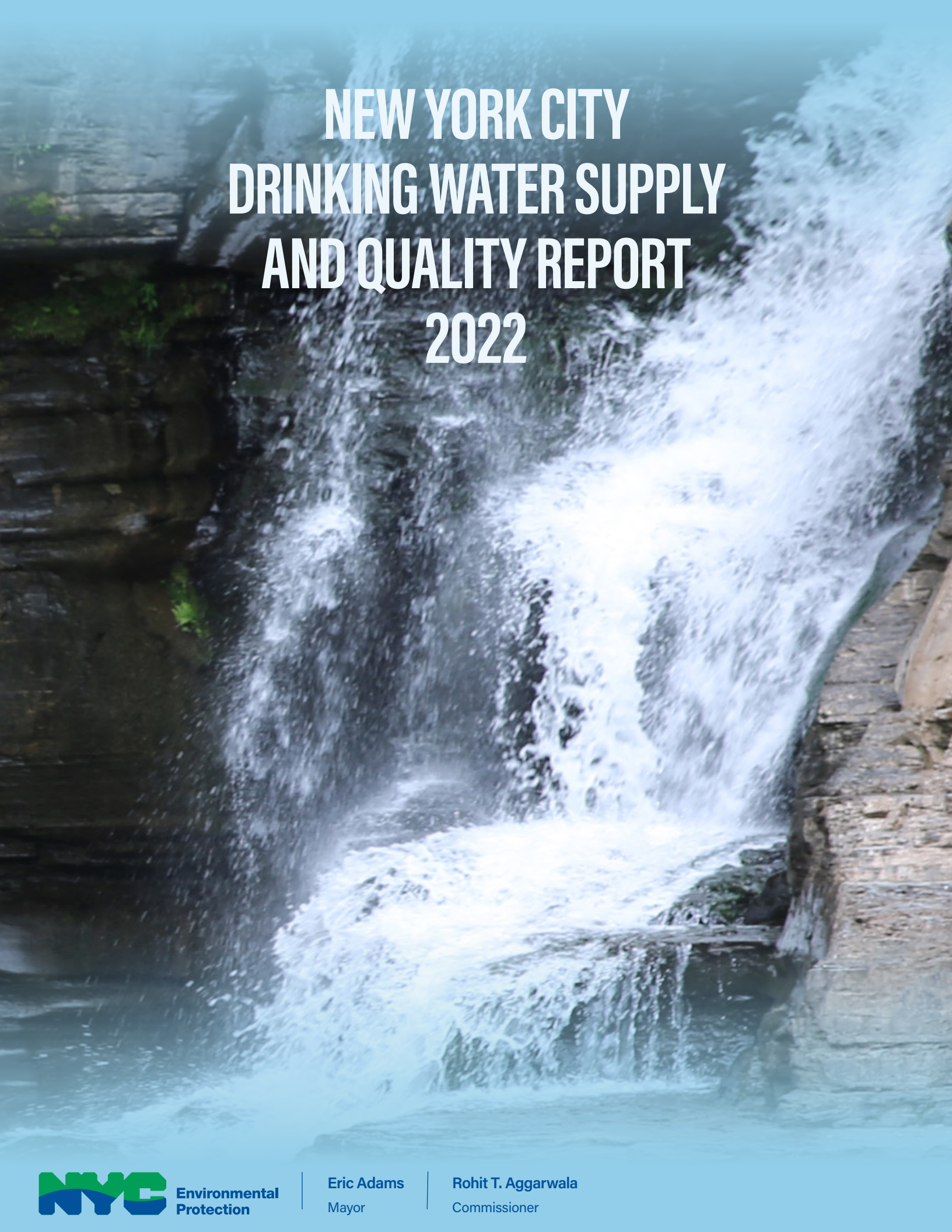


NEW YORK CITY DRINKING WATER SUPPLY AND QUALITY REPORT 2022

NYC Environmental Protection

Eric Adams
Mayor

Rohit T. Aggarwala
Commissioner

NEW YORK CITY'S WATER SUPPLY SYSTEM

Dear Friends:

On behalf of my nearly 6,000 colleagues at the Department of Environmental Protection (DEP), I am proud to announce that New York continues to deliver one billion gallons of some of the best tap water in the world to more than 9.8 million New Yorkers each and every day. Drink it in New York – the beauty of New York City water is that it tastes great too!

Here in New York we are fortunate to have a water supply that is well protected and operated by dedicated scientists, engineers, and other highly skilled professionals who have earned admiration among their colleagues throughout the world. DEP continuously monitors the water in the distribution system, upstate reservoirs, feeder streams, and wells that are potential sources for New York City's drinking water supply. We have made substantial investments to upgrade and rehabilitate our water supply infrastructure and protect the quality of our drinking water, with multi-billion dollar projects currently taking place at the Catskill and Delaware aqueducts, among others. More than $1 billion has also been committed to administering a number of watershed protection and pollution prevention programs to maintain the high quality of our drinking water at the source.

This report illustrates that New York City's drinking water continued to be of excellent quality in 2022. DEP scientists collected 43,900 samples throughout our watershed and reservoir system, and from nearly 1,000 street-side sampling stations in every neighborhood across the city, analyzing those samples 577,300 times at our four water quality laboratories. Robotic monitoring stations on our reservoirs and in our streams provided another 2.7 million tests to ensure DEP was sending the best-quality water to New York City at all times.

Sincerely,

Rohit T. Aggarwala, Commissioner

NYC Chief Climate Officer

NEW YORK CITY'S WATER SUPPLY SYSTEM

New York City's water supply system provides more than one billion gallons of safe drinking water every day to more than 8.8 million residents of New York City and one million people living in the counties of Westchester, Putnam, Orange, and Ulster. In 2022, we delivered 100 million gallons per day to 70 communities and institutions outside NYC. In all, this system provides nearly half the population of New York State with high-quality drinking water.

