

## CASE STUDY

# Ok Tedi i-kon™ III Extreme Introduction

## Ok Tedi, Papua New Guinea

### Site Profile

Ok Tedi mine is a copper and gold open cut mine located in the Star Mountains of Western Province, Papua New Guinea (PNG). Orica has been in partnership with Ok Tedi for over 30 years as a down the hole service. Orica expanded this partnership by moving to a total load service in 2015 and implemented i-kon™ on site in July 2016.

### The situation

Ok Tedi blasts 15m benches, with single primed explosive columns. The sites geological conditions are challenging, with a highly jointed rock mass and limestone areas with significant cavities. The mining schedule often requires small irregular shaped patterns, which lead to holes being drilled in precondition ground. To protect the walls and reduce spillage into the pit, the mine also uses air deck to down charge the face and rear of the shot. However, this has the potential to cause blast holes to collapse which can result in detonator wire damage causing a misfire.

In the 11 months prior to the introduction of i-kon™ III Extreme at Ok Tedi there were 13 misfires from a combination of collapsed holes, cut offs during stemming and slumping. This represents a failure rate of 1:2420

### i-kon™ III Extreme Implementation

In March 2018 Orica introduced i-kon™ III Extreme electronic detonators at Ok Tedi in an effort to reduce misfires. Extreme detonators have a thick outer coating and greatly increased durability in harsh mining conditions.

Since the first blast using the extreme wire on 11<sup>th</sup> of March 2018, a total of 7236 of the extreme leads have been fired. In 3.5 months Ok Tedi has experience only one misfire, due to a hole collapsing in preconditioned ground.

Results from this initial sample period have shown a reduction of over 65% in the rate of failure leading to a misfire event. During this period two incidents occurred where leads were cut in the stemming region, but the blast crew was able to recover the lead and prevent a misfire. In both cases it was obvious that a large rock had fallen out of the collar and cut the wire.

The use of i-kon™ III Extreme has virtually eliminated any leakage issues during logging, which improved the speed of the logging process. This reflects the robustness of the i-kon™ III Extreme wire and its ability to withstand damage from loading and stemming in challenging geological conditions.



Figure 1: i-kon™ III Extreme electronic detonator (left)  
Vs i-kon™ II RX detonator



Figure 2: i-kon™ III Extreme electronic detonator being used at  
Ok Tedi



# Ok Tedi i-kon™ III Extreme Introduction

## Ok Tedi, Papua New Guinea

### Customer Satisfaction

Ok Tedi Mining Limited (OTML) has expressed their satisfaction with the new product and the efforts of the Orica drill and blast crew in reducing the occurrence of misfires on site.

The reduction in the required misfire treatment time and reduced exposure to the hazards involved in clearing a misfire has been acknowledged by the drill and blast team.

### OTML Drill and Blast Supervisor

“The introduction of extreme wire by Orica has reduced the potential for misfires. This has meant less time spent treating misfire and increased safety, which is priceless. We have much more confidence with the Extreme wire compared to the RX wire we used previously.”

### Acknowledgements

Orica would like to acknowledge the Drill and blast team for their efforts in implementing i-kon™ III Extreme at Ok Tedi. As well as the OTML drill and blast team for their support of this evaluation.

### Disclaimer

© 2018 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.

The word Orica and the Ring device are trademarks of the Orica Group.

