



## Dewatering Lagoon Residuals

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Location:

*Illinois*

Products:

*TenCate™ Geotube® Containers*

*Solve 9330- Emulsion Polymer*

Equipment:

*Polymer Make-down Unit*

*Mixing Manifold*

*Sample and injection ports*

This telescoping forklift is holding the hydraulic pump in the lagoon as it transfers the residual to the Geotube® containers.

### Objective

The storage lagoon at this glue manufacturing plant was full and remediation specialists decided to use Geotube® containers to dewater the lagoon residuals to recover space for future operations. The objective was to pump the residuals out of the lagoon and into the Geotube® containers to dewater and consolidate the material. The solids would then be loaded on trucks and hauled to a nearby landfill.

### WaterSolve's Chemical Conditioning

WaterSolve LLC consultants were on site to run a dewatering performance trial on the lagoon residual. Dewatering polymers were evaluated based on water release rate, water clarity, and flocculent appearance. The flocculent Solve 9330 performed the best during the trial and was recommended for the project. The trial indicated the lagoon residual would need to be diluted 1 to 1 with water for effective conditioning.

### 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. The containment location selected at the site allows for three 65 ft. circumference by 200 ft. long (1,268 cu. yd. each) GT500 Geotube® containers in the north



This photo depicts the raw, chemically treated, and filtrate samples of the operation.

containment and two 65 ft. circumference by 200 ft. long tubes in the east containment. In addition two 65 ft. circumference by 186 ft. long (1,180 cu. yd. each) tubes are stacked on top of the 3 tubes in the north containment and one 65 ft. circumference by 186 ft. long tube is stacked on top of the 2 tubes in the east containment. This brings the total capacity to 9,880 cu. yd.

### The Result

WaterSolve LLC has repeatedly been contracted to install and operate a complete Geotube® dewatering system to remove the residual from the storage lagoon. A containment zone was constructed with 2' berms and a sump to remove the filtrate from the area. A plastic liner and Geotube® Filtration Fabric (which allows water to release between the liner and the tube) was placed in the containment zone prior to deploying the tubes. A hydraulic pump transfers the residual from the lagoon to the Geotube® containers through a 6" hose. Two polymer make-down units prepare up to 20-gph of the Solve 9330 flocculent to be fed into the mixing manifold for dispersion into the 6" feedline. A sample port was placed after the mixing manifold to visually monitor and make adjustments to the chemically conditioned residuals going into the Geotube® containers. As the filtrate water released from the containers in the containment zone it was pumped back into lagoon. The Geotube® containers are filled to the 7.5' maximum fill height several times during each fill event. The wastewater treatment plant operators on site were very pleased to lower the lagoon and get some free space for more solids being pumped from the plant.



The Geotube® container is stacked to make the most of the space available at this site. .



The residual in the Geotube® containers is being hauled away with dry wt solids ranging from 25 to 33%.



These two polymer make-down units deliver up to 20-gph of Solve 9330 to the 6" mixing manifold.