



CASE STUDY: Temporary Works

Situation:

South32's manganese mining operation at Groote Eylandt crushes, washes, sizes and refines the ore product on site in the processing plant. One step of the process is a heavy media drum separator which removes low density clay material from the lump product stream. The sinks launder of the drum separator had been badly damaged during operation and was scheduled in for replacement. South32 engaged Lever Engineering to design the removal and installation methodology, including all temporary steel work required.

Challenge:

The replacement of the sinks launder was scheduled to occur during a 72 hour long major shutdown period in the plant. The existing sinks launder was badly damaged and unstable, requiring additional consideration to ensure a safe and timely removal. The process involved skidding the launder in and out of the drum shell through the end of the drum.

Solution:

Lever Engineering began the project by inspecting the drum separator on site and speaking with the maintenance staff to gain an in depth understanding of the drum. The maintenance and operation manual, coupled with the drawings of the chute were then studied in detail before beginning the planning and design phase of the project.

A 3D CAD model of the drum shell, internal sinks launder and the sinks launder was created using AutoDesk Inventor. This was used as the basis for designing all temporary steelwork, simulating the removal and installation process, and producing shop detail drawings. The structural capacity of all steelwork throughout the various stages of the works was checked by modelling the system in Space Gass frame analysis software and verified for compliance with AS3990 Mechanical Equipment – Steelwork.

The removal and replacement of the launder was completed safely and on time, with minor challenges encountered along the way easily overcome as a result of the well planned and documented process.

Client:

South32

Location:

Australia

Mineral Type:

Manganese Ore

Services Provided

- Mechanical Design
- Installation Methodology
- Drafting

