EZshot® Reduced Blast Overbreak by 12% at Australian Mine

Project Background

DEVELOPMENT PROFILE AND MINING CYCLE OPTIMISATION

EZshot® has been rolled out across Australia in 2020, with mines across the regions taking up the product.

At operations in Queensland, the EZshot product is being used in variable ground conditions and temperatures. Where EZshot detonators are utilised, half barrels have resulted in ground where they haven't been seen before.

Studies are ongoing at gold operations in Western Australia where EZshot is being used as part of mining customers' standard development charging. These operations are working to quantify the benefits EZshot can deliver to the development mining cycle and how it performs in challenging ground conditions.

At a mine in the Goldfields region of Australia, Dyno Nobel's EZshot technology has been used in the first firings of a portal development which was chosen over traditional NONEL detonators due to its ability to deliver a smooth profile through simultaneous firing of the perimeter holes.

This case study looks at an overbreak reduction project that was conducted at an Australian mine.

EZshot detonators.

Project Goals

REDUCE OVERBREAK THROUGH IMPROVED PERIMETER CONTROL

EZshot detonators have the potential to deliver value to multiple parts of the underground mining value chain. These include:

- **Perimeter control;**
- **Overbreak reduction;**
- **Mining cycle time optimisation;**
- **Reduced downstream costs (ground support, shotcrete); and**
- **Improved safety, by reducing blast induced wall damage and consequential scaling.**

A study to measure the impact will generally also identify other benefits and opportunities to the user, such as drilling performance and blast fragmentation.

Technology Applied

ADVANCED DETONATOR TECHNOLOGY

EZshot is a shocktube detonator with electronic timing developed for use in underground mining, focused on perimeter blasting and the opportunity for future applications.

With the precision and accuracy of an electronic detonator, while keeping the simplicity of the delivery of NONEL, no programming and additional testing or operator training is required for the implementation of this system.

The electronic initiation unit inside the detonator ensures that it fires at the pre-designated delay and eliminates scatter (which is an inherent property of traditional pyrotechnic systems).

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Value Added

IMPROVEMENTS IN BOTH SAFETY & COST

Half barrels are indicative of well controlled firing which contributes to safer, more stable and longer lasting development drives. Dyno Nobel's EZshot technology was able to deliver this in the challenging ground conditions prevailing which was paramount to the customer.

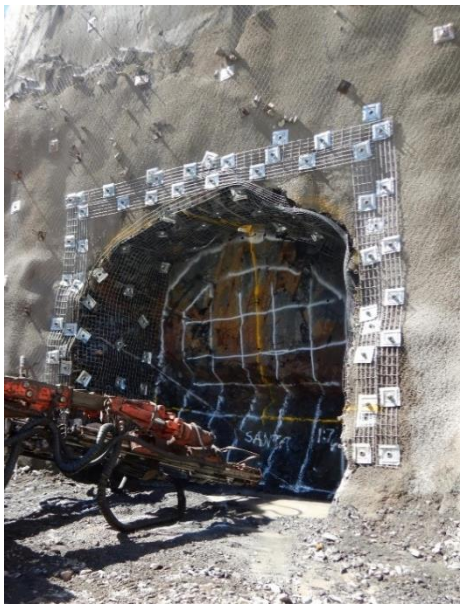
In addition, photogrammetry was used to compare overbreak between the EZshot technology and traditional NONEL LP initiation in perimeter holes of development drives.

The results achieved include:

- **A 12% overall reduction (from 22% to 10%) in overbreak was measured due to switching detonators from NONEL LPs to EZshot;**
- **Measurable reduction in volumes of material scaled off the walls; and**
- **Initial calculations indicate there is a positive $/m benefit to development mining costs from using the EZshot detonators.**

The analysis also identified other value adding opportunities for the customer.

In addition to the cleaner profiles, operators have commented on the ease of use of the product. An operator said, "I have seen visible half barrels in poor ground where we have never seen them before, and a full profile of half barrels in good ground."



A smooth profile delivered by EZshot in a portal firing.

Half barrels visible after firing with EZshot.