

**PROCEEDINGS OF THE 2004
COAL OPERATORS' CONFERENCE**

UNIVERSITY OF WOLLONGONG, NSW

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FOREWORD

The underground coal operators conference series held annually in Wollongong has been recognised as the main form of the exchange of ideas between mine operators, engineers and researchers in the diverse field of coal mining technology. For the last five years the conference addressed a variety of issues, focusing primarily on underground ground control and mine safety. In order to increase participation, attention has now been drawn to addressing various other issues in addition to ground control. The theme of Coal2004, Mine Planning demonstrates the true interest of the conference in promoting high output longwall operation. This year the conference is preceded by a halfday workshop on mine subsidence and surface environment impacts.

The COAL2004 Conference has been generously supported by the following organizations:

- BHPBilliton, Illawarra Coal
- Minova Australia

Our thanks go to the authors who have accepted the invitation to contribute and present papers at this conference. They represent a cross section of the developments in the coal and manufacturing industries in Australia and elsewhere. The Aus.I.M.M Illawarra Branch and the organising committee are extremely grateful to all the above for their support.

The Organising Committee also extends appreciation to James Cook and his colleagues at the Wollongong Union Centre for the management and registration of the conference, Bruce Robertson for his assistance in Audio Visual maintenance, Leonie McIntyre the Faculty of Engineering for type setting the Conference Proceedings, Anthony Petre for assisting in designing the proceedings cover and the University of Wollongong Printery for printing copies of the proceedings.

Naj Aziz, *Associate Professor (Editor)*
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PREFACE

The Illawarra Branch of the Australasian Institute of Mining and Metallurgy, (AusIMM) has great pride in continuing to conduct high quality conferences for the coal mining industries.

This year's conference, the fifth in the series of annual Coal Operations conferences, is a joint collaboration between the AusIMM, the University of Wollongong and the Mine Managers Association of Australia. The breadth of topics and speakers cover many of the most critical issues for the coal industry, including strategic planning, addressing OHS requirements, environmental aspects, personnel management, combustion and ventilation, hydraulic, geo-mechanics and roof support. Clearly, these topics are critically important for the long term success of the Australian coal industry.

As Chair of the Illawarra Branch, AusIMM, I wish to thank the organisers for the considerable effort they have put into making the conference a success and those who have participated in the conference. On behalf of the Illawarra Branch, I wish you a successful and rewarding conference.



Ray Tolhurst
Chair, Illawarra Branch
Australasian Institute of Mining and Metallurgy