

EFFECTS OF SURFACE MINE BLASTING ON UNDERGROUND MINE OPENINGS

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ABSTRACT

Field studies at an underground mine site were conducted to evaluate and monitor blast-induced vibrations on an underground coal mine roof. The vibration data were evaluated so that a suitable damage criteria or guidelines from which a safe operating distance between surface blasting and underground mine operations can be established.

Data obtained from the field studies were synthesized and evaluated for frequency content and duration characteristics. Computerized blast response spectra were produced from the field vibration recordings which can be used for actual field application purposes. The finite element program entitled DYNON (Dynamic Non-linear Analyses) combined with energy density spectra have been developed for simulating the existing field configuration at the mine site.