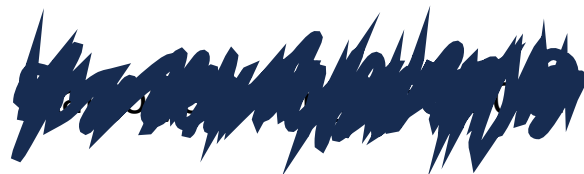
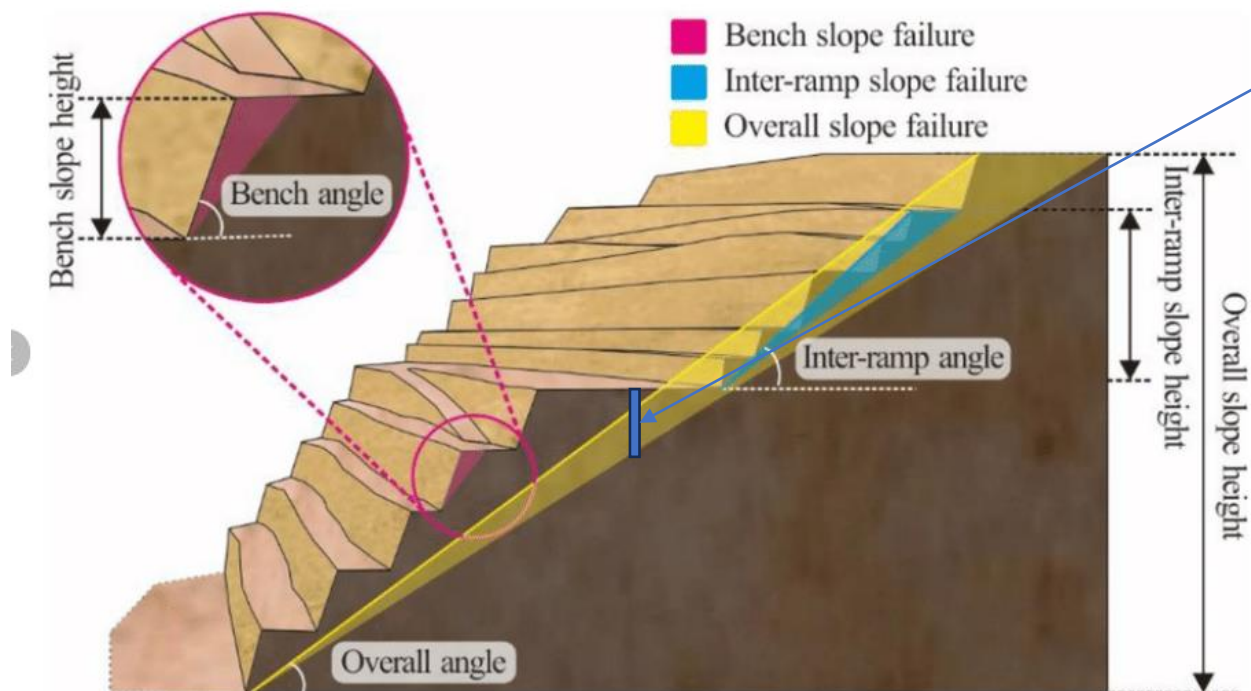
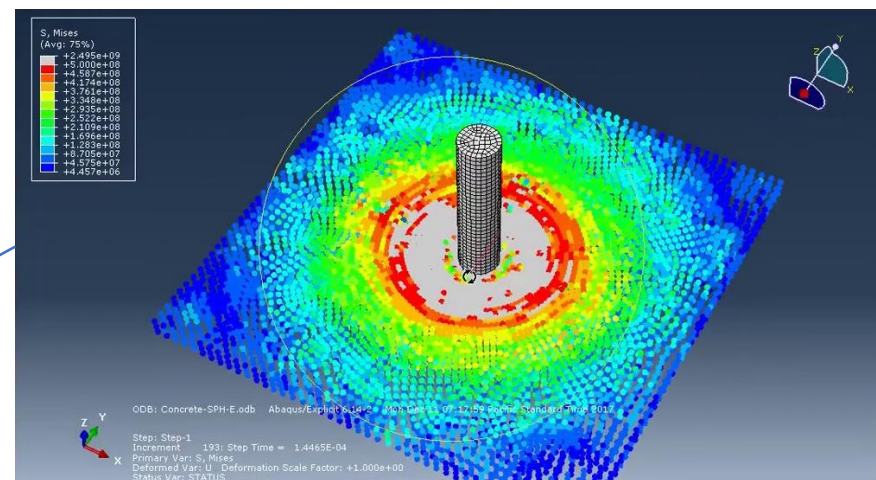


