



JKTech
Technical Article

JKTech Blasting Capabilities



Paper in Brief

JKTech Blasting Capabilities

JKTech has significantly improved the productivity and profitability of downstream processes through optimising blasting practices of mining operations.



For further information contact:

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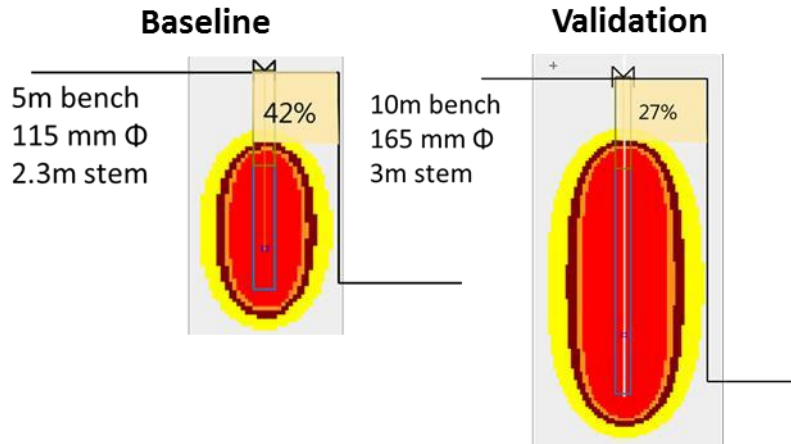
JKTech – Blasting Capabilities

JKTech has significantly improved the productivity and profitability of downstream processes through optimising blasting practices of mining operations.

Underpinned by decades of blasting research at SMI/JKMRC, services provided by JKTech have strong scientific rigour. Talk to one of our experts if you are looking for solutions to any of these problems;

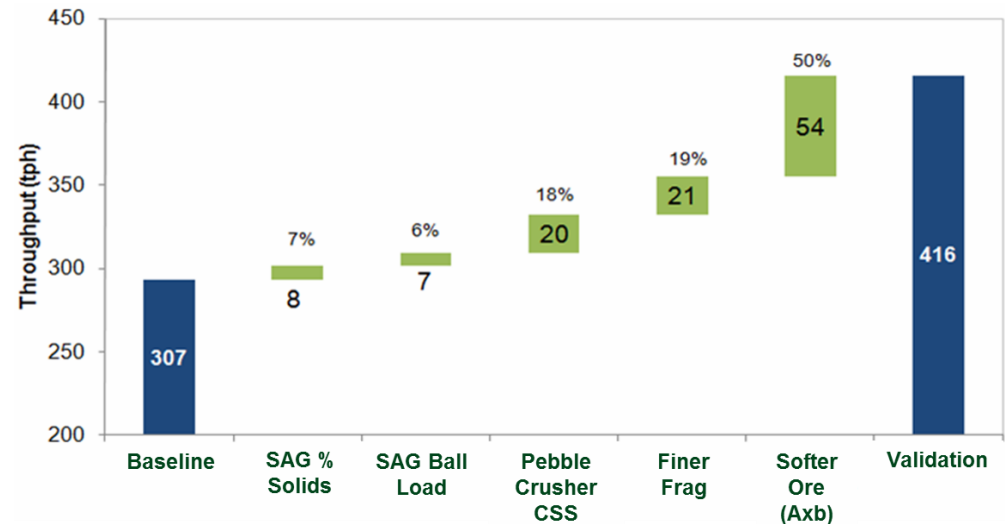
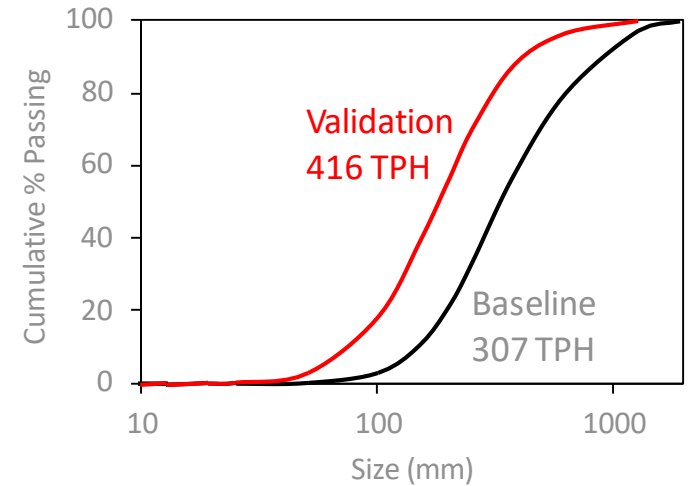
	Blast audits and assessment	Blast optimisation	Blast modelling	Mine planning
Services	<ul style="list-style-type: none"> Blast QA/QC Fragmentation/Diggability issues Wall control issues 	<ul style="list-style-type: none"> Improve cast performance Reduce ore loss and dilution 	<ul style="list-style-type: none"> Fragmentation modelling Heave/swell modelling Model cast blasts Model ore loss and dilution 	<ul style="list-style-type: none"> Drill and blast design and equipment selection Cost and NPV analysis for different blasting options
Tools used	<ul style="list-style-type: none"> High speed video capture Fragmentation assessment using Split Desktop Vibration and VOD monitoring 	<ul style="list-style-type: none"> JK Fragmentation model JKBlast model 	<ul style="list-style-type: none"> JKBlast model HSBM PFC 	<ul style="list-style-type: none"> JK Fragmentation model JK Databases

Mine to Mill Optimisation



- Increased bench height and blasting intensity to improve fragmentation.
- 36% increase in throughput and 27% drop in specific power consumption compared to the baseline feed.

