

# CASE STUDY

## DIFFERENTIAL ENERGY® SAVES MARBLE QUARRY \$54,700 ANNUALLY

### PROJECT SUMMARY

#### MARBLE QUARRY SAVES THOUSANDS USING DIFFERENTIAL ENERGY

A trial at a marble quarry resulted in cost savings of \$54,700 over the course of a year.

### BACKGROUND

#### A QUARRY REQUESTS DYNOCONSULT'S HELP

A marble quarry in Alabama reached out to Dyno Nobel's DynoConsult® team to request insight into lowering their blasting costs.

This quarry historically used a dense, heavy emulsion. This was a sensitised emulsion designed for use in large diameter boreholes. This quarry primarily drilled 5 ½ and 6 ½ inch holes.

To help the marble quarry assess and optimize their blasting program, DynoConsult carried out a year-long trial comparing their previous bulk product of choice to TITAN® 1000 ΔE.

### PROJECT GOALS

#### LOWER COSTS WITHOUT SACRIFICING PERFORMANCE

The goal of this project was to lower the cost of blasting for the quarry by decreasing the amount of bulk emulsion needed for each blast while maintaining the overall shot performance.

### TECHNOLOGY APPLIED

#### DIFFERENTIAL ENERGY AND TITAN 1000 ΔE

The Dyno Nobel Team proposed a year-long trial of TITAN 1000 ΔE, DIFFERENTIAL ENERGY technology with gassed emulsion. This product becomes sensitized through the loading process and offers the ability to customize the density of the product between 0.9-1.3 g/cc. With this technology, they were able to decrease the emulsion's density based upon the geology. By using TITAN ΔE gassed emulsion, the amount of explosive product required per hole decreased, thus reducing the bulk explosive cost per hole.

### AT A GLANCE



**\$54,700 SAVED ANNUALLY**



**24% LESS BULK EXPLOSIVE USED**



**AVG. 3,500 LBS OF BULK EXPLOSIVE SAVED PER BLAST**

#### CHALLENGE

- Lower blasting costs at a marble quarry

#### SOLUTION

- Optimize blasting program using TITAN 1000 ΔE to decrease amount of emulsion needed for each blast

#### OUTCOME

- \$54,700 saved annually
- 24% reduction in bulk explosive product used
- Average of 3,500 lbs of bulk explosive saved per blast

# CASE STUDY

## VALUE ADDED

### \$54,700 AND 24% OF BULK EXPLOSIVE SAVED

Using TITAN 1000  $\Delta E$ , the team was able to customize the density of product based on the geology within the blasthole. The blaster gassed the emulsion to a higher density in the toe of the hole and a lighter density in the middle and upper portion. This method maintains ample energy at the toe but decreases density of the emulsion where possible to decrease total pounds per hole. This allowed the operation to decrease the pounds of product used per hole while maintaining the quality of the shot performance.

The trial spanned a year and included 58 shots. The team decreased bulk explosive product usage by an average of 3,500 pounds per blast by switching to TITAN 1000  $\Delta E$ . Overall, the TITAN 1000  $\Delta E$  shots used 24% fewer pounds of bulk explosive product. The annual savings on bulk product for this trial was about \$54,700. The customer was pleased by the trial, and DynoConsult proved that switching TITAN 1000  $\Delta E$  decreased their blasting cost.

## PRODUCTS/ TECHNOLOGY & SERVICES USED



DYNOCONSULT



TITAN 1000G  $\Delta E$

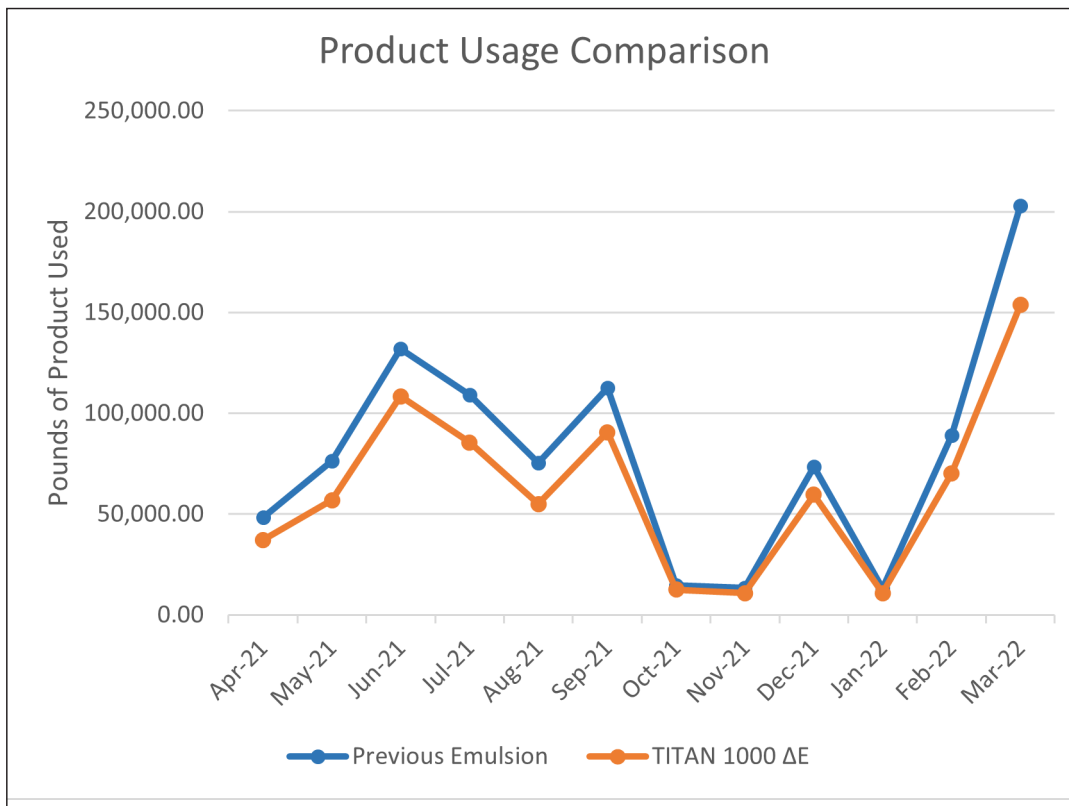


Fig 1. Comparison of quarry's previous emulsion of choice and TITAN 1000  $\Delta E$