

Computer Assisted Blast Design and Assessment Tools

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ABSTRACT

In general the software required by a blast designer includes tools that graphically present blast designs (surface & underground), can analyze a design or predict its result, and can assess blasting results. As computers develop and computer literacy continues to rise the development of and use of such tools will spread. An example of the tools that are becoming available includes:

- Automatic blast pattern generation and underground ring design
- Blast design evaluation in terms of explosive distribution & detonation simulation
- Fragmentation prediction
- Blast vibration prediction and minimization
- Blast monitoring for assessment of dynamic performance
- Vibration measurement, display and signal processing
- Evaluation of blast results in terms of fragmentation
- Risk and reliability based blast assessment

The authors have identified a set of criteria that are essential in choosing appropriate software blasting tools.

Affordable The cost conscious environment of modern operations precludes expensive solutions.

Simple Blasting tools must remain simple until the pay-back for the time and effort spent in learning

complex tools increases.

Modular The advantage in having separate tools that are complementary, share the same files or even

just function in a similar manner is that it is possible to combine several tools without losing the simplicity necessary for a fast pay-back of the time spent learning the tools. It is also better to develop separate simple modules than to develop a single program that 'does it all'.

Utilitarian The tool must address a real need, not merely a luxury.

Presentable The importance of good communication should not be overlooked. A clean presentation of results or of a process is essential to providing quick and accurate communication.

Flexible Blasting is an extremely variable exercise, from blast to blast let alone operation to operation.