

Case Study –

Application: Process Water Settling Basin, Non-Haz Material, Chemical Plant

Location: Texas Gulf Coast

Product: Geotube® Dewatering & Containment Systems

A Major Chemical Company in the “Golden Triangle” area of Beaumont was searching for a method of lowering cost to dewater and contain the solids of various applications in their plant. The customer wanted to look at their settling basin for their process water.

A representative sample of the sludge was obtained from the basin and “Bench Tested” in the lab. This is a test to determine how the sludge will dewater using the high strength permeable polypropylene geotextile found in **Geotubes®**. These **Geocontainers®** have uniquely designed retention properties and can be filled with fine grain sludge, hazardous contaminated soils, or dredged waste materials. Excess water drains from the **Geotubes®** through the small pores in the geotextile resulting in effective dewatering and efficient volume reduction of the contained material. This volume reduction allows for the repeated filling of the tube and in many cases the decanted water is of a quality that can be returned to process water or native waterways.

In the case of this captured sample the Bench Test determined that 75 ppm of an anionic polyacrylamide copolymer was required as a flocculation agent to help the solids release the water and promote faster dewatering and to obtain a clear effluent. A “Hanging Bag” test was then performed on the customers site to show how the **Geocontainment®** process works using a larger amount of the sludge.

It was determined that to dewater and contain the solids in the basin it would require two 75 foot long, 60 foot circumference **Geotubes®**. Site preparation is important since the customer wanted to return the effluent to the process stream. This was accomplished by laying a polypropylene ground cover under the tubes with a sump placed at one end and diaphragm pumps to return the clear effluent water to the basin.

Working with a local pump and compressor rental company, a six inch vacuum assist pump was used to move the sludge from the basin through a manifold system to the **Geotubes®**. The manifold blends the polymer into the sludge and routes the sludge to the proper tube. The two **Geotubes®** were repeatedly refilled until the basin was free of sludge and cleaned.

The **Geotubes®** were allowed to dewater over a period of days and then cut open and the contained solids, which was determined to be 30-40 %, was used as a ground fill in another part of the plant.

The customer was pleased with the short set up and tear down time. Personnel used on the site was cut in half when compared to previous dewatering jobs using mechanical means such as a filter press. Due to the savings of over 55% The customer committed to two more dewatering jobs on this site. One was another settling operation but this was a tank that contained contaminates and the other is a pond. The second settling operation resulted in like savings and the pond is presently being studied.

Millions of gallons of sludge have been pumped into **Geotubes®**. Since the introduction of **Geotube®** technology to various industries, programs of sludge residue management and control have yielded tremendous operational cost savings.