Mines rescue arrangements: Future options

Prepared by International Mining Consultants for the Health and Safety Executive

CONTRACT RESEARCH REPORT 448/2002
Mines rescue arrangements: Future options

International Mining Consultants
PO Box 18
Huthwaite
Sutton-in-Ashfield
Nottingham NG17 2NS
United Kingdom

The principal objectives of the study were to examine alternative structures for the provision of mines rescue arrangements in Great Britain and to assess their relative merits against credible scenarios for the future coal mining industry. The study examined the current mines rescue structure and organisation in Great Britain and a range of mines rescue organisations around the world. In undertaking this international assessment, cognisance was taken of the geographic spread of mines, the probable future for coal production, the costs of rescue provision and the potential for other country’s rescue provisions to meet existing UK legislative requirements. In addition to mines rescue services, the study also examined other emergency and rescue service functions in the UK. Internationally, mines rescue organisations fall broadly into four categories:- state-run operations, organisations owned by the mining companies, private company funded schemes and co-operatives. In some countries all four systems operate in parallel and in some countries a combination of the four systems is operated. Each system purports to provide adequate rescue arrangements and an effective response in the event of an incident; however, none of the systems provides a guaranteed response within one hour and the guaranteed attendance of both a first and second response team. Nevertheless, there are elements of these overseas organisations which have some merit, including the provision of rescue arrangements for small mines without them incurring excessive costs. Two general features of mines rescue overseas are the availability of a relatively large pool of part-time rescuers and the components of funding which are essentially from government. The integration of the UK mines rescue service with other government funded search and rescue organisations is not considered to have particular merit. It is concluded that the existing arrangements for mines rescue provide the most flexible and lowest cost means of ensuring rescue cover to both large and small coal mine operators.

This report and the work it describes were funded by the Health and Safety Executive (HSE). Its contents, including any opinions and/or conclusions expressed, are those of the authors alone and do not necessarily reflect HSE policy.
Table of Contents

1 INTRODUCTION

1.1 BACKGROUND

1.2 OBJECTIVES

1.3 APPROACH TO THE STUDY

2 CURRENT UK MINES RESCUE PROVISIONS

2.1 THE LEGAL FRAMEWORK

2.2 THE MINES RESCUE SCHEME

2.3 MINES RESCUE SERVICE LIMITED

2.3.1 Incident Response

2.3.2 Training

3 MRSL FINANCIAL INCOME

3.1 SCHEME INCOME

3.2 MRSL COMMERCIAL INCOME

4 VIEWS OF THE MINE OWNERS

4.1 FUNCTIONALITY OF THE CURRENT STRUCTURE IN ENABLING MINE OWNERS TO MEET THEIR OBLIGATIONS FOR MINES RESCUE PROVISION

4.2 OPERATION AND ADMINISTRATION OF THE SCHEME

5 VIEWS OF MRSL STAFF

6 POTENTIAL EFFECTS OF FUTURE CHANGES IN UK COAL PRODUCTION

6.1 CHANGES IN OVERALL COAL PRODUCTION

6.2 CHANGES IN REGIONAL PRODUCTION

6.2.1 North East England

6.2.2 South Wales

6.2.3 Scotland

6.2.4 South Midlands

6.2.5 Yorkshire (North)

6.2.6 Nottinghamshire and Yorkshire (South)

6.3 POTENTIAL FUTURE SCENARIOS

7 SUMMARY POSITION OF MINES RESCUE IN THE UK

8 MINES RESCUE ORGANISATIONS IN OTHER COUNTRIES

8.1 FRANCE

8.2 SPAIN

8.3 GERMANY

8.4 UNITED STATES

8.5 CANADA

8.6 SOUTH AFRICA
8.7 Australia ............................................................................................................ 38
8.8 Ukraine ................................................................................................................ 41
8.9 Organisational Models....................................................................................... 43
  8.9.1 Company Owned Mines Rescue Teams ...................................................... 43
  8.9.2 State Funded Mines Rescue Teams ............................................................. 44
  8.9.3 Mines Rescue Operated by Certified Private Companies.......................... 45
  8.9.4 Co-operative Teams ............................................................................... 46
9 Other UK Search and Rescue Organisations................................................. 47
  9.1 Maritime and Coastguard Agency ................................................................. 47
  9.2 Fire and Emergency Services ....................................................................... 49
10 Summary of Research..................................................................................... 53
11 Potential Future Options ............................................................................... 56
  11.1 Retain the Status Quo ................................................................................... 56
  11.2 Operate Two or More Approved Schemes .................................................. 58
  11.3 Midland’s Super Station plus Wales and Scottish Stations ....................... 59
  11.4 Move to All B-Stations ................................................................................ 61
  11.5 Training Only Function ................................................................................ 62
  11.6 Integration with Other SAR Operations ..................................................... 63
  11.7 Government Support Funding ..................................................................... 63
  11.8 Fully Government Funded .......................................................................... 64
12 Conclusions and Recommendations ......................................................... 65
List of Tables

