SEARCH Advanced Search

facebook
flickr
twitter

Home

CUSTOMER SERVICES
Ways to Pay Your Bill
Account Information
Customer Assistance
Water Rates
Property Managers and Trade Professionals

WATER UTILITIES
Drinking Water
Wastewater
Stormwater
Harbor Water

THE WATERSHED
Watershed Protection
Watershed Recreation

CITYWIDE INITIATIVES
Regulatory Reform
Environmental Education
Conservation Programs
Air Pollution Control
Noise Codes & Complaints

BUSINESSES & PROFESSIONALS
Forms & Permits
Doing Business with DEP
Asbestos Abatement

FOR IMMEDIATE RELEASE 11-29

April 13, 2011

CONTACT:

Farrell Sklerov / Michael Saucier (718) 595-6600

DEP Completes Renovation of Critical Delaware Aqueduct Control Structures

Shafts 9, 10 and 17 Re-commissioned for Decades of Future Service

Environmental Protection Commissioner Cas Holloway today announced the completion of a $180 million multi-year construction program to rehabilitate and modernize three major control stations — Shafts 9 and 10 in Kent, Putnam County; and Shaft 17 in North Castle, Westchester County — on the Delaware Aqueduct. A shaft is a vertical pipe that connects a tunnel like the Delaware Aqueduct to the wider water distribution network. The 85-mile Delaware aqueduct, completed in 1944, conveys approximately half of the city's drinking water — more than 600 million gallons per day — from six key upstate reservoirs to more than eight million people in New York City, and one million people in Ulster, Orange, Putnam and Westchester counties who also rely on the city's high quality drinking water. Much of the equipment in the shafts, which control the flow of water into the aqueduct, was more than 50 years old, having been installed in the 1940s and 1950s and would have cost more to maintain than be replaced. The construction work included the replacement of all major mechanical components, including the giant sluice gates that are used to control flows at rates up to 1.2 billion gallons per day. Work on the project started in 2003 and all the systems are undergoing final testing.

"With the completion of this shaft work, these flow control stations will be operational for at least another 70 years," said Commissioner Holloway. "These shafts are critical infrastructure that enable us to control the flow of water between reservoirs. Much of the equipment in these shafts was more than 50 years old and needed to be replaced; and the new equipment installed as part of this rehabilitation will enable us to operate portions of the aqueduct during the planned repair of two portions of the Rondout-West Branch Tunnel in 2018. Mayor Bloomberg's commitment to maintaining the City's water infrastructure made this project possible, and will contribute to the reliability of our massive and ingenious water supply system for years to come."

MORE INFORMATION

NYC Department of Environmental Protection
Communications & Intergovernmental Affairs

59-17 Junction Boulevard
19th Floor
Flushing, NY 11373

(718) 595 - 6600

Construction, Demolition & Abatement

ABOUT DEP

Inside DEP

News

DEP Featured In...

Stories from DEP

Press Releases

Public Notices

Testimony and Public Comments

Capital Projects

Job Opportunities

Environmental Reviews

A to Z Index

Contact Us

Shafts are vertical tunnels that extend far underground and link the city's aqueducts and tunnels to infrastructure, such as valves and gates, which allow operational flexibility between reservoirs or water mains that supply water to upstate communities and the city. In New York City's upstate watershed, these shafts were originally drilled so that workers could get far enough underground to build the city's aqueducts through rock at selected elevations. Now, in the same shafts, the force of gravity propels water up through them, allowing water to flow into reservoirs and the distribution system. Some of the 25 shafts along the Delaware Aqueduct serve simply as access for inspection of and water distribution from the aqueduct. Others, such as Shafts 9, 10, and 17, control the water flow into and out of the aqueduct. Water flows from the aqueduct to the reservoirs via the uptake shafts and from the reservoirs back to the aqueduct via the downtake shafts. Sluice gates are large stainless steel rectangular valves constructed in chambers which connect to the shafts. They are used to control water flow from the aqueduct into the reservoirs or vice versa.

