



Dredging Refinery Lagoon Sludge into Geotube® Containers

The Challenge

This refinery had been using a centrifuge to dewater the lagoon sludge being dredged. The results were slow and they were not getting ahead of the material going to the lagoon. The lagoon was near full capacity and the wastewater treatment plant was being maxed out. The objective was to keep the dredge operating daily to remove the solids from many years of production in a timely manner.

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 area provided for the Geotubes® containers, allowed for six 90' circumference by 229' long Geotubes® containers, that would have a capacity of 14,000 cubic yards.



This dredge was pumping 500-gpm of 5% - 7% solids throughout the project.

A mobile lab is set up on site to measure core samples of the Geotubes® containers and any other samples needing to be tested.



The Solution

WaterSolve was contracted to provide the Geotube® containers, an automated polymer feed system, and the technicians to operate the equipment while managing the Geotube® containers. The WaterSolve Chemical Control and Tracking System (CCTS) trailer was on site in order to automate the polymer treatment and track the daily production. The system is comprised of a flow and density meter that read the material passing through the pipeline and automatically injects the proper dose of polymer. It also tracks the production and provides the quantity dredged as well as the quantity of polymer used throughout the day. This allows the technicians to provide a daily report of the performance to the client. The dredge pumping this refinery sludge lagoon was delivering a 500-gpm flow to a dumpster where potassium permanganate was applied to reduce the H₂S gas. A 4" pump then filled a 16,000 gallon frac tank to give the treatment time to work. The material was then pumped past the CCTS trailer and the polymer was injected into a 6" pipeline. At the end of each day a technician took the information from the trailer's computer and filed out a report to provide the client the results of that day's operation. The client was extremely happy with the performance of the project. The daily production was way beyond the centrifuge and the wastewater plant was no longer in a panic from the lagoon overflowing.



The Chemical Control and Tracking System (CCTS) trailer is parked along the 6" pipeline. The density and flow meters give information to the computer in the trailer and it automatically injects the proper dose of polymer into the pipeline.

A WaterSolve technician constantly checks samples of the treated residual to verify the proper dose is applied.



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