



Rudolph W. Giuliani, Mayor

Joel A. Miele Sr., P.E., Commissioner

# New York City 1997 Water Supply Statement

In accordance with Chapter 752 of the New York State Public Health Law, as amended in 1996, all large drinking water suppliers in the State are required to provide the public with an annual statement describing the water supply and the quality of its water. The New York City Department of Environmental Protection is pleased to present its 1997 Annual Water Supply Statement.

The New York City surface (reservoir) water supply system provides approximately 1.3 billion gallons of safe drinking water daily for nearly 8 million residents of New York City, as well as visitors, commuters and approximately one million people living in Westchester, Putnam, Ulster, and Orange counties. In addition to our surface water supplies, approximately 520,000 people in southeastern Queens receive groundwater or a blend of groundwater and surface water. In all, the City system supplies high quality water to nearly half the population of New York State.

## Where Does New York City's Water Come From?

Most of New York City's water is supplied from a network of 19 reservoirs and three controlled lakes in a 1,969 square-mile watershed that extends 125 miles north of New York City. The Croton system, the City's original upstate supply, provides about 10% of our daily water from 12 reservoir basins in Putnam, Westchester, and Dutchess counties. Approximately 90% of our water comes from the Catskill/Delaware watershed, located in Delaware, Greene, Schoharie, Sullivan, and Ulster counties, west of the Hudson River. New York City's groundwater system in southeastern Queens operated 26 wells to supply an average of 22 million gallons of drinking water per day, or about two percent of the City's total need.

## Water Quality

The New York City Department of Environmental Protection (DEP) operates the water supply system that delivers water to City residents. An extensive monitoring program—far more extensive than required by law—demonstrates that the quality of New York City's drinking water remains high, meeting all State and Federal drinking water standards except for color (a seasonal, aesthetic condition in the Croton and groundwater systems.)

DEP monitors the water in the distribution system, the upstate reservoirs and feeder streams, and the wells that are the sources for our supply. Water quality is monitored continuously as the water enters the distribution system, and is tested at sampling points throughout the entire City. Water is analyzed for a broad spectrum of microbiological, chemical, and physical measures of quality. In 1997, DEP collected more than 36,000 in-City samples and performed approximately 340,000 analyses.

### TEST RESULTS

The results of the tests for parameters conducted on distribution water samples under DEP's Distribution System Monitoring Program in 1997 are summarized in the attached tables. Data is presented separately for the Croton, Catskill/Delaware, and groundwater systems. Detailed results can be obtained from DEP. Whether a particular location receives Croton, Catskill/Delaware, groundwater, or a mixture, varies depending on system operations and consumer demand.

### CRYPTOSPORIDIUM AND GIARDIA

While there is no evidence of illness related to the New York City water supply, New York State law requires all water suppliers to notify their customers about the potential risks of Cryptosporidium and Giardia. Cryptosporidiosis and giardiasis are intestinal illnesses caused by microscopic pathogens which can be waterborne. Cryptosporidiosis can be very serious for people with weak immune systems, such as chemotherapy, dialysis, or transplant patients, and people with Crohn's disease or HIV infection. People with weakened immune systems should discuss with their health care providers the need to

take extra precautions such as boiling water, using a certified bottled water, or a specially approved home filter. Individuals who think they may have cryptosporidiosis or giardiasis should contact their health care provider immediately.

According to the United States Environmental Protection Agency and the Centers for Disease Control and Prevention, it is unclear how most cases of cryptosporidiosis in the United States are transmitted. The relative importance of various risk factors are unknown. Such factors include eating contaminated food, swallowing contaminated recreational water while swimming or camping, contact with animals, contact with human waste, certain sexual practices, or drinking contaminated water.

To better understand the nature of potential risks, in 1992 the City added a pathogen monitoring component to its comprehensive watershed monitoring program. Since then, samples have been collected weekly from the effluents of Kensico and New Croton Reservoirs, before water is first chlorinated in the Catskill/Delaware and Croton systems, respectively.

In 1997, 104 samples of Kensico Reservoir effluent and 48 samples of New Croton Reservoir effluent collected and analyzed for Giardia and Cryptosporidium showed no confirmed detections of either organism. Of the 104 Kensico Reservoir samples, three presumed positive Giardia cysts were identified, but further analysis did not confirm their presence. Likewise two presumed Cryptosporidium oocysts were identified at Kensico, but their presence was not confirmed after further analysis. The New Croton Reservoir samples produced two presumed and no confirmed Giardia cysts, and no Cryptosporidium oocysts. Additionally, the City's interagency Active Disease Surveillance unit continued to track the incidence of giardiasis and cryptosporidiosis.

## How is New York City's Water Treated?

All surface water and groundwater entering New York City's distribution system is treated with chlorine, fluoride, orthophosphate, and, in some cases, sodium hydroxide. New York City uses chlorine to meet the New York State Sanitary Code and Federal Safe Drinking Water Act disinfection requirements. A small amount of fluoride (one part per million) to help prevent tooth decay has been added to the City's surface water supply since the mid-1960s in accordance with the New York City Health Code. Orthophosphate is added to create a protective film on pipes which reduces the release of metals such as lead from household plumbing. Sodium hydroxide is added to the water to raise the pH and reduce corrosivity.

A sequestering phosphate is added at several wells to keep naturally occurring minerals, mainly iron and manganese, from settling out in distribution and household piping. Air stripper facilities operate at several wells to remove volatile organic chemicals.

