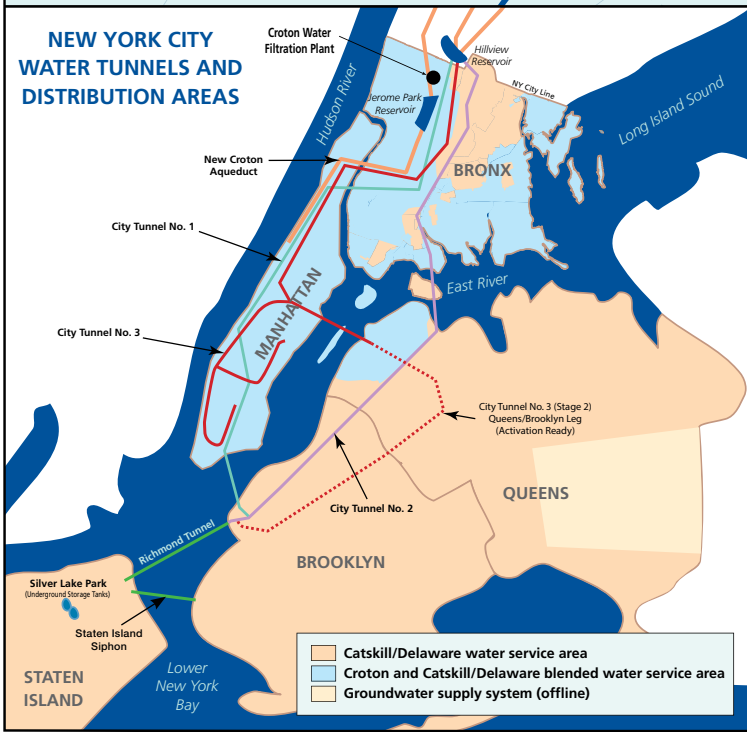
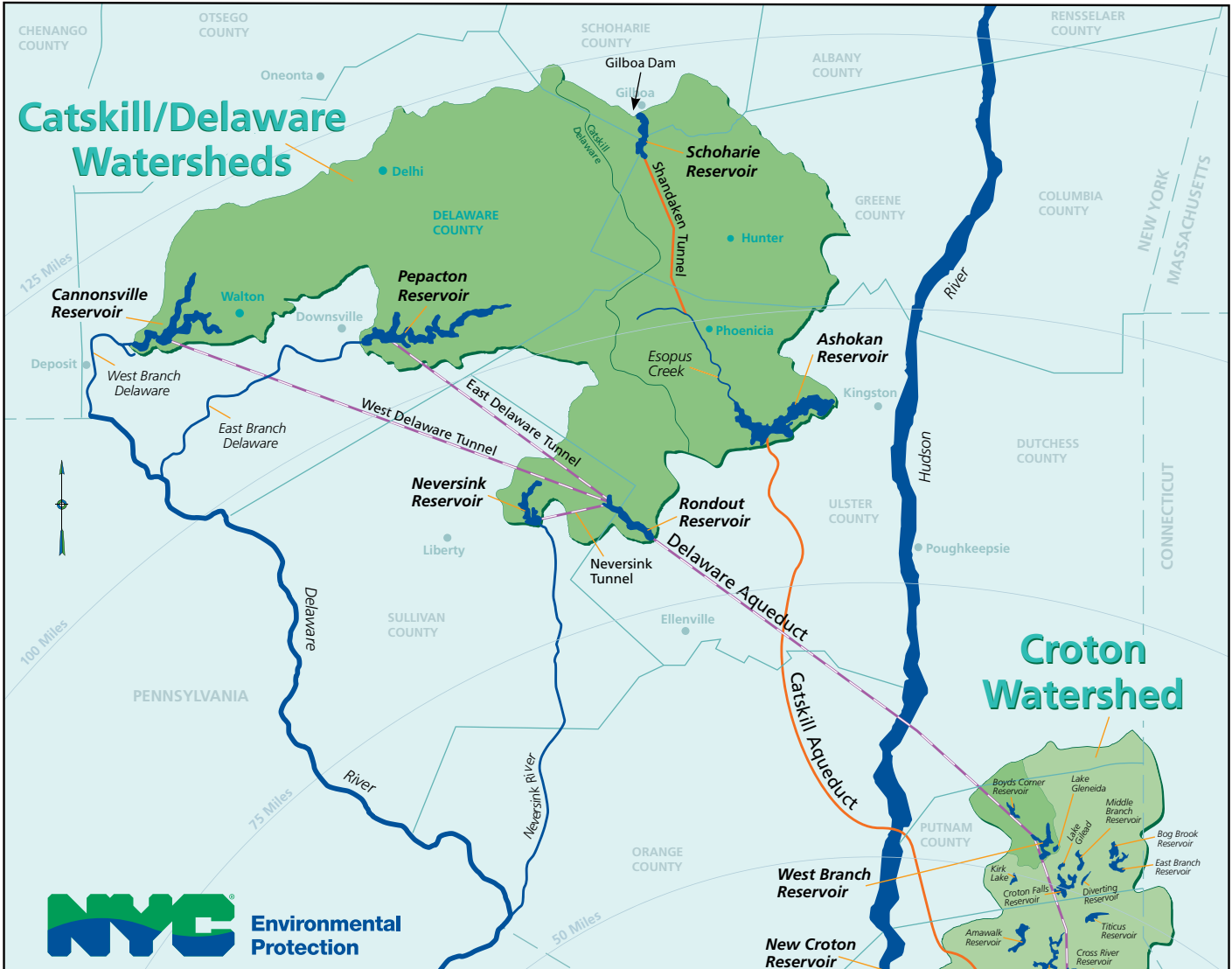


NEW YORK CITY 2017 DRINKING WATER SUPPLY AND QUALITY REPORT



Bill de Blasio
Mayor

Vincent Sapienza, P.E.
Commissioner



MAP NOT TO SCALE



Vincent Sapienza, P.E.
Commissioner



Dear Friends:

On behalf of my nearly 6,000 colleagues at the Department of Environmental Protection (DEP), I am pleased to report that New York City continues to enjoy exceptionally high-quality tap water. As concerns over the safety of public water supplies remains high, I am proud that we continue to deliver more than 1 billion gallons of clean and delicious drinking water to nearly 10 million people every day.

DEP marked several noteworthy achievements for New York City's water supply in 2017. One of the most important was securing a new, 10-year Filtration Avoidance Determination (FAD) for the City's Catskill and Delaware water supplies. This important permit allows DEP to deliver 90 percent of the city's drinking water without filtration. It also outlines a number of programs to keep our water clean at its source in the Hudson Valley and Catskill Mountains. These science-based programs in the FAD are rooted in the premise that it is most cost effective and environmentally sound to protect water at its natural source. The new filtration waiver is an endorsement of our programs, which are considered a worldwide model for protecting drinking water and the natural resources that preserve its quality. As part of the new FAD, DEP will commit an estimated \$1 billion over the next decade to continue and expand many of these watershed initiatives.

To ensure that these programs keep the water clean, DEP scientists collect water samples 365 days a year from our expansive reservoir system, the aqueducts that deliver the water to the city, and the roughly 1,000 street-side sampling stations spread across the five boroughs. Those water samples are delivered to one of DEP's four state-of-the-art laboratories where scientists analyze them more than 600,000 times annually. Robotic monitoring buoys deployed on the reservoirs provide an additional 1.2 million measurements that help us send the best water to the city at all times. The data from this extensive scientific analysis, which is outlined in this report, demonstrate that the City's water meets or exceeds all health and safety regulations.

Keeping our water system in a state of good repair requires substantial investments. Last year we announced a \$750 million program to upgrade nearly all the infrastructure at Ashokan Reservoir. The largest and most complex repair in the history of the water supply system, the \$1 billion construction of the Delaware Aqueduct bypass tunnel, is on schedule as a tunnel boring machine has begun its work under the Hudson River. You will find details about this, and several other infrastructure projects, in the pages that follow.

I am proud to present this report to the nearly 10 million New Yorkers who rely on us to deliver safe, clean, high-quality drinking water every day.

Sincerely,

A handwritten signature in black ink, appearing to read 'Vincent Sapienza', written over a white background.

Vincent Sapienza, P.E.
Commissioner



Ashokan Reservoir

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 8.5 million residents of New York City, and to the millions of tourists and commuters who visit the City throughout the year. The water supply system also provides about 110 million gallons a day to approximately one million people living in the counties of Westchester, Putnam, Orange, and Ulster. In all, the New York City Water Supply System provides nearly half the population of New York State with high-quality drinking water.

