

THIESS



Baby Decking

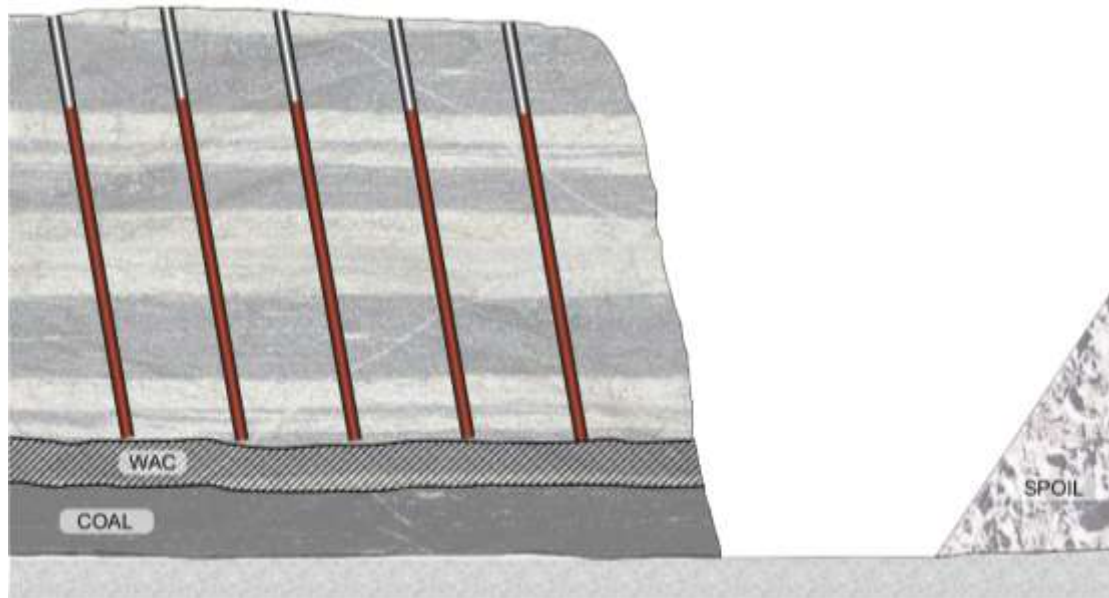
Michael Stower – 7 November 2016

Introduction

- What is “Baby Decking” and why is it used.
- What did we need to do to obtain approval to undertake a trial.
- Issues encountered in the planning process.
- Issues encountered in the implementation.
- The results

Standard cast charge design.