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 located upstate in portions of the Hudson Valley and Catskill Mountains that are as far as 125 miles north of the city. New York City's water supply system is composed of two primary surface water supplies called the Catskill/Delaware and Croton. The City also has a permit to operate a groundwater supply in southeast Queens, although water from that system has not been delivered to customers in many years.

In 2022, New York City received a blend of drinking water from the Catskill/Delaware and Croton supplies. The Catskill/Delaware provided approximately 97.5 percent of the water, and approximately 2.5 percent was supplied by Croton. An estimated 16.4 percent of the water supply was lost. This number does not solely reflect water leaks and wastage, but rather metering calculations that are currently being updated with our new billing system.

New York City's water supply system provides more than one billion gallons of safe drinking water every day.

TREATING OUR DRINKING WATER

CATSKILL/DELAWARE SUPPLY

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 utilize filtration as a form of treatment. The Catskill/ Delaware supply operates under a filtration waiver, referred to as the "Filtration Avoidance Determination" (FAD), and the water from this supply is treated using two forms of disinfection to reduce microbial risk.

Water is disinfected with chlorine, a common disinfectant added to kill germs and stop bacteria from growing on pipes, and then with ultraviolet (UV) light at the Catskill/Delaware UV Disinfection Facility. The facility, located in Westchester County, is the largest of its kind in the world and is designed to disinfect more than two billion gallons of water per day. At this facility, exposure to UV light inactivates potentially harmful microorganisms without changing the water.

DEP also adds food grade phosphoric acid, sodium hydroxide, and fluoride to the water before sending it into distribution. Phosphoric acid is added because it creates a protective film on pipes that reduces the release of metals, such as lead, from service lines and household plumbing. Sodium hydroxide is added to raise the pH, which reduces corrosion of household plumbing. Fluoride is added to improve dental protection, and is effective in preventing cavities, at a federally approved level of 0.7 mg/L. During 2022 only 0.35 percent of the water produced by Catskill/Delaware supply was not fluoridated.

CROTON SUPPLY

The Croton supply is filtered at the Croton Water Filtration Plant, located underground in the Bronx. The plant can treat up to 290 million gallons of drinking water each day, which helps to ensure a large enough supply of water for the city to withstand droughts, periodically shut down other parts of the water supply, and respond to the potential effects of climate change. The Croton Water Filtration Plant first began operating in May 2015.

Once water arrives at the filtration plant it undergoes treatment to remove impurities. The treatment processes include coagulation, dissolved air flotation, filtration, and disinfection. During coagulation, chemicals are added to untreated water, causing any particulates to bunch together and become a mass of particles called floc. Then injected air bubbles float the floc to the top where it is skimmed off using a process called dissolved air flotation. Finally, the water flows through a filter bed removing any remaining particles. Just like the Catskill/ Delaware supply, Croton water is disinfected with chlorine and UV light to protect against potentially harmful microorganisms, and is treated with food grade phosphoric acid, sodium hydroxide, and fluoride. In 2022, 100 percent of the water produced by the plant was fluoridated.

DEP Scientists performed over 376,700 analyses on 32,300 samples from the distribution system in 2022

TESTING FOR QUALITY

DRINKING WATER SAMPLING AND MONITORING

DEP monitors the water in the distribution system, upstate reservoirs and feeder streams, and wells that are potential sources for New York City's drinking water supply. We continuously sample and conduct analyses for numerous water quality parameters, including microbiological, chemical, and physical measurements, throughout the watershed as the water enters the distribution system, and at nearly 1,000 water quality sampling stations throughout New York City.

In 2022, DEP performed more than 376,700 analyses on 32,300 samples from the distribution system, meeting all state and federal monitoring requirements. These data are summarized in tables starting on page 11. Additionally, DEP performed more than 200,600 analyses on 11,600 samples from the upstate reservoir watersheds and took more than 2.7 million robotic monitoring measurements to support FAD watershed protection programs and to optimize 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.

Visit **epa.gov/safewater** or **health.ny.gov** for more information about drinking water.

PROTECTING OUR WATER AT THE SOURCE

FILTRATION AVOIDANCE DETERMINATION (FAD)

DEP has funded and administered several watershed protection and pollution prevention programs to maintain the high quality of our drinking water, since 1993. 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.

NYSDOH issued mid-term revisions to the 2017 FAD on December 29, 2022, that allow DEP to continue operating the Catskill/Delaware supply without filtration through at least 2027. DEP has committed an estimated $1 billion to comply with the FAD, which goes towards our watershed programs that conserve watershed lands, upgrade wastewater infrastructure, implement clean water strategies on watershed farms, and manage streams, forests, and other natural resources that affect water quality.

SOURCE WATER ASSESSMENT PROGRAMS

Federal regulations require states to develop and implement source water assessment programs to identify the areas that supply public tap water, inventory contaminants, 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. Because of DEP's extensive watershed protection and pollution prevention programs, NYSDOH does not find it necessary to perform a source water assessment on the New York City water supply.

DEP Scientist working on Robotic water monitoring buoy at the Ashokan Reservoir

The Delaware Aqueduct Bypass Tunnel is the largest repair project in the 180-year history of New York City's water supply system

CAPITAL UPGRADES

DEP has continued to make substantial investments to upgrade and rehabilitate our water supply infrastructure, which stretches more than 125 miles from Midtown Manhattan to the northern Catskills, protecting the quality of our drinking water at its source. Infrastructure construction milestones reached in 2022, included preparatory work for the largest capital repair project in DEP history: the Delaware Aqueduct's Rondout-West Branch Bypass Tunnel 600 feet below the Hudson River near Newburgh. That new 2 ½ mile long tunnel section will bypass a leaking section of the 80-year-old aqueduct and is expected to be connected between fall and spring 2023-24.

