates that it has saved \$30 million for more than 36,000 customers. To enroll in the leak detection program, go to [www.nyc.gov/dep](http://www.nyc.gov/dep) and sign up under My DEP Account.





## Water and Sewer Service Line Protection Program

DEP has partnered with American Water Resources (AWR) to offer a Water and Sewer Service Line Protection Program to our customers. This voluntary program is designed to protect New York City homeowners from the unexpected costs of service line repairs.

Most homeowners are not aware that they are responsible for all of the costs associated with repairing damaged water or sewer service lines that run from their building's exterior to the municipal service lines in the street. These repairs are not covered by most homeowners' insurance policies and can cost thousands of dollars.

The New York City Water Board selected AWR as the exclusive provider of the Water and Sewer Service Line Protection Programs for DEP customers. If you are a homeowner and DEP customer, you can enroll in the protection programs, and AWR will take the responsibility of paying for service line repairs off your shoulders.

Special introductory rates of \$3.99 per month for water line protection and \$7.99 per month for sewer line protection will be offered until June 30, 2013. For future years, the New York City Water Board will adopt the annual rates for the programs along with regular water and sewer service charges. These charges will be included in your DEP water and sewer bill and must be paid for you to remain eligible.

For more information about the Water and Sewer Service Line Protection Program, call AWR toll-free at (888) 300-3570 or visit [www.nyc.gov/dep](http://www.nyc.gov/dep).



## Water Treatment

In addition to disinfecting drinking water with chlorine and ultraviolet light, DEP also treats water with fluoride, food grade phosphoric acid, and sodium hydroxide. Fluoride, added since 1966, helps prevent tooth decay. Phosphoric acid is added to create a protective film on pipes that reduces the release of metals, such as lead, from household plumbing. Sodium hydroxide is added to raise the pH and reduce corrosivity, also leading to a reduction in potential exposure to lead.

### Fluoride

DEP is one of the many water suppliers in New York State that treats drinking water with a controlled, low level of fluoride for consumer dental health protection. According to the United States Centers for Disease Control and Prevention, fluoride is very effective in preventing cavities when present in drinking water at an optimal range of 0.7 to 1.2 mg/L. The New York City Health Code requires a fluoride concentration of 1.0 mg/L, and NYSDOH maximum contaminant level (MCL) for fluoride is 2.2 mg/L. However, on January 13, 2011, the United States Department of Health and Human Services requested public comment on its proposal to lower the optimal fluoride target dose to 0.7 mg/L. In response, NYSDOH recommended that water suppliers reduce the optimal fluoride target dose to 0.8 mg/L. Based on these developments, on February 14, 2012, after receiving authorization from the New York City Department of Health and Mental Hygiene, DEP reduced the target dosage of fluoride from 1.0 mg/L to 0.8 mg/L.

During 2012, DEP did not continuously supply fluoride due to modifications to the fluoride delivery system and other construction activities. Fluoridation on the Catskill and Delaware aqueducts was off-line 28% and 66% of the time, respectively. DEP completely shut down the fluoride delivery system on the Delaware supply for a 214-day period, from June 1 to December 31, 2012, due to system modifications at Delaware Shaft 18.



## Operational Changes

Water from the Croton and groundwater systems was not fed into distribution during 2012. Operational information for the groundwater supply system and updates on the Croton Water Filtration Plant can be found at [www.nyc.gov/dep](http://www.nyc.gov/dep). The New York City Water Supply System map, located on page 3 of this report, represents the Catskill/Delaware and Croton service areas, and groundwater supply system. The map provides further detail on the systems' locations.

## Drinking Water Quality

DEP's water quality monitoring program – far more extensive than that required by law – demonstrates that the quality of New York City's drinking water remains high and meets all health-related State and federal drinking water standards.

### Drinking Water Sampling and Monitoring

DEP monitors the water in the distribution system, upstate reservoirs and feeder streams, and wells that are sources for New York City's drinking water supply. Certain water quality parameters are monitored continuously as the water enters the distribution system, and DEP regularly tests water quality at nearly 1,000 water quality sampling stations throughout the City. DEP conducts analyses for a broad spectrum of microbiological, chemical, and physical measures of quality. In 2012, DEP collected more than 30,236 samples from the distribution system and performed more than 355,647 analyses, meeting all State and federal monitoring requirements. Additionally, DEP performed 223,813 analyses on 19,929 samples from the upstate reservoir watershed to support FAD watershed protection programs and to optimize water quality. Results of this regular monitoring are an indicator of whether New York City drinking water meets all health-based and other drinking water standards.

## Test Results

The results of the tests conducted in 2012 under DEP's Distribution System Monitoring Program are summarized in the tables in this report. These tables reflect the compliance monitoring results for all regulated and non-regulated parameters. The tables present both the federal and State standard for each parameter (if applicable), the number of samples collected, the range of values detected, the average of the values detected, and the possible sources of the parameters, unless otherwise footnoted. The monitoring frequency of each parameter varies and is parameter specific. All data presented are for the Catskill/Delaware system, which was the only source of water in 2012. Those parameters monitored for, but not detected in any sample, are presented in a separate box.

