



## MSHA's Accident Prevention Program Safety Idea

**SAFETY  
IS A  
VALUE!**

### Use of Face Profiling

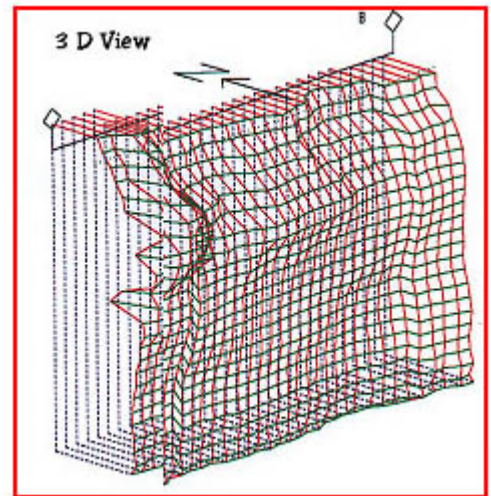
Category : All Surface  
Mine Type: Blasting

Explosive energy is lazy; it "pushes" to the path of least resistance. For this reason, it is important to balance the amount of explosive energy to the volume of material being blasted. (Blaster's refer to this ratio as powder factor). In most accidents, blasted material traveled further than expected. More emphasis on blast geometry and explosive distribution will greatly reduce these occurrences.



The initial calculation in determining the volume of material being blasted typically involves determining the "burden." Burden is the distance between the bore hole and the area-of-relief. Often, burden is visually estimated because of the inherent difficulty in measuring the face. In other cases, a "burden pole" is used in conjunction with a measuring tape to determine the "maximum burden" in a certain area of the shot. Rarely however, is a highwall straight and vertical. More likely, the highwall is irregular with some portions that are undercut and other areas where overhangs exist. Therefore, these techniques often miss important characteristics of

the face that should be taken to account when determining explosive charges. To successfully design a blast, the actual volume of material being blasted needs to be determined so that explosive energy can be properly distributed. An important tool available to assist with this determination is a "laser profiler." This tool provides the ability to profile the face to be blasted. Profiling indicates areas of the highwall where excessive burden is present, or areas where too little burden exists. Both 2D and 3D profilers are available.



Using a profiler in combination with a bore hole probe, (see [Balance your Explosives - Borehole Probes](#)), a blaster can actually measure the volume of material that each explosive charge is expected to affect. This way, charges can be adjusted accordingly from hole to hole, or even within portions of the same hole.

This technology can reduce the occurrences of flyrock.

**Remember – Safety is a Value that you can LIVE with!**