Additionally, DEP staff and consulting engineers completed the environmental review process for the upcoming Hillview Reservoir Improvement Project in Yonkers, a major overhaul of the water treatment and chemical storage facilities as well as all the aging water management infrastructure at the reservoir. Hillview, at more than 100 years old, plays an essential role as the balancing reservoir that ensures the system provides water as consumption changes during the course of the day.

About 15 miles to the north of Hillview, skilled workers at the Kensico Reservoir completed a shoreline stabilization project adjacent to the primary treatment facilities for the vast majority of the City's drinking water supply. This FAD required project, completed on time and under budget, included replacing 1,400 linear feet of shoreline with carefully placed rocks commonly installed to protect shorelines from scouring and erosion. Projects like this, expected to be expanded in coming years, will stabilize and strengthen fragile shorelines located near water supply against severe storms of the future.

DEP engineers and scientists also began initial environmental reviews for the upcoming Ashokan Century Project (ACP). Expected to be the largest public works project in the Catskills in more than half a century, the ACP includes rehabilitating infrastructure in and around the Ashokan Reservoir in Ulster County – placed into service in 1915 -- including dams, dikes, headworks, spillways and the Dividing Weir Bridge across the middle of the 12-mile-long reservoir.

DEP also continues to invest in its watershed protection programs, a worldwide model for preserving the quality of water at its source. In 2022, DEP stabilized the Batavia Kill stream that feeds the Schoharie Reservoir. The large and complex project restored a section of stream that has long been the largest single source of sediment in the watershed of that reservoir. In addition to protecting the quality of NYC's water supply, the work enhanced fish habitat and recreational opportunities in the region.

CONSERVING OUR SUPPLY

Although New York City has grown by more than 1.3 million people since 1980, demand for water has dropped by approximately 35 percent—making it one of the most water-efficient large cities in the country.

The average single-family household in New York City uses approximately 70,000 gallons of water each year at a cost of $4.30 per 100 cubic feet of water (748 gallons), or about $402 a year. Since nearly all customers also receive wastewater collection and treatment services, which cost about $639, the combined annual water and sewer charge for the typical New York City household using 70,000 gallons per year is $1,041, calculated at fiscal year 2023 rates, effective July 1, 2022.

Advances in technology have played a key role in the drop of water consumption, from the replacement of thousands of inefficient toilets through DEP's toilet replacement program, to an automated leak detection program, which helps our customers save both money and water by alerting homeowners to unusual spikes in water consumption. DEP has also partnered with other city agencies, colleges, and businesses to help conserve water by installing more than 400 spray shower timers in NYC Parks playgrounds, 34,000 efficient bathroom fixtures in 402 New York City public schools, more than 1,600 efficient bathroom fixtures in City-owned buildings including a hospital, and a water reuse station at the Fire Department of the City of New York's (FDNY) Fire Training Academy on Randall's Island, which includes a 40,000 gallon underground water storage tank used for calibrating equipment on pumper apparatus.

These, and other recent investments, have reduced overall demand for water by more than 16.4 million gallons per day. We plan to achieve a total savings of 20 million gallons per day through new and ongoing initiatives, including a water recirculation project in Central Park, a valve replacement project in Prospect Park, additional New York City public school fixture retrofits, and more.

DOs & DON'Ts of Water Conservation

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.

BATHROOM

- ✔ Do take short showers and save 5 to 7 gallons a minute.
- ✔ Do fill the tub halfway and save 10 to 15 gallons.
- ✔ Do install water-saving toilets, shower heads and faucet aerators. Place a plastic bottle filled with water in your toilet tank if you can't switch to a low flow toilet.
- ✗ Don't run the water while shaving, washing your hands or brushing your teeth. Faucets use 2 to 3 gallons a minute.
- ✗ Don't use the toilet as a wastebasket, and don't flush it unnecessarily.

OUTDOORS

- ✔ Do use a self-closing nozzle on your hose.
- ✗ Don't water your sidewalk or driveway–sweep them clean.
- ✗ Don't over water your lawn or plants. Water before 9 a.m. or after 7 p.m.

KITCHEN & LAUNDRY

- ✔ Do run the dishwasher and washing machine only when full. Save even more by using the short cycle.
- ✔ Do install faucet aerators.
- ✗ 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.
- ✗ Don't run water to make it cold. Have it chilled in the refrigerator, ready to drink.

EVERYWHERE

- ✔ Do repair leaky faucets and turn taps off tightly. A slow drip wastes 15 to 20 gallons each day.
- ✗ Don't open fire hydrants.

TO LEARN MORE, CALL 311.

CRYPTOSPORIDIUM AND *GIARDIA*

DEP maintains a comprehensive program to monitor in source waters and key streams for the presence of *Cryptosporidium* and *Giardia*, microscopic organisms that can cause disease. Disease and syndromic surveillance continue to indicate that there have been no outbreaks of the diseases they cause, cryptosporidiosis and giardiasis, attributed to consuming tap water in New York City. *Cryptosporidium* and *Giardia* data are presented on page 14 of this report.

Federal and state law requires all water suppliers to notify their customers about the potential risks from *Cryptosporidium* and *Giardia*. 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. Immunocompromised 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.

HILLVIEW RESERVOIR CONSENT JUDGEMENT

The Hillview Reservoir is the final stop for drinking water from the Catskill/Delaware System before it enters the city's distribution system. The City and DEP entered into a Consent Decree and Judgement with the United States and New York State, effective May 15, 2019, which sets forth a schedule of compliance for the City to cover the Hillview Reservoir as required by the Long Term 2 Enhanced Surface Water Treatment Rule (40 C.F.R §141.714). DEP and the City complied with all 2022 commitments due under the Decree.

