



Reservoir and Alum Sludge Pond

WaterSolve LLC was contracted to dewater dredged sediment from this reservoir and a separate Alum sludge pond using Geotube® containers



Objective

Approximately 2,650 cubic yards of sediment from a reservoir and alum sludge pond at a New York State Water Filtration Plant needed to be removed. Geotube® containers were determined to be a cost effective and efficient method of removing the sediment. The objective of this project was to consolidate the sediment in Geotube® containers for subsequent excavation and haul off.

Geotube® Container Sizing

Geotube® containers are manufactured from high strength polypropylene fabric and designed to allow effluent water to escape through the pores of the fabric while retaining the chemically-conditioned solids. Due to space limitations, various sizes of Geotube® containers were utilized for this project.

WaterSolve's Chemical Conditioning

In November of 2013, WaterSolve, LLC received samples collected from the reservoir and alum sludge pond. A dewatering performance trial was performed to determine the most effective chemical conditioning program. Dewatering polymers were evaluated based on water release rate, water clarity, and flocculent appearance. A chemical conditioning program of Solve 137 performed best during the trial and was recommended for the project. After identifying the polymer, a Rapid Dewatering Trial (RDT) was performed to measure the raw dry wt solids of the pond sediments, the volume of the filtrate, and the percent dry wt solids of the cake collected by the GT500D Geotube® filter. The tests indicated that Geotube® dewatering was a good application for this project.



WaterSolve's CCTS trailer was used to help deliver supplies and activate the Solve 137 polymer during the project.



Visual observations of the chemically conditioned sediment were taken at the sample port.

The Result

WaterSolve, LLC was contracted to provide the polymer feed equipment, polymer, Geotube® containers, and on site personnel to operate the polymer feed system and Geotube® containers for this project. WaterSolve's trailer mounted Chemical Control and Tracking System was utilized to control the feed rate of polymer based on the flow rate and density of the material being dredged. An 8 inch hydraulic dredge operated by another subcontractor was used to pump the sediment to the Geotube® containers. A sample port located on the pipe-line prior to the Geotube® containers was used to draw samples for visual observations of the chemically conditioned residuals. Adjustments to the polymer dose were made in response to these visual observations. The project was deemed a success after ten days of dredging when the Geotube containers® were nearly full and the 2,650 cubic yards of material was removed.



Clear filtrate is released from the Geotube® containers.



The Geotube® containers were filled with the chemically conditioned sediment and were left to consolidate before they were excavated.