Carter Strickland
Commissioner

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DEP BEGINS STUDY OF NEW METHOD TO SEAL CRACKS IN DELAWARE AQUEDUCT

$4 Million, Year-long Study Will Determine Effectiveness of Lime in Sealing Cracks in Concrete Water Pipes

New York City Environmental Protection (DEP) Commissioner Carter Strickland today announced the start of a year-long pilot study to evaluate a new method of sealing cracks in concrete water pipes that could eventually help stop leaks and maintain the Delaware Aqueduct – an 85-mile water tunnel that conveys approximately half of the drinking water from four upstate reservoirs to more than eight million people in New York City, and one million people in Ulster, Orange, Putnam, and Westchester counties. A Syracuse University lab test, funded in part by DEP, demonstrated that introducing lime and other chemicals into water flowing through concrete pipes can effectively seal hairline cracks and reduce leaks. In August, DEP began a $4 million proof of concept experiment at the Rondout Reservoir that will simulate actual conditions in the Delaware Aqueduct and determine if this new leak sealing technique can be applied on a larger scale.

"The Delaware Aqueduct is a critical link between our reservoirs and the nine million New Yorkers who rely on the water it supplies," said Commissioner Strickland. "This study is one of many investments we are making to ensure future generations have access to this precious resource, and a demonstration of our commitment to exploring every option to stop leaks in the aqueduct."

The lime study experiment is taking place in a temporary structure on the southeast side of the Rondout Reservoir. Inside, water from the reservoir is being pumped through three 2,400-foot sections of 1.5-inch diameter pipe. Scientists are testing different flow rates to determine if the lime and other chemicals introduced into the pipes will seal cracks under conditions similar to those inside the Delaware Aqueduct. A high flow setting simulates the actual velocity of water inside the aqueduct and will help determine if lime is deposited in cracks at that speed. A lower flow setting will help scientists learn if enough lime remains in the pipe to seal cracks after it travels for approximately 80 minutes – the time it takes water to travel from the reservoir to the leaking sections of aqueduct in Wawarsing. The experiment will also help researchers assess the extent to which lime deposits build on the walls of the pipe, which can reduce capacity in the aqueduct.

As water flows through the test pipes, modules spaced in 800-foot intervals simulate different-sized cracks, and monitor changes in pressure that allow researchers to determine if those cracks are being filled. The experiment will also help calculate appropriate lime dosage and which chemical combinations are most effective at sealing cracks. Chemical combinations

being examined include: lime, lime with carbon dioxide, "liquid lime" which uses calcium chloride, sodium hydroxide, and carbon dioxide.

Water exiting the experiment site will be treated and then discharged back into the reservoir. All water reintroduced to the reservoir will be permitted by the New York State Department of Environmental Conservation and will not have any adverse effects on the New York City drinking water supply.

The pilot project is part of *Water for the Future*, a comprehensive $2.1 billion plan to fix the leaking Delaware Aqueduct. The plan includes construction of a three-mile bypass tunnel around a portion of the aqueduct that is leaking in Roseton in Orange County, and repair work to sections that are leaking in Wawarsing in Ulster County. DEP plans to break ground on the bypass tunnel in 2013, and expects to complete the connection to the Delaware Aqueduct in 2021. The tunnel repair program is expected to create between 1,000 and 1,500 jobs.

In addition to creating jobs, DEP recently announced $7 million in funding to expand the Napanoch Water District from the Vernooy Kill to the State Police Barracks area on Route 209, including most of the side streets such as Smith Road, Kelsey Lane, Kagan Road and Foordemoore Road. DEP also announced a $5.5 million home repair fund for eligible projects that address groundwater issues in the area that had been previously designated for the buyout program. The fund will be administered by the Town of Wawarsing.

DEP manages the city's water supply, providing more than one billion gallons of water each day to more than nine million residents, including eight million in New York City, and residents of Ulster, Orange, Putnam and Westchester counties. This water comes from the Catskill, Delaware, and Croton watersheds that extend more than 125 miles from the City, and the system comprises 19 reservoirs, three controlled lakes, and numerous tunnels and aqueducts. DEP employs nearly 6,000 employees, including more than 750 scientists, engineers, surveyors, watershed maintainers and others professionals in the upstate watershed. In addition to its $49 million payroll and $132 million in annual taxes paid in upstate counties, DEP has invested more

than $1.5 billion in watershed protection programs—including partnership organizations such as the Catskill Watershed Corporation and the Watershed Agricultural Council—that support sustainable farming practices, environmentally sensitive economic development, and local economic opportunity. For more information, visit www.nyc.gov/dep, like us on Facebook at www.facebook.com/nycwater, or follow us on Twitter at www.twitter.com/nycwater.

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