## Water Conservation

Did you know that the average single family household in New York City uses approximately 100,000 gallons of water each year, at a cost of \$1.20 per 100 cubic feet of water, or about \$160.00 each year? Although New York City is fortunate to have a plentiful supply of reasonably priced drinking water, everyone should do their part to conserve this precious resource.

In its ongoing efforts to save water DEP: uses sonar equipment to survey all water supply piping for leaks; replaces approximately 40 miles of old water supply pipe each year; equips fire hydrants with special locking devices; and installs home water meters to encourage conservation. These programs and others have proven successful, and together have reduced water consumption in the City by approximately 175 million gallons per day in the last five years.

Here are some ways that you can help save water:

- Repair all leaks promptly. Leaks waste water 24 hours a day, 7 days a week. Check all faucets for leaks.
- Install aerators on all sinks and use a high-pressure, low-flow showerhead. Replacing old fixtures with water conserving models can produce substantial savings without reducing effectiveness and comfort.
- Order a Home or Apartment Water Saving Kit. If you are an apartment building owner/manager or a home owner, you can obtain a free leak survey, along with water saving showerheads and other products. Call our Leak Survey contractor at (718) 326-9426 for information.
- Water your garden in the evening instead of the heat of day to reduce evaporation.



## Ensuring a Safe and Sufficient Supply of Water

The landmark New York City Watershed Memorandum of Agreement (MOA) was signed on January 21, 1997, by Mayor Rudolph W. Giuliani, Governor George E. Pataki, the USEPA, officials from watershed communities of the Hudson Valley and Catskill Mountain regions, and representatives of New York's environmental community. The Agreement is designed to protect the City's water supply well into the next century, while preserving the autonomy and economic viability of the watershed communities. The MOA initiatives fall into three major categories: Land Acquisition, Watershed Regulations and Partnership Programs.

### LAND ACQUISITION

The MOA requires the City to implement a 10-year, \$250 million program to acquire hydrologically sensitive watershed land. This program protects land from adverse development and helps maintain the economy and character of the region. In 1997, DEP exceeded the first year goal of soliciting the owners of 56,609 acres of watershed land. DEP placed over 9,100 acres of land under purchase contracts worth \$24 million, and closed on 147 acres.

### WATERSHED REGULATIONS

Revised for the first time since 1953, the Watershed Regulations in the MOA became effective on May 1, 1997. The Regulations are vital to water supply protection and provide a higher level of defense against modern-day threats to water quality. By vigorously enforcing the new Regulations, DEP is ensuring that the City's source waters are protected. These measures include aggressive policing and inspection of the watershed; greatly increased water quality monitoring; systematic inspections of sewage treatment plants; investigations of other potentially-polluting activities; and legal actions against polluters.

Another vital element of DEP's protection program is the review of proposed development projects for compliance with our new Regulations. In 1997, DEP reviewed applications for 700 new septic systems, nearly 100 stormwater pollution prevention plans, seven regulatory variances and nearly 100 other projects.

### PARTNERSHIP PROGRAMS

In accordance with the terms of the MOA, the City will invest \$1.2 billion in water quality-related partnership programs over the next 10 years in the watershed. In 1997, over \$100 million was paid to various parties and local governments for programs stipulated in the MOA.

In the watershed communities west of the Hudson River, three key programs funded by the City and administered locally were launched in 1997:

- Septic Rehabilitation and Replacement Program - The goal is to maintain, repair or replace all septic systems in the watershed. In the program's initial phase, the owners of nearly 300 residential septic systems that had been repaired or replaced since 1995 were reimbursed for their costs.
- Sand and Salt Storage Facilities Program - This program will improve the storage of sand, salt and other road de-icing materials to better protect water quality, which can be severely harmed by uncontrolled run-off of these materials.
- New Sewage Treatment Infrastructure Program - Of 22 possible participating communities identified in the MOA, DEP began work with seven -- whose water quality problems are greatest -- to study the feasibility of constructing sewage treatment plants.

East of the Hudson, Putnam and Westchester Counties are overseeing programs within their boundaries. In 1997, DEP began working with both counties on the Croton Planning process, outlined in the MOA and the Regulations, to identify the most effective way to deploy MOA funding to protect water quality.

Major steps were made in the 5-year program to upgrade the non-City-owned sewage treatment plants in the watershed. DEP, in partnership with the New York State Environmental Facilities Corporation, completed first round discussions with virtually all plant owners and began the coordination process for designing upgrades.

### UPSTATE CAPITAL IMPROVEMENTS

The City is in the midst of a multi-year, multimillion dollar program to upgrade and improve its upstate water supply facilities, including dams, gatehouses, aqueducts, laboratories and other facilities needed to ensure the continued supply of safe and reliable drinking water. The City is also investing \$160 million to rebuild the eight sewage treatment plants it owns and operates in the watershed. Incorporating the latest treatment technologies, work was substantially completed on four facilities in 1997; Grahamsville in Sullivan County, Tannersville in Greene County, Grand Gorge in Schoharie County and Mahopac in Westchester County.



## Contact Us

For a copy of this report, to report unusual water characteristics, or to request a free kit to test for lead in your drinking water, call the 24-hour DEP Help Center at (718) DEP-HELP.

For more information on Giardia and Cryptosporidium, please contact the Parasitic Disease Surveillance Unit of the New York City DEP and DOH at: (212) 788-4728.

To report any polluting activities occurring in the watershed, call 1-888-DEP-NYC1, 24-hours a day.

Visit DEP's Web site at:

[www.ci.nyc.ny.us/dep](http://www.ci.nyc.ny.us/dep)