

A best practice framework for inrush risk management

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ABSTRACT

This paper describes a collaborative project undertaken by Newcrest Mining Limited (Newcrest) and pitt&sherry to identify, develop and then implement global best practices to manage the exposure to inrush (dry and mud) hazards in underground mining operations.

An extensive literature review was undertaken to identify past experience globally, and the current state of knowledge and practice, in managing inrush hazard. A key requirement of the literature review was the development of a list of guiding questions which would form a framework for approaching operators at caving mines to discuss the topic, capture recent learnings and understand current operating practices to allow the development of a best practice solution. An initial cohort of 14 mines across four continents chose to contribute and detailed interviews were carried out by the project team.

Those mines answered 18 tailored questions to provide input for the framework that is presented. The framework explores inrush management in a four-step process which culminates in a detailed risk assessment of site practice for the mine being audited, whether internally or through an external facilitator. Those processes include:

1. Data collection,
2. Data analysis and interpretation,
3. Control measures, and
4. Mud/fines and water inrush risk assessment.

The combined outcome from the literature review, interviews with participating mines and various internal discussions, was a comprehensive summary document detailing Basic versus Best Practise management of the inrush hazard. This document is being used as a gap analysis tool by Newcrest to assess and guide the management of inrush hazard at their existing and future operations. The summary document has also been provided to the participating mines for their consideration. The project is iterative and will continue to evolve as new experiences, knowledge and practices come to light.