

GEOFABRICS® REGIONAL NSW COAL MINE



MINING

CASE STUDY



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PRODUCTS USED

TENCATE® GEOTUBE®

TenCate® Geotube® dewatering tubes, sometimes known as geobags, 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. They are available in many sizes, depending on your volume and space requirements.

TenCate® Geotube® systems can even be mounted in mobile roll-off containers that can be transported around your property as necessary. It's one of the most versatile dewatering technologies available. And one of the most effective.

TenCate® Geotube® units were selected due to their ability to be rapidly deployed, filled and constructed.

Although primarily used for their dewatering ability, select long units were chosen to perform as a rapid-built retaining wall. In this case the TenCate® Geotube® units were 4.4m wide x 30.6m long and 9.2m x 61.4m long and formed a V-shaped structure fanning out from the discharge point of the incoming fly ash slurry.

They have a very high seam strength to allow for high pump heights, which in turn create larger volumes per sqm of footprint and induce a higher factor of safety during pumping.

PROJECT DESCRIPTION

A mine site in regional NSW, currently under care and maintenance, required a solution to cap an existing tailings storage facility (TSF) using fly ash.

CHALLENGE

Mixing and deposition techniques and breaching characteristics needed to be confirmed in order to effectively assess the characteristics of the fly ash.

Verifying strength parameters also needed to be determined during laboratory testing.

The flowable nature of the fly ash prior to setting meant innovative techniques were required to channel the flows and limit the spread of the slurry over the top of the TSF.

Rapid and easily constructed bund walls were required as a result that would minimise manual labour over the TSF surface.



SOLUTION

To assess the deposition performance of the fly ash, TenCate® Geotube® units were utilised as a channel via temporary retaining structures filled with fly ash.

In this case the incoming slurry was not flocculated which would normally ensure rapid dewatering of incoming slurry.

Due to the objective to create retaining structures, no polymer was introduced which meant the geotextile pores clogged and allowed the bags to stay relatively full of wet slurry, maintaining their height.

It was expected the bags would still dewater and drop in height, albeit very slowly, but were able to be refilled rapidly to the desired height via the manifold system.

Although this was not a common use of the Geotube® Dewatering System, Geofabrics® were able to run through the typical set up at the remote NSW site and provide clarity on the expected performance of the bags.

Concerns around stability, settling, overfilling, clogging and softening of the tailings crust were all issues discussed while on site and were considered low risk or manageable.

Geofabrics alongside their supplier TenCate® were able to support this design end-to-end ensuring all parties were comfortable with the process, which was relatively new to all involved.

The Geotube® concept performed exactly as expected and the deposition characteristics of the fly ash was able to be verified.

The stakeholder and engineer were very happy with the result and are keen to continue with other applications using the unique and innovative Geotube® Dewatering technology.