HAA5 NOTICE OF VIOLATION

On February 25, 2022, DEP received a Notice of Violation (NOV) (ID#2022001) for the exceedance of the MCL for haloacetic acids (HAA5), which is based on the average of the four most recent quarterly samples at a particular monitoring location, called the Locational Running Annual Average (LRAA). Each calendar quarter, drinking water samples are collected at locations throughout the city for HAA5 that are used to determine compliance with the standard of 60 micrograms per liter. One site (50250, Grymes Hill, 10301) out of 20 sampled on February 1, 2022, had an LRAA that exceeded the standard (see table on page 13, footnote (15, 16) on page 16). This was the second consecutive quarter of an HAA5 MCL exceedance at this site. DEP took a multi-step approach to correct this exceedance, including adjustments to the operation of our reservoir system, a reduction in the amount of chlorine used, and adjustments to our in-city distribution system. As a result, all sites were in compliance the rest of 2022.

The likely cause of the elevated level of HAA5 was the intense rainfalls during Tropical Storms Henri and Ida in the fall of 2021, which washed organic material into the upstate reservoirs. Haloacetic acids are formed when organic material in the water combines with chlorine, which is the most commonly used disinfectant in New York State. Chlorine is used as a disinfectant to kill bacteria and viruses that could cause illnesses; and is therefore beneficial to public health. The amount of HAA5 in drinking water can vary, depending on the amount of natural organic material in the source water, the amount of chlorine added, the temperature and a variety of other factors. The following paragraph provides a general summary of the health effects of haloacetic acids, which may occur at much higher exposure levels than what could result through normal use of the water.

Some studies suggest that people who drank chlorinated drinking water containing disinfection by-products (including haloacetic acids) for long periods of time (e.g., 20 to 30 years) may have an increased risk for cancer. However, how long and how frequently people actually drank the water, and how much haloacetic acids the water contained is not known for certain. Therefore, the evidence from these studies is not strong enough to conclude that the observed increased risk for cancer is due to haloacetic acids, other disinfection by-products, or some other factor. Studies of laboratory animals show that the two haloacetic acids, dichloroacetic acid and trichloroacetic acid, can cause cancer following exposure to high levels over their lifetimes. Dichloroacetic acid and trichloroacetic acid are also known to cause other effects in laboratory animals after high levels of exposure, primarily on the liver, kidney, and nervous system and on their ability to bear healthy offspring. The risks for adverse health effects from haloacetic acids in drinking water are small compared to the risk for illness from drinking inadequately disinfected water.

LEAD IN DRINKING WATER: FREQUENTLY ASKED QUESTIONS

IS THERE LEAD IN MY DRINKING WATER?

New York City's award-winning tap water is delivered virtually lead-free through 7,000 miles of lead-free aqueducts, tunnels, and water mains in the city's water supply system. However, homes built prior to 1961 may have lead service lines (which connect your house to the city's water main in the street), and some homes, regardless of the year they were built, could have household plumbing and internal fixtures that contain lead. Although New York City takes extensive steps to protect water in homes that may have lead in their plumbing, lead from plumbing may still be released into a home's drinking water. Lead levels at your home may be higher than at other homes in the community because 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.

HOW CAN I FIND OUT IF I HAVE A LEAD SERVICE LINE?

Visit **nyc.gov/leadfree** to view an interactive map. This map offers historical information largely based on third-party plumbing records, supplemented in some cases by information gathered during inspections.

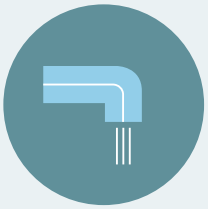
HOW CAN I TEST THE WATER IN MY HOME?

DEP offers free lead test kits to all New York City residents. Call 311 or visit **nyc.gov/apps/311** to request a free lead test kit. 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 **epa.gov/safewater/lead**.

WHAT ARE THE HEALTH EFFECTS OF LEAD?

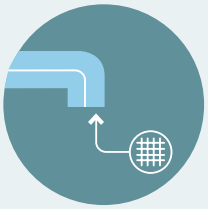
Exposure to lead can cause serious health problems, especially for pregnant women, infants, and young children. For more information, visit **nyc.gov/lead**.

HOW CAN I LIMIT MY LEAD EXPOSURE?



RUN YOUR TAP
for 30 seconds to 2 minutes before using water for drinking or cooking, when your water has been sitting for several hours.

Use Cold Water
for cooking, drinking, or preparing infant formula. Hot tap water is more likely to contain lead and other metals.



Remove & Clean
the faucet screen monthly (also called an aerator), where small particles can get trapped.

Hire
a licensed plumber to identify and replace plumbing fixtures and/or service line that contain lead.

DEP Scientists continuously sample and conduct analyses for hundreds of water quality parameters

HOW TO READ THE NEW YORK CITY 2022 DRINKING WATER QUALITY TESTING RESULTS

The following section of this 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 continues to be of excellent quality.

The following tables reflect 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 supplies, which were the only sources of water in 2022.

The table on page 15 represents those parameters monitored for, but not detected in any sample. Most of our data are representative of 2022 testing; concentrations of parameters or contaminants do not change frequently.