ROM PSD Comparison



Blast Optimisation

Baseline Practices

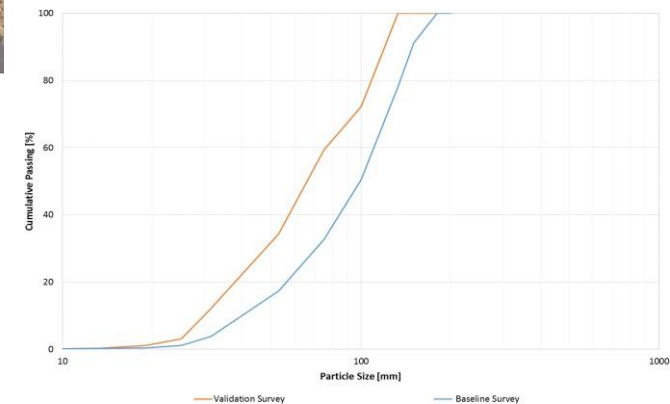
- Poor stemming
- Excessive fly rock
- Excessive ore dilution
- Fume generation



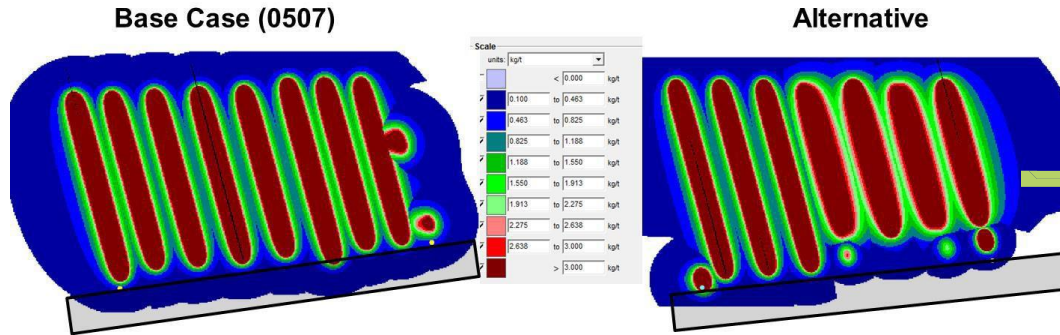
- Poor blast energy distribution
- Crusher feed variability

Validation Trial

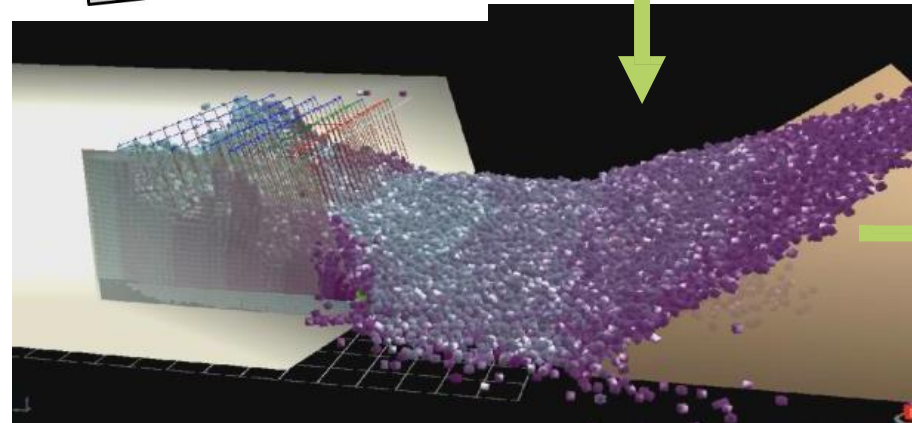
- Better & less stemming
- No fly rock
- Reduced ore dilution
- No fume generation
- Good blast energy distribution
- Consistent crusher feed - finer



Open Pit Coal – Cast Optimisation



- Model predictions were within $\pm 2\%$ of the measured values



- Using blast design and modelling tools available at SMI/JKTech, alternate designs to improve cast performance at a coal mine were modelled and implemented in a staged manner.

- Improved cast performance from 20% to 30% with minimal increase in blasting energy.
- Also reduced the amount of dozer push, further increasing equipment productivity.



Wall Control

Significant back break and damage behind high energy blasts



Design pre-splits to isolate faults and minimise wall damage.



