



Possibility of 'inrush' at Duncan Colliery

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INTRODUCTION

The Duncan Colliery is situated near Fingal, in north-eastern Tasmania. The current mine opened in 1945 and extracts coal from adit entry using the bord and pillar system.

The coal lies in a sedimentary sequence which consists predominantly of sandstone, with minor siltstone, mudstone and claystone. Much of the roof of the colliery is sandstone. This sedimentary sequence is typically 70 m thick (range 0–180 m thick) and is overlain by the remains of a dolerite sill (0–340 m thick). Altogether the overburden on the coal varies from a few metres at the portal to a maximum of 440 metres.

DISCUSSION

Gas

The coal is of sub-bituminous rank and is suited to steam raising purposes. Petrographically the coal is rich in inertinite with a low liptinite content. The liptinite family of macerals (resins, waxes, cuticles) are sources of oil and gas produced by some coals. Consequently, these Tasmanian coals have a low capacity to produce gas. Methane production in Tasmanian coals is very low compared with other Australian coals and is negligible as an energy source. De-gassing of the coal is not required prior to extraction. However, traces of methane are often observed, commonly in roof cracks in the mine. There is

some possibility that concentrations could build up in 'pockets' in faulted ground. Indeed, an explosion occurred in 1977 resulting in one fatality.

Care should be taken when approaching a major fault (evidenced by deterioration of ground conditions) and the standard practice of regular measurements for the presence of methane should be maintained or increased during these times.

Water

Water has, to date, not been a significant problem in the mine, although increased seepage of groundwater is encountered in faulted ground and near boreholes. The many boreholes drilled ahead of mine workings (to below the level of the Duncan seam) were not cemented. In consequence, groundwater finds an easy route through the drill holes, as well as through the faults. Care should be taken when approaching known boreholes and in broken, faulted ground. Both the boreholes and faults are more likely to act as conduits for water, rather than be reservoirs in their own right.

SUMMARY

In brief the potential for inrush of gas or water into the Duncan Colliery would, on the available data, have to be regarded as low.

[16 June 1992]