Among the project work was installation of new sluice gates and motor equipment used to operate them. The gates are large metal panels — sometimes 12 or 15 feet tall — that sit within shafts and are opened or closed to adjust water flow. Other devices to regulate the flow of water from reservoirs into shafts — called incremental valves — were also replaced. The new incremental gate valves are stainless steel and the new sluice gates are cast iron gates with electric motors that operate the gates, up to open and down to close. The control system to open and close the gates was also replaced. The sluice gates were replaced at all three shaft sites to allow the reliable operation of the shafts while the replacement was taking place to ensure uninterrupted water supply to the nine million New Yorkers who rely on it every day. As the equipment is going through final testing, some minor punch list items are being completed.

An additional component of the project was the careful remediation of legacy substances that were present in the materials from the original construction of the shafts. In addition to the operational benefits, the new equipment also improves overall safety for DEP staff that work at these sites. The old sluice gates and operating equipment contained oils with mercury and PCBs — but the new ones eliminate potential exposure to these legacy substances. Also, as part of the modernization work, the following was completed: the back-up chlorination facilities at Shaft 10 were updated; roofs and windows on all control buildings at the three sites were replaced; automatic water screens to remove debris from reservoir water at Shaft 10 were replaced; all electrical systems were upgraded, including the installation of a 250 kilowatt generator at Shaft 9, the installation of a new 500 kilowatt back-up generator at Shaft 10, and a 400 kilowatt back-up generator at Shaft 17; and installation of heating, humidity control, air conditioning, and ventilation systems, including new boilers and automated control systems at all three shaft sites.

Not only will this work keep the system running more smoothly, but it will also add to the reliability of the city's water supply system in advance of the dewatering of the Delaware Aqueduct in 2018. Improvements to the shafts will enhance DEP's operational ability to draw water from the Rondout West Branch Reservoir, which is south of the dewatered section, helping supplement the City's water supply during the nearly year-long connection of the tunnel

bypass. Last November, Commissioner Holloway outlined a design and timeline to address leaks in the Delaware Aqueduct. Under the plan, DEP will build a three-mile bypass tunnel around a portion of the aqueduct that is leaking in Roseton in Orange County, and repair other leaks in Wawarsing, in Ulster County, from the inside of the existing tunnel. The construction of the bypass tunnel and the repair of the lining will ensure that DEP can continue to deliver high quality drinking water every day for decades to come. Under the plan, DEP will break ground on the bypass tunnel in 2013, and complete the connection to the Delaware Aqueduct in 2019.The bypass tunnel and internal repairs will cost approximately $1.2 billion, and water projects to supplement the City's supply during part of the construction period will cost approximately $900 million. The tunnel repair and project is expected to create between 1,000 and 1,500 jobs.

The Delaware water supply system originates more than 100 miles north of New York City and consists of four reservoirs: Cannonsville, Neversink, Pepacton, and Rondout. The 85-mile Delaware Aqueduct conveys drinking water from these reservoirs to the city's distribution system. It is designed to provide up to 900 million gallons of water a day, but typically meets about half of the city's daily water needs. The aqueduct, the world's longest continuous tunnel, was constructed between 1939 and 1944 and crosses Ulster, Orange, Dutchess, Putnam and Westchester counties. The aqueduct is a concrete-lined tunnel that varies in diameter from 13.5 to 19.5 feet and runs as deep as 2,000 feet beneath the ground. It was constructed by drilling and blasting, and, in most areas, lined with unreinforced concrete. In areas where the rock is not as strong, steel reinforcement bars and steel liner plates were used to strengthen the concrete liner.

DEP manages the city's water supply, providing more than 1 billion gallons of water each day to more than 9 million residents, including 8 million in New York City, and residents of Ulster, Orange, Putnam and Westchester counties. New York City's water is delivered from a watershed that extends more than 125 miles from the City, and comprises 19 reservoirs, and three controlled lakes. Approximately 7,000 miles of water mains, tunnels and aqueducts bring water to homes and businesses throughout the five boroughs, and 7,400 miles of sewer lines take wastewater to 14 in-city treatment plants. For more information, visit www.nyc.gov/depor follow us on Facebook at www.facebook.com/nycwater.

- View all press releases
- Sign up to receive DEP press releases by email