THE NEW YORK CITY 2022 DRINKING WATER QUALITY TESTING RESULTS

Detected 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	15 - 70	21	No	Erosion of natural deposits
Aluminum (μg/L)	50 - 200 (1)		308	7 - 78	19	No	Erosion of natural deposits
Barium (mg/L)	2	2	308	0.01 - 0.04	0.02	No	Erosion of natural deposits
Bromide (μg/L)	- (2)		8	8 - 35	20	No	Naturally occurring
Calcium (mg/L)	-		308	5 - 26	7	No	Erosion of natural deposits
Chloride (mg/L)	250		308	10 - 80	15	No	Naturally occurring; road salt
Chlorine Residual, Free (mg/L)	4 (3)		15,240	ND - 1.2	0.6 (3)	No	Water additive for disinfection
Chromium (μg/L)	100		308	ND - 3	ND	No	Erosion of natural deposits
Color - distribution system (color units - apparent)	-		13,413	3 - 54	7	No	Presence of iron, manganese, and organics in water
Color - entry points (color units - apparent)	15		1,825	3 - 18	7	No	Presence of iron, manganese, and organics in water
Copper (mg/L)	1.3 (4)	1.3	308	ND - 0.054	0.006	No	Corrosion of household plumbing; erosion of natural deposits
Corrosivity (Langelier index)	- (5)		257	-2.88 to -1.05	-2.25	No	
Fluoride (mg/L)	2.2	4	2,071	ND - 0.8	0.7	No	Water additive which promotes strong teeth; erosion of natural deposits
Hardness (mg/L $CaCO_3$)	-		308	16 - 99	24	No	Erosion of natural deposits
Hardness (grains/gallon[US]$CaCO_3$) (6)	-		308	1 - 6	1	No	Erosion of natural deposits
Iron (μg/L)	300 (7)		308	ND - 76	31	No	Naturally occurring
Lead (μg/L)	15 (4)		308	ND - 6	ND	No	Erosion of natural deposits
Magnesium (mg/L)	-		308	1 - 8.6	1.7	No	Erosion of natural deposits

Continued on next page

Detected 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 [7]		308	ND - 49	16	No	Naturally occurring
Nickel (µg/L)	-		308	ND - 1.2 [8]	ND	No	Erosion of natural deposits
Nitrate (mg/L nitrogen)	10	10	308	0.08 - 0.45	0.13	No	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
pH (pH units)	6.8 - 8.2 [9]		15,240	6.8 - 10.1 [9]	7.3	No	
Phosphate, Ortho- (mg/L)	1 - 4 [9]		11,025	0.8 - 4.8 [9]	2.2	No	Water additive for corrosion control
Potassium (mg/L)	-		308	0.5 - 2.6	0.7	No	Erosion of natural deposits
Silica [silicon oxide] (mg/L)	-		231	2 - 6.4	2.7	No	Erosion of natural deposits
Sodium (mg/L)	NDL [10]		308	7 - 53	12	No	Naturally occurring; road salt; water softeners; animal waste
Specific Conductance (µS/cm)	-		15,238	76 - 488	101	No	
Strontium (µg/L)	-		308	15 - 79	22	No	Erosion of natural deposits
Sulfate (mg/L)	250		308	3 - 35	5	No	Naturally occurring
Temperature (°F)	-		15,240	35 - 83	56	No	
Total Dissolved Solids (mg/L)	500 [1]		258	39 - 244	62	No	Metals and salts naturally occurring in the soil; organic matter
Total Organic Carbon (mg/L)	-		408	0.7 - 2.0	1.7	No	Organic matter naturally present in the environment
Total Organic Carbon - source water (mg/L)	- [2]		8	2.1 - 4.2	3.1	No	Organic matter naturally present in the environment
Turbidity [11] - distribution system (NTU)	5 [12]		13,413	ND - 4.1	1.0 [12]	No	Soil runoff
Turbidity [11] - source water (NTU)	5 [13]		-	-	2.0 [13]	No	Soil runoff
Turbidity [11] - filtered water (NTU)	0.3 [14]		-	-	0.4 [14]	No	Soil runoff
UV 254 (absorbance/cm)	-		365	0.011 - 0.045	0.032	No	Organic matter naturally present in the environment
Zinc (mg/L)	5		308	ND - 0.036	ND	No	Naturally occurring

Continued on next page

Detected Organic Parameters

PARAMETER	NYSDOH MCL (Highest Level Allowed)	EPA MCLG (Ideal Goal)	# SAMPLES	RANGE	AVERAGE	MCL VIOLATION	LIKELY SOURCES IN DRINKING WATER
Bromochloroacetic Acid (µg/L)	50		304	ND - 2.2	1.2	No	By-product of drinking water chlorination
Bromodichloroacetic Acid (µg/L)	50 [2]		80	1 - 5	3	No	By-product of drinking water chlorination
Chlorodibromoacetic Acid (µg/L)	50 [2]		80	ND - 0.6	ND	No	By-product of drinking water chlorination
Haloacetic Acid 5 (HAA5) (µg/L)	60 [15]		304	4 - 60	**61** [15]	**Yes** [16]	By-product of drinking water chlorination
Haloacetic Acid Brominated (HAA6Br) (µg/L)	- [2]		80	2 - 9	4	No	By-product of drinking water chlorination
Haloacetic Acid 9 (HAA9) (µg/L)	- [2]		80	31 - 82	53	No	By-product of drinking water chlorination
Hexachlorocyclopentadiene (µg/L)	5		24	ND - 0.1	ND	No	Discharge from chemical factories
Phenanthrene	50		82	ND - 0.16	ND	No	Incomplete combustion of wood and fossil fuels
Total Organic Halogen (µg/L)	-		137	116 - 245	183	No	By-product of drinking water chlorination
Total Trihalomethanes (TTHM) (µg/L)	80 [15]		304	4 - 72	55 [15]	No	By-product of drinking water chlorination

Detected Microbial Parameters

PARAMETER	TT (Highest Level Allowed)	EPA MCLG (Ideal Goal)	# SAMPLES	RANGE	# SAMPLES POSITIVE	AVERAGE	HIGHEST MONTH % POSITIVE	ASSESSMENT TRIGGERED	LIKELY SOURCES IN DRINKING WATER
"Total Coliform Bacteria (% of samples positive/ month)"	5% [17]	0	9,798	-	60	-	4.3%	No	Naturally present in the environment
Heterotrophic Plate Count (CFU/mL)	-	-	12,058	ND - 1568	223	ND	-	-	Naturally present in the environment