## Lead in Drinking Water

New York City water is virtually lead-free when it is delivered from New York City's upstate reservoir system, but water can absorb lead from solder, fixtures, and pipes found in the plumbing of some buildings or homes. DEP has an active corrosion control program aimed at reducing lead absorption from service lines and internal plumbing. Under the federal Lead and Copper Rule, mandated at-the-tap lead monitoring is conducted at select households throughout New York City. In 2012, based on the results of this monitoring, the 90<sup>th</sup> percentile did not exceed 15 µg/L, the established standard or Action Level for lead. The at-the-tap monitoring results are presented in a separate table in this report.

If present, elevated levels of lead can cause serious health problems, especially for pregnant women, infants, and young children. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. DEP 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 water, you may wish to have your water tested.

DEP offers a Free Residential Lead Testing Program that allows all New York City residents to have their tap water tested at no cost. The Free Residential Testing Program is the largest of its kind in the nation: DEP has distributed more than 95,000 sample collection kits since the start of the program in 1992. To request a free kit to test for lead in your drinking water, call New York City's 24-hour helpline at 311 or visit [www.nyc.gov/apps/311/](http://www.nyc.gov/apps/311/).

Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline (1-800-426-4791) or at <http://www.epa.gov/safewater/lead>.

## Turbidity

Turbidity is a measure of water clarity related to the amount of suspended matter present in the water. DEP is required to monitor its drinking water supply for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not drinking water meets health standards. DEP monitors for turbidity every four hours at selected compliance locations representative of the raw source waters. Two incidents regarding turbidity monitoring or turbidity levels occurred during 2012, and are described below:

- On April 19, 2012, DEP determined that a regular compliance sample collected at 4:00pm at the Catskill Aqueduct was not representative of the raw water at that time. The sample was collected just downstream of Kensico Reservoir in Valhalla, New York in Westchester County, and had a measured turbidity value of 5.4 Nephelometric Turbidity Units (NTU). DEP analyzed the raw source water turbidity at locations upstream and downstream of this sampling location. Basing its assessment on these additional samples and the timing of the increase, DEP determined that the 5.4 NTU sample result was not an accurate representation of the raw water at that time. Upon further investigation, DEP learned that the brief increase in turbidity measurements occurred following maintenance of the sampling equipment, leading to the collection of the non-representative sample. Since this sample was judged to be not representative of source water quality, the New York City Water Supply System does not have a sample result to report for this 4-hour period.





On April 27, 2012, NYSDOH notified DEP that this was a monitoring violation that requires Tier 3 public notification as specified in the federal Safe Drinking Water Act and the New York State Sanitary Code. With the exception of this one missed sample, all remaining compliance samples of source water turbidity on this date met the applicable requirements. Extensive water quality monitoring in the City's distribution system during this time period demonstrated that the water supply met all other drinking water quality standards. Although this is not an emergency and no action is required on your part, you, as our customer have a right to know about such situations. There is no reason to stop using the water supplied to your home/business as a result of this monitoring violation. An After Action Report was prepared and submitted to NYSDOH on May 24, 2012 on procedural steps and administrative controls that will be implemented by DEP to help prevent maintenance activities from affecting turbidity compliance sampling and reporting in the future.

- On October 29, 2012, the turbidity of the New York City Catskill/Delaware Water Supply at the Kensico Reservoir in Valhalla, New York in Westchester County exceeded 5 NTU at approximately 6:30pm. The turbidity returned to below 5 NTU at approximately 8:15pm. The highest recorded turbidity value was 11 NTU.

The elevated turbidity was a direct result of the high winds that struck as Hurricane Sandy hit the region. The wind was sufficiently intense to cause large waves within Kensico Reservoir, churning up shoreline sediment near where water leaves the Kensico Reservoir and enters the Delaware Aqueduct to the City. DEP acted quickly, and through its operational controls, used an alternative source of water from its system that did not come from the Kensico Reservoir. However, some turbid water did enter the Delaware Aqueduct before operational changes could be completed. As a precaution, DEP increased chlorine treatment during this time to enhance the disinfection of the water. Additionally, before entering the distribution system, the water was also treated with UV light, which provides a secondary level of disinfection against potentially harmful microbiological contaminants such as *Cryptosporidium* and *Giardia*.

This incident constituted a treatment technique violation as specified in the federal Safe Drinking Water Act and the New York State Sanitary Code. Extensive monitoring in the distribution system – including at many testing locations in New York City – demonstrated that the water supply met all other drinking water quality standards. State and federal drinking water rules required DEP to make public notification, which was completed by February 2013 that included the following language: Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease causing organisms. These organisms include bacteria, viruses, and parasites which can cause symptoms such as nausea, cramps, diarrhea, and

associated headaches. These symptoms can have various causes and are not caused only by organisms in drinking water. If you experience any of these symptoms and they persist, you may want to seek medical advice from a health care provider.

