

Optimisation of the CEIP (Central Eyre Iron Project) mine plan

IPCC Application & Optimisation Studies



Location

Australia



Client

Iron Road Limited,
South Australia



Expertise

In-pit crushing & conveying (IPCC), continuous mining equipment, truck/excavator, conveyor, mine plan

Our Services



- Development of an IPCC application concept
- Elaboration of hybrid IPCC mine and dump layouts, including conveyor routes and selection of continuous mining equipment as well as truck/excavator fleets
- Completion of preliminary OpEx and CapEx comparisons between the recommended hybrid IPCC proposal and a pure truck/excavator base case
- Validation of the technical feasibility of a hybrid IPCC/truck-excavator mining operation in detail:
 - Phase 1: analysis and comparison of several alternative mine development options and equipment system layouts to select the preferred hybrid IPCC solution
 - Phase 2: completion of detailed mine planning, engineering and project cost estimating to demonstrate project improvement by application of IPCC technology
- Review of the CEIP mine plan with a focus on upfront capital efficiencies that further enhance Central Eyre Iron Project (CEIP) value

Project description

Iron Road Limited (IRD) is developing the Central Eyre Iron Project (CEIP), Australia's largest magnetite project located on the Eyre Peninsula, with a planned total mining capacity of more than 300 Mtpa from a max. 600 m deep pit to ultimately gain an indicative 24 Mtpa of high-quality iron concentrate over 24+ years.

In light of the vast total material movement requirements and the significant final depth of the pit, IRD contracted the Thiess-RWE Joint Venture¹ (TRWE) to evaluate the application of low cost, sustainable mining solutions. Experienced TRWE mining personnel were embedded within Iron Road to bring world class mine planning and mining operations expertise, including extensive involvement in the successful application of in-pit crushing and conveying (IPCC) processes. The results of the TRWE work included a hybrid IPCC/truck-excavator mining operation, which credibly demonstrated significant improvements in material movement efficiencies and contributed to a Project Optimisation Study which in turn supported the previous Definitive Feasibility Study (DFS).

TRWE concluded a review of the CEIP mine plan with a special focus on opportunities relating to early ore access and mine establishment costs, whilst leveraging efficiencies offered by the application and flexibility of proven, continuous mining systems. TRWE's preliminary assessment indicates that the revised mine schedule and cost structures could potentially deliver a significant CEIP NPV improvement.

¹ The Thiess-RWE Joint Venture combines RWE's world-leading technical and operational expertise in open-cast continuous mining systems with Thiess' proven performance in delivery of large scale mine infrastructure & full-service contract mining around the world. The joint venture provides the full suite of in-house mine planning, engineering, operations & maintenance services.

