

CASE STUDY

APPLICATION **PETROCHEMICAL PLANT - AERATION BASINS**

LOCATION **HOUSTON, TX.**

PRODUCT **GEOTUBE DEWATERING – GT-500**

A major Chemical Company in Houston has two aeration basins used for their process water and storm water settling basins. Managing solids and pond volume is a concern as well as doing so in a cost effective manner. The solids come from silt in the process water and storm water which is collected in the plant and directed into the ponds.

THE CHALLENGE

In the fall of 2005 they were faced with the problem of solids build up in their two aeration basins. The basins measured 200' x 300' x 4'. As the solids build up it requires the basins to be cleaned in order to maintain the volume control necessary. In the past the basins were cleaned by dredging and using a belt filter press to dewater. This process was time consuming, taking 60 days to complete, and costly.

THE SOLUTION

United Tank Services was chosen to remove the solids from the ponds by dredging and using Geotubes to dewater the sludge. This method was selected because of a shorter time frame, 15 days to complete the project, high volume removal, rapid dewatering, high quality effluent and high volume containment.

To begin the process a sludge sample was obtained from the basins and a bench test was performed. The bench test indicated that the material required a cationic polymer at 50ppm and was easy to floc and produced a clear, clean effluent.

The ponds were sounded and provided the information on the volume of solids in the ponds. The project was based on 12,500cy in situ. It was estimated approximately 3800cy of dry material.

The site selection was the next issue. The area around the ponds was congested and a drive thru was needed for traffic limiting the area that was available for the equipment and the Geotubes. The customer had a parking area that was available which was

stabilized. It had a natural grade for drainage that was acceptable for the Geotube. The site was large enough to accommodate any Geotube and was selected for the lay down area. A railroad track runs between the ponds and the site for the Geotube. The Chemical Company allowed United Tank Services to dig under the tracks enough to allow a discharge hose to pass under them.

A 6" dredger was selected to remove the solids at a rate of 800-1000gpm. A polymer system was placed just outside the ponds where the polymer was injected into the sludge stream with a static mixer. A sample port was placed behind the static mixer in order to check the floc of the sludge. Since the pumping distance to the Geotube was over 1200 feet a 6" booster pump was placed in line. At the discharge end near the Geotube another sample port was placed in line to allow checking the floc to make sure it was maintained into the Geotube.

Based on the 12,500cy of sludge in situ a 120' circumference x 290' Geotube was selected. This Geotube is the single largest Geotube used to date. It proved to be a good choice both in containment and speed of dewatering. A 3' earthen berm was constructed around the Geotube to contain the effluent and maintain the Geotube's position. A 20 mil plastic liner was placed under the Geotube to catch the effluent and allow pumping it back to the ponds without getting on the ground. A float controlled diesel pump was placed at the lower end to pump the effluent back to the ponds. Both ponds were dredged and returned to the customer in 14 days saving 46 days over the previous method and at a cost savings of 40%.