Standard Cast Charge Design

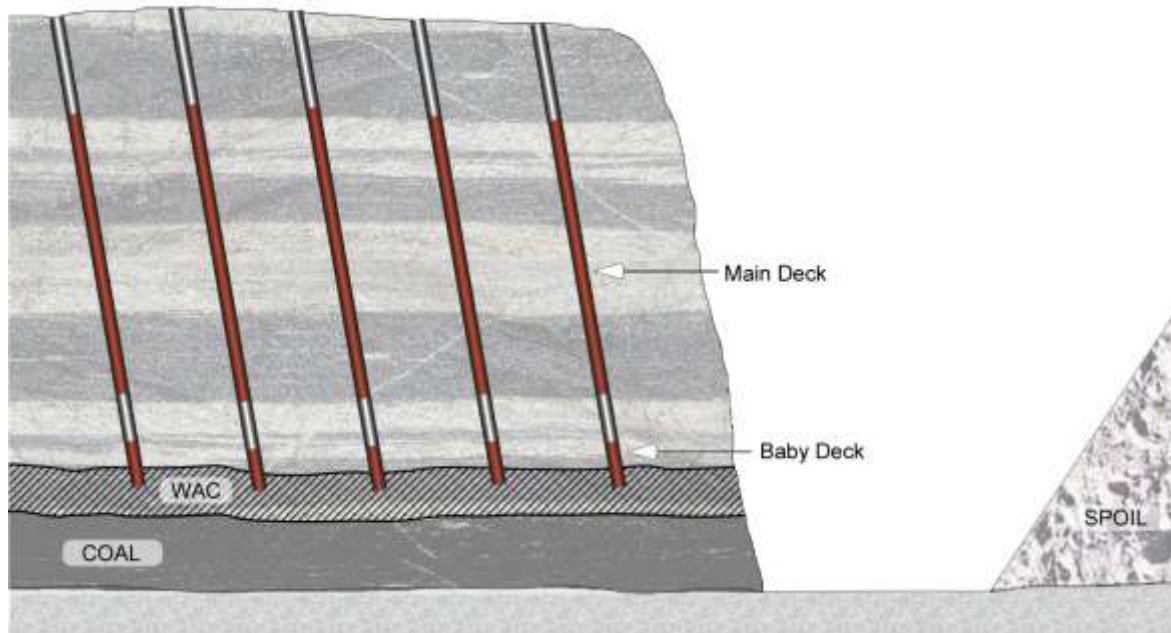


Normal practice when blasting material to expose a coal seam is to blast to a horizon that is above the coal, leaving an unbroken section of waste material above the coal (WAC). This practice is designed to decrease the likelihood of coal damage and loss.

Although this practice has been successful in limiting coal damage, an adverse effect of the practice is decreased excavation rates in the WAC.

Baby decking charge design.

Baby Deck Charge Design



Baby Decking involves splitting the explosive column into two explosive decks, a small baby deck and the main deck separated by an inert deck. The small baby deck is placed closer to the coal seam as compared to normal practice.

The logic supporting baby decking is that by placing a small charge closer to the coal seam the amount of unbroken ground in the WAC is reduced while the coal seam is left undamaged.

What did we need to do to obtain approval to undertake a trial.

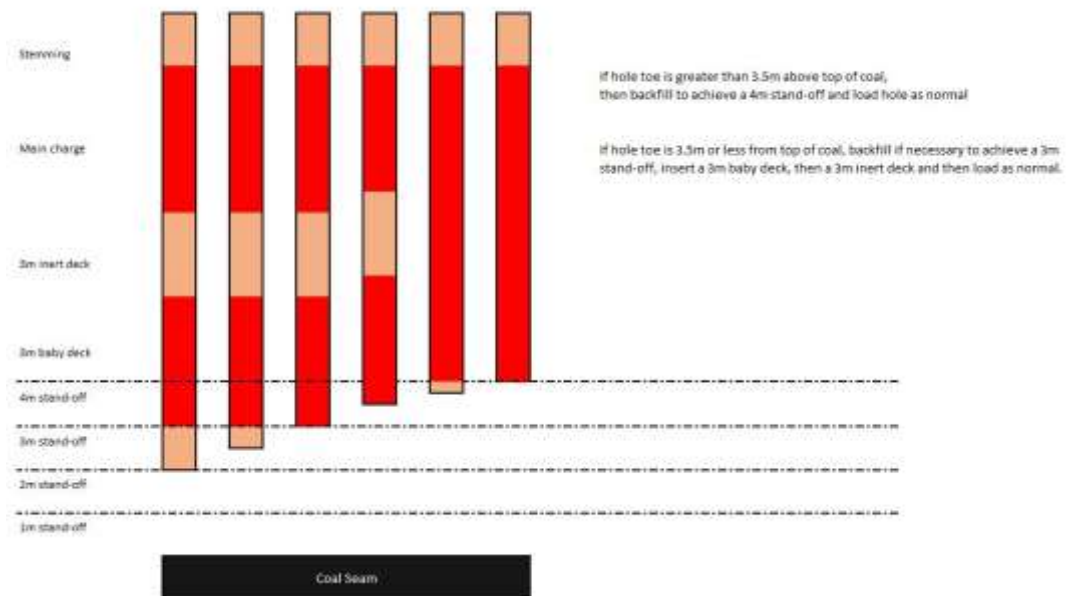
- Cost benefit analysis.
 - Additional costs associated with implementing baby decking.
 - Extra drill metres;
 - Hire of stemming truck, front end loader and purchase of aggregate;
 - Inductions for stemming truck operators;
 - Accommodation for stemming truck operator;
 - Additional initiating explosives;
 - Reduction of blast crew productivity;
 - Additional deliveries of IE/HE; and
 - Additional storage costs.
 - Establish benefits associated with improved excavation rates (realistic target set) in the WAC.
 - Reduced costs associated with exposure of the coal seam; and
 - Health and Safety implications of less oversize.