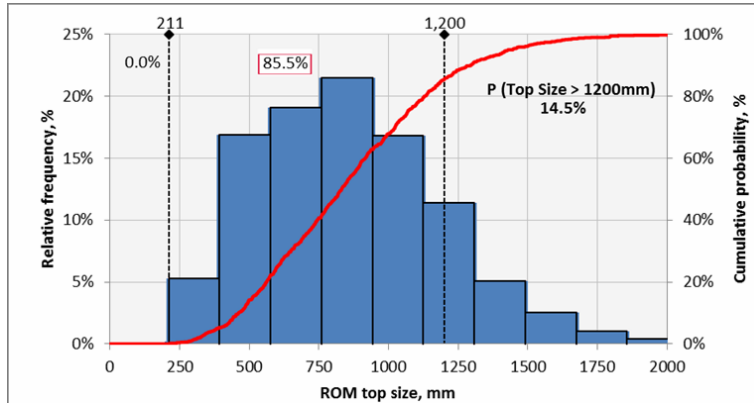
- Regular face behind split
- Minimised fault activation into trim
- Good high wall conditions after trim



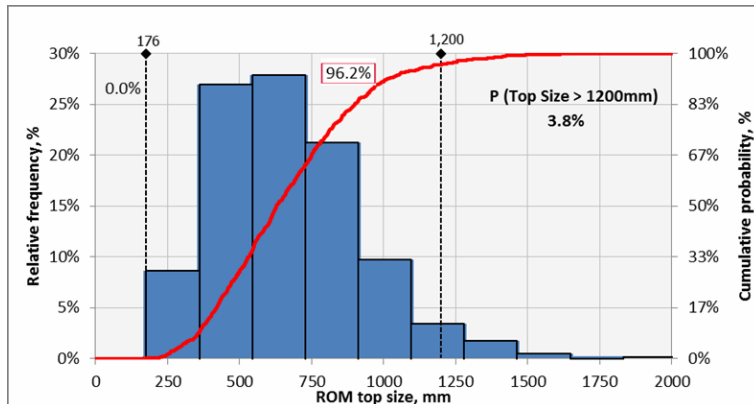
Mine Planning Support

Case 1

Estimate occurrence of top size from blasting based on standard blast design using JK stochastic fragmentation model

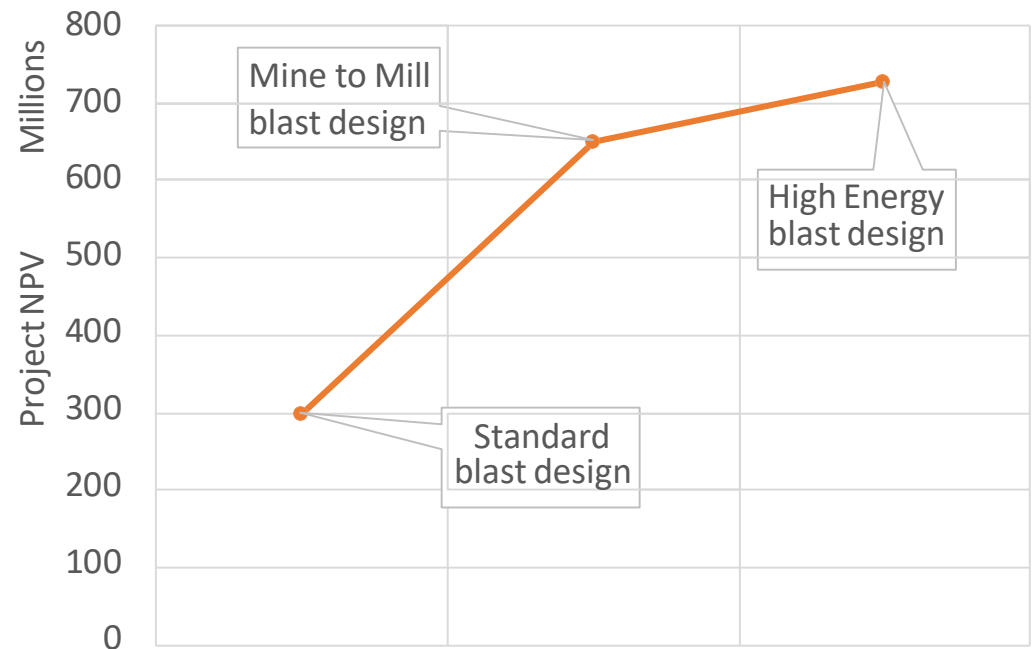


Propose alternate blast design to minimise top size from blasting



Case 2

Evaluation of impact on overall project value due to change in blasting practice for a hypothetical copper porphyry deposit.



Moving from standard blasting practice (0.7 kg/m^3) to mine to mill designs (1.2 kg/m^3) improved project value significantly. Further gains could be obtained from implementing sophisticated high energy blast designs (2 kg/m^3)

Contact Us

For More Information



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