An After Action Report was prepared and submitted to NYSDOH on December 5, 2012 with procedural steps and operational measures that will be implemented by DEP to help better manage and control the impact of intense wind events on turbidity levels in water leaving Kensico Reservoir.

## Monitoring for *Cryptosporidium* and *Giardia*

In 1992, New York City started a comprehensive program to monitor its source waters and watersheds for the presence of *Cryptosporidium* and *Giardia*. DEP collects routine samples from the outflows of the Kensico and New Croton Reservoirs, before water is chlorinated in the Catskill/Delaware and Croton systems, and before it is treated at the Catskill/Delaware UV Disinfection Facility. While there is no evidence that any cases of cryptosporidiosis or giardiasis have been attributed to the New York City water supply, federal and State law requires all water suppliers to notify their customers about the potential risks from *Cryptosporidium* and *Giardia*. Cryptosporidiosis and giardiasis are intestinal illnesses caused by microscopic pathogens, which can be waterborne. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Some people may be more vulnerable to disease causing microorganisms, or pathogens, 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 from their health care providers about their drinking water.

From January 1 to December 31, 2012, a total of 87 routine samples were collected and analyzed for *Cryptosporidium* oocysts and *Giardia* cysts at the Kensico Reservoir effluents, and 36 routine samples were collected at the New Croton Reservoir effluent. Samples were analyzed using a standard EPA method. The test method, however, is limited in that it does not allow DEP to determine whether organisms identified are alive or capable of causing disease. Of the 87 routine Kensico Reservoir effluent samples, one was positive for *Cryptosporidium* (1 oocyst/50L), and 43 were positive for *Giardia* (0 to 4 cysts/50L). Of the 36 routine New Croton Reservoir effluent samples, one was positive for *Cryptosporidium* (1 oocyst/50L), and 14 were positive for *Giardia* (0 to 5 cysts/50L). Water from the New Croton Reservoir, which is part of the Croton supply, was not delivered to New York City in 2012. The presence of these low levels of *Cryptosporidium* and *Giardia*, detected in the source water required no action on the part of DEP. DEP's *Cryptosporidium* and *Giardia* data from 1992 to the present, along with weekly updates, can be viewed on the DEP Website at [www.nyc.gov/dep](http://www.nyc.gov/dep).

DEP's Waterborne Disease Risk Assessment Program conducts active surveillance for cryptosporidiosis and giardiasis to track the incidence of illness and determine all possible causes, including tap water consumption. No cryptosporidiosis or giardiasis outbreaks have been attributed to tap water consumption in New York City. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium*, *Giardia* and other microbial contaminants are available from the EPA's Safe Drinking Water Hotline at (800) 426-4791.