A new Blasting technique for reducing damage bench width Open Pit Mine

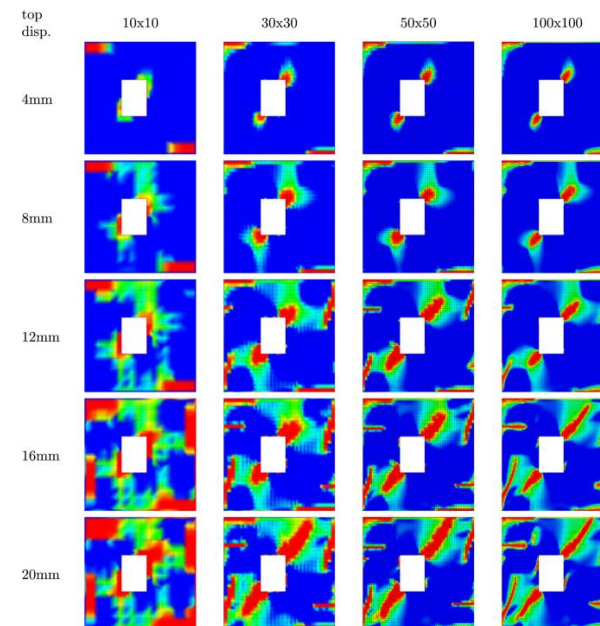


Previous Analysis



Different levels of slope failures in open-pit mines (after Basahel and Mitri 2019)

The damage generated around the hole →
Pressure hole generated around the
explosive charging.

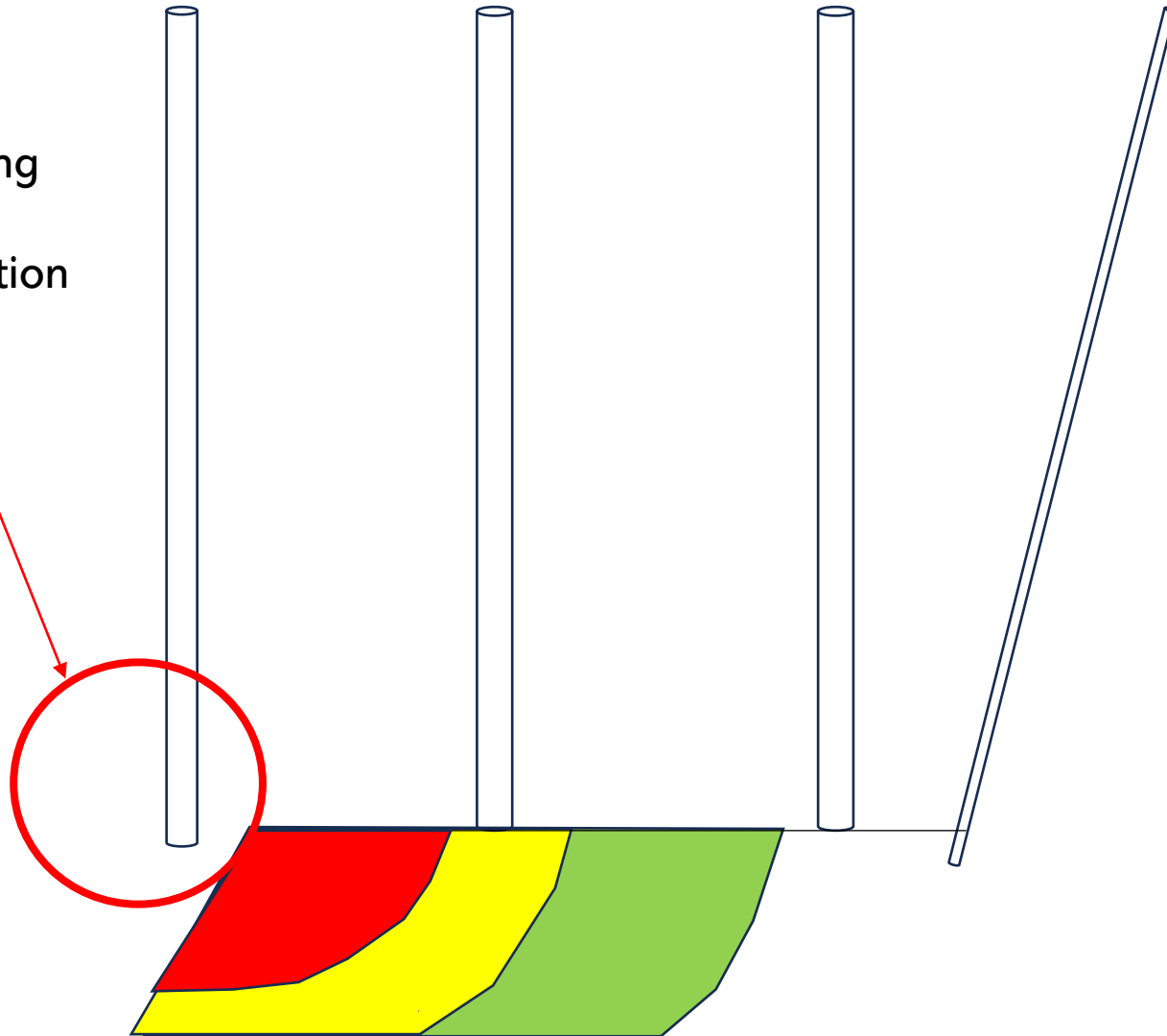
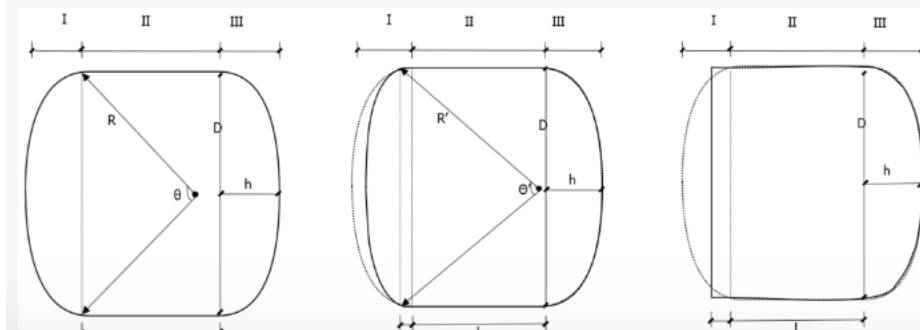