WHERE DOES NEW YORK CITY'S DRINKING WATER COME FROM?

New York City gets its drinking water from 19 reservoirs and three controlled lakes spread across a nearly 2,000-square-mile watershed. The watershed is not located in New York City, but rather upstate, in portions of the Hudson Valley and Catskill Mountains that are as far as 125 miles north of the City. A map of the watershed and reservoirs can be found on the inside of the front cover of this report. The New York City Water Supply System, Public Water System Identification Number (PWSID) NY7003493, consists of three individual water supplies called the Catskill/Delaware supply, located in Delaware, Greene, Schoharie, Sullivan, and Ulster counties; the Croton supply, New York City's original upstate supply, in Putnam, Westchester, and Dutchess counties; and a groundwater supply in southeastern Queens. Although the Department of Environmental Protection (DEP) has a permit to operate the groundwater supply, water from that system has not been delivered to customers in many years.

In 2017, New York City received a blend of drinking water from the Catskill/Delaware and Croton supplies. The Catskill/Delaware supply provided approximately 97 percent of the water, and approximately three percent was supplied by Croton.

HOW DOES NEW YORK CITY TREAT ITS WATER SUPPLIES?



Catskill/Delaware Supply

located in Delaware, Greene, Schoharie, Sullivan, and Ulster counties
 Due to the very high quality of our Catskill/Delaware supply, New York City is one of only five large cities in the country with a surface drinking water supply that does not require filtration as a form of treatment. Rather, the Catskill/Delaware supply operates under a Filtration Avoidance Determination (FAD), and the water from the supply is treated using two forms of disinfection to reduce microbial risk.

Disinfection

Chlorine

Water is disinfected with chlorine which is a common disinfectant added to kill germs and stop bacteria from growing on pipes.

UV Light

At the UV Disinfection Facility exposure to UV light inactivates potentially harmful microorganisms. UV treatment does not change the water chemically, as nothing is added except energy.



Catskill/Delaware Ultraviolet (UV) Disinfection Facility

It is the largest of its kind in the world located in Westchester County. The facility is designed to disinfect more than 2 billion gallons of water per day.

Fluoride*

Added to water to improve dental protection and is effective in preventing cavities at a federally approved level of 0.7 mg/L.

Sodium Hydroxide

Added to raise the pH and reduces corrosion of household plumbing.

Other Treatment

Food Grade Phosphoric Acid

Added because it creates a protective film on pipes that reduces the release of metals, such as lead, from service lines and household plumbing.

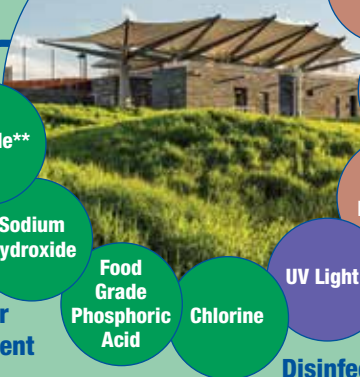


Croton Water Supply

located in Putnam, Westchester, and Dutchess counties
 The Croton Supply is filtered by the Croton Water Filtration Plant, located underground in the Bronx. The plant has the ability to filter up to 290 million gallons of drinking water each day, which helps to ensure a sufficient supply of water for the City in the event of drought and increases the flexibility of New York City's supply against the potential effects of climate change. The Croton Water Filtration Plant first began operating in May 2015. In 2017, it was in operation from January 1 to February 28. No Croton water has been added to the distribution system since then.

Filtration

Croton Water Filtration Plant



Coagulation

Chemicals are added to untreated water, causing particulates to bunch together and become larger particles called floc.

Dissolved Air Flotation

Injected air bubbles float the floc to the top where it is skimmed off.

Sand Filtration

The water flows through a bed of sand removing any remaining particles.

Fluoride**

Sodium Hydroxide

Food Grade Phosphoric Acid

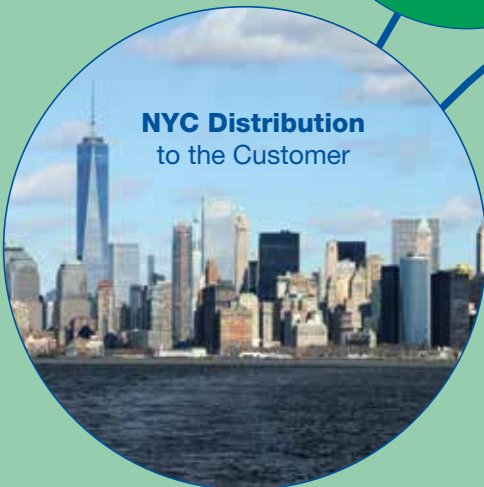
Chlorine

UV Light

Other Treatment

Disinfection

NYC Distribution to the Customer



* During 2017, only 1.4 percent of the water produced by Catskill/Delaware supply was not fluoridated.

** During 2017, only 0.01 percent of the water produced by the Croton Water Filtration Plant was not fluoridated.



Robotic water quality monitoring in the watershed

DRINKING WATER QUALITY

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 material, 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.

To ensure that tap water is safe to drink, the New York State Department of Health (NYSDOH) and the United States Environmental Protection Agency (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. The presence of contaminants does not necessarily indicate that water poses a health risk. These regulations also establish the minimum amount of testing and monitoring that each system must undertake to ensure that the tap water is safe to drink.

DEP's water quality monitoring program – far more extensive than required by law – demonstrates that the quality of New York City's drinking water remains high and meets all state and federal drinking water standards. Additional information concerning drinking water can be found at: www.epa.gov/safewater or www.health.ny.gov.

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. To accomplish this goal, throughout the watershed and as the water enters the distribution system, DEP continuously monitors and conducts analyses for certain water quality parameters, including microbiological, chemical, and physical measures. DEP also regularly tests water quality at nearly 1,000 water quality sampling stations throughout New York City. In 2017, DEP performed approximately 401,200 analyses on 36,120 samples from the distribution system, meeting all state and federal monitoring requirements. Additionally, DEP performed approximately 213,600 analyses on 14,170 samples from the upstate reservoir watersheds, and took close to 1.2 million robotic monitoring measurements to support FAD watershed protection programs and to optimize water quality. The results of the tests conducted in 2017 under DEP's distribution system monitoring program are summarized in the tables starting on page 11 of this report.

LEAD IN DRINKING WATER

Lead is a metal that can harm children and adults when it is consumed. Lead is a neurotoxin, and may impact a young child's development, behavior, and ability to learn. Lead exposure during pregnancy may contribute to low birth weight and developmental delays in infants. There are many sources of lead in the environment, and it is important to reduce exposure to lead as much as possible.

New York City water is virtually lead-free when it is delivered from the City's upstate reservoir system. But some residential homes, particularly ones built before 1960, may have lead in their plumbing materials, like solder, brass fixtures, and service pipes. DEP has an active corrosion control program that helps to reduce lead absorption, and tests performed during 2017 (included on Page 14 of this report) show that the vast majority of homes in the City have lead concentrations in full compliance with federal standards. DEP offers free residential test kits if you would like to have your tap water evaluated for lead. Since 1992, DEP has distributed over 121,000 of these tests kits. To request a free kit, call New York City's 24-hour helpline at 311 or visit www.nyc.gov/apps/311 and search for Lead Test Kit.

WHAT CAN I DO?

If the plumbing materials in your home do contain lead, there are steps you can take to minimize lead levels. If water has been sitting in your pipes overnight, you can run your tap for 30 seconds to 2 minutes before using water for drinking or cooking. Always use cold water for cooking, drinking, or preparing infant formula, as hot tap water is more likely to absorb lead. You can periodically remove and clean the faucet screen (aerator), where small particles may get trapped.

Additional steps to minimize lead exposure are available from EPA's Safe Drinking Water Hotline 1-800-426-4791 or at www.epa.gov/safewater/lead. For health-related questions, call New York City Department of Health and Mental Hygiene (DOHMH) – Healthy Homes at (646) 632-6023 or visit www.nyc.gov/health – Healthy Homes, Lead Poisoning Prevention.

RUN YOUR TAP

REDUCE POTENTIAL EXPOSURE TO LEAD FROM YOUR PLUMBING SYSTEM

New York City's drinking water meets or exceeds the highest quality standards. But lead can enter tap water through household plumbing, causing levels that may pose a health risk to young children.