# New York City Drinking Water Quality Testing Results 2012

## Detected Parameters

PARAMETERS	NYSDOH MCL	USEPA MCLG	CATSKILL/DELAWARE SYSTEM			SOURCES IN DRINKING WATER
			# SAMPLES	RANGE	AVERAGE	
<b>CONVENTIONAL PHYSICAL AND CHEMICAL PARAMETERS</b>						
Alkalinity (mg/L CaCO <sub>3</sub> )	-		279	11.2 - 19.3	14.8	Erosion of natural deposits
Aluminum (µg/L)	50 - 200 <sup>(1)</sup>		283	15 - 57	29	Erosion of natural deposits
Barium (mg/L)	2	2	283	0.014 - 0.024	0.018	Erosion of natural deposits
Calcium (mg/L)	-		282	4.9 - 6.6	5.5	Erosion of natural deposits
Chloride (mg/L)	250		279	7 - 10	9	Naturally occurring; road salt
Chlorine Residual, Free (mg/L)	4 <sup>(2)</sup>		14867	0.00 - 1.41	0.59	Water additive for disinfection
Color - distribution system (color units - apparent)	-		13771	4 - 65	6	Presence of iron, manganese, and organics in water
Color - entry points (color units - apparent)	15 <sup>(3)</sup>		1098	4 - 14	6	Presence of iron, manganese, and organics in water
Copper (mg/L)	1.3 <sup>(4)</sup>	1.3	284	ND - 0.043	0.007	Corrosion of household plumbing systems; erosion of natural deposits
Corrosivity (Langelier index)	0 <sup>(1) (5)</sup>		279	-2.90 to -0.84	-2.37	
Fluoride (mg/L)	2.2 <sup>(3)</sup>	4.0	1345	ND - 1.2	0.5	Water additive which promotes strong teeth; erosion of natural deposits
Hardness (mg/L CaCO <sub>3</sub> )	-		282	17 - 21	19	Erosion of natural deposits
Hardness (grains/gallon[US]CaCO <sub>3</sub> ) <sup>(6)</sup>	-		282	1.0 - 1.2	1.1	Erosion of natural deposits
Iron (µg/L)	300 <sup>(3) (7)</sup>		283	22 - 89	35	Naturally occurring
Lead (µg/L)	15 <sup>(4)</sup>	0	284	ND - 26 <sup>(8)</sup>	ND	Corrosion of household plumbing systems; erosion of natural deposits
Magnesium (mg/L)	-		282	1.0 - 1.3	1.2	Erosion of natural deposits
Manganese (µg/L)	300 <sup>(3) (7)</sup>		284	8 - 155	21	Naturally occurring
Nitrate (mg/L nitrogen)	10	10	279	0.10 - 0.23	0.17	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
pH (pH units) <sup>(9)</sup>	6.5 - 8.5 <sup>(1)</sup>		14869	<b>6.7 - 9.2</b>	7.2	
Phosphate, Ortho- (mg/L)	-		14867	0.60 - 2.75	2.07	Water additive for corrosion control
Potassium (mg/L)	-		282	0.5 - 1.4	0.6	Erosion of natural deposits
Silica [silicon oxide] (mg/L)	-		279	1.8 - 4.3	2.8	Erosion of natural deposits
Sodium (mg/L)	NDL <sup>(9) (10)</sup>		282	6 - 9	7	Naturally occurring; road salt; water softeners; animal waste
Specific Conductance (µS/cm)	-		14869	67 - 96	78	
Strontium (µg/L)	-		282	17 - 24	19	Erosion of natural deposits
Sulfate (mg/L)	250		279	4.0 - 6.1	4.8	Naturally occurring
Temperature (°F)	-		14869	39 - 83	56	
Total Dissolved Solids (mg/L)	500 <sup>(1)</sup>		279	35 - 58	47	Metals and salts naturally occurring in the soil; organic matter
Total Organic Carbon (mg/L carbon)	-		279	1.3 - 1.9	1.6	Organic matter naturally present in the environment
Turbidity <sup>(11)</sup> - distribution system (NTU)	5 <sup>(12)</sup>		13771	0.5 - 9.5	1	Soil runoff
Turbidity <sup>(11)</sup> - source water (NTU)	5 <sup>(13)</sup>		-	-	<b>6</b>	Soil runoff
UV 254 Absorbency (cm <sup>-1</sup> )	-		279	0.021 - 0.046	0.031	Organic matter naturally present in the environment
Zinc (mg/L)	5 <sup>(3)</sup>		284	ND - 0.021	ND	Naturally occurring
<b>ORGANIC PARAMETERS</b>						
<b>Specified Organic Chemicals detected:</b>						
Dalapon (µg/L)	50		264	ND - 1.1 <sup>(14)</sup>	ND	By-product of drinking water chlorination; runoff from herbicide use
Bromochloroacetic Acid (µg/L)	50		261	ND - 2.5	1.6	By-product of drinking water chlorination
Chloropicrin (µg/L)	50		16	0.38 - 0.64	0.5	By-product of drinking water chlorination
Haloacetonitriles (HANs) (µg/L)	50		16	1.71 - 3.89	2.8	By-product of drinking water chlorination
Halogenated Ketones (HKs) (µg/L)	50		16	1.05 - 3.85	2.8	By-product of drinking water chlorination
Total Organic Halogen (µg/L)	-		255	91 - 242	166	By-product of drinking water chlorination
Phenanthrene (µg/L)	50		93	ND - 0.25 <sup>(14)</sup>	ND	Incomplete combustion of fossil fuels
<b>CATSKILL/DELAWARE SERVICE AREA <sup>(15)</sup></b>						
Haloacetic Acid 5 (HAA5) (µg/L)	60 <sup>(16)</sup>		214	16 - 64	51	By-product of drinking water chlorination
Total Trihalomethanes (µg/L)	80 <sup>(16)</sup>		219	14 - 59	53	By-product of drinking water chlorination
<b>CROTON SERVICE AREA <sup>(15)</sup></b>						
Haloacetic Acid 5 (HAA5) (µg/L)	60 <sup>(16)</sup>		28	20 - 58	52	By-product of drinking water chlorination
Total Trihalomethanes (µg/L)	80 <sup>(16)</sup>		33	24 - 58	59	By-product of drinking water chlorination
<b>GROUNDWATER SERVICE AREA <sup>(15)</sup></b>						
Haloacetic Acid 5 (HAA5) (µg/L)	60 <sup>(16)</sup>		19	6 - 42	40	By-product of drinking water chlorination
Total Trihalomethanes (µg/L)	80 <sup>(16)</sup>		27	19 - 52	41	By-product of drinking water chlorination

## Detected Parameters (continued)

MICROBIAL PARAMETERS								
PARAMETERS	NYSDOH MCL	USEPA MCLG	CITYWIDE DISTRIBUTION					SOURCES IN DRINKING WATER
			# SAMPLES	RANGE	# SAMPLES POSITIVE	AVERAGE	HIGHEST MONTH % POSITIVE	
Total Coliform Bacteria (% of samples positive/month)	5%	0	9873	-	30	-	1.0%	Naturally present in the environment
<i>E. coli</i> (MPN/100mL)	(17)	0	9873	-	0	-	0.0%	Human and animal fecal waste
Heterotrophic Plate Count (CFU/mL)	TT	-	11421	ND - 5700	503	2	-	Naturally present in the environment