Table 2.1. Rescue station staffing: Mines covered and Rescue men employed..................7
Table 1.2 Rescue Station and Emergency Response Team Staffing..................................8
Table 3.1 Deep Mine Production and Scheme Costs.....................................................11
Table 3.2 MRSL’s Gross Costs and Income......................................................................12
Table 5.1 Number of Mines Rescue Incidents.................................................................16
Table 6.1 Predicted and Actual deep mine coal production...........................................18
Table 8.1. Overall structure for Equipment and Staffing (Re: Article 321).......................28
Table 8.2 Actual Staffing of Mines Rescue in France.......................................................28
Table 8.3 CdF Mines Rescue 2 Week Rota System..........................................................29
Table 9.2 Fire Service Risk Categories.........................................................................52

List of Figures

Figure 1. Location of Mines Rescue Stations........................................................................6
Figure 9.2 Geographic area of the South Yorkshire Fire and Rescue Brigade...............50
**Definitions of Terms**

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-time brigadesman</td>
<td>a trained rescue worker whose full time professional employment is involved with rescue</td>
</tr>
<tr>
<td>Part-time brigadesman</td>
<td>a rescue worker whose principal occupation is not rescue, but who is fully trained to undertake rescue work on a part time basis</td>
</tr>
<tr>
<td>Mine Rescue Team</td>
<td>normally a team of five fully trained rescue workers, including a team Captain who directs the rescue work. A mine rescue team may be comprised of full-time brigadesmen, part-time brigadesmen, or a combination of the two</td>
</tr>
<tr>
<td>Rescue Officer</td>
<td>a suitably experienced, competent and qualified person, as defined within Regulation 25 of the ERMR 1995 Regulations, who supervises and co-ordinates the deployment of the rescue teams.</td>
</tr>
<tr>
<td>ERMR</td>
<td>Escape and Rescue from Mines Regulations (1995)</td>
</tr>
<tr>
<td>Coal Authority</td>
<td>the licensing authority for all British coal mining activities</td>
</tr>
<tr>
<td>The Scheme</td>
<td>the National Mines Rescue Scheme 2000</td>
</tr>
<tr>
<td>Scheme Member</td>
<td>an owner of a producing underground coal mine (with relevant subscription paid)</td>
</tr>
<tr>
<td>First Response Team</td>
<td>the first mines rescue team to arrive at the scene of an incident</td>
</tr>
<tr>
<td>Second Response Team</td>
<td>the second mines rescue team to arrive at the scene of an incident</td>
</tr>
<tr>
<td>‘A’ station</td>
<td>a central rescue station, normally comprising of at least four rescue officers and fourteen rescue brigadesmen, together with training facilities and storage for breathing apparatus and other equipment</td>
</tr>
<tr>
<td>Term</td>
<td>Description</td>
</tr>
<tr>
<td>------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>‘B’ station</td>
<td>The term ‘B’ station is used in the report to indicate a rescue station providing rescue cover of at least one rescue officer and one brigadesman.</td>
</tr>
<tr>
<td>DMCIAC</td>
<td>Deep mined coal industry advisory committee</td>
</tr>
<tr>
<td>DTLR</td>
<td>Department for Transport, Local Government and the Regions</td>
</tr>
</tbody>
</table>
1 INTRODUCTION

1.1 Background

For many years there have been requirements in UK Health and Safety law for the owners of mines to provide rescue arrangements to deal with fires, explosions and other emergency incidents which may occur within their mines. The current requirements are identified in the Coal Industry Act 1994 and in the Escape and Rescue from Mines Regulations 1995. One of the key requirements for coal mines is a capability to respond rapidly to emergency call outs to attend at incidents and to sustain recovery operations, particularly those requiring breathing apparatus, over extended periods with people trained to work safely in the special hazards of the mine environment.

Prior to 1995, the organisation responsible for the arrangements necessary for mines rescue was the British Coal Corporation, which operated a national service for the UK. Following privatisation of the industry in 1995, the national organisation of the service was retained and transitional arrangements were put in place until 29 March 1996 when the responsibility for continuing provision of the rescue service passed to the Mines Rescue Service Limited. The retention of this national organisation was seen as important, in order to deliver effective rescue capabilities safely to a diverse mine ownership; the importance of its retention was stated within the Health and Safety Commission’s report of October 1993 ‘The Framework for Health and Safety in British Coal Mines’.

