

Cleaning the Ashkelon WWTP using Geotube® Technology



The Challenge

The Ashkelon WWTP commenced operations in 1999 and since then has collected daily some 20,000 m³ of sewage, emanating from Ashkelon city and surrounding areas.

A large quantity of sediments accumulated in the daily tank that concentrates the digested sludge at the WWTP, which consisted, inter alia, of struvit and sand.

The objective of cleaning out the tank was to reduce the load exists on the centrifuges.

The cleaning activity had to meet the following conditions:

1. Cleaning the tank down to the bare concrete – without halting the flow of sewage and sludge into it.
2. Dewatering the sludge while emptying the tank.

The Solution

The solution chosen to clean the sludge sediment and reduce the volume thereof, insofar as possible, is a combination of the technologies offered by Admir Environment:



- ◆ Pumping out the sedimented by means of dedicated pumps.
- ◆ Breaking down the sediment and the struvit.
- ◆ Dewatering the sludge by means of Geotube®.

The Execution

Cleaning the sewage tank at the WWTP was carried out in a number of stages:

- ◆ Continuous pumping of the sediments by means of dedicated pumps, at a minimal flow rate of 100 cu. m/hour.
- ◆ Mixing the material in the tank in parallel to the pumping process and breaking it down using water pressure.
- ◆ Adding polymers to the pumped out material to flocculate the sludge, which facilitated the continuation of the filtering process.



- ◆ The filtered water flowed through the Geotube® to the beginning of the process at the WWTP, without the need for additional treatment.
- ◆ In order to achieve the best dewatering results, the Geotubes® containing the sludge were left at the site for an additional period of time, to allow additional dewatering by means of the self weight of the sludge, through a process of consolidation. In this manner, the volume of the sludge designated for removal is further reduced.

The Results

48 hours after the commencement of the pumping process, the sludge tank was clean down to the bare concrete – the predetermined level of cleanliness.

The sludge dewatering in the Geotubes® continued also after the completion of the pumping from the tank, during the course of which the percentage of solids increased (up to ten times the quantity prior to the commencement of the pumping) as is apparent from the table below:

Sludge Drying Progress over Time

Percentage Solids in the Sludge			
TS 105°	% solids on the bottom prior to pumping	% solids in the Geotube® upon completion of the pumping	% solids in the Geotube® after about two months
	3%	12%	30%

- ◆ **Customer - Mekorot Development & Enterprise LTD**
- ◆ **Supervision - Mekorot Development & Enterprise LTD**
- ◆ **Execution – Admir Environment LTD, 2012**