LEAD AND COPPER RULE SAMPLING AT RESIDENTIAL WATER TAPS: JANUARY TO DECEMBER 2012							
PARAMETER	NYSDOH AL	USEPA MCLG	# SAMPLES	RANGE	90 <sup>th</sup> PERCENTILE VALUES	# SAMPLES EXCEEDING AL	SOURCES IN DRINKING WATER
Copper (mg/L)	1.3	1.3	238	0.006 - 0.592	0.185	0	Corrosion of household plumbing systems
Lead (µg/L)	15	0	238	ND - 381	10	10	Corrosion of household plumbing systems

## Not Detected Parameters

UNDETECTED CONVENTIONAL PHYSICAL AND CHEMICAL PARAMETERS
Antimony, Arsenic, Asbestos, Beryllium, Bismuth-212, Bismuth-214, Cadmium, Cesium-134, Cesium-137, Chromium, Cyanide, Gross Alpha, Gross Beta, Lead-212, Lead-214, Lithium, Mercury, Nickel, Nitrite, Potassium-40, Radium-226, Radium-228, Selenium, Silver, Thallium, Thallium-208, Thorium-234, Uranium, Uranium-235
UNDETECTED ORGANIC PARAMETERS
<b>Principal Organic Contaminants not detected:</b> Benzene, Bromobenzene, Bromochloromethane, Bromomethane, n-Butylbenzene, sec-Butylbenzene, tert-Butylbenzene, Carbon Tetrachloride, Chlorobenzene, Chloroethane, Chloromethane, 2-Chlorotoluene, 4-Chlorotoluene, Dibromomethane, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, Dichlorodifluoromethane, 1,1-Dichloroethane, 1,2-Dichloroethane, 1,1-Dichloroethene, cis-1,2-Dichloroethylene, trans-1,2-Dichloroethylene, 1,2-Dichloropropane, 1,3-Dichloropropane, 2,2-Dichloropropane, 1,1-Dichloropropene, cis-1,3-Dichloropropene, trans-1,3-Dichloropropene, Ethylbenzene, Hexachlorobutadiene, Isopropylbenzene, p-Isopropyltoluene, Methylene chloride, n-Propylbenzene, Styrene, 1,1,1,2-Tetrachloroethane, 1,1,2,2-Tetrachloroethane, Tetrachloroethylene, Toluene, 1,2,3-Trichlorobenzene, 1,2,4-Trichlorobenzene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, Trichloroethene, Trichlorofluoromethane, 1,2,3-Trichloropropane, 1,2,4-Trimethylbenzene, 1,3,5-Trimethylbenzene, m-Xylene, o-Xylene, p-Xylene
<b>Specified Organic Chemicals not detected:</b> Alachlor, Aldicarb (Temik), Aldicarb sulfone, Aldicarb sulfoxide, Aldrin, Atrazine, Benzo(a)pyrene, Butachlor, Carbaryl, Carbofuran (Furadan), Chlordane, 2,4-D, 1,2-Dibromo-3-chloropropane, Dicamba, Dieldrin, Di(2-ethylhexyl)adipate, Di(2-ethylhexyl)phthalate, Dinoseb, Diquat, Endothal, Endrin, Ethylene dibromide (EDB), Glyphosate, Heptachlor, Heptachlor epoxide, Hexachlorobenzene, Hexachlorocyclopentadiene, 3-Hydroxycarbofuran, Lindane, Methomyl, Methoxychlor, Methyl-tertiary-butyl-ether (MTBE), Metolachlor, Metribuzin, Oxamyl (Vydate), Pentachlorophenol, Picloram, Polychlorinated biphenyls [PCBs], Propachlor, Simazine, Toxaphene, 2,4,5-TP (Silvex), 2,3,7,8-TCDD (Dioxin), Vinyl chloride
<b>Unspecified Organic Chemicals not detected:</b> Acenaphthene, Acenaphthylene, Acetochlor, Acetone, Acifluorfen, Ametryn, Anthracene, Bentazon, Benzo[a]anthracene, Benzo[a]pyrene, Benzo[b]fluoranthene, Benzo[k]fluoranthene, Benzo[g,h,i]perylene, a-BHC, b-BHC, d-BHC, Bromacil, 2-Butanone (MEK), Butylate, Butylbenzylphthalate, tert-Butyl ethyl ether, Carbon disulfide, Caffeine, Carboxin, Chloramben, a-Chlordane, g-Chlordane, Chlorobenzilate, 2-Chlorobiphenyl, Chloroneb, Chlorothalonil (Draconil, Bravo), Chlorpropham, Chlorpyrifos (Dursban), Chrysene, Cycloate, 2,4-DB, DCPA(Dacthal), DCPA (total mono & diacid degradate), p,p'DDD, p,p'DDE, p,p'DDT, DEF(Merphos), Diazinon, Dibenz[a,h]anthracene, Di-n-Butylphthalate, 3,5-Dichlorobenzoic acid, 2,3-Dichlorobiphenyl, Dichlorprop, Dichlorvos (DDVP), Diethylphthalate, Di-isopropyl ether, Dimethoate, Dimethylphthalate, 2,4-Dinitrotoluene, 2,6-Dinitrotoluene, Di-N-octylphthalate, Diphenamid, Disulfoton, Endosulfan I, Endosulfan sulfate, Endrin aldehyde, EPTC, Ethoprop, Etridiazole, Fenamiphos, Fenarimol, Fluoranthene, Fluorene, Fluridone, alpha-HCH, beta-HCH, delta-HCH, 2,2',3,3',4,4',6-Heptachlorobiphenyl, Heptachlor epoxide (isomer B), 2,2',4,4',5,6'-Hexachlorobiphenyl, Hexazinone, Indeno[1,2,3-cd]pyrene, Isophorone, Malathion, Methiocarb, Methyl Paraoxon, 4-Methyl-2-Pentanone (MIBK), Mevinphos, MGK264-isomer a, MGK264-isomer b, Molinate, Naphthalene, Napropamide, 4-Nitrophenol, cis-Nonachlor, trans-Nonachlor, Norflurzon, 2,2',3,3',4,5',6,6'-Octachlorobiphenyl, Paraquat, Parathion, Pebulate, Pendimethalin, 2,2',3',4,6-Pentachlorobiphenyl, Permethrin, trans-Permethrin, Prometryn, Pronamide, Propazine, Propoxur (Baygon), Pyrene, 2,4,5-T, Simetryn, Stirofos, Tebuthiuron, Terbacil, Terbufos, Terbutylazine, Terbutryn, 2,2',4,4'-Tetrachlorobiphenyl, Thiobencarb, Triademefon, 2,4,5-Trichlorobiphenyl, Trichlorotrifluoroethane (Freon 113), Tricyclazole, Trifluralin, Vernolate