Lead poisoning has dropped dramatically over the past decade. Here are a few simple precautions you can take to further reduce your exposure:

- Run your tap for at least 30 seconds, until the water is noticeably colder, before using it for drinking, cooking or making baby formula any time the water in a faucet has stood for several hours.
- Always use cold tap water for drinking or cooking, even after you have run your tap.

For more information, visit nyc.gov or call 311.





Ashokan Reservoir

WATERSHED PROTECTION AND POLLUTION PREVENTION PROGRAMS

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. Higher 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 FAD for its Catskill/Delaware supply. That was followed in 1997 by the historic New York City Watershed Memorandum of Agreement, which was signed by the City, state, and federal regulators, watershed communities, and environmental advocates. Since that time, DEP has been implementing a series of programs to protect our reservoirs and the streams that feed them from a variety of contaminants. These ongoing programs operate under the close scrutiny of both the NYSDOH and EPA. Because of these efforts, which are reported in the Watershed Water Quality Annual Report, NYSDOH does not deem it necessary to perform a source water assessment on the New York City Water Supply. For information on the DEP Watershed Water Quality Annual Report, visit www.nyc.gov/dep/2016-watershed-water-quality-report.

MAINTAINING NEW YORK CITY'S WORLD-RENOWNED WATER SUPPLY

10-Year Filtration Avoidance Determination

DEP funds and administers a number of watershed protection and pollution prevention programs to maintain the high quality of our drinking water. These science-based strategies are designed to protect New York City's drinking water at its source by keeping pollution out of our reservoirs and the streams, creeks, and rivers that feed them.

Ashokan Century Program

DEP recently announced the Ashokan Century Program, a \$750 million plan to upgrade water supply infrastructure at Ashokan Reservoir, the second largest reservoir in the City's drinking water supply. Ashokan Reservoir has provided clean drinking water to all five boroughs of New York City for 100 years. About 40 percent of the City's drinking water passes through Ashokan Reservoir during a typical year. Water from the reservoir is delivered to New York City through the 92-mile-long Catskill Aqueduct.

The Ashokan Century Program will include a number of tasks to refurbish the reservoir's main dam, Olive Bridge Dam, and the many dikes that hold water in the reservoir. The dam and dikes at Ashokan Reservoir stretch approximately 29,000 linear feet – longer than the dams at all the City's other reservoirs combined. Workers will also upgrade the valves that move water from the reservoir into the aqueduct, replace a deteriorating bridge that crosses the reservoir, and restore a historic monument that was used by surveyors to take measurements during construction of the reservoir. The Ashokan Century Program comprises the largest public works project in the Catskills since the City completed Cannonsville Reservoir in the 1960s. Construction of these projects is expected to begin sometime around the year 2023. Engineers will begin to design them this year. The Ashokan Century Program will take approximately 10 years to complete.

On December 28, 2017, NYSDOH issued a new 10-year FAD that will allow DEP to continue operating its Catskill/Delaware supply without filtration through at least 2027. DEP will commit an estimated \$1 billion over the next decade to comply with the FAD. That funding will go toward preserving watershed lands, upgrading wastewater infrastructure, implementing clean-water strategies on watershed farms, and managing streams, forests, and other natural resources that affect water quality.

Including the new FAD, DEP has committed more than \$2.7 billion toward its watershed protection programs since 1993, when the EPA first issued the City a waiver from the federal requirement to filter tap water that comes from surface sources such as reservoirs. DEP's watershed programs are based on the premise that it is most cost-effective and environmentally sound to protect the quality of drinking water at its source. The filtration waiver allows DEP to avoid construction of a large filtration plant for the Catskill/Delaware supply. Such a facility is estimated to cost more than \$10 billion to construct, which would make it the largest public works project in the City's history.

Over the past 25 years, DEP's programs in the watershed have become a national and international model for protecting water at its source. Each year, water utility managers and public health professionals come from around the globe to study DEP programs. In 2017 alone, DEP welcomed visitors from Australia, Canada, Chile, China, Colombia, India, Singapore, the United Kingdom, and others that aimed to solve water-quality challenges by replicating part of New York City's protection efforts.

DEP's source water protection initiatives and achievements include:

- **Land acquisition:** DEP has preserved 147,221 acres of land since 1997, in addition to the nearly 45,000 acres of land surrounding its reservoirs already owned by the City. The State of New York owns and permanently protects 210,000 acres as parkland or forestland, and other entities have preserved nearly 25,000 acres in the watershed. In all, nearly 40 percent of the watershed is now preserved as open space.
- **Agricultural program:** The not-for-profit Watershed Agricultural Council, one of the DEP's watershed partners, has completed more than 450 "whole farm" plans that incorporate pollution prevention into the business operations of local farms. Those plans are complemented by the installation of more than 7,400 best management practices that control runoff from farms and minimize the amount of nutrients or potential contaminants entering local streams.
- **Wastewater treatment plant upgrades:** DEP has completed upgrades on all private and public wastewater treatment plants in the Catskill/Delaware watershed.
- **Septic system repair:** The Catskill Watershed Corporation (CWC), another partner organization funded by the City, has invested in the repair of failing septic systems across the watershed, with more than 5,200 repairs completed through 2017.

Delaware River Flow Program

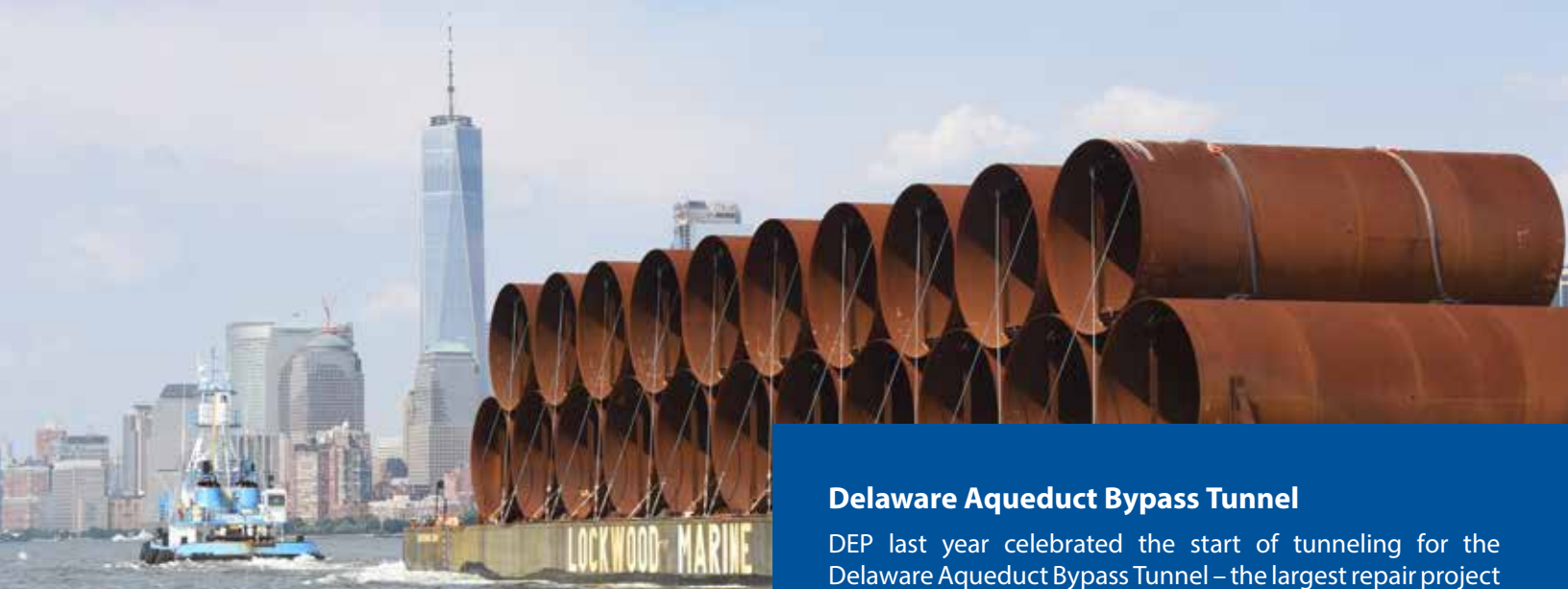
Three large reservoirs in the New York City supply are located on tributaries of the Delaware River – Cannonsville, Neversink, and Pepacton. While New York City uses these reservoirs for drinking water, the City is also required to release water downstream of the dams to meet flow targets on the Delaware River and to support the river's ecological health. A number of court decisions and interstate agreements govern the use of water for these purposes.

