

TenCate Geotube[®] Channels Fly Ash Slurry Flow Over Mine Tailings in a Tailings Storage Facility Slated for Closure



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Introduction:

TenCate Geotube[®] dewatering technology is well known as an economic method of dewatering industrial and mineral slurries and sludges. However, the flexibility of the system and capability to fabricate units to suit specific site or operating challenges is resulting in Geotube[®] systems being used in various innovative ways to solve problems or improve operating efficiencies.

In this case, Geotube[®] units were designed to act as bunding to direct fly ash slurry out over specific areas of a tailings storage facility (TSF) primed for closure where the fly ash slurry was intended as part of the closure cap system.

The challenge:

This project came with a number of challenges. The first entailed assessing the slurry to be pumped into the Geotube[®] units to fill them. This was resolved by undertaking tests on the slurry in the Geofabrics Gold Coast laboratory where it was determined that it was not necessary to polymer dose the slurry and direct discharge from the spigots could be undertaken.

The second pertained to assessing the optimum type and size of tubes. Consideration was made on how to deploy and pump the tubes ensure a bunding channel capable of directing subsequent fly ash slurry flows.

Solution:

Geotube[®] units of 9.2 m circumference x 61.4 m length and 4.4 m circumference x 30.6 m length was filled with fly ash slurry. The tubes were deployed in a "V" shaped structure fanning out from the fly ash to create the discharge bunding. Bidim nonwoven geotextile and a synthetic membrane were laid out over the substrate. The tubes were then deployed over the membrane. A series of marker posts were also positioned out over the TSF to help align the tube deployment and subsequently visually indicate the fly ash slurry cover depth.



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The Geotube® units were filled directly from the spigots to the maximum fill heights predetermined for the slurry type and allowed to dewater naturally to the calculated consolidated height. Once firm, the fly ash slurry was allowed to flow out over the TSF.

Conclusion:

Whilst a relatively simple application, this project illustrates the versatility of TenCate Geotube® dewatering technology to solve typical mine operational issues in a practical and economical way. TenCate Geotube® units are available in a wide variety of sizes capable of holding up to 3,000 m³ of dry solids and can be custom fabricated to suit specific site and operational requirements.

For further information please contact your nearest TenCate representative or email us at info.asia@tencategeo.com.



TenCate develops and produces quality products that increase performance, reduce cost, and deliver measurable results by working with our customers to provide advanced solutions.

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