

Geotube® Dewatering Technology contains and dewateres river sediments at large Water Treatment Plant in New Jersey

River sediments and filter backwash sludge are annually dredged and dewatered in Geotube® containers for beneficial reuse.

TenCate™ develops and produces materials that function to increase performance, reduce cost, and deliver measurable results by working with our customers to provide advanced solutions. And a unique high volume, low cost dewatering system from TenCate Geotube® can provide a very effective way of dewatering river sediments and alum sludge.

River sediments and filter backwash sludge collect in an inlet settling basin at the 30 MGD New Jersey drinking water plant. Since 2004, Pond Recovery Services, Inc. has annually hydraulically dredged the sediments into Geotube® containers for storage and dewatering. 60' circumference x 200' long Geotube® containers are set up in a temporary dewatering cell adjacent to the basin. Initially, the contractor used a remote controlled cutter-head dredge pumping at 400 gpm. Subsequently, the dredge has been increased to a larger model pumping 1400 gpm. Care was taken to protect the basin's membrane liner.

Slurry was treated with polymer to flocculate the solids, capture the maximum suspended

solids, return clear filtrate to the pond and optimize consolidation of the solids in the Geotube® container. Clean effluent drained from the dewatering cell and was directed back to the basin. About 9,000 cubic yards of residual solids were removed from the basin between September and November of 2004.

After consolidation, each Geotube® unit contained about 860 cubic yards of dewatered sediments, for a total of about 2,600 cubic yards of consolidated solids. The sediments were allowed to dewater and desiccate for 47 days before being excavated and trucked for beneficial reuse.



Geotube® Filtration Fabric, (GFF), a 3D drainage media, was placed on the membrane to insure optimum drainage on the bottom of the Geotube® container.



Geotube® units were deployed on Mirafi® NT100-lined dewatering cell.



Pond Recovery Services, Inc. dredging settling pond.



Settling basin before dewatering.



Cross section of consolidated sediments.



Flocculated solids.



Loading sediment into dump trailer.



Clean effluent draining directly back into the basin.



Settling basin after cleanout.

How Geotube® Dewatering Technology Works

Dewatering with Geotube® technology is a three-step process.

In the **confinement** stage, the Geotube® container is filled with dredged waste materials. The Geotube® container's unique fabric confines the fine grains of the material.

In the **dewatering** phase, excess water simply drains from the Geotube® container. The decanted water is often of a quality that can be reused or returned for processing or to native waterways without additional treatment.

In the final phase, **consolidation**, the solids continue to densify due to desiccation as residual water vapor escapes through the fabric. Volume reduction can be as high as 90 percent.



Step 1: Filling



Step 2: Dewatering



Step 3: Consolidation

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