One of those agreements – between New York City and the states of Delaware, Pennsylvania, New Jersey, and New York – is known as the Flexible Flow Management Program (FFMP). The five parties agreed to a new 10-year FFMP last year.

The new program includes several enhancements from previous versions. It expands upon a strategy for reducing peak flood levels by requiring DEP to keep some open capacity in our reservoirs to catch rainwater and melting snow during some parts of the year. The program helps to protect the world-class trout fishery on the Upper Delaware River by setting aside cold water that can be released during heat waves. And it protects public health for millions of Americans by sustaining supplies of high-quality drinking water for New York City, Philadelphia, and population centers in New Jersey.

The new FFMP also requires the City and four states to pursue a number of scientific studies. One particularly important study will focus on saltwater in the lower Delaware River. During times of drought, saltwater from the Atlantic Ocean pushes northward in the Delaware River. If the salt line reaches a certain point in the river, New York City currently bears the sole responsibility of pushing it back toward the ocean by releasing large quantities of water from its drinking water reservoirs. As climate change and sea-level rise continue, scientific analyses suggest that pushing the saltwater back would require more and more water from the City's reservoirs. The upcoming study will focus on other options to repel the saltwater, including the use of water from other reservoirs that are located farther south within the Delaware River Basin.

This issue and others are critically important to DEP's operation of its Delaware System reservoirs, which generally have the best water quality among the City's three reservoir systems.



Steel liners for the Delaware Aqueduct Bypass Tunnel (each liner is 16' in diameter and 40' long)

- **Stream management:** DEP has implemented a comprehensive stream management program to restore the natural stability and flood resiliency of streams that feed the reservoir system. Through 2017, the program has funded 364 projects to restore stream stability and streamside vegetation along 41.2 miles of waterways in the Catskills.
- **Land management and recreation:** DEP has developed a comprehensive plan to manage the forests on City-owned land, which naturally filter the water as it moves toward the reservoirs. DEP has also opened 135,000 acres of City-owned property for fishing, hiking, and other types of low-impact recreation in the watershed.
- **Regulatory program:** While balancing the goals of watershed protection with the needs of the region, DEP administers a regulatory program to review and approve new development proposals in the watershed and works with local communities to identify and invest in projects that mitigate flooding.

The new FAD requires DEP to continue these core programs. It also requires DEP fund new efforts to collect and process wastewater, preserve streams and their buffer lands, and expand our work with watershed farmers. In addition, the FAD includes an expert review of the City's source water protection programs by the National Academies of Sciences, Engineering, and Medicine. That expert study will begin in 2018.

More information about the FAD can be found on the NYSDOH website at the following address:
www.health.ny.gov/environmental/water/drinking/nycfad.

More information about New York City's watershed protection programs can be found:
www.nyc.gov/watershed.

Delaware Aqueduct Bypass Tunnel

DEP last year celebrated the start of tunneling for the Delaware Aqueduct Bypass Tunnel – the largest repair project in the 176-year history of New York City's water supply. The \$1 billion project will repair two leaking sections of the 85-mile-long Delaware Aqueduct, the longest tunnel in the world. The Delaware Aqueduct delivers about 50 percent of New York City's drinking water each day.

The centerpiece of the repair is a 2.5-mile-long bypass tunnel that will carry water around the largest leak, which is located in Newburgh, N.Y. That tunnel will be constructed 600 feet below the Hudson River from Newburgh to Wappingers Falls. Once finished, both ends of the bypass tunnel will be connected to structurally sound portions of the existing Delaware Aqueduct to carry water around the leaking section.

DEP marked the start of tunneling in September 2017. The bypass tunnel will be excavated by one of the world's most advanced tunnel boring machines (TBM). The machine measures more than 470 feet long and weighs upwards of 2.7 million pounds. The head of the machine, which cuts and crushes the bedrock, is 21.6 feet in diameter. The TBM was designed to withstand more pressure than any tunneling machine ever built. It can withstand 30 bar of pressure, or about 11 times the amount of force from a garden hose. It was designed to bear that much pressure because workers encountered huge inflows of water from the river 600 feet above them when the aqueduct was first built more than 70 years ago. Engineers expect to encounter similar conditions while building the bypass tunnel.

Tunneling will take approximately 20 months to complete. After the machine is finished excavating, the tunnel will be reinforced by 9,200 feet of linear steel and a second layer of concrete. DEP will shut down the Delaware Aqueduct for approximately 6 months in 2022 to connect the new bypass tunnel. During the shutdown workers will enter another portion of the aqueduct, in Ulster County, and use grout to seal a second set of smaller leaks. The City's other two water supply systems, the Catskill and Croton, will meet the needs of water consumers in New York City during the shutdown. Repairs to the Delaware Aqueduct will be finished in 2023.



Watershed Stream

CRYPTOSPORIDIUM AND GIARDIA

In 1992, DEP started a comprehensive program to monitor its source waters and watersheds for the presence of *Cryptosporidium* and *Giardia*, microscopic organisms (pathogens) that can cause disease. In 2017, DEP collected weekly samples from two locations: the outflow of the Kensico Reservoir, prior to chlorination and UV disinfection; and the outflow of Hillview Reservoir, prior to secondary disinfection with chlorine. The outflow of the Jerome Park Reservoir prior to filtration was also sampled in 2017 during the nine weeks the Croton Filtration Plant was in operation. Samples were analyzed using EPA Method 1623.1. The *Cryptosporidium* and *Giardia* data for Kensico, Hillview, and Jerome Park Reservoir outflows are presented in the table on page 14 of this report.

The presence of 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 can be viewed on the DEP website at www.nyc.gov/waterquality.

While there is no evidence that any cases of cryptosporidiosis or giardiasis have been caused by 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 individuals, and infants, can be particularly at risk from infections. These people should seek advice from their health care providers about their drinking water. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium*, *Giardia*, and other microbial contaminants are available from EPA's Safe Drinking Water Hotline at 1-800-426-4791.

DEP's Waterborne Disease Risk Assessment Program conducts disease surveillance for cryptosporidiosis and giardiasis to track the disease incidence, and syndromic surveillance for gastrointestinal illness to identify potential citywide gastrointestinal outbreaks. Persons diagnosed with cryptosporidiosis are interviewed concerning potential exposures, including tap water consumption. Disease and syndromic surveillance indicates that there were no outbreaks of cryptosporidiosis or giardiasis attributed to tap water consumption in New York City in 2017.

Upgrades at Schoharie Reservoir

DEP continued work last year on a program to rehabilitate infrastructure at Schoharie Reservoir, the northernmost reservoir in the City's water supply system. Workers are now focused on the construction of a tunnel and valves that will provide DEP with the ability to release water from the reservoir into the Schoharie Creek. These new release works will make it easier for DEP to perform dam maintenance, respond to potential emergencies, mitigate flood risk for downstream communities, and will enhance downstream habitat for fish and wildlife. The \$142 million project to build the release works is planned to be finished in 2020.

THE NEW YORK CITY 2017 DRINKING WATER QUALITY TESTING RESULTS

HOW TO READ THE NEW YORK CITY DRINKING WATER QUALITY TESTING RESULTS

The following section of the Drinking Water Supply and Quality Report compares the quality of your tap water to federal and state standards for each parameter (if applicable). The monitoring results show that New York City's drinking water met all drinking water standards in 2017.

Table 1 reflects the compliance monitoring results for all regulated and non-regulated parameters, 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. Data presented are for the Catskill/Delaware and Croton systems, which were the only sources of water in 2017. Table 2 represents those parameters monitored for, but not detected in any sample.

Most of our data are representative of 2017 testing; concentrations of parameters or contaminants do not change frequently. For previous years' results you can view our reports at: www.nyc.gov/waterquality.

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 percent of the samples exceed the Action Level.

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 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 RESIDUAL DISINFECTANT LEVEL (MRDL):

The highest level of a disinfectant allowed in drinking water. The 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.

90TH PERCENTILE VALUE:

The values reported for lead and copper represent the 90th 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 90th percentile is equal to or greater than 90 percent of the lead and copper values detected at your water system.

