

3D Blast Modeling for Green Site



Project Summary

3D MODELING NEEDED TO PREDICT FLYROCK AND MOVEMENT AT NEW BLAST SITE

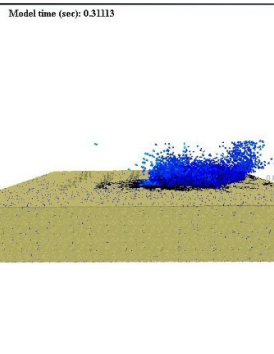
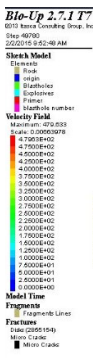
This iron mine customer in the Midwest United States was reopening an existing operation and needed waste rock with which to re-establish haul roads. For this purpose the customer selected a green site for obtaining the material for building the roads which was approximately 200 ft from an existing lake.

The department of natural resources for the state determined that no material from the blast would be allowed to enter the lake. As a green site, there was no experience with how to shoot this material nor information on how much movement and flyrock could be expected. In addition, the blast would have to employ 16 inch diameter holes as that was the only hole size available.

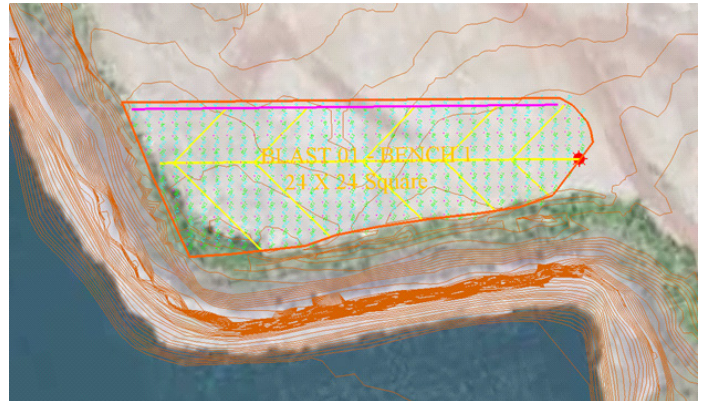
The local DynoConsult® technical Representative suggested a blast pattern that would control the flyrock off the shot. The mine operators also proposed their own design.

Technology Applied

APPLICATION OF THE HSBM 3D BLAST MODEL



The HSBM blast model was employed to determine how the various blast designs proposed for this task would perform in the field. Of primary importance was the trajectory and velocity of rock fragments ejected from the surface



of the blast area. For the creations of this model it was important to get as accurate as possible the mechanical strength properties of the rock to be blasted.

Results

SUCCESSFUL BLAST WITHOUT FLYROCK

The results of the HSBM analysis confirmed that the blast design proposed by the Dyno Nobel Technical Representative was far superior to the design proposed by the operation. The model determined that no flyrock would leave the blast area with the Dyno Nobel design. Based on the results of the blast modeling, the design was employed in the field. The blast design assured that no flyrock enter the lake and no material left the blast site.

Next Steps

ADDITIONAL APPLICATIONS FOR BLAST MODELING

The HSBM 3D Blast model continues to be applied to situations where successful results are required for the very first shot or where there is some debate on the best blast design to employ.



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