

# SPOTLIGHT

## on mining in the vicinity of geological and hazardous structures

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The South African Institute of Mining and Metallurgy in collaboration with the Chamber of Mines of South Africa, arranged a colloquium to inform mine management of the current state of knowledge on the rockburst hazard associated with geological structures. The Colloquium was held at Mintek on 4th June, 1986, and attracted approximately 240 delegates.

### Topics Discussed

The Colloquium was divided into two parts.

The first part dealt with the strategies currently adopted for mining in hazardous areas. Four papers were presented, one each for mining in the Klerksdorp, Carletonville, and Orange Free State areas, and one on theoretical support requirements in seismic areas. This part was well summarized in the notes that were handed out during the Colloquium, but these were somewhat obscured by the incorporation of possible future developments and other theoretical considerations. Managers and practitioners who are interested in the detail of currently used strategies are advised to read the notes.

The second part dealt with future strategies for the development and possible uses of the concept of excess shear stress (ESS). This concept appears to be a quantitative method that will make it possible to predict unstable movement along fault planes. However, because the method is more accurate and precise than the concept of energy release rate, it requires more accurate input. The variables that are of prime importance are the coefficient of friction, static as well as dynamic, and the primitive stress distribution. The remainder of the ESS

concept is an application of well-known and proven quantitative methods.

Our current knowledge of the variables mentioned above is still somewhat vague, and the ESS concept, in terms of application, is in its infancy. With the correct values, it should become an extremely useful tool in reducing the number of damaging seismic events. Developmental work is still needed before it can be regarded as a practical tool. In the meantime, the method will be applied and in this manner increase our knowledge of the magnitudes of the important variables.

The Colloquium concentrated on prevention and possible control of seismic events, with one paper only on the support requirements. It is the author's opinion that seismic events will always occur, and more time should be spent on ways and means to minimize their effects.

### Post Mortems

The comments overheard at the well-attended cocktail party ranged from 'too theoretical' to 'not specific enough': the former comment obviously from production personnel, and the latter from researchers.

In view of the objective of the Colloquium—to inform the industry of our current knowledge—both aspects had to be dealt with. The only possible criticism that could be levelled at the organizers is that the practical procedures accepted at present were not highlighted sufficiently.

The Technical Sub-committee of the Institute, in conjunction with the Chamber of Mines, particularly Dr Atkins, are to be congratulated on their effort.

This type of colloquium, i.e. making use of the facilities of The South African Institute of Mining and Metallurgy for the mining industry, has proved to be successful and should be pursued with greater vigour in future.

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