UNITS & ABBREVIATIONS

CaCO₃ = calcium carbonate

CFU/mL = colony forming units per milliliter

/cm = per centimeter

°F = degrees Fahrenheit

µg/L = micrograms per liter (10⁻⁶ grams per liter)

µS/cm = microsiemens per centimeter

mg/L = milligrams per liter (10⁻³ grams per liter)

MPN/100mL = most probable number per 100 milliliters

ND = lab analysis indicates parameter is not detected

NDL = no designated limit

NTU = nephelometric turbidity units

/50L = per 50 liters



TABLE 1: DETECTED PARAMETERS

**THIS TABLE SUMMARIZES MONITORING RESULTS FOR ALL DETECTED PARAMETERS
IN 2017**

CONVENTIONAL PHYSICAL AND CHEMICAL PARAMETERS							
PARAMETER	NYSDOH MCL (Highest Level Allowed)	EPA MCLG (Ideal Goal)	# SAMPLES	RANGE	AVERAGE	MCL VIOLATION	LIKELY SOURCES IN DRINKING WATER
Alkalinity (mg/L CaCO ₃)	-		308	14 - 69.6	19.2	No	Erosion of natural deposits
Aluminum (µg/L)	50 - 200 ⁽¹⁾		356	9 - 43	18	No	Erosion of natural deposits
Barium (mg/L)	2	2	356	0.01 - 0.04	0.02	No	Erosion of natural deposits
Calcium (mg/L)	-		355	5.1 - 30.2	7.3	No	Erosion of natural deposits
Chlorate (mg/L)	- ⁽²⁾		32	ND - 0.2	0.06	No	By-product of drinking water chlorination using sodium hypochlorite
Chloride (mg/L)	250		308	11 - 107	18	No	Naturally occurring; road salt
Chlorine Residual, Free (mg/L)	4 ⁽³⁾		15,994	0.0 - 1.8	0.7 ⁽³⁾	No	Water additive for disinfection
Chromium (µg/L)	100		356	ND - 1	<1	No	Erosion of natural deposits
Chromium VI (µg/L)	- ⁽²⁾		32	ND - 0.06	0.04	No	Erosion of natural deposits
Color - distribution system (color units - apparent)	-		14,784	3 - 140	6	No	Presence of iron, manganese, and organics in water
Color - entry points (color units - apparent)	15 ⁽⁴⁾		1,213	3 - 9	6	No	Presence of iron, manganese, and organics in water
Copper (mg/L)	1.3 ⁽⁵⁾	1.3	356	ND - 0.102	0.008	No	Corrosion of household plumbing; erosion of natural deposits
Corrosivity (Langelier index)	0 ^{(1) (6)}		307	-2.83 to -1.23	-2.23	No	
Fluoride (mg/L)	2.2 ⁽⁴⁾	4	2,081	ND - 0.8	0.7	No	Water additive which promotes strong teeth; erosion of natural deposits
Hardness (mg/L CaCO ₃)	-		355	17 - 118	25	No	Erosion of natural deposits
Hardness (grains/gallon CaCO ₃) ⁽⁷⁾	-		354	1 - 6.8	1.5	No	Erosion of natural deposits
Iron (µg/L)	300 ^{(4) (8)}		356	ND - 70	30	No	Naturally occurring
Lead (µg/L)	15 ⁽⁵⁾	0	356	ND - 3	<1	No	Corrosion of household plumbing; erosion of natural deposits
Magnesium (mg/L)	-		355	1.1 - 10	1.7	No	Erosion of natural deposits

Continued on next page

TABLE 1: DETECTED PARAMETERS (CONTINUED)

**THIS TABLE SUMMARIZES MONITORING RESULTS FOR ALL DETECTED PARAMETERS
IN 2017**

CONVENTIONAL PHYSICAL AND CHEMICAL PARAMETERS (continued)

PARAMETER	NYSDOH MCL (Highest Level Allowed)	EPA MCLG (Ideal Goal)	# SAMPLES	RANGE	AVERAGE	MCL VIOLATION	LIKELY SOURCES IN DRINKING WATER
Manganese (µg/L)	300 ^{(4) (8)}		356	ND - 40	16	No	Naturally occurring
Nickel (µg/L)	-		356	ND - 0.7	<0.5	No	Erosion of natural deposits
Nitrate (mg/L nitrogen)	10	10	308	0.06 - 0.35	0.12	No	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
pH (pH units)	6.8 - 8.2 ⁽⁹⁾		15,997	6.8 - 8.9	7.4	No	
Phosphate, Ortho- (mg/L)	1-4 ⁽⁹⁾		15,996	0.7 - 3	2.1	No	Water additive for corrosion control
Potassium (mg/L)	-		355	0.5 - 2.8	0.7	No	Erosion of natural deposits
Silica [silicon oxide] (mg/L)	-		308	1.6 - 4.8	2.3	No	Erosion of natural deposits
Sodium (mg/L)	NDL ^{(4) (10)}		355	9 - 54	12	No	Naturally occurring; road salt; water softeners; animal waste
Specific Conductance (µS/cm)	-		15,996	85 - 555	110	No	
Strontium (µg/L)	-		355	18 - 97	24	No	Erosion of natural deposits
Sulfate (mg/L)	250		308	3.8 - 22.5	5.1	No	Naturally occurring
Temperature (°F)	-		15,997	36 - 82	54	No	
Thallium (µg/L)	2	0.5	356	ND - 0.3	ND	No	Corrosion of household plumbing
Total Dissolved Solids (mg/L)	500 ⁽¹⁾		308	43 - 287	68	No	Metals and salts naturally occurring in the soil; organic matter; road salt
Total Organic Carbon (mg/L carbon)	-		350	1.3 - 2.1	1.5	No	Organic matter naturally present in the environment
Turbidity ⁽¹⁾ - distribution system (NTU)	5 ⁽¹²⁾		14,784	ND - 27.1	0.9 ⁽¹²⁾	No	Soil runoff
Turbidity ⁽¹⁾ - source water (NTU)	5 ⁽¹³⁾		-	-	1.8 ⁽¹³⁾	No	Soil runoff
Turbidity ⁽¹⁾ - filtered water (NTU)	TT ⁽¹⁴⁾		-	-	0.18 ⁽¹⁴⁾	No	Soil runoff
UV 254 Absorbency (cm ⁻¹)	-		308	0.021 - 0.031	0.027	No	Organic matter naturally present in the environment
Zinc (mg/L)	5 ⁽⁴⁾		356	ND - 0.017	0.003	No	Naturally occurring

Continued on next page

TABLE 1: DETECTED PARAMETERS (CONTINUED)

**THIS TABLE SUMMARIZES MONITORING RESULTS FOR ALL DETECTED PARAMETERS
IN 2017**

ORGANIC PARAMETERS

PARAMETER	NYSDOH MCL (Highest Level Allowed)	EPA MCLG (Ideal Goal)	# SAMPLES	RANGE	AVERAGE	MCL VIOLATION	LIKELY SOURCES IN DRINKING WATER
Acetone (µg/L)	50		320	ND - 10.7 ⁽¹⁵⁾	ND	No	Occurs naturally and is used in the production of paints, varnishes, plastics, adhesives, organic chemicals and alcohol
Bromochloroacetic Acid (µg/L)	50		303	ND - 3.4	1.4	No	By-product of drinking water chlorination
Carbon Disulfide (µg/L)	50		320	ND - 1.1	ND	No	Used in the manufacture of viscose rayon, cellophane, and carbon tetrachloride
Chloropicrin (µg/L)	50		24	0.4 - 0.9	0.6	No	By-product of drinking water chlorination
Chloral Hydrate (µg/L)	50		24	1.6 - 10.5	5.0	No	By-product of drinking water chlorination
Dalapon (µg/L)	50		303	ND - 1 ⁽¹⁵⁾	ND	No	By-product of drinking water chlorination
Haloacetic Acid 5 (HAA5) (µg/L)	60 ⁽¹⁶⁾		303	15 - 66	47 ⁽¹⁶⁾	No	By-product of drinking water chlorination
Haloacetonitriles (HANs) (µg/L)	50		24	1.0 - 4.3	2.5	No	By-product of drinking water chlorination
Halogenated Ketones (HKs) (µg/L)	50		24	1.8 - 4.1	2.8	No	By-product of drinking water chlorination
Phenanthrene (µg/L)	50		91	ND - 1.0	ND	No	Incomplete combustion of fossil fuels
t-Butyl Alcohol (µg/L)	50		320	ND ⁽¹⁵⁾	ND	No	Used in dyes, drugs, and explosives
Total Organic Halogen (µg/L)	-		283	88 - 306	159	No	By-product of drinking water chlorination
Total Trihalomethanes (TTHM) (µg/L)	80 ⁽¹⁶⁾		326	10 - 61	50 ⁽¹⁶⁾	No	By-product of drinking water chlorination
1,4-Dioxane (µg/L)	50		16	ND - 0.08 ⁽²⁾⁽¹⁵⁾	ND	No	By-product present in paint strippers, dyes, greases, deodorants, shampoos and cosmetics

