

Adjusting Design for Plant Facing Shot



Background

STEEP ANGLE HOLES AND A PLANT FACING SHOT CREATE UNIQUE CHALLENGES

This limestone quarry in the Eastern U.S. has been using an internal pattern of 16 x 18 feet with an inverted pattern of 18 x 16 feet on the front row. This quarry has many neighbors located around it and the plant and mine structures are located close to the pit. Fragmentation and vibration have been the key points to this quarry.

This particular shot is in an area that was left from earlier on in the mining pit. The quarry is interested in widening the middle of the pit to get all the stone that they can. This area also points directly at the plant and administrative buildings up above the pit. The bench face also showed that it was going to need steep angle holes in order to break the toe.



On shot day, the blast kept all of the rock inside the quarry and no objects flew up to the plant and administrative building directly opposite the angle holes. This shot also gave the quarry a shorter route to get to the crusher which should increase production.

Technology Applied

3D PROFILING FOR A PRECISION SHOT

The tech team was brought out to the quarry before any work had been done on the bench. The bench face was 3D profiled on two different sides, and the profile was used to lay out the front row of the shots. The result was 20 degree angles on the side facing the plant and 10 degree holes on the side face.

Results

LOADING EACH HOLE WITH EXACTNESS

After the shot was drilled out the tech team was brought back in to complete a boretrak of the angle holes and pair this with the 3D profiles to give the blaster accurate information on how to load each hole.

Next Steps

PLANNING AND COMMUNICATION

When quarries have areas of the pit that seem to cause difficult blasting layouts, it's best to have the tech team come out and work out with the blaster how to lay it out.

The use of a 3D profiler and the boretrak unit give the blaster exactly what his burden is on each hole.

Communication is key when talking with quarry management so that all parties involved know what they are trying to achieve.