What did we need to do to obtain approval to undertake a trial.

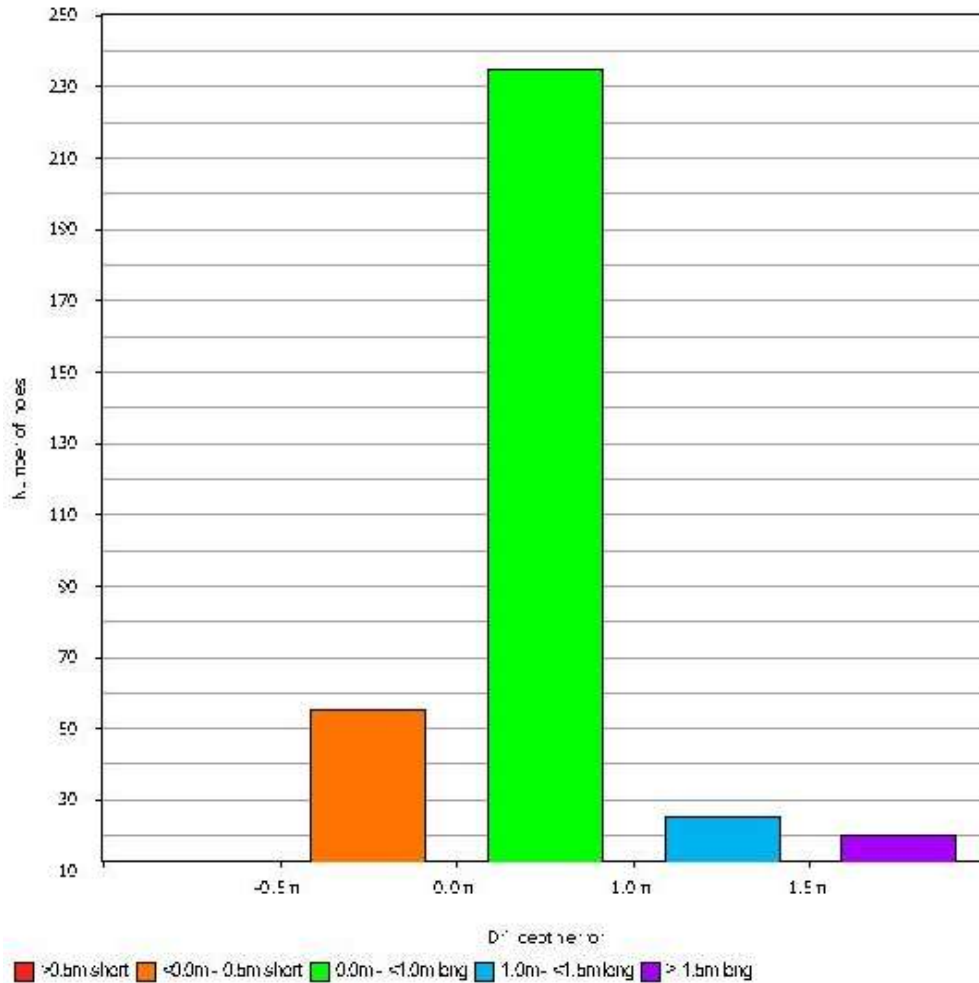
- Change Management.
 - Introduction of “new” equipment to site.
 - Risk assessment and procedures
 - Review of existing procedures – loading of explosives into blastholes.
 - Consultation with stakeholders – drill and blast, production, coal quality, survey and maintenance.
- Identification of critical risks.
 - Loss/Dilution of coal seam;
 - WAC not broken sufficiently;
 - Misfires; and
 - Interruption to production schedule.