Lead and Copper Rule Residential Tap Sampling

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	0.194	0.01 - 3.20	1 out of 356	No	Corrosion of household plumbing
Lead (µg/L)	15	0	11	ND - 300	25 out of 356	No	Corrosion of household plumbing

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Cryptosporidium and *Giardia* Source Water Sampling [18]

PARAMETER	RESERVOIR	# SAMPLES	# SAMPLES POSITIVE	RANGE	LIKELY SOURCES IN DRINKING WATER
Cryptosporidium (oocysts/50L)	Kensico	52	4	0 - 1	Animal fecal waste
	Hillview	52	3	0 - 1	
	Croton	4	0	0	
Giardia (cysts/50L)	Kensico	52	21	0 - 6	Animal fecal waste
	Hillview	52	12	0 - 4	
	Croton	4	1	0 - 1	

UNITS AND ABBREVIATIONS

$CaCO_3$ = 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 mils

ND = parameter is not detected

NDL = no designated limits

NTU = nephelometric turbidity units

/50L = per 50 liters

DEFINITIONS

Action Level (AL):
The concentration of a contaminant, which, if exceeded, triggers treatment or other requirements that a water system must follow.

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.

The following parameters were not detected in any sample monitored for in 2022

Conventional Physical, Chemical and Microbial Parameters:

Antimony; Arsenic; Asbestos [19]; Beryllium; Cadmium; Cyanide; *E. Coli*; Gross alpha [19]; Lithium; Mercury; Nitrite; Radium 228 [19]; Selenium; Silver; Thallium; Uranium [19]

Principal Organic Contaminants:

Benzene; Bromobenzene; Bromochloromethane; Bromomethane; tert-Butylbenzene; n-Butylbenzene; sec-Butylbenzene; Carbon tetrachloride; Chlorobenzene; Chloroethane; Chloromethane; 2-Chlorotoluene; 4-Chlorotoluene; Dibromomethane; 1,3-Dichlorobenzene; 1,2-Dichlorobenzene; 1,4-Dichlorobenzene; Dichlorodifluoromethane; 1,1-Dichloroethane; 1,2-Dichloroethane; 1,1-Dichloroethene; cis-1,2-Dichloroethylene; trans-1,2-Dichloroethylene; 2,2-Dichloropropane; 1,2-Dichloropropane; 1,3-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; 1,2,4-Trichlorobenzene; 1,2,3-Trichlorobenzene; 1,1,2-Trichloroethane; 1,1,1-Trichloroethane; Trichloroethene; Trichlorofluoromethane; 1,2,3-Trichloropropane; 1,2,4-Trimethylbenzene; 1,3,5-Trimethylbenzene; m,p-Xylene; o-Xylene

Specified Organic Contaminants:

Di(2-ethylhexyl)adipate; Alachlor; Aldicarb (Temik); Aldicarb sulfone; Aldicarb sulfoxide; Aldrin; Atrazine; Benzo(a)pyrene; Butachlor; Carbaryl; Carbofuran (Furadan); Chlordane; 2,4-D; Dalapon; 1,2-Dibromo-3-chloropropane; Di(2-ethylhexyl)phthalate; Dicamba; Dieldrin; Dinoseb; 1,4-Dioxane; Diquat; Endothall; Endrin; Ethylene dibromide (EDB); Glyphosate; Heptachlor epoxide; Heptachlor; Hexachlorobenzene; 3-Hydroxycarbofuran; Lindane; Methomyl; Methoxychlor; Methyl-tertiary-butyl-ether (MTBE); Metolachlor; Metribuzin; Oxamyl (Vydate); Pentachlorophenol; Perfluorooctanesulfonic acid (PFOS); Picloram; Polychlorinated biphenyls (PCBs); PCB 1016 Aroclor; PCB 1221 Aroclor; PCB 1232 Aroclor; PCB 1242 Aroclor; PCB 1248 Aroclor; PCB 1254 Aroclor; PCB 1260 Aroclor; Propachlor; Simazine; 2,3,7,8-TCDD (Dioxin); Toxaphene; 2,4,5-TP (Silvex); Vinyl chloride

Unspecified Organic Contaminants:

Acenaphthene; Acenaphthylene; Acetochlor; Acetone; Acifluorfen; Allyl chloride; Ametryn; t-Amyl ethyl ether; tert-Amyl methyl ether; Anthracene; Atraton; Propoxur (Baygon); Bentazon; Benzo[a]anthracene; Benzo[b]fluoranthene; Benzo[g,h,i]perylene; Benzo[k]fluoranthene; Butylbenzylphthalate; beta-BHC; alpha-HCH; Bromacil; Bromoacetic acid; Bromoform; 1,3-Butadiene; tert-Butyl alcohol; tert-Butyl ethyl ether; Butylate; Butylated hydroxytoluene (BHT); Caffeine; Carbon Disulfide; gamma-Chlordane; alpha-Chlordane; trans-Chlordane; Chlorfenvinphos; Chlorobenzilate; 4-Chlorobiphenyl; 2-Chlorobiphenyl; 1-Chlorobutane; Chlorodifluoromethane; 11-Chloroeicosafluoro-3-oxaundecane-sulfonic acid; 9-Chlorohexadecafluoro-3-oxanone-sulfonic acid; Chloroneb; Chlorothalonil (Draconil; Bravo); Chlorpropham; Chlorpyrifos (Dursban); Chrysene; Cyanazine; Cycloate; Hexafluoropropylene oxide dimer acid (HFPO-DA); DCPA(Dacthal); 2,4-DB; 2,4-DDD; 4,4'-DDD; 2,4-DDE; 4,4'-DDE; 2,4-DDT; 4,4'-DDT; DEET; delta-HCH; Diazinon; Dibenz[a,h]anthracene; Dibromoacetic acid; 3,5-Dichlorobenzoic acid; 2,4'-Dichlorobiphenyl; Dichlorprop; Dichlorvos (DDVP); Diethyl ether; Diethylphthalate; Di-isopropyl ether; Diisopropyl methylphosphonate; Dimethipin; Dimethoate; Dimethylphthalate; 2,4-Dinitrotoluene; 2,6-Dinitrotoluene; 4,8-dioxa-3H-perfluorononanoic acid (ADONA); Diphenamid; Disulfoton; Endosulfan I; Endosulfan II; Endosulfan sulfate; Endrin aldehyde; Endrin Ketone; EPTC; Ethion; Ethoprop; Ethyl methacrylate; N-ethyl Perfluorooctanesulfonamidoacetic acid; Etridiazole; Fenarimol; Fluoranthene; Fluorene; Fluridone; 2,2',3,4,4',5,5'-Heptachlorobiphenyl; 2,2',4,4',5,5'-Hexachlorobiphenyl; 2,2',3,4,4',5'-Hexachlorobiphenyl; 2,2',3,4',5',6-Hexachlorobiphenyl; Hexachloroethane; Hexazinone; Indeno[1,2,3-cd]pyrene; Isophorone; Malathion; Methiocarb; Methyl acetate; Methyl iodide; Methyl parathion; N-methyl Perfluorooctanesulfonamidoacetic acid; Mevinphos; MGK-264 isomer a & b; Molinate; Naphthalene; Napropamide; Di-n-Butylphthalate; Nitrofen; Di-N-octylphthalate; cis-Nonachlor; trans-Nonachlor; Norflurzon; Oxyfluorfen; Paraquat; Parathion; Pebulate; Pendimethalin; 2,3',4,4',5-Pentachlorobiphenyl; 2,3,3',4',6-Pentachlorobiphenyl; Pentachloroethane; Perfluorobutanesulfonic acid (PFBS); Perfluorodecanoic acid (PFDA); Perfluorododecanoic acid (PFDoA); Perfluoroheptanoic acid (PFHpA); Perfluorohexanesulfonic acid (PFHxS); Perfluorohexanoic acid (PFHxA); Perfluorononanoic acid (PFNA); Perfluorooctanoic acid (PFOA); Perfluorotetradecanoic acid (PFTA); Perfluorotridecanoic acid (PFTrDA); Perfluoroundecanoic acid (PFUnA); cis-Permethrin; trans-Permethrin; Permethrin (mixed isomers); Phorate; Phosphamidon; Profenofos; Prometon; Prometryn; Pronamide; Propazine; Pyrene; Simetryn; 2,4,5-T; Tebuconazole; Tebuthiuron; Terbacil; Terbuthylazine; Terbutryn; 2,2',3,5'-Tetrachlorobiphenyl; 2,2',5,5'-Tetrachlorobiphenyl; 2,3',4',5-Tetrachlorobiphenyl; Tetrachlorovinphos; Tetrahydrofuran; Thiobencarb; Triademefon; Tribufos; 2,4,4'-trichlorobiphenyl; 2,2',5-Trichlorobiphenyl; Trifluralin; Vernolate; Vinclozolin

Fourth Unregulated Contaminant Monitoring Rule (UCMR4) [2] and Emerging Contaminants:

Anatoxin-a; 1-Butanol; Butylated hydroxyanisole; Chlorpyrifos; Cylindrospermopsin; Dimethipin; Ethoprop; alpha-HCH; Germanium Total ICAP/MS; 2-Methoxyethanol; Microplastics [20]; Monobromoacetic acid; Monochloroacetic acid; Oxyfluorfen; Profenofos; 2-Propen-1-ol; Quinoline; Tebuconazole; o-Toluidine; Total Microcystins; Total Permethrin (cis & trans); Tribromoacetic acid; Tribufos

2022 MONITORING DATA FOOTNOTES

(1) EPA Secondary MCL: NYSDOH has not set an MCL for this parameter.

(2) Monitored for under the Fourth Unregulated Contaminant Monitoring Rule (UCMR4) in 2018 and 2019. UCMR4 included source water monitoring for bromide and total organic carbon; EPA has not established an MCL for these parameters.

(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) 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 Residential Tap Sampling 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) Nickel was only detected in one sample on 6/7/22 at site 1SCL1 (Van Cortlandt Village, 10463).

(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 two samples collected from site 3ISL4 (Randall's Island, 10035) on 2/3/22 and 3/3/22. Ortho-phosphate was greater than range in three samples collected from site 11750 (City Island, 10464) on 4/16/22, 4/28/22, and 7/2/22 due to an Optimization Control Study being conducted in this area of the system.

(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, which was in April 2022.

(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, which occurred on 12/4/2022.

(14) This is a TT (performance standard) for the Croton Filtration Plant that > 5% of measurements/month must not exceed. The value presented is the highest single combined filter effluent turbidity measurement which occurred on 10/7/22. In 2022, 100% of turbidity results were <0.3 NTU.

(15) The MCLs for HAA5 and TTHMs are the calculated locational running annual average (LRAA). 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 LRAA.

(16) The HAA5 LRAA MCL was exceeded in the 1st quarter of 2022 at site 50250 sampled on 2/1/2022.

(17) If a sample and one of its repeat samples are both positive for coliform bacteria and one of the two samples is positive for *E. coli*. This is a TT that triggers a Level 1 assessment if exceeded.

(18) DEP collected samples of water leaving New Croton Reservoir and Kensico Reservoir, prior to chlorination and UV disinfection, and leaving Hillview Reservoir, prior to secondary disinfection with chlorine, and analyzed using EPA Method 1623.1.