However, UK deep mined coal production has contracted significantly over the last 10 years, from a total output of 73 million tonnes in 1991 to a figure of below 18 million tonnes in 2001, and may continue to do so. Furthermore, although this contraction has been associated with a reduction in the number of operational underground coal mines, there has been little associated reduction in the geographic spread of operational mines.

Accordingly, the Mines Inspectorate of the Health and Safety Executive contracted IMC to undertake the current study to consider the sustainability of the current mines rescue provisions in the event of further contraction in the industry. Throughout the study it has been assumed that the existing arrangements for mines rescue in the UK are in full compliance with the requirements of the current Regulations.

1.2 Objectives

The objectives of this study were:

- to identify alternative structures for the provision of rescue arrangements which could be capable of meeting the key safety capabilities set out in the ‘Escape and Rescue from Mines Regulations 1995’ regulation 12(2);

- to assess the relative merits of each structure against credible scenarios for the future size and geographical spread of the British coal mining industry; and
• to make recommendations based on effectiveness for securing safety at mines and whether the costs to mine owners would be reasonable.

1.3 Approach to the Study

As identified within Annex 1 of the contract, IMC approached the study with a broad range of avenues of enquiry, which included personal interviews with various organisations, researching IMC Group company sources of information, discussions with worldwide experts in the field of mines rescue and literary database searches.

Extensive dialogue took place within the UK with all stakeholders, including representatives of the Mines Rescue Service Limited, both HQ and regional offices, the UK DTI, the Coal Authority, which is the licensing authority for all British coal mining activities, and members of the Mines Rescue Scheme. In addressing the interests and opinions of the Scheme members, individual, face to face, discussions were held with representatives of almost all the coal mine owners. Specific meetings were held with UK Coal PLC, Scottish Coal, Blenkinsopp Collieries Ltd., Betws Anthracite Ltd., Goitre Tower Anthracite Ltd., and, through J Flack and Sons Ltd., the Federation of Independent Mines. In addition, periodic progress meetings were held with the UK Mines Inspectorate.

A broad overview of the current and evolving status of mines rescue internationally was achieved using a combination of face to face discussions, personal telephone discussions and information obtained from IMC’s international offices. These investigations were designed to determine how other countries managed mines rescue, their methods of financing and the impact of reducing coal production. The countries covered, France, Germany, Spain, USA, RSA, Ukraine, Canada and Australia, were chosen to provide a mixture of countries with high and low coal production, those with renowned expertise in mines rescue and those whose industries are undergoing a downsizing not dissimilar to that which has been experienced in the UK. In addition to mines rescue services, the study also examined other emergency and rescue service functions in the UK via face to face discussions, these being The Fire and Emergency Planning unit of the DTLR and the Maritime and Coastguard Agency.

2 CURRENT UK MINES RESCUE PROVISIONS

2.1 The Legal Framework

Within the UK, the key elements of Health and Safety law which apply to escape and rescue following any serious incident at a mine are contained within the ‘Coal Industry Act 1994’ and the ‘Escape and Rescue from Mines Regulations 1995’, referred to hereinafter as ‘the Regulations’.

In addition to the Regulations themselves, the Health & Safety Commission, with the consent of the Secretary of State for Environment, issued an ‘Approved Code of Practice and Guidance’ (ACOP L71), to provide assistance with the Regulations, effective from
28 December 1995. This document has a special legal status and gives practical guidance and advice on how to comply with the law as contained within the Regulations.

In the case of coal mines, Regulations 12 and 13 of the Regulations define the key legal requirements that must be met by all coal mine owners. The effective arrangements required for rescue from coal mines are specified in Regulation 12 which, for clarity within this report, is reproduced in full below:

(1) **No mine shall be worked unless the owner has made effective arrangements suitable for the mine both—**

(a) for the rescue of persons from the mine; and

(b) for the carrying out of work necessary to secure the health and safety of persons below ground in the mine in an emergency situation.

