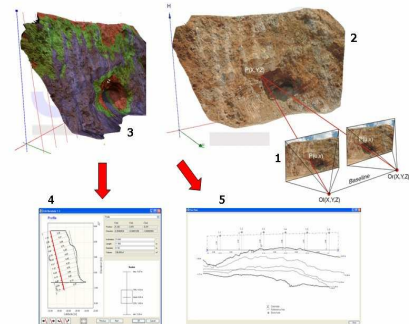


Customer experience

Introduction of BlastMetriX3D at Quarry Plesko – Lafarge Slovenia at plant Trbovlje

DAMJAN KOVAČ

BlastMetriX3D - rock wall measuring device by taking images N° 09-08.
DRILLING AND BLASTING OPTIMIZATION



English

Problem

- Inefficient drilling and blasting performance with high explosive consumption, a lot of oversized material, inaccurate drilling, back breaks in marl areas, bootlegs on the bench toes, safety and environmental effect (air blast, vibrations, fly-rocks),
- **Specific explosive consumption was 145 g/t** – drilling and blasting optimization required with detailed bench face recognition.

Solution

- Investment in BlastMetriX3D system, an innovative system for bench face surveying and planning of blast layouts based on three dimensional images, permanent vibration monitoring and complete replacement of explosive brands, suppliers and producers.
- New system for bench face recognition called BlastMetriX3D was purchased and its usage was implemented on daily basis (3G Software & Measurement GmbH, Graz, Austria).
- Measurements and drill pattern are performed by a quarry manager (drilling part), external mining company Blastcom Slovenia provides support with new explosives, vibration monitoring and auxiliary material on BlastMetriX3D basis.
- First results were already achieved after few measurements (time needed to develop one pattern approx. 1,5h).
- Increased safety at work, cost savings for geological survey, reduction of fly rocks and vibrations, localization of boreholes just by using a tape-measure, 3D images for documentation and blast planning, verifiable mass conditions, calculated burden and volumes for boreholes.

Results

- **Drilling geometry increased** for 15% (burden and spacing up to 3.2 – 3.5 m; changed drilling angle from 75° to 70°)
- **Less manpower** hours required for drilling (approx. 10%)
- **Better fragmentation** (< 5% of oversized material – before 10-15% - visual estimation)
- **Less costs** for strip mining service (less reducing of boulders needed)
- **Decreased specific explosive consumption** for 9% (g/t of blasted material)
- **Decreased electricity consumption** for crushing purposes for 16% (released primary crusher due to better fragmentation)
- **Increased output of crushing system** for 8%
- **Increased productivity** for 3%