



Dewatering with Geotextile bags

A simple, cost-effective new method of dewatering sludge is now available in Australia, writes Bill Kelly from GRS Industrial Water Treatment.

The use of geotextiles for containment and dewatering came about as a result of a major flood event in Holland in the 1970s. It prompted Dutch marine engineers to seek new methods and materials to build structures for coastal defences.

The ongoing development of geotextiles for reinforcement and erosion control led to the application of geotextile containment technology using high strength geotextiles for containment, dewatering and consolidation of a range of different types of sludge.

High strength permeable membranes with uniquely designed wicking properties are fabricated into Geotubes that can be filled with fine grain sludge, hazardous contaminated soils or dewatered waste materials. The geotube's unique weave and fabrication creates small pores that confine the fine grains of the contained material.

Excess water drains from the small pores in the geotextile resulting in effective and efficient volume reduction of the contained material and allowing the Geotube to be repeatedly filled. In many cases the dewatered water is of a quality that can be returned to natural watercourses or reused.

After the final cycle of filling and dewatering, the retained fine grain

material can continue to consolidate by desiccation because the residual water vapour escapes through the geotextile. Dried solids of up to 35 per cent are attainable depending on sludge conditioning, ambient conditions and length of time the material is left in the Geotube. Once dewatered the large tube should be opened, the contents removed with a front-end loader and shipped to a landfill via dump trucks.

APPLICATIONS

Using Geotubes eliminates the need for expensive capital equipment and associated labour and maintenance, and stays away with periodic tendering for dewatering contractors by allowing clients to effectively control their dewatering and disposal costs.

Some of the main applications of this new technology can be found in municipal sewage treatment plants, the paper and pulp industry, industrial sludge and contaminated marine sediment dewatering.

In municipal sewage treatment plants Geotubes are used to dewater consolidated sludge from digesters and lagoons. In most cases the dewatered effluent is clear and safe enough to be returned to the plant. This greatly reduces the volume of sludge and the

cost of disposal, while allowing the continual operation of digesters and lagoons. Municipal users of Geotubes in Australia include Water Corporation in WA, South Cippeland Water in Victoria and numerous councils in NSW.

Brian Ashworth, the operations manager at South Cippeland Water has used Geotubes at its drinking water plant at Fish Creek and for sewage sludge dewatering at its Leongatha and Koorwara sewage treatment plants.

"In my experience of the water and wastewater industry this is one of the only technologies to exceed my expectations," he said. "By using the bags I have saved thousands of dollars in cartage of sludge over the last few months (at Fish Creek)."

Similar results have been experienced overseas in the power industry and paper and pulp market, with Geotubes being used to dewater large volumes of accumulated sludge without impacting upon plant operations. They have yielded tremendous operational cost savings.

It has also been used successfully to dewater fine grained, contaminated dredged material that contained dioxin, PCBs, HAPs, pesticides and heavy metals. Users include the Port Authority of New York and New Jersey, the Miami River Marine Group and the Port of Oakland.

For more information call Bill Kelly at GRS Industrial Water Treatment Systems on (02) 9899 7211.