



Decommissioning Industrial Wastewater Treatment Ponds

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The Challenge

The four ponds making up a wastewater treatment system at this industrial site in Indiana were no longer in service and had to be decommissioned. The consulting firm in charge of the project contracted WaterSolve LLC to remove the water and solid residual from the ponds. WaterSolve's objective was to slurry the residual and pump it into Geotube® containers for dewatering and solids consolidation. The residual was treated with a flocculating polymer to enhance dewatering and accelerate the dry-down of the solids. Filtrate water exiting the Geotube® containers was measured and pumped into the city's sewer system. The solids would consolidate in the Geotube® containers and pass a paint filter test prior to being hauled to a landfill.



The pond prior to removing the water and residual.



The same pond after the residual was removed.

WaterSolve's Chemical Conditioning

A representative sample of the pond sludge was tested by a WaterSolve technician in the WaterSolve laboratory. Dewatering polymers were evaluated based on water release rate, water clarity, and flocculent appearance. Solve 216B was selected as the best flocculent to produce the water release, clarity, and flocculation needed for this residual.



Sample jar of the residual treated with Solve 216B with great water release, clarity, and flocculation.

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. Measurements of the residual in the four ponds indicated there was 2,500 cubic yards of residual to be removed. WaterSolve recommended 3 Geotube® containers (two 80' circumference by 100' long and one 75' circumference by 100' long) totaling 2,592 cubic yards of usable space for this project.

The Result

WaterSolve LLC used a 6" hydraulic pump to remove the residual and water from the ponds. Two 2" trash pumps with fire hoses were used by two employees to inject water into the residual to make it flow to the hydraulic pump. A 6" soft hose transferred the residual from the hydraulic pump to the Geotube® containers. A polymer make-down unit diluted the Solve 216B flocculent and injected it into the residual prior to the Geotube® containers. A sample port installed prior to the Geotube® containers provided visual inspection of the polymer treatment and adjustments were made to the polymer feed rates based on these observations. Filtrate water was transferred from the Geotube® containment area with a 6" diesel pump. The residual slurry was pumped at 500-gpm with Solve 216B polymer being injected at 2 to 6-gph. The project was completed in 14 work days from start to finish with approximately three million gallons of slurry pumped to the 3 Geotube® containers. The city's wastewater manager came to the site several times and reported there was no issue with the water he was receiving from the site.



This 6" hydraulic pump was lowered into the first pond as the project begins.



The Geotube® containers are dewatering very well in the containment area designed and drawn by WaterSolve's engineers.



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Through Science, Engineering & Management