Highlighted and **bolded** value indicates an exceedance of a drinking water standard.

## Footnotes

- (1) USEPA Secondary MCL: NYSDOH has not set an MCL for this parameter.
- (2) Value represents MRDL, which is a level of disinfectant added for water treatment that may not be exceeded at the consumer's tap without an unacceptable possibility of adverse health effects. The MRDL is enforceable in the same manner as an MCL and is the calculated running annual average. Data presented are the range of individual sampling results and the highest of the four quarterly running annual averages.
- (3) Determination of MCL violation: If a sample exceeds the MCL, a second sample must be collected from the same location within two weeks. If the average of the two results exceeds the MCL, then an MCL violation has occurred.
- (4) Action Level (not an MCL) measured at the tap. The data presented in this table were collected from sampling stations at the street curb. For at-the-tap monitoring, see the Lead and Copper Rule Sampling at Residential Water Taps table.
- (5) A Langelier Index of less than zero indicates corrosive tendencies.
- (6) Hardness of up to 3 grains per gallon is considered soft water; between 3 and 9 is moderately hard water.
- (7) If iron and manganese are present, the total concentration of both should not exceed 500 µg/L.
- (8) Only one sample collected on 7/16/12 from site 31050 (Tribeca, 10013) had a lead value above the Action Level of 15 µg/L.
- (9) The reported average value for pH is the median value.
- (10) Water containing more than 20 mg/L of sodium should not be used for drinking by people on severely restricted sodium diets. Water containing more than 270 mg/L of sodium should not be used for drinking by people on moderately restricted sodium diets.
- (11) Turbidity is a measure of the cloudiness of the water. Turbidity is monitored because it is a good indicator of water quality and can hinder the effectiveness of disinfection.
- (12) This MCL for turbidity is the monthly average rounded off to the nearest whole number. Data presented are the range of individual sampling results and the highest monthly average from distribution sites.
- (13) This MCL for turbidity is on individual readings taken every four hours at the source water entry points. Value presented is the highest individual sampling result.
- (14) Only one sample had a detection.
- (15) Although Croton water and groundwater were not put into distribution in 2012, under the Stage 1 Disinfection By-Products (DBP) rule monitoring was conducted at specified locations based on the potential distribution of the different source waters to consumers, and compliance assessed and reported by service area. All water distributed in 2012 was from the Catskill/Delaware supply.
- (16) The MCLs for HAA5 and TTHMs are the calculated quarterly running annual average. The data in the Range column are the minimum and maximum values of all sample sites monitored in the distribution system whether for compliance purposes or not. The values in the Average column are the highest quarterly running annual averages computed under the Stage 1 DBP rule, which include 2011 data and which occurred in the 1<sup>st</sup> quarter of 2012. Monitoring under the Stage 2 DBP rule began in the 2<sup>nd</sup> quarter of 2012 but compliance will not be reportable until 2013.
- (17) If a sample and its repeat sample are both positive for coliform bacteria and one of the two samples is positive for *E. coli*, then an MCL violation has occurred.

