

August 10, 2015

## **DEPARTMENT OF ENVIRONMENTAL PROTECTION PROVIDES UPDATE ON REPAIRS DOWNSTREAM OF CANNONSVILLE DAM**

The New York City Department of Environmental Protection (DEP) today provided the following update on the repair and monitoring efforts downstream of Cannonsville Dam.

Engineers and work crews on Monday began the second stage of repairs downstream of the dam, which focuses on permanently sealing shut the original boreholes that caused the discharge of cloudy water into the West Branch Delaware River. This second stage of repairs involves using a high pressure grout, similar to concrete, to seal shut the original boreholes and fill areas that might have been eroded while the discharge was ongoing. The discharge was successfully halted Aug. 1 when a series of relief wells began pumping groundwater from the pressurized aquifer that was carrying the sediment to the river. Materials testing showed that this sediment was coming from the immediate area around the original boreholes, and not from the earthen embankment dam itself.

To close the original boreholes, engineers will inject grout through four pipes, known as casing, which will be installed at each of the original borehole sites. One casing will be installed down the middle of the original boreholes, and the others will be arranged in a triangle pattern around the perimeter of each hole. The grout will be injected at the bottom of the original 60-foot-deep boreholes, and then slowly upward toward the surface. As the grout is applied through each of the pipes, it will push inward to pinch closed the original hole and move outward to fill any eroded areas that were created by the aquifer as it mobilized sediment from that area. The grouting plan and design was developed and refined over the past week by a group of expert engineers from throughout the country. The entire process is expected to take approximately two weeks. In the meantime, the continuous pumping of relief wells at the site has successfully prevented additional sediment from being disturbed since Aug. 1. The cloudy discharge was successfully stopped by the installation and pumping of four wells; an additional two wells were installed and are standing by in case extra capacity is required. DEP's 24-hour monitoring at the dam will continue during the second stage of the repairs.

Operations at Cannonsville Reservoir have returned to normal for this time of year. DEP is no longer diverting drinking water from the reservoir, instead relying on drinking water from Pepacton and Neversink reservoirs to help balance storage across the Delaware System. After four days of gradual decreases, downstream releases from Cannonsville Reservoir have returned to normal levels under the Flexible Flow Management Program on Aug. 5. DEP is currently releasing 500 cubic feet per second, or roughly 325 million gallons per day, from the reservoir. There are roughly 24 billion gallons of cold water in Cannonsville Reservoir. This cold water, which is important for the fisheries downstream and in the reservoir, is expected to last well into October under normal release and weather conditions.

DEP has also continued to provide the public with information as the work progresses. DEP released additional worksite photos on Monday afternoon. These photos can be found on DEP's watershed Facebook page at [www.Facebook.com/NYCWatershed](http://www.Facebook.com/NYCWatershed), or on the Cannonsville

Reservoir page by [clicking here](#). Daily updates related to Cannonsville Reservoir storage and releases are also posted on that website.

## Background

On July 15, DEP increased drinking water diversions and downstream releases from Cannonsville Reservoir in response to an ongoing turbid discharge from a rock embankment below Cannonsville Dam. While DEP, its regulators, and consulting engineers did not believe the condition represented an imminent threat to dam safety, DEP began drawing down the reservoir out of an abundance of caution to prioritize public safety while repairs proceeded. Reducing reservoir storage at Cannonsville has not posed a risk to the city's water supply. Normal operations at the reservoir resumed on Aug. 2.

The turbid flow below the dam was discovered when workers were drilling borings in preparation for design and construction of a hydroelectric facility that is planned to be built there. All drilling work ceased when the workers noticed the flow of turbid water coming from a rock embankment near the release chamber. An investigation indicated that the drilling released ground water under natural pressure, known as an artesian condition, several dozen feet below surface level. This caused an upward flow of water and sediment that was reaching the West Branch Delaware River. Since then, DEP has continued intensive monitoring at the dam. These include 24-hour monitoring by employees at the site, regular analysis of dam-safety instrumentation, and testing of the turbid sediment to identify and understand its origin. Federal, state, county and local officials – including officials from New Jersey and Pennsylvania – have been regularly updated since the condition at Cannonsville Dam was first discovered.

Placed into service in 1964, Cannonsville Reservoir was the last of New York City's 19 reservoirs to be built. Water diverted from Cannonsville Reservoir for drinking water enters the West Delaware Tunnel and travels 44 miles to the upper end of Rondout Reservoir. From there, it is carried in the 85-mile-long Delaware Aqueduct. Water is released downstream from Cannonsville Reservoir under the terms of the 1954 U.S. Supreme Court Decree, and a flow program, known as the Flexible Flow Management Program, agreed upon by New York City and the states of Delaware, New Jersey, New York and Pennsylvania.

DEP manages New York City's water supply, providing more than one billion gallons of high quality water each day to more than 9 million New Yorkers. This includes more than 70 upstate communities and institutions in Ulster, Orange, Putnam and Westchester counties who consume an average of 110 million total gallons of drinking water daily from New York City's water supply system. 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 has nearly 6,000 employees, including almost 1,000 scientists, engineers, surveyors, watershed maintainers and other professionals in the upstate watershed. In addition to its \$70 million payroll and \$157 million in annual taxes paid in upstate counties, DEP has invested more than \$1.7 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. In addition, DEP has a robust capital program with nearly \$14 billion in investments planned over the next 10 years that will create up to 3,000 construction-related jobs per year. For more information,

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