Book Review

International Symposium-cum-Workshop on Management and Control of High Gas Emissions and Outbursts in Underground Coal Mines

Wollongong, NSW, Australia

20th - 24th March, 1995

The Proceedings of the above Symposium have been edited and published by the Symposium Committee. The Symposium was sponsored by the Australian Coal Association, the Joint Coal Board, and the United Nations Economic Commission for Europe. The Symposium was very well attended, with presentations from fourteen countries, including all the major coal-producing countries of the world.

The Proceedings are presented in two parts: the Symposium Part and the Workshop Part. The Symposium Part deals basically with the theoretical aspects of outbursts and high-gas emissions in mines, while the Workshop Part is more practically oriented and describes case studies, and the management systems, and drilling technologies used in underground mines.

The Proceedings material is published in the form of a book of 620 pages and includes four keynote addresses and 89 papers, which are divided into sections as follows:

- Keynote Addresses
  State of the art on the mechanisms of outbursts in coal mines—Prof. J. Litwiniszyn, Academy of Sciences, Poland
  Control of high gas emissions in underground coal mines—Dr K. Noack, DMT-Essen, Germany
  Issues and direction in the management of outburst risk in New South Wales—B. McKensey, Department of Mineral Resources, Australia
  Status of underground drilling technology—F. Hungerford, ACIRL, Australia
- Mechanism of Outbursts of Coal and Gas — 8 papers
- Prediction of Outburst Prone Structures — 8 papers
- Geophysical Techniques in Outburst Prediction — 8 papers
- Prediction and Prevention of Outbursts — 10 papers
- Gas Emission Prediction and Drainage Techniques — 8 papers
- Coal Permeability Studies — 6 papers
- Gas in Coal — 8 papers
- Case Studies — 8 papers
- Management of Outbursts — 9 papers
- Drilling Technology — 5 papers
- Gas Content Measurement and Monitoring — 7 papers.

Some of the highlights of the papers presented include the concept of coal as retrograde material, which is the basic reason for the occurrence of outbursts. The studies on the mechanism and prediction of outbursts include theoretical models and their application to real conditions in the field in Poland, Russia, Canada, and Australia. A number of studies (geological and geophysical) relating to the prediction of outburst are presented. The studies include safe threshold values and other threshold indices based upon the rate of desorption that was used to produce an outburst condition in mines. In a keynote address on the control of high-gas emissions, the results of a very recent investigation on the emission of gas from an advancing heading using on-line monitoring show that only about 30 to 35 per cent of the total gas is emitted at the face itself.

The geological, structural, and maceral content of coal were also considered, together with their relation to the capacity of coal and the type of gases that are present within the coal seam. The studies on underground drilling technology, which formed one of the major contributions from Australia, give the results of the longest borehole drilled in Australia (1533 m) and deal with the technology of drilling horizontal holes in underground coal mines and the monitoring the holes.

The management of outbursts forms an important part of the Proceedings, which include day-to-day management systems, mine-ventilation systems, and procedures for safe operation in mines liable to outbursts. The sections devoted to this topic also contain a number of case studies and mining systems, including remote-control operation using radio cameras from a remotely operated cabin underground.

The Proceedings contain a wealth of information and are recommended reading both for researchers and for practising mining engineers. ◆

Copies of the Proceedings are available from the Chairman, Organising Committee of the Symposium, 130 Brookers Street, Mt Pleasant, NSW 2519, Australia, at a price of $150 within Australia or $160 overseas (including postage).