## Exceedences

**pH:** The pH was elevated at two locations: site 77250 (Rosedale, 11422) on 7/7/12 and 7/9/12 at 9.1, and 8.6 respectively, and site 77650 (Queens Village, 11429) on 8/16/12 at 9.2. These temporarily elevated pH readings were attributed to water main replacement projects in the immediate areas. All other samples from these locations reflected pH in the expected ranges.

**Turbidity:** The one reading greater than the MCL of 5 NTU occurred on 10/29/12. See the section on turbidity for details.

## Definitions

### **Action Level (AL):**

The concentration of a contaminant, which if exceeded, triggers treatment or other requirements that a water system must follow. An exceedance occurs if more than 10% of the samples exceed the Action Level.

### **Maximum Contaminant Level Goal (MCLG):**

The level of a 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):**

The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible, using the best available treatment technology.

### **Maximum Residual Disinfectant Level (MRDL):**

The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

### **Maximum Residual Disinfectant Level Goal (MRDLG):**

The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contamination.

### **Treatment Technique (TT):**

A required process intended to reduce the level of a contaminant in drinking water.

### **90<sup>th</sup> Percentile Value:**

The values reported for lead and copper represent the 90<sup>th</sup> percentile. A percentile is a value on a scale of 100 that indicates the percent of a distribution that is equal to or below the value. The 90<sup>th</sup> percentile is equal to or greater than 90% of the lead and copper values detected at your water system.

## Abbreviations

**CFU/mL** = colony forming units per milliliter

**mg/L** = milligrams per liter (10<sup>-3</sup> grams per liter)

**MPN/100mL** = most probable number per 100 milliliter

**ND** = Lab analysis indicates parameter is not detected

**NDL** = No Designated Limit

**NTU** = Nephelometric Turbidity Units

**µg/L** = micrograms per liter (10<sup>-6</sup> grams per liter)

**µmho/cm** = micromhos per centimeter

**µS/cm** = microsiemens per centimeter



## Frequently Asked Questions

### ***At times, my drinking water looks “milky” when first taken from a faucet, but then clears up. Why?***

Air becomes trapped in the water as it makes its long trip from the upstate reservoirs to the City. As a result, bubbles of air can sometimes cause water to appear cloudy or milky. This condition is not a public health concern. The cloudiness is temporary and clears quickly after water is drawn from the tap and the excess air is released.

### ***At times I can detect chlorine odors in tap water.***

#### ***What can I do about it?***

Chlorine odors may be more noticeable when the weather is warmer. Chlorine is a disinfectant and is added to the water to kill germs. The following are ways you can remove the chlorine and its odor from your drinking water:

- Fill a pitcher and let it stand in the refrigerator overnight. (This is the most effective way to address a chlorine odor in drinking water.)
- Fill a glass or jar with water and let it stand in sunlight for 30 minutes.
- Pour water from one container to another about 10 times.
- Heat the water to about 100 degrees Fahrenheit.
- Once you remove the chlorine, be sure to refrigerate the water to limit bacterial regrowth.

### ***Does my drinking water contain fluoride?***

Yes, New York City tap water contains fluoride. In accordance with Article 141.05 of the New York City Health Code, DEP, as the New York City water supplier, adds a fluoride compound that provides the water supply with a concentration of about 0.8 mg/L of the fluoride ion. Fluoridation began in 1966.

### ***Sometimes my water is a rusty brown color. What causes this?***

Brown water is commonly associated with plumbing corrosion problems inside buildings and from rusting hot water heaters. If you have an ongoing problem with brown water, it is probably due to rusty pipes. It is recommended that you run your cold water for 2 - 3 minutes, if it has not been used for an extended period of time. This will flush the line. You can avoid wasting water by catching your “flush” water in a container and using it to water plants or for other purposes. Brown water can also result from street construction or water main work being done in your area. Any disturbance to the main, including the opening of a fire hydrant, can cause pipe sediment to shift, resulting in brown water. The settling time will vary, depending on the size of the water main.

### ***Should I buy bottled water?***

New York City has safe, award-winning, affordable, and great tasting tap water. You do not need to buy bottled water for health reasons in New York City since our water meets all federal and State health-based drinking water standards. In addition, bottled water costs up to 1,000 times more per year than New York City’s drinking water.

When purchasing bottled water, consumers should look for the New York State Health Department (NYSHD) CERT #. Consumers can access additional information on New York State certified bottled water facilities within the United States that can sell water within New York State at [www.health.state.ny.us/environmental/water/drinking/bulk\\_bottle/bottled.htm](http://www.health.state.ny.us/environmental/water/drinking/bulk_bottle/bottled.htm). As an alternative to purchasing bottled water, use a reusable bottle and fill it with New York City tap water.