MICROBIAL PARAMETERS

PARAMETER	NYSDOH MCL (Highest Level Allowed)	EPA MCLG (Ideal Goal)	# SAMPLES	RANGE	# SAMPLES POSITIVE	AVERAGE	HIGHEST MONTH % POSITIVE	MCL VIOLATION	LIKELY SOURCES IN DRINKING WATER
Total Coliform Bacteria (% of samples positive/month)	5%	0	9,759	-	32	-	0.9%	No	Naturally present in the environment
<i>E. coli</i> (MPN/100mL)	- ⁽¹⁷⁾	0	9,759	-	2	-	0.1%	No	Animal fecal waste
Heterotrophic Plate Count (CFU/mL)	TT	-	12,640	ND - 5,700	182	2	-	No	Naturally present in the environment

Continued on next page

TABLE 1: DETECTED PARAMETERS (CONTINUED)

THIS TABLE SUMMARIZES MONITORING RESULTS FOR ALL DETECTED PARAMETERS IN 2017

LEAD AND COPPER RULE SAMPLING AT RESIDENTIAL WATER TAPS

PARAMETER	NYSDOH AL	EPA MCLG (Ideal Goal)	90% OF YOUR LEVELS WERE LESS THAN	RANGE	# SAMPLES EXCEEDING AL	EXCEEDANCE	LIKELY SOURCES IN DRINKING WATER
Copper (mg/L)	1.3	1.3	0.2	0.004 - 18.2	1 out of 487	No	Corrosion of household plumbing
Lead (µg/L)	15	0	11	ND - 190	26 out of 487	No	Corrosion of household plumbing

CRYPTOSPORIDIUM AND GIARDIA SAMPLING FROM SOURCE WATER AND RESERVOIR OUTFLOWS ⁽¹⁸⁾

PARAMETER	RESERVOIR OUTFLOW	# SAMPLES	# SAMPLES POSITIVE	RANGE	LIKELY SOURCES IN DRINKING WATER
<i>Cryptosporidium</i> (oocysts/50L)	Kensico	52	3	0 - 1	Animal fecal waste
	Hillview	52	2	0 - 1	
	Jerome Park	9	2	0 - 2	
<i>Giardia</i> (cysts/50L)	Kensico	52	26	0 - 4	Animal fecal waste
	Hillview	52	9	0 - 3	
	Jerome Park	9	3	0 - 2	



To see DEP staff collect samples at our sampling stations go to www.youtube.com/watch?v=6YIZCVkfY5M

TABLE 2: NOT-DETECTED PARAMETERS

THE FOLLOWING PARAMETERS WERE MONITORED FOR,
BUT NOT DETECTED IN ANY SAMPLE IN 2017

CONVENTIONAL PHYSICAL AND CHEMICAL PARAMETERS

Antimony, Arsenic, Asbestos*, Beryllium, Bismuth-212*, Bismuth-214*, Cadmium, Cesium-134*, Cesium-137*, Cyanide, Gross Alpha*, Gross Beta^{(19)*}, Lead-212*, Lead-214*, Lithium, Mercury, Nitrite, Potassium-40*, Radium-226*, Radium-228*, Selenium, Silver, Thallium-208*, Thorium-234*, Uranium*, Uranium-235*

ORGANIC PARAMETERS

Principal Organic Contaminants:

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

Specified Organic Contaminants:

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, Endothall, 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

Unspecified Organic Contaminants:

Acenaphthene, Acenaphthylene, Acetochlor, Acifluorfen, Allyl chloride, Ametryn, tert-Amyl ethyl ether, tert-Amyl methyl ether, Anthracene, Bentazon, Benzo[a]anthracene, Benzo[a]pyrene, Benzo[b]fluoranthene, Benzo[k]fluoranthene, Benzo[g,h,i]perylene, alpha-BHC, beta-BHC, delta-BHC, Bromacil, 2-Butanone (MEK), Butylate, Butylbenzylphthalate, tert-Butyl ethyl ether, Caffeine, Carboxin, Chloramben, alpha-Chlordane, gama-Chlordane, Chlorobenzilate, 2-Chlorobiphenyl, 1-Chlorobutane, Chloroneb, Chlorothalonil (Draconil, Bravo), Chlorpropham, Chlorpyrifos (Dursban), Chrysene, Cycloate, 2,4-DB, DCPA(Dacthal), DCPA (total mono & diacid degradate), 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, DEF(Merphos), Diazinon, Dibenz[a,h]anthracene, Di-n-Butylphthalate, 3,5-Dichlorobenzoic acid, 2,3-Dichlorobiphenyl, Dichlorprop, Dichlorvos (DDVP), Diethyl ether, Diethylphthalate, Di-isopropyl ether, Dimethoate, Dimethylphthalate, 2,4-Dinitrotoluene, 2,6-Dinitrotoluene, Di-N-octylphthalate, Diphenamid, Disulfoton, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin aldehyde, EPTC, Ethoprop, Ethyl methacrylate, 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, Hexachloroethane, Hexazinone, Indeno[1,2,3-cd]pyrene, Isophorone, Malathion, Methiocarb, Methyl acetate, Methyl iodide, 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, Pentachloroethane, Permethrin (cis- & trans-), Prometryn, Pronamide, Propazine, Propoxur (Baygon), Pyrene, 2,4,5-T, Simetryn, Stirofos, Tebuthiuron, Terbacil, Terbufos, Terbutylazine, Terbutryn, 2,2',4,4'-Tetrachlorobiphenyl, Tetrahydrofuran, Thiobencarb, Triademefon, 2,4,5-Trichlorobiphenyl, Trichlorotrifluoroethane (Freon 113), Tricyclazole, Trifluralin, Vernolate

Unregulated Contaminant Monitoring Rule (UCMR3) Parameters: ⁽²⁾

Androstenedione, Bromochloromethane, Bromomethane, 1,3-Butadiene, Chlorodifluoromethane, Chloromethane, Cobalt, 1,1-Dichloroethane, Equilin, Estradiol, Estriol, Estrone, Ethynylestradiol, Molybdenum, Perfluorobutanesulfonic acid (PFBS), Perfluoroheptanoic acid (PFHpA), Perfluorohexanesulfonic acid (PFHxS), Perfluorononanoic acid (PFNA), Perfluorooctanesulfonic acid (PFOS), Perfluorooctanoic acid (PFOA), Testosterone, 1,2,3-Trichloropropane, Vanadium

