Managing Major Hazards – Lessons from the Moura 2 Disaster

RESEARCH NOTE

The Moura inquiry produced more than 5000 pages of transcript, and thousands more pages of documents were submitted as exhibits. It also produced an excellent 70 page report (Windridge 1996) and a separate coroner's report (Windridge 1996a). This is a rich body of material on which to draw. The present book is based on a reanalysis of the evidence. Page references to transcript evidence are not provided here but are available from the author on request. Interviews were also conducted with various mine and company officials, with union representatives and with members of the inspectorates. My thanks go to all who contributed in this way:

OUTLINE OF BOOK

Chapter 2 examines the literature on disasters in order to identify organisational factors of potential relevance to Moura. It shows how, with the exception of crude accounts which see disasters as inevitable, all the literature in one way or another focuses on management or organisational failures as the key to understanding these events. An important strand of writing identifies these failures as stemming from the priority of production over safety. Whether this was the case at Moura is one of the concerns of this book.

Chapter 3 examines the role of communication failure in the explosion. It argues that ways must be found to make information more visible to people in authority and that feedback mechanisms must be put in place so that those who provide the information have some indication that their input is being taken seriously. It suggests, moreover, that all this is a practical possibility, given the computer technology that is now available.

Chapter 4 examines aspects of the culture at Moura and shows how this served to nullify the early warnings of danger. First, there was a hierarchy of knowledge tha t prioritised personal experience and oral communication and thus undermined the effectiveness of written reports, Second, the organisation was paralysed by a series of beliefs, a culture of denial, which prevel1ted recognition that a heating could be occurring. These cultural factors highlight the need for safety management plans that will overcome the tendency to organisational paralysis. These plans must define trigger events-that is, matters that require a response; they must specify what that response is, and they must identify who has the responsibility to take this mandatory action. The plans must find ways to make those who are specified as responsible actually accountable, and, finally, they must be effectively audited to ensure they are working in practice as described on paper.

Chapter 5 looks at the failure of management to exercise any responsibility for the safety of the men on the fatal night. It shows how, one after another, managers at various levels passed the responsibility downwards until it was ultimately up to the miners

themselves to decide whether to go underground that night, even though they were in no way equipped to make this decision. These events demonstrate how important it is that organisations specify who is responsible for critical decisions.

Chapter 6 examines the process of auditing-that is, of checking that safety management systems are working as intended. It shows that auditing at Moura was hopelessly ineffective and highlights the importance of auditing if any confidence is to be placed in the effectiveness of safety management plans.

Chapter 7 raises the question of whether Moura mine management was serious about safety. It argues that the wrong measures of safety were being used and these systematically diverted attention from the control of catastrophic risk. This was a classic case of management attending to what was being measured and ignoring what was not.
More specifically, the mine measured safety by the number of lost-time injuries-that is, injuries that' result in time off work. These can be described as high frequency/low severity matters. The mine had made great strides in reducing such injuries in the years prior to the explosion. But there was no attempt to measure the success with which management was controlling low frequency/ high severity risks, such as explosions. The result was that in these matters management was, to say the least, complacent. This situation had come about because BHP had provided financial incentives to managers to reduce their lost-time injury frequency rate, but had provided no corresponding incentives to deal with rare but catastrophic events. The chapter recommends a change in the incentive structures for site managers.

Chapter 8 considers whether production took precedence over safety and concludes that, in relation to low frequency/high severity matters, it did.

Chapter 9 argues that part of the explanation for the disaster was that the operating company, BHP, had decentralised responsibility for safety to the level of mine management. This meant that the company exercised no effective oversight over how well mines were managing catastrophic risk. Most BHP mines have never had an explosion; BHP as a company has had several. It is therefore appropriate that BHP itself should develop the expertise to manage these risks and that responsibility in this area should lie with the company, not at mine level.

Chapter 10 takes up the issue of production versus safety again but in a broader context. Safety professionals frequently seek to motivate managers to attend to safety by arguing that 'safety pays'. This chapter shows that, in many cases and, quite surprisingly, even in the case of disasters, it is not an effective argument. It is ineffective largely because, although for the company as a whole it might be true that safety is profitable, there may be no corresponding advantage for the managers who are actually making safety-relevant decisions. In the Moura case, in particular, it seems that safety did not pay in any financial sense for crucial decision makers. Of course the emotional costs of disaster are enormous for managers who are implicated. It follows

that those seeking to motivate managers to attend to safety would do better to emphasise the emotional rather than the financial costs of disaster.

Chapter 11 addresses the question of what type of regulatory system is best for the coal mining industry. It argues that debates about self-regulation versus prescriptive regulation largely miss the point. The real issue is whether or not inspectorates have the resources and the political backing to enforce whatever regulations they administer. This will be best achieved by moving coal mine inspectorates from their subordinate position in mining departments and locating them within generalist health and safety inspectorates which are in no way beholden to the coal industry. Furthermore, it is important that senior company executives be made legally accountable for safety failures. This is probably the most effective way to concentrate their minds on questions of catastrophic hazard.

The final chapter revisits the perspectives on disaster discussed in Chapter 2 and discusses their relevance for understanding what went wrong at Moura. It also summarises the organisational failings identified and the lessons to be learnt.