(2) **Without prejudice to the generality of paragraph (1)—**

(a) every owner of a mine of a type described in regulation 3(2) shall—

(i) make effective arrangements to ensure that two rescue teams of five trained and fully equipped rescue team members are available to attend at the mine should an emergency situation requiring the use of breathing apparatus occur below ground at the mine;

(ii) make effective arrangements to ensure that the rescue teams referred to in sub-paragraph (i) are capable of reaching the mine within sixty minutes of being notified of such an emergency situation occurring below ground at the mine; and

(iii) secure that the rescue team members referred to in sub-paragraph (i) reach the mine within sixty minutes of being notified of such an emergency situation occurring below ground at the mine; and

(b) every owner of a mine of coal shall make effective arrangements to ensure that sufficient trained and fully equipped rescue team members are available as required to provide a continuous twenty-four hour rescue service following an emergency situation occurring below ground at the mine.

Regulation 13 does not appear under the same heading as Regulation 12, ‘Effective arrangements for rescue’. However, the Health & Safety Commission’s ‘Approved Code of Practice and Guidance’ (L71), states, within paragraph 74, that ‘Although regulations 12 and 13 differ in their scope, the duties should nevertheless be read together’. In particular, Regulation 13(1) states:
(1) Without prejudice to the provisions of regulation 12, no mine of coal shall be worked unless the owner of the mine is a participant in a mine rescue scheme approved by the Secretary of State.

Reference to a mines rescue Scheme is made within Chapter 21, Section 55 of the Coal Industry Act, which relates to health and safety regulations concerning rescue service. For clarity, this Section of the Act is reproduced below:

55.- (1) The power to make health and safety regulations shall include power, in relation to any requirement of any such regulations that a person carrying on coal-mining operations is to be a participant in a mine rescue scheme approved by the Secretary of State, to provide:

(a) for approval to be given to or withdrawn from any scheme only after such consultation as may be specified or described in the regulations; and

(b) for the approved schemes to be confined to those which appear to the Secretary of State to be such as to secure that it is reasonably practicable for every licensed operator who is required to do so to participate, on reasonable terms, in an approved scheme.

(2) In subsection (1) above the references to a mine rescue scheme are references to any scheme or other arrangements the participants in which are entitled, in an emergency, to the services of persons with the expertise and equipment required for rescuing individuals from underground.

(3) In subsection (1) above ‘health and safety regulations’ means regulations under section 15 of the Health and Safety at Work etc. Act 1974; and the preceding provisions of this section shall be without prejudice to the generality of any provisions of that Act as to the matters that may be included in any such regulations.

2.2 The Mines Rescue Scheme

Currently there is only one mine rescue scheme approved by the Secretary of State in the UK, the National Mines Rescue Scheme 2000 (the Scheme), which is administered by the Mines Rescue Service Limited company. The members of the Scheme are the coal mine owners in the UK. Under the terms of the Scheme, members are required to contract with the Mines Rescue Service Limited for the provision of rescue services and, in emergency situations, to provide for co-operation between one Scheme member and another, in the manner described within Section 2 of the Scheme. The function of Mines Rescue Service Ltd. and the management of the UK mines rescue service is described within Section 2.3 below.

The key elements of the National Mines Rescue Scheme concerning the Regulations are defined, within Section 1 of the Scheme, as:

‘….having regard to the requirements of Regulations 12 & 13 of the (ERMR 1995) Regulations, to ensure that:-
(a) full-time rescue team workers are available to participate in rescue activities and that an adequate pool of full-time rescue workers and part-time rescue workers is maintained;

(b) full-time rescue team workers are available to supervise the operation of rescue teams (whether comprised of full-time rescue workers or part-time rescue workers) and to operate a common command structure;

(c) mines rescue stations are maintained with common communication systems maintained at each station;

(d) the same types of equipment are used by the full and part-time brigades;

(e) the same training is common to all rescue personnel; and

(f) owners of mines have arrangements for mutual assistance in an emergency situation at any mine owned by one of the members.’

2.3 Mines Rescue Service Limited

The Mines Rescue Service Limited (MRSL) is a company limited by guarantee and not having a share capital, established for the purposes expressed in the Memorandum of Association of Mines Rescue Service Limited. Within the Memorandum of Association, the objects for which the company is established include, ‘the carrying on of a mines rescue service in Great Britain, including the operation and administration of a Mines Rescue Scheme’.

The business of the Mines Rescue Service Limited company is managed by the Council of the company, which appoints a Chief Operating Officer. The Chief Operating Officer is responsible for the day to day management of the mines rescue service carried on by the company, including the running of the Mines Rescue Scheme. Through the Scheme, MRSL and the mines are contracted to work together so that, in the event of an emergency, those below ground may escape to safety, or be rescued.

In order to ensure that full-time rescue workers within the Scheme are able to attend incidents within the sixty minute response time specified in Regulation 12 (described in section 2.1 above), MRSL operates through six geographically dispersed rescue