

Blast Design Using TITAN® XL 1000 and DigiShot



Project Summary

SUMP SHOT PROVES CHALLENGING

Dyno Nobel has been providing shot service to a granite crushed stone quarry in the Eastern U.S. utilizing TITAN® XL 1000 and DigiShot® detonators. The quarry management has decided that they want to start developing a new level, so they requested a blast plan to get down onto their new level as quickly and easily as possible.

As with any sump shot, you are shooting into a floor with no relief. This lack of relief causes higher vibration levels and increases the potential for vertical fly-rock and/or airblast. The quarry is located near a residential community and business warehouse park so control of the blast is essential. The extremely hard, massive granite places an additional challenge on the blaster.

Technology Applied

EMPIRICAL E DESIGN HELPS DETERMINE SAFE AND EFFICIENT BLAST

The customer requested a 40 ft. depth on the first shot, but due to the mentioned challenges, the DynoConsult® representative encouraged them to limit the first blast to 34 ft. deep.

Utilizing DigiShot® and Dyno Nobel's Empirical E design for shallow holes, a safe and efficient blast was designed. The Empirical E design limited the hole depth to 17 feet for a 6.5" hole diameter, so they were able to 'stack' two 17 ft. blasts on top one another.

This plan was achieved by loading and delaying the first deck as a separate blast, followed by the lower deck in a second blast. The pattern was 9 ft. x 9 ft.



Results

SUCCESSFUL SHOT ACHIEVES DESIRED RESULT

The blast lifted as designed and caused no flyrock or additional vibration or airblast. The quarry has almost excavated to the desired level.