03 Design Mistakes

1. Position first production row
2. Reducing fallback or subdrilling
3. Timing delays

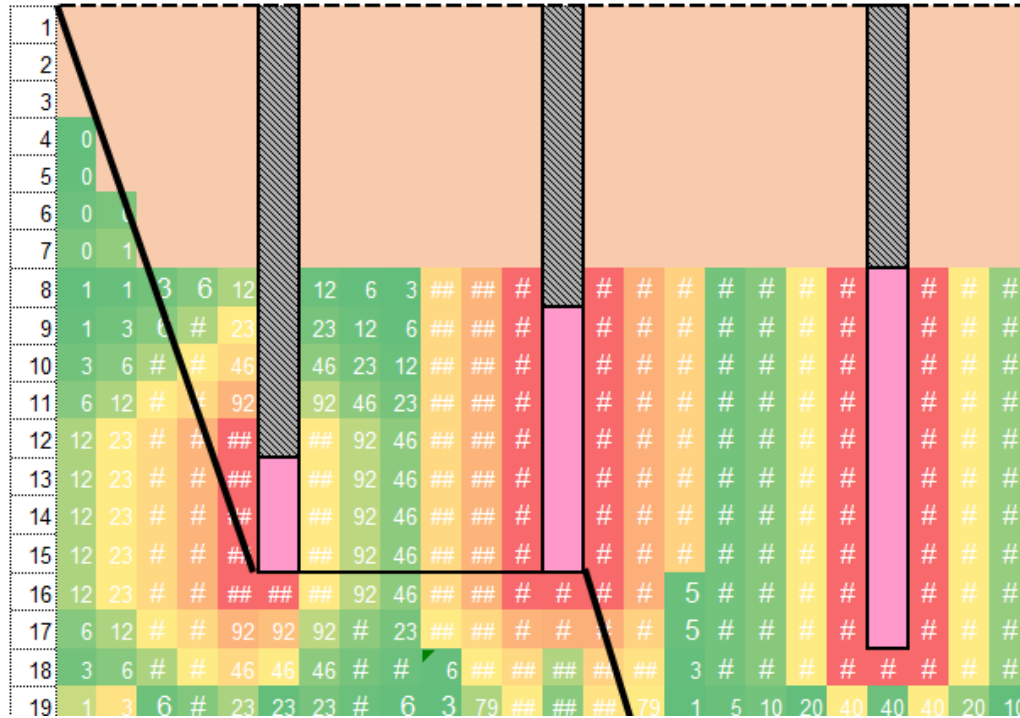
Only 10%
design having
sucess
implementation

Figure 7. Airbag deformation process under shock wave pressure. (a) Airbag initial state. (b) The shape of the airbag when subjected to shock waves. (c) Airbag blocking limit state.

