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Outburst Risks in Coal Mining Operations and Application of Social Networks in Knowledge Management Systems

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An outburst in a coal mine may be defi ned as the violent ejection of gas and rock from a freshly exposed face due to sudden release of kinetic energy stored in the rock mass. This paper is concerned with outburst problems associated with coal mining in the Southern Coalfi eld in New South Wales. In this coalfi eld mining is carried-out mainly in the Bulli seam in 12 collieries producing some 18 million tones of coal per year. The Bulli seam is highly gassy and prone to outbursts of coal, gas and rock presenting a major risk to the safety of mine workers and consequently a threat to the overall viability of the mining operations. Since the occurrence of a major outburst incident in the South Bulli Colliery in 1991 involving three fatalities, the primary contributory factors associated with coal/gas outbursts in the Bulli coal seam have been identifi ed (Ryncarz, 1992). This requires a development strategy for the management of the outburst risk by the Department of Mineral Resources, NSW with the cooperation of mine operators and mining union (DMR, 1995).

Utilisation of risk management techniques in combination with modern gas drainage technologies and geological control methods have led to the formation of an effective outburst management plan. Clause 15 of the Coal Mines (Underground) Regulation 1999 in NSW (DMR, 1999) has made it mandatory in an area of outburst to carry out mining in accordance with a code or guidelines developed for mining in outburst prone areas (DMR, 1995). The paper presents a case history of Outburst risk management plan developed for Colliery X in Southern Coalfi eld of NSW. The conclusion from this study is that since the introduction of the outburst risk management system from the Southern Coalfi eld considerable reduction in outburst incidences has been experienced and this expertise should be incorporated in a Knowledge Management System (KMS) to support the mining industry to maximize safety of mine workers aided by social network technology.