FOOTNOTES

- (1) EPA Secondary MCL: NYSDOH has not set an MCL for this parameter.
- (2) Monitored for under the Unregulated Contaminant Monitoring Rule 3 (UCMR3) in 2013 to 2016. No MCL has been established for chlorate and the NYSDOH chromium MCL is for total chromium not chromium VI.
- (3) 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.
- (4) Determination of MCL violation: If a sample exceeds the MCL, a second sample must be collected from the same location within two weeks, or as soon as practical. If the average of the two results exceeds the MCL, then an MCL violation has occurred.
- (5) 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.
- (6) A Langelier Index of less than zero indicates corrosive tendencies.
- (7) Hardness of up to 3 grains per gallon is considered soft water; between 3 and 9 is moderately hard water.
- (8) If iron and manganese are present, the total concentration of both should not exceed 500 µg/L.
- (9) NYSDOH established Optimal Water Quality Parameters (OWQP) under the Lead and Copper Rule which includes a range for pH and ortho-phosphate which are presented here. The reported average value for pH is the median value. The pH was elevated in eight (8) samples collected from site 51550 (Arden Heights, 10312) between 7/25/17 and 12/27/17; and was elevated in one (1) sample collected from site 34650 (Washington Heights, 10032) on 2/5/17.
- (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 cloudiness of the water. Turbidity is monitored because it is a good indicator of water quality, because high turbidity can hinder the effectiveness of disinfection, and because it is a good indicator of the effectiveness of our filtration system.
- (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 unfiltered Catskill/Delaware source water entry point. Value presented is the highest individual sampling result.
- (14) This is a Treatment Technique performance standard for the Croton Filtration Plant. The value presented is the highest single combined filter effluent turbidity measurement which occurred on 2/21/2017. In addition, 100% of the measurements were <0.3 NTU, meeting the state regulations which require that turbidity at the combined filter effluent must always be <1.0 NTU and that 95% of the measurements be <0.3 NTU.
- (15) Only detected in one sample: acetone was detected in only one sample collected from site 1503B (Van Cortlandt Park, 10467) on 5/2/17; dalapon was detected in only one sample collected from site 33950 (East Harlem, 10029) on 8/1/17; t-butyl alcohol was detected in only one sample collected from site 33450 (Harlem, 10026) on 5/2/17; 1,4-dioxane was detected in only one sample collected on 12/8/15 from site 15CL1 (Van Cortlandt Village, 10463). In all other samples the parameters were not detected.
- (16) The MCLs for HAA5 and TTHMs are the calculated locational 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 locational running annual averages under the Stage 2 Disinfectant and Disinfection By-Products Rule.
- (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.
- (18) Samples are collected prior to final disinfection or filtration (Jerome Park). Positive results indicate cyst/oocyst detection, not viability or infectivity.
- (19) Gross beta was found in only one of four samples at 3 picocuries per liter (pCi/L) which is below the NYS required detection limit of 4 pCi/L. The one sample was collected on 3/23/16 from site 15CL1 (Van Cortlandt Village, 10463).
- * NYSDOH allows monitoring for these contaminants less frequently than once per year. These data, though representative, are from 2016.



Croton Water
Filtration Plant

CROTON WATER

Did you know that even the cleanest waters can have different chemical and physical properties?

Water hardness is one such attribute that DEP receives many questions about when New Yorkers are installing dishwashers, hot-water heaters, and other equipment that use water. Hardness is a measure of the natural minerals – specifically calcium and magnesium – that dissolve into water as it passes through soil and rocks. The more dissolved natural minerals, the harder the water.

Neighborhoods in New York City receive their drinking water from reservoirs in the Catskill/Delaware watershed, the Croton watershed, or a blend from both locations. Water from the Croton supply is considered “moderately hard,” while the Catskill/Delaware supply is considered “soft” or “slightly hard.” Citywide average hardness is about 1.5 grains/gallon (CaCO₃). In areas of the City where Catskill/Delaware and Croton water supplies are blended, the hardness can reach 6.8 grains/gallon (CaCO₃).

Beginning in 2018, DEP plans to increase use of the Croton System because other parts of the water supply will be temporarily shut down for infrastructure upgrades. As a result, water in several areas of the City may become harder. The water is still of excellent quality and safe to drink. Water hardness, however, may affect the efficiency of some equipment. Consult the owner’s manual for the device being operated. DEP has also compiled some additional information on water hardness and its effects at: www.nyc.gov/dep/water-hardness.

To help homeowners and building managers determine whether they are in an area of the City that could receive moderately hard water, DEP has posted maps of the water distribution system that can be found at: www.nyc.gov/html/dep/html/drinking_water/croton-water-distribution-maps.shtml.

ADMINISTRATIVE ORDERS

Hillview Reservoir is the final stop for drinking water from the Catskill/Delaware System before it enters the City’s distribution system. On May 24, 2010, New York City and EPA entered into an Administrative Order on Consent that set forth a milestone schedule to install a cover over the Hillview Reservoir by mid-2028. The City has a parallel Administrative Order with NYSDOH. The EPA Administrative Order required the City to issue a notice to proceed to commence site preparation work by January 30, 2017 at the Hillview Reservoir Site. The City advised EPA and the NYSDOH that it was not undertaking that work pending EPA’s review of the Long Term 2 Enhanced Surface Water Treatment Rule (LT2); thereafter EPA declined to revise that rule. EPA and the City are in discussions concerning revised milestones.

Awards for the Croton Water Filtration Plant

DEP has earned three prestigious awards for the construction and operation of the Croton Water Filtration Plant. The \$3.2 billion filtration plant, which was activated in 2015, was recognized as Project of the Year by the New York State American Water Works Association (NYSAWWA), and it earned the 2017 New York Diamond Award from the American Council of Engineering Companies (ACEC) of New York. The ACEC honor recognizes outstanding achievements in engineering, while NYSAWWA’s award was established to promote excellence in the management and administration of projects within the water industry.

NYSAWWA also honored DEP engineer Tim Daly with its award for Operator of the Year. As chief operator at the filtration plant, Daly was responsible for the plant’s test operation, commissioning, and startup. He also helped guide the plant and its workers as they built up to full production levels – filtering up to 290 million gallons per day – as other parts of the New York City water supply faced the potential for drought conditions in 2016.



Spray showers
in NYC park

WATER CONSERVATION

DEP operates the largest combined water supply and wastewater utility in the United States. DEP employees work hard to ensure that a reliable supply of high-quality water is delivered to about 9.5 million customers each day, and that about 1.2 billion gallons of wastewater from the five boroughs is collected and treated every day.

Although New York City has grown by 1.5 million people since 1980, its demand for water has dropped by approximately 35 percent during that time – making it one of the most water-efficient large cities in the country. Many factors helped to reduce water consumption across the five boroughs. DEP installed automated meter readers in the 1990s, giving residents real-time feedback on their consumption. The meters were installed about the same time that more efficient fixtures – including toilets, showerheads, dishwashers, and more – hit the market. Combined with planned efforts to promote water efficiency in schools, hotels, and restaurants, these developments mean that New York City is using less water now than it has in nearly 60 years.

The average single-family household in New York City uses approximately 80,000 gallons of water each year at a cost of \$3.81 per 100 cubic feet of water (748 gallons), or about \$407 a year. Since nearly all customers 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 \$1,055, consisting of \$407 for water service and \$648 for wastewater services, calculated at fiscal year (FY) 2018 rates. In addition, during FY 2018, a one-time bill credit of \$183 will be issued to those DEP customers classified as one, two, and three-family properties.



DEP 1st in Customer Satisfaction

New York City ranked No. 1 in customer satisfaction last year among water utilities in the Northeast. That praise was unveiled in the J.D. Power 2017 Water Utility Residential Customer Satisfaction Survey, which measured satisfaction among residential customers of the 87 largest water utilities across the United States. The findings were based on approximately 45,000 online interviews, representing more than 87 million water utility customers in four regions: Midwest, Northeast, South, and West.

Overall satisfaction was determined by closely examining 33 attributes within six categories: delivery, price, conservation, billing and payment, and consumer service. DEP scored 732, out of 1,000 points, well above the Northeast's average of 704.

WATER USE MANAGEMENT

For the past five years, DEP has been implementing the Water Demand Management Plan, which aims to reduce citywide water consumption by 20 million gallons per day by 2022. To meet this goal, DEP has developed a combination of programs to identify opportunities to conserve water.

- DEP has established partnerships with several key municipal agencies and entities, as part of its Municipal Water Efficiency Program, to support water efficiency measures in their facilities. In 2017, DEP completed a retrofit project with NYC Parks. Through this partnership, DEP funded a total of 400 individual retrofit projects to replace continuously running spray showers with push button activated models. In addition, bathroom fixtures and plumbing were updated in two large recreation centers to further reduce water consumption. DEP funded retrofits in nine recreation centers between 2014 and 2017. Overall, this partnership with NYC Parks has resulted in a savings of 1.1 million gallons of water per day.
- DEP provided co-funding for a water recycling and reuse project with FDNY at the Chauffeur School on Randall's Island. The FDNY uses potable water for the testing and calibrating of fire engine hoses and pumps, and the used water was previously discharged into the East River. For this project, which was completed in 2017, an underground reuse tank was installed to capture the water that is now recycled and reused again for testing and calibrating, saving an estimated 30,000 gallons of water per day.
- In early 2014, DEP launched the Toilet Replacement Program. Eligible residential building owners who are part of the Multi-Family Conservation Program can receive \$125 vouchers to replace old, inefficient toilets with high-efficiency, WaterSense-certified models. Multi-Family Conservation Program FAQ's can be found at www.nyc.gov/html/dep/pdf/mcpfaq.pdf. DEP manages contracts with four toilet wholesale vendors to accept the vouchers and provide the toilets to consumers through the program's online application tool. In 2017, 1,098 old toilets were replaced. To date, more than 12,400 toilets have been replaced through the program, totaling 500,000 gallons per day in water savings.
- DEP also has an automated Leak Notification Program that sends an alert to property owners if there is an unusual spike in water consumption. More than 285,000 customers have signed up for the program to quickly find and fix leaks on their property, saving more than \$134 million in water charges. To sign up, go to: www.nyc.gov/dep/leak-notification.

