

The Product:

Nitro Sibir Australia (NSA) has been supplying bulk explosives, initiating systems, boosters, packaged explosives and specialised application explosives to mines and quarries in Australia since 2013. As industry has become familiar with NSA's suit of explosives products, especially their higher energy bulk explosives, clients are looking for blasting services to further improve their blast results.

NSA offers the following services:

- Blast design;
- Initiation design;
- Loading services;
- Shotfiring services.

(These services may be selected individually or as a bundle)



Figure 1 NSA Shotfirer Priming Shot

NSA has the capability, with their modern fleet of Mobile Processing Units (MPU's) to transport up to 17 T of their Polar SX bulk explosives to site. The large capacity MPU's enable to minimise associated mobilisation costs across larger blast volumes. NSA can also deliver initiating explosives, as a Category II load, to site using their fleet of Shotfiring vehicles. Larger amounts are delivered via licenced explosive cartage contractors directly to your site magazines.



Figure 2 NSA's Shotfiring Vehicle on Bench

The Problem:

A mid sized quarry (+200 kT) in the Pilbara was experiencing difficulties in sourcing appropriate explosives and blasting services. NSA was contacted by a drilling contractor in June 2017 for pricing on bulk explosives supply and blasting services.

The Solution:

The drilling contractor engaged NSA for an initial trial, providing 2 weeks' notice of the requirement of service to the quarry in the Pilbara. NSA, with their committed customer focus, arranged the services and mobilised 1500 km to site from their Kalgoorlie depot. The trial at the quarry included the following services:

- Initiation design;
- Supply of bulk explosives;
- Supply of initiation systems and boosters;
- Loading services;
- Shotfiring services;

Prior to mobilising to site NSA and the Drilling Contractor consulted with a blasting engineer to ensure that the blast parameters, bulk explosives and initiation sequencing were tailored to the site's geology. Included in the planning were matching bulk explosives to the hole diameter (sensitivity) and rock strength (explosive energy), energy distribution (powder

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factor) and burden relief developed from the initiation sequencing.

The quarry blast was approximately 20,000 T of rock which at a powder factor of 1.25 kgm⁻³ previous drill and blast contractors had used powder factors of up to 1.6 kgm⁻³, with varying results. The combination of the Drilling Contractor's local knowledge accurate drilling, NSA's energetic bulk explosives and technical expertise resulted in a significant improvement in fragmentation.



Figure 3 NSA's versatile MPU (17T Road Legal with Trailer)



Figure 4 NSA Shotfirer connecting Initiation System

The Benefit:

The Drilling Contractor was able, through the delivery of quality explosives and skilled services, to provide the following;

- 12 Tonnes of bulk emulsion explosive (Polar SX) loaded in a single site visit. (Capability to deliver up to 17 Tonnes);
- Over 50% reduction in over size rocks (fragmentation improvement) using lower powder factor than previous drilling and blasting contractor;
- Full blasting service delivered to new quarry client with only 2 weeks' notice;
- Minimal back break on next blast face, reducing oversize in adjacent blasts;
- Quality bulk explosive matched to hole size and geology;
- Drilling Contractor has been engaged to continue drilling and blasting services;

NSA's focus on customer success through using high quality products and expert services has enabled their customer to secure long term drilling and blasting services from a single trial. NSA has industry blasting experts available to assess your sites' needs to improve blasting results, reduce associated costs and enhance safety. Engage the explosives and blasting industry's experts to improve your sites blasts performance today.



Figure 5 Blast Results

Disclaimer: This case study is based on factual evidence, Nitro Sibir Australia (NSA) provide no implied warrantee or garentee of performance without consulatation and design review by NSA Technical Advisors.