Coal Dry Tailings Disposal – Impact and Challenges to Mine Plans

P Gupta[1] *and J Li*[2]

1. MAusIMM, BHP, Brisbane, Australia 4000. Email: Prangan.Gupta@bhp.com
2. MAusIMM(CP), BHP, Brisbane, Australia 4000. Email: Jianping.Li@bhp.com

ABSTRACT

BHP plans to deliver a step change reduction in tailings dam failure as soon as reasonably practicable by accelerating the pathway to safer and more sustainable tailings management across its coal mining assets. This step change will see the tailings disposal practices within the mining industry moving away from current Conventional Tailings Dam disposal to a safer Mechanical Dewatering Solution. This will impact on existing ways we manage and dispose tailings rejects, including change in tailings management practices on current mine plans and also mining schedules and landform that could be potentially modelled to enable safe co-disposal of tailings rejects.

As the mechanical dewatering solution is to be replicated across BHP's coal business, rejects co-disposal will be the order of the day. This will enable the company to sustainably maintain business continuity as operations transition to mechanical tailings and operation turn to increased tailings rejects co-disposal in waste dumps. It also ensures that a robust tailings management with effective rejects handling and placement capability is in place to support planned production, sustainable safe operations and reduced long term environmental impacts, as operations departure from the use of conventional tailings dams

The paper highlights the following key changes in mine planning and operational practices by implementing best practices in environmental, geotechnical, and closure & safety standards.

1. Tailings Rejects co-disposal – Impacts on mine plan and schedule.
2. Managing Operational Risks – Develop "Concept of Operations" for rejects mix & emplacement for geotechnical stable dumps.
3. Environmental Control – Erosion control and catchment area management including geo-chemical (AMD) impacts from sulphide bearing coal seams.
4. Geo-technical, Closure and Safety Standards – Geotechnical impacts on dump design, final landform and safety considerations for rejects co-disposal.