FINAL PROJECT STATUS REPORT FORM

Project Number: CLM-06-13	**Task Force:** Coal Mining
Title of Project: Thick Coal Seam Extraction	
Lead Partner Country: Australia	
Participating Partner Countries and Organizations: • CSIRO Exploration and Mining (Australia) • Singareni Collieries Company Ltd (India)	
Project Location: India, Andhra Pradesh, Ramagundam	
Project Manager Information **Name:** Dr Rao Balusu Mining Research Group Leader **Organization:** CSIRO Exploration and Mining **Address:** Post Office Box 883 Kenmore Qld 4069 Australia	**Phone:** + 61 (0)7 3327 4614 **Fax:** + 61 (0)7 3327 4666 **Email:** Rao.Balusu@csiro.au
Project Start Date: February 2008	**Date of Project Status Update:** February 2011

Brief Description of the Project Activities:

The main objective of this project is to investigate the feasibility of advanced thick seam mining technologies in a typical Indian coal mine environment and to demonstrate new modelling and design techniques to improve recovery, safety and efficiency of mining operations. The initial phase of the project involved detailed geophysical logging, geomechanical tests and development of integrated geological and geotechnical models which combined the detailed wireline log interpretation with the geological model. This allowed a detailed geometrical, geological and geophysical and geotechnical characterisation of all coal seams and interburden units. The next stage of the project involved extensive laboratory studies on rock strength parameters and field monitoring studies on stress changes and ground movement in existing mines to validate and calibrate geomechanical models. Based on the above studies, the project then carried out extensive integrated modelling simulations and developed optimum extraction systems and designs for extraction of thick seam I at the field site. Field implementation of the developed extraction systems and designs of high capacity longwalls at the field site in seam I is under progress. Detailed feasibility studies of advanced thick seam mining technologies for field site conditions have indicated that top coal would cave easily and it is feasible to introduce longwall top coal caving technology at the field site in thick seam III. Optimum mining systems and designs have been developed for future thick seam extraction in seam III at the field site.

Outputs Delivered by the Project:

- Detailed site characterisation provided a comprehensive analysis of geological and geophysical data at the field site and covered all the mineable coal seams and interburden strata.

- Developed comprehensive 3D geological and geomechanical models, which provided detailed framework for assessment of various technologies and designs including thick seam mining methods.
- Geophysical and geotechnical investigations in the field and laboratory studies carried out during the course of the project provided a detailed understanding of the strata conditions at the field site and also provided an advanced investigation methodology for the coal mining companies in India.
- Modelling simulations provided a fundamental understanding of the caving mechanics under field site conditions and highlighted the effect of different massive sandstone layers in the roof.
- Developed optimum extraction systems and designs for high capacity longwall system in seam I and longwall top coal caving system for thick seam extraction in seam III at the field site.
- Two progress reports delivered on geological models development, analysis of physico-mechanical properties at the field site, caving modelling investigations and field monitoring studies.

Date Completed:

Milestones Reached Over Lifetime of Project:

- Completion of all initial site investigations and characterisation studies and development of integrated and detailed geological model of the field site mining block – September 2008.
- Conducted extensive laboratory and insitu strength investigations, carried out detailed analysis of the results of these geomechanical properties and developed initial geomechanical models – April 2009.
- Undertaken field monitoring studies on caving conditions, stress changes and ground movement in existing mines to validate and calibrate geomechanical models – September 2009.
- Integrated modelling simulations for high capacity longwalls under field site conditions have been completed and optimum extraction systems and designs for field implementation have been developed – December 2009.
- Completed detailed analysis of additional laboratory and in-situ coal strength tests yielding a better understanding of the load deformation behaviour of thick seam – August 2010.
- Conducted extensive integrated modelling to assess the viability of Longwall Top Coal Caving (LTCC) under field site conditions. The LTCC modelling included parametric studies to investigate the effect of variations in geomechanical properties of the coal and strata. – December 2010.

Proposed Project End Date: May 2012	**Project Already Complete:** ☐ Yes No ☒

Please provide url address for where activity can currently be found along with new name and/or identification number of project (if applicable).

NA

New Contact Information: (If different from above)

Same as above

Other Information:

Please attach any supplemental project information to this form.