

CASE STUDY:

WASTE WATER TREATMENT

Biosoils Dewatering

NSW
JULY 2017

GEOTUBE DEWATERING CONTAINERS

Geotube dewatering containers are used for sludge dewatering projects of all sizes and there is good reason - simplicity and low cost.

There are no belts, gears, or complicated mechanics. Geotube containers use an engineered textile that is designed for dewatering of high moisture content sludge and sediment. They are available in many sizes, depending on your volume and space requirements.

Geotube dewatering containers are supplied to site and placed into position. Sludge which is treated with specialist polymers is then pumped into the containers and the clear effluent water is then drained leaving the solid remains within the container. When full the containers can be disposed at a landfill or the solids removed and land-applied.

This suburban NSW Wastewater Treatment Plant has a capacity of up to 18 mega liters per day servicing up to approximately 75,000 people. For normal operations, the plant makes use of 2 belt filter presses to dewater biosolids to 14-17 percent solids. The biosolids are removed by truck daily to be sent to land crops and sugar cane farms.

Occasionally one of the belt filter presses needs to be shut down for maintenance purposes. This is a common issue for mechanical dewatering systems and it is often used to justify the need for duplicate or even triplicate mechanical units. This particular plant makes use of an alternative backup dewatering solution, Geotube® dewatering units.

When the belt filter press is turned off, the sludge is easily diverted to multiple Geotube® units. The same polymer flocculant dose used for the belt filter press can be used for efficient dewatering in the Geotube® units. This site has a large asphalt pad which drains back into the headworks of the plant. In the winter of 2017 the plant made use of 2 Geotube® units with a footprint of 18.3 m x 17.4 m and a dry cake volume capacity of over 550 m³ each.

The biosolids are pumped into the Geotube® units, filling them to a max fill height of 2.7 m. The flow is diverted into each unit intermittently to allow the continuous flow of sludge. Once the maintenance operation is complete, pumping into the Geotube® units will cease and they will continue to dewater through seepage and evaporation. When the solids have reached a target concentration the Geotube® will be cut open and the solids will be dug out with a long reach excavator. Solids concentrations between 15 and 25% can be achieved in this manner depending on conditions and seepage time.

Should circumstances demand it, more Geotube® units could be used on the pad. This allows for many weeks of biosolid storage and lowers the risk profile of the flood prone region.