Case Study

Closure – Mineral Sands

Fine tailings, a by-product of mineral sands processing, is usually stored in mined out voids adjacent the mine operations. Fine mineral sand tailings are dominated by clay mineralogy, are extremely fine grained and have poor drainage properties. Currently, when these voids reach capacity, fine tailings deposition ceases and the mining company then must wait years for solar drying and passive consolidation until such stage as the surface exhibits sufficient strength to permit access for closure operations. However, this approach does not always work and often the void cannot be safely closed.

Phibion's Accelerated Mechanical Consolidation Process (AMC) has been successfully applied to fine mineral sand tailings to reduce the volume of tailings and the develop strong, stable foundations that permits access for conventional earthmoving equipment.

Naturally desiccated fine mineral sand tailings

In fine mineral sand tailings, AMC (+ some additional post treatment controls) can deliver:

- Consolidation to high density; and
- A trafficable surface with strengths at depth beyond 10 kPa.

Inside 12 months the AMC process can be completed inclusive of a short maturation period and closure works commenced to deliver the closure solution.

AMC managed fine mineral sand tailings

Phibion can provide AMC services to your organisation. We will provide the customised MudMaster®, provide experienced operators, manage all maintenance/sparing and monitor performance. Additionally, we can provide supporting works, strategic planning and reporting.

Our services will reduce tailings management risk with no capital expenditure and none of the operational/financial risks of conventional management. This approach is safe, infinitely scalable and can be sustained under all conditions.

Phibion can deliver this performance at a fraction of the cost of other potential alternatives and allow your operation to realise its potential today, without compromising the future.

Munro, L.D. and Smirk, D.D. 'How thick is thick enough?' ***Paste 2018*****, Perth, Australia**