DEP Partners with City College to Conserve Water

In 2017, DEP partnered with the City College of New York (CCNY) to replace water fixtures to conserve nearly 11 million gallons of water each year. With \$200,000 in funding from DEP, CCNY replaced nearly 800 older bathroom fixtures in 10 buildings on its Hamilton Heights campus with new, high-efficiency models. The modern fixtures reduced CCNY's demand for water by an estimated 30,000 gallons per day.

While reducing water demand will help DEP pursue critical infrastructure upgrades, conservation also brings other benefits. DEP pays less for electricity, chemicals, and other costs associated with operating the water system. It will also cut carbon emissions from the wastewater treatment process by more than 15,500 metric tons per year, the equivalent of removing 3,300 cars from the road or planting more than 400,000 trees and letting them grow for ten years. Using less water also protects the City from future droughts that might affect its reservoir system.



FREQUENTLY ASKED QUESTIONS

MY WATER IS A RUSTY BROWN COLOR. WHAT CAUSES THIS?

Brown or discolored water is often related to plumbing corrosion problems inside buildings and from rusting hot water heaters. If you have an ongoing problem with brown water, it may be due to rusty pipes. You should run your cold water for 2-3 minutes if it has not been used for a long period of time. This will flush the line.

If your water suddenly looks discolored, it might be because of a disturbance to nearby water mains, including breaks or repairs. This can also happen if there is construction near your building. Additionally, the use of fire hydrants for firefighting can temporarily cause brown water. Because the water mains are pressurized, a disturbance may stir up or resuspend sediments, which causes the water to be discolored. Discoloration is a temporary condition most often from iron and manganese particles that have settled to the bottom of the water pipes buried under the roadways. Any sudden change in the flow of water within the pipes — or outside vibration — may loosen or resuspend the brownish/red/orange particles of iron into the water. This temporary problem is generally resolved or reduced when DEP flushes water from nearby hydrants.

SOMETIMES I THINK MY WATER HAS THE TASTE OR ODOR OF CHLORINE?

You may, at times, find your water tastes or smells like chlorine. DEP is required to maintain a chlorine residual in the distribution system to prevent the growth of microorganisms. Chlorine is a very effective disinfectant, and is not considered hazardous or harmful in the amounts used to treat the water supply.

Chlorine odors may be more noticeable when the weather is warmer. 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 best way.)*
- ✓ *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 growth.*

WHY DOES MY DRINKING WATER LOOK CLOUDY SOMETIMES?

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.

SHOULD I BUY BOTTLED 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. Also, bottled water costs up to 1,000 times more than the City's drinking water. When purchasing bottled water, consumers should look for the NYSHD CERT#. Consumers can access additional information on New York State certified bottled water facilities within the entire United States that can be sold within New York State at www.health.ny.gov/environmental/water/drinking/bulk_bottle/bottled.htm.

WHERE TO GO FOR ADDITIONAL INFORMATION

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 EPA's Safe Drinking Water Hotline at 1-800-426-4791.

- ➔ **Questions about water and sewer billing**
DEP Customer Service – (718) 595-7000
www.nyc.gov/dep - Customer Service
- ➔ **Report unusual water characteristics**
In NYC dial 311
Outside of NYC, (212) NEW YORK (639-9675)
TTY Services (212) 504-4115
Visit 311 Online at: www.nyc.gov/apps/311
- ➔ **Request a free kit to test for lead in drinking water**
In NYC dial 311
Outside of NYC, (212) NEW YORK (639-9675)
TTY Services (212) 504-4115
Visit 311 Online at: www.nyc.gov/apps/311 – Search lead test kit
- ➔ ***Cryptosporidium* and *Giardia***
DOHMH – Bureau of Communicable Diseases – (347) 396-2600
In NYC dial 311
Outside of NYC, (212) NEW YORK (639-9675)
TTY Services (212) 504-4115.
Visit 311 Online at: www.nyc.gov/apps/311
- ➔ **Water supply health-related questions**
DOHMH
In NYC dial 311
Outside of NYC, (212) NEW YORK (639-9675).
TTY Services (212) 504-4115.
Visit 311 Online at: www.nyc.gov/apps/311
NYSDOH – Bureau of Water Supply Protection – (518) 402-7650
www.health.ny.gov
- ➔ **Report pollution, crime or terrorism activity occurring in the watershed**
DEP Police and Security – 1-888-H2O-SHED (426-7433)
www.nyc.gov/dep
- ➔ **Request additional copies of this report, and view the 2017 Drinking Water Supply and Quality Report**
In NYC dial 311
Outside of NYC, (212) NEW YORK (639-9675)
TTY Services (212) 504-4115
www.nyc.gov/waterquality

The DOs & DON'Ts of Water Conservation



BATHROOM

- ✓ Do take shorter showers and fill the tub halfway.
- ✗ Don't run water while washing your hands & brushing your teeth.

KITCHEN & LAUNDRY

- ✓ Do run the dishwasher & washing machine only when full.
- ✗ Don't let the water run while washing dishes. Kitchen faucets use 2 to 3 gallons a minute. Filling a basin only takes 10 gallons to wash and rinse.

EVERYWHERE

- ✓ Do install water-saving fixtures.
- ✗ Don't ignore water leaks. Turn taps off tightly.

OUTDOORS

- ✓ Do use a self-closing nozzle on your hose.
- ✗ Don't open fire hydrants.

REPORT LEAKS & WATER WASTE Call 311

In or out of a drought, every New Yorker can save hundreds of gallons of water each week by following these simple water-saving tips.

www.nyc.gov/dep

This report contains important information about your drinking water. To view this report go to www.nyc.gov/waterquality, or to request a copy call 311.

Este reporte contiene información muy importante sobre el agua que usted toma. Vea una copia de este informe en español en www.nyc.gov/waterquality, o llame al 311 para solicitar una copia. (Spanish)

Ce rapport contient des informations importantes sur votre eau potable. Pour voir ce rapport en français, visitez: www.nyc.gov/waterquality; ou demandez une copie en appelant le 311. (French)

В этом материале содержится важная информация относительно вашей питьевой воды. Читайте версию этого доклада на русском языке в Интернете www.nyc.gov/waterquality или закажите печатный экземпляр по телефону 311. (Russian)

Rapò sa a gen enfòmasyon ki enpòtan anpil sou dlo w'ap bwè a. Gade yon kopi rapò sa a an kreyòl nan www.nyc.gov/waterquality, oswa pou mande yon kopi rele 311. (Haitian Creole)

這個報告中包含有關你的飲用水的重要信息。用中文看此報告：www.nyc.gov/waterquality，或者撥打 311 索取報告文本。(Chinese)

এই প্রতিবেদনে আপনার পানীয় জল সম্পর্কে গুরুত্বপূর্ণ তথ্য রয়েছে এই প্রতিবেদনের একটি পর্যালিপি www.nyc.gov/waterquality -তে বাংলায় দেখুন, অথবা একটি পর্যালিপির জন্য অনুরোধ জানাতে 311 নম্বরে ফোন করুন। (Bengali)

يتضمن هذا التقرير على معلومات هامة حول مياه الشرب. للإطلاع على هذا التقرير باللغة العربية إذهب الى www.nyc.gov/waterquality أو لطلب نسخة، إتصل بالرقم 311. (Arabic)

이 보고서는 귀하의 식수에 관한 매우 중요한 정보를 포함하고 있습니다. 이 보고서의 사본을 한국어로 보려면 www.nyc.gov/waterquality를 클릭하거나 사본을 신청하시려면 311번으로 연락하십시오. (Korean)

Ten raport zawiera bardzo istotną informację o twojej wodzie pitnej. Kopię raportu w języku polskim można przejrzeć na www.nyc.gov/waterquality lub zażądać jej dzwoniąc pod numer 311. (Polish)

یہ رپورٹ آپ کے پینے کے پانی کے بارے میں اہم معلومات پر مشتمل ہے۔ اس رپورٹ کو اردو زبان میں www.nyc.gov/waterquality پر دیکھیں یا ایک نقل کے حصول کی درخواست کرنے کے لیے 311 پر کال کریں (Urdu)