Issues encountered in the planning process

- Identifying a suitable trial blast.
 - Blast had to be large enough to enable a side by side comparison to be undertaken.
 - Do you wait for the “perfect” area to become available or do you go for it.
- Getting our software to do what we wanted.
 - Load rules.
- Scheduling
 - De-rating the loading.



Issues encountered in the implementation - Drilling



Data from the initial dipping of the first trial blast.

Issues encountered in the implementation - Dipping

- Achieving consistent results when dipping holes is not as straightforward as one might think.



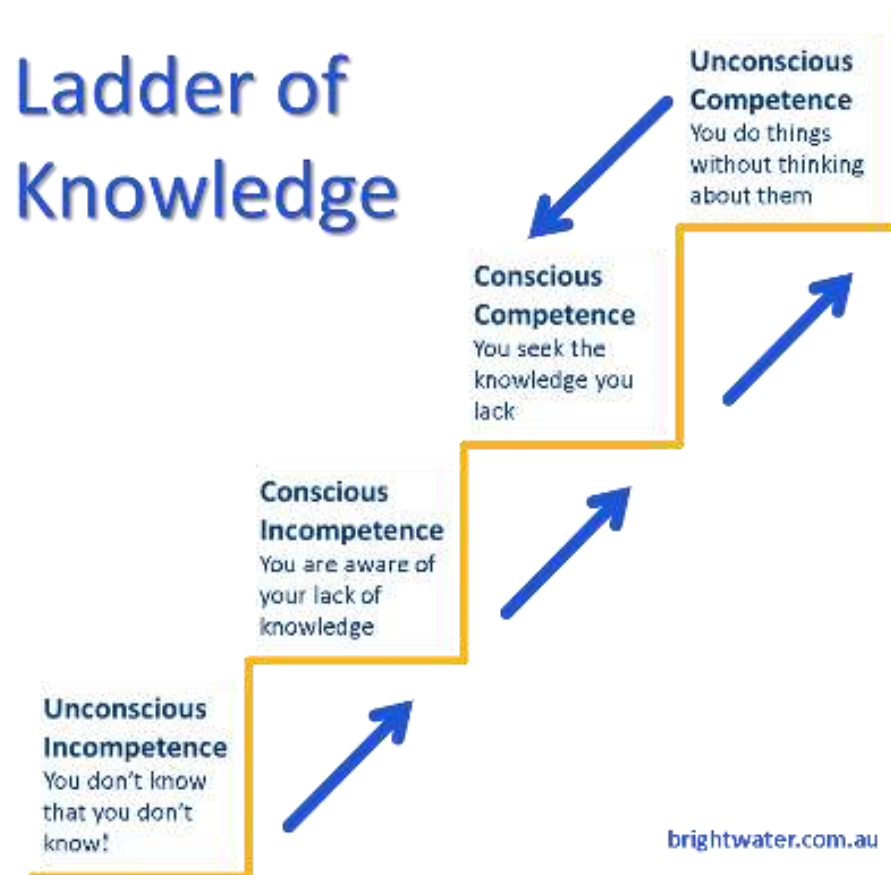
Issues encountered in the implementation - Backfilling

- Stemming truck operator unfamiliar with tablet/software used on site.
- Initial inconsistency in achieving correct backfill.
 - Dragging drill cuttings into the hole as aggregate was placed.



Issues encountered in the implementation – Loading Explosives

- What level of experience did the blast crew have.



Issues encountered in the implementation – Capturing “as built”

- When you rely on an electronic method of data capture, it pays to have a backup system or redundancy.
- Operators unfamiliar with the actual mechanics of how to input the captured data into the tablet.



The results – Dig Rates



Data gathered from the excavation equipment allows us to produce a heat map of the instantaneous dig rates for each flitch of the dig.

The results - Compliance with Design



“As Loaded” data gathered in the field allows for post analysis to determine compliance to design which we can then link to the dig rates heat map.

The results

- Trail 1
 - Inconclusive
 - Valuable learnings
- Trial 2 and 3
 - Excavation should be underway this week;
 - Excavation rates are as per normal in the flitches above the WAC;

The results



Questions

Thank you