

CASE STUDY

Using i-kon™ II Extreme to improve downline integrity and blasthole performance.

Silver Bell Mining, LLC

Site Profile

Silver Bell Mining, LLC (SBM) operates a Copper mine located in southern Arizona.

Copper is extracted from the ore utilizing heap leaching or rubblization. Rubblization is the process where material is drilled, blasted and then leached in place. Approximately 80 percent of the ore will be hauled to pads for leaching. Copper is recovered from solution using the electrowinning process and sold in sheets of high-purity cathode.

The mine is currently utilizing i-kon™ II electronic detonators for initiation. The two-way communication of electronic initiation provides the mine with definitive safety measures, and a sense of security that allows them the opportunity to easily change their mining strategy. It is critical for the mine to know when a detonator does not respond due to an issue during the loading process. Therefore, down line integrity is of the utmost importance.

The Situation

The mine is a Chalcocite Oxide deposit. Current blasting practices consist of drilling 9 7/8" and 10 5/8" holes, 45' deep (5' of sub-drill) on a 24' by 26' staggered pattern. Their blasting agent of choice is Anfo which is augured in with bulk loading trucks. Typical pattern size for leachable ore is 60 holes with wet holes 5 percent of the time. In Rubble zones the holes are 200' deep and 100 percent wet, the blasting agent is emulsion with multiple primers. Stemming is completed with 3/4" crushed stone and is loaded in the holes with a skid steer.

During the loading process, the mine was experiencing cut down lines, thus, the inability to communicate with i-kon™ II detonators. This resulted in poor blast results for the holes affected.

A misfire can also result in lost mine production of up to 6 hours per hole while searching for the booster and detonator in the muck pile.



Technical Solution

In order to ensure preferred blast results and high safety standards, while improving blast crew performance and overall mine production, a visit was made by Southwest Energy, Orica's Joint Venture Partner to Brad Stonehouse – SBM Mine Manager. An evaluation of Orica's Extreme prototype down line wire used with i-kon™ II detonators was proposed.

The i-kon™ II Electronic Blasting System is an inherently safe, simple to learn and operate system for use in a wide range of applications.

CASE STUDY

Using i-kon™ II Extreme to improve downline integrity and blasthole performance.

Silver Bell Mining, LLC

During the Evaluation

After the first few months of evaluation, it was determined that the use of Orica's Extreme prototype wire had improved the blasting process substantially. Records indicate the mine has only experienced in hole issues as a result of the loading process with 1 in 10,877 down lines.

The blast crew has added that deployment is much improved, and has reduced their priming time by 20 to 25 percent. This allows them to be more productive and efficient with all blasting processes.

The evaluation has been ongoing for 15 months and has consumed 9,487 i-kon™ II detonators.

The Result

Several blasts have been fired over a twelve month evaluation.

- Deployment time has been reduced by 20 to 25 percent
- Blast crew is capable of loading more holes on a daily basis
- Blast crew morale and efficiency has improved
- Number of missed holes, went from 1 per 1,224 with RX wire, to 1 in 9,487 with Extreme prototype wire

SBM has converted all of their blast initiation to the i-kon™ II Electronic Blasting System with Extreme prototype wire.

Testimonial

Brad Stonehouse – Mine Manager

"I am very happy with the product. Potential for misfires has virtually gone away."

Acknowledgements

The author would like to acknowledge Brad Stonehouse - SBM Mine Manager, Sean Jacobs and Carlos Pargas - SBM Blast Crew and Chris Dahl - Southwest Energy Technical Services Manager for their support of this evaluation.

Author: David Cosolo

Date: April 2015



Disclaimer

© 2016 Orica Group. All rights reserved. All information contained in this document is provided for informational purposes only and is subject to change without notice. Since the Orica Group cannot anticipate or control the conditions under which this information and its products may be used, each user should review the information in the specific context of the intended application. To the maximum extent permitted by law, the Orica Group specifically disclaims all warranties express or implied in law, INCLUDING ACCURACY, NON INFRINGEMENT, AND IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. The Orica Group specifically disclaims, and will not be responsible for, any liability or damages resulting from the use or reliance upon the information in this document.