(19) NYSDOH allows monitoring for these contaminants less frequently than once per year. These data, though representative, are from 2020 except for Radium 228 which are from 2021.

(20) Separate from the UCMR4, DEP tested for microplastics in 2018 and additional monitoring will be conducted in 2023.

CONTACT INFORMATION

Public Water System Identification Number (PWSID) NY7003493

NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION
Rohit T. Aggarwala, Commissioner // 718-595-3000 // **nyc.gov/dep**
59-17 Junction Blvd, Flushing, NY 11373

NEW YORK CITY WATER BOARD
Visit **nyc.gov/waterboard** for a list of upcoming meetings and information about opportunities to participate in decisions that affect water quality.

CONTAMINANTS QUESTIONS
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 1-800-426-4791.

CRYPTOSPORIDIUM AND *GIARDIA* QUESTIONS
DOHMH Bureau of Communicable Diseases // 347-396-2600

CUSTOMER BILLING QUESTIONS
DEP Customer Service // 718-595-7000 // **nyc.gov/dep**

LEAD IN DRINKING WATER QUESTIONS
DEP Lead Unit // 718-595-5364 // **nyc.gov/dep/leadindrinkingwater**

HEALTH QUESTIONS (WATER SUPPLY-RELATED)
DOHMH // Call 311 or 212-NEW YORK (639-9675) // **nyc.gov/apps/311**
NYSDOH Bureau of Water Supply Protection // 518-402-7650 // **health.ny.gov**

REPORT UNUSUAL COLOR, TASTE OR ODOR OF DRINKING WATER
Call 311 or 212-NEW YORK (639-9675) // **nyc.gov/apps/311**

REPORT POLLUTION, CRIME, OR TERRORISM IN THE WATERSHED
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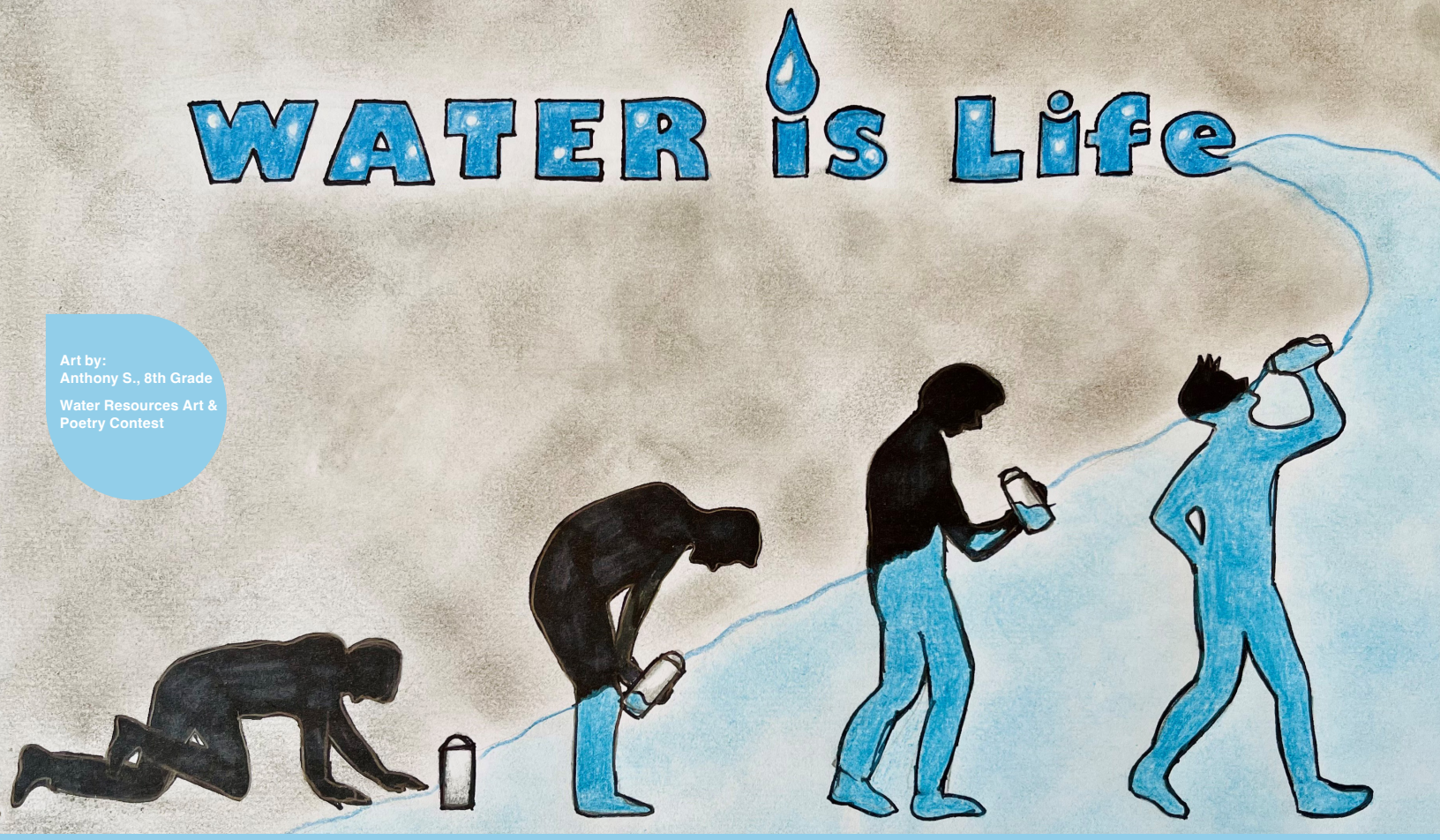

This report contains important information about your drinking water.

Translate it, or speak with someone who understands it.

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.

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 informacje 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 。

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