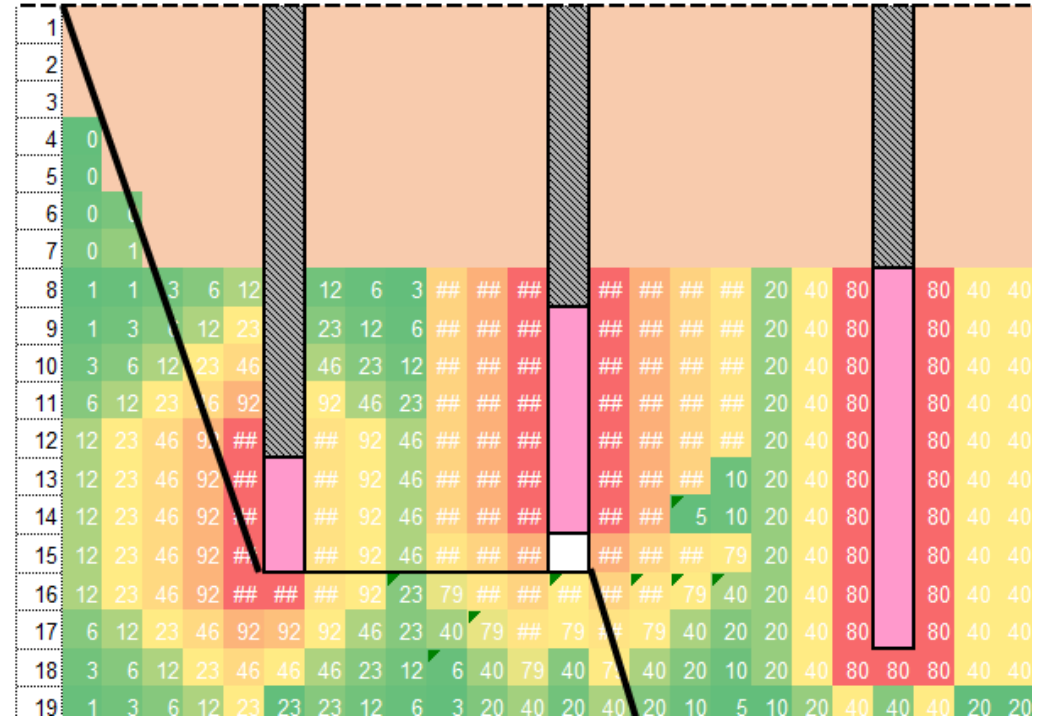


Using Expander Innovation

Standard Design

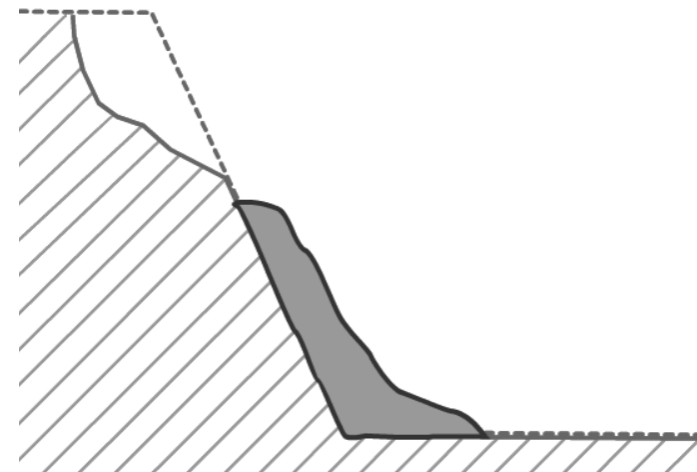
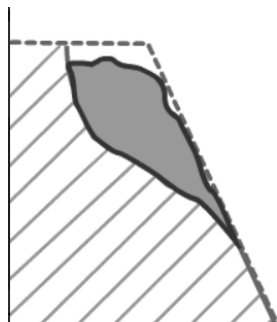
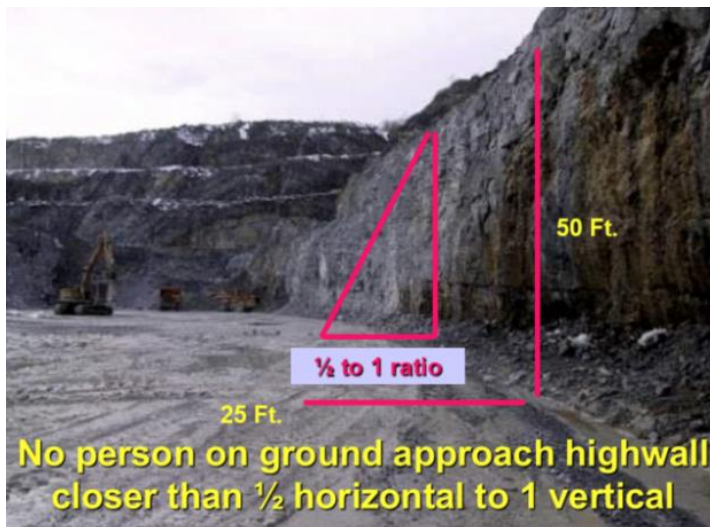


Simulation (Expander)



Model prediction using Pressure Hole analysis, determine low damage below subdrilling.
Advance technique improve future crest below bench
Berm with achieve > 85% and improve safety condition

Impact to Process and Safety



Achieve berm x 100%
SAFETY AND PRODUCTIVITY