### ***Is New York City’s water “hard”?***

Hardness is a measure of dissolved calcium and magnesium in drinking water. The less calcium and magnesium in the water (“soft” water), the easier it is to create lather and suds. New York City’s Catskill/Delaware System water is predominantly “soft” with a hardness of about 1.0 grain/gallon (CaCO<sub>3</sub>).

## Ultraviolet Disinfection Frequently Asked Questions

### ***What is UV?***

Ultraviolet light (UV) is a form of energy called electromagnetic radiation. UV light is a small part of the entire electromagnetic spectrum made up of other types of radiation including visible light, x-rays, radio waves, and microwaves, all at different wavelengths. UV light is electromagnetic radiation with wavelengths in the range of 100- 400 nanometers (nm). In contrast, visible light is in the range of 400-700 nm, so UV light is not visible.

### ***What is UV treatment?***

UV treatment is the disinfection process of passing water by special lamps that emit UV waves, which can inactivate harmful microorganisms.

### ***How does UV treatment work?***

Ultraviolet light is similar to the sun’s rays, but stronger. The UV alters the nucleic acid (DNA) of viruses, bacteria, molds or parasites, so that they cannot reproduce or cause disease. UV treatment does not change the water chemically as nothing is added except energy.

### ***Is UV-treated water safe to drink?***

UV-treated water is safe to drink. UV treatment does not add chemicals or change the chemical composition of the water. UV only inactivates microorganisms in the water.

### ***When UV treatment is used to disinfect water, does the water become radioactive?***

Since UV is light, it travels through air and water at the speed of light and when the UV source is turned off, the UV is gone. Nothing remains behind; the water that has been exposed to UV is the same as it was before exposure, and it does not become radioactive. The process is like shining a bright light into a glass of water.

### ***Will you still use chlorine disinfection?***

UV disinfection in combination with chlorine disinfection, which is currently in place, will provide a multiple disinfection barrier.

### ***Does building and operating this new facility increase my water bill?***

The construction and operation of the UV Disinfection Facility has already been incorporated into the water rate, so customers will not see a water rate increase associated with this specific project.

Please share this information with other people who drink New York City tap water, especially those who may not have received this publication directly, such as people who live in apartment buildings or nursing homes, attend schools, or have businesses. You can do this by posting this publication in a public place or distributing copies by hand mail or email.

## Resources

For additional copies of this report, to report unusual water characteristics, or to request a free kit to test for lead in your drinking water, call 311, or from outside NYC call (212) New-York or visit 311 online. TTY services are available by calling (212) 504-4115.

For more information about *Cryptosporidium* and *Giardia*, contact the Bureau of Communicable Diseases of the New York City Department of Health and Mental Hygiene at (212) 788-9830 or call 311 or visit [www.nyc.gov/apps/311](http://www.nyc.gov/apps/311).

To contact the New York City Department of Health and Mental Hygiene about other water supply health-related questions, call 311 or visit 311 online, or call New York State Department of Health, Bureau of Water Supply Protection at (518) 402-7650.

To report pollution, crime or terrorism activity occurring in the watershed, call (888) H2O-SHED (426-7433).

To view the 2012 Annual Water Supply and Quality Report, announcements of public hearings, and other information about the New York City Water Supply System, visit DEP's website at [www.nyc.gov/dep](http://www.nyc.gov/dep).

This report was prepared in accordance with Part 5-1.72 of the New York State Sanitary Code (10NYCRR), and the National Primary Drinking Water Regulations, 40 CFR Part 141 Subpart O, of the United States Environmental Protection Agency (EPA), which require every drinking water supplier to provide the public with an annual statement describing the water supply and the quality of its water.

Este reporte contiene información muy importante sobre el agua que usted toma. Haga que se la traduzcan o hable con alguien que la entienda.

Ce rapport contient des informations importantes sur votre eau potable. Traduisez-le ou parlez en avec quelqu'un qui le comprend bien.

Questo documento contiene informazioni importanti sulla vostra acqua potabile. Traducete il documento, or parlatene con qualcuno che lo può comprendere.

Rapò sa a gen enfòmasyon ki enpòtan anpil sou dlo w'ap bwè a. Fè tradwi-l pou ou, oswa pale ak yon moun ki konprann sa ki ekri ladan-l.

Ten raport zawiera bardzo istotną informację o twojej wodzie pitnej. Przetłumacz go albo porozmawiaj z kimś kto go rozumie.

В этом материале содержится важная информация относительно вашей питьевой воды. Переведите его или поговорите с кем-нибудь из тех, кто понимает его содержание.

這個報告中包含有關你的飲用水的重要信息。請將此報告翻譯成你的語言，或者詢問懂得這份報告的人。

이 보고서는 귀하의 식수에 관한 매우 중요한 정보를 포함하고 있습니다. 이 정보에 대해 이해하는 사람에게 그 정보를 번역하거나 통역해 받으십시오.



**Environmental  
Protection**

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