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# Department of Environmental Protection Completes Second Stage of Repairs Near Cannonsville Dam

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

On Tuesday morning, engineers completed the second stage of repairs downstream of Cannonsville Dam. This stage focused on sealing shut the three original boreholes that created a cloudy discharge of water into the West Branch Delaware River from July 8 to Aug. 1. Engineers used a stiff grout (similar to concrete) to repair each borehole. Grout was first injected through the center of each original borehole, and then it was also pumped at three additional locations around the perimeter of each hole. The application of grout in this pattern was designed to plug the original holes while also allowing the grout to move outward and fill any areas of soil that were eroded by the pressurized groundwater. The second stage of repairs was designed and executed in consultation with engineers from the Federal Energy Regulatory Commission (FERC) and a panel of expert geotechnical engineers from throughout the United States.

DEP on Wednesday will begin the process of testing the repairs to ensure their effectiveness. During the first phase of the repairs, a series of relief wells were installed to reduce pressure from the underground aquifer and provide a new path for that water to flow. The pumping of these wells successfully ended the discharge of cloudy water on Aug. 1. To test the effectiveness of the grouting, pumping from these wells will be reduced over the next three days and eventually stopped, allowing the groundwater to return to normal pressures. During that time engineers will monitor instruments inside the dam, along with turbidity, flow and other parameters downstream of the dam. As a result of the repairs, it is anticipated that all measurements and observations will steadily move toward levels observed before the original drilling was performed in July.

In the meantime, DEP has continued its monitoring and outreach efforts. Intensive monitoring at the dam continues to include daily inspections by a professional engineer, near real-time monitoring of dam safety instruments, and a 24-hour presence by workers at the site. DEP has also started its next round of public meetings to share the latest information with communities along the Delaware River. The first information session was held Tuesday night in Deposit. Other meetings in Narrowsburg, New York; Matamoras, Pennsylvania; and Easton, Pennsylvania are already scheduled. A complete list of those meeting dates, times and locations can be found below. Additional information about the repair project and the circumstances downstream of Cannonsville Dam can be found on the DEP website by clicking here. This information is also posted regularly to DEP's watershed Facebook page.

# **More Information**

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NYC Department of Environmental Protection Public Affairs

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- Thursday, Aug. 27 at 6 p.m. at the Upper Delaware Council office, 211 Bridge St., Narrowsburg, NY
- Tuesday, Sept. 1 at 6 p.m. at the Best Western Hotel, US Route 6, Matamoras, PA
- Thursday, Sept. 3 at 6 p.m. at the Nurture Nature Center, 518 Northampton St., Easton, PA

### **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 downstream of Cannonsville Dam. While DEP, its regulators, and consulting engineers did not believe the condition represented a 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 cloudy discharge below the dam was discovered when workers were drilling borings in preparation for design and construction of a hydroelectric facility planned for the site. 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 feel below surface level. As the pressurized groundwater flowed upward it also carried sediment to the West Branch Delaware River. The is mobilization of sediment was successfully ended on Aug. 1 when DEP installed and pumped relief wells to reduce the pressure in that underground aquifer. Since July, DEP has continued intensive monitoring at the dam. Monitoring has included a 24-hour presence by employees, regular analysis of dam-safety instrumentation, and testing of the turbid sediment to identify and understand its origin. That testing confirmed that the sediment reaching the river was coming from the immediate are of the original boreholes, and not from the earthen embankment dam itself. 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. All reservoirs in the city's Delaware System are meeting their downstream release requirements under the Flexible Flow Management Program while the condition at Cannonsville is repaired.

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, visit nyc.gov/dep, like us on Facebook, or follow us on Twitter.

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