Site Profile

Northparkes Mine – Open Cut is a Copper and Gold mine located 27 km north-west of the town of Parkes in Central New South Wales. NPM is a joint venture between Rio Tinto (80%) and the Sumitomo group (20%).

Northparkes Mine operates both underground (Block Caving) and open cut mines on their mining leases which cover 1630 hectares of the 6000 hectares of land owned in the area. The open cut operation consists of 2 excavators and a fleet of trucks. Drilling is sub-contracted to a third party and Orica Australia Pty Ltd through its Mining Services division delivers a Down the Hole service.

The Situation

Northparkes Mine were looking at ways of reducing overall mining costs due to the financial down turn. Drilling and Blasting was looked at closely to find alternative methods of blasting that would significantly reduce costs and improve productivity, whilst maintaining fragmentation and wall control.

Technical Solutions

Orica Mining Services were able to offer a safe and affordable Electronic Blasting System (Uni tronic™) that is significantly more advanced than conventional non-electric initiating systems, providing the timing flexibility and accuracy needed to deliver better blast results. The introduction of Uni tronic™ system enabled Northparkes Mine to increase their pattern dimensions at the same time giving them the flexibility to blast larger, combination (production and trim) shots resulting in a reduction in production down time due to clearing the pit and creating larger dig faces.

SHOTPlus™ UT - software was used to assist in burden relief predictions in order to calculate site specific timing to improve on digger productivity. The precision timing of the Uni tronic™ system was applied to enable optimal use of explosive energy, thus improving fragmentation.

The Uni tronic™ system provided better fragmentation at lower powder factors which has reduced the overall drill and blast costs and in fact reduced the mining costs with less blasting delays.

The Result

The Uni tronic™ system has delivered a technical solution to mining issues encountered at Northparkes Mine. There have been significant efficiency gains and cost savings on site.

Since the introduction of the Uni tronic™ system the blast patterns have undergone significant pattern expansion of 33% (total influenced area) with no adverse effects on the mining process. The flow on effects of such a significant pattern expansion has led to a number of benefits as detailed below;

- Reduction in powder factor by 37%
- Reduction in blasting cost per 20m bench by 21%
- Reduction in drill metres per 20m bench by 39%
- Reduction in drilling cost per 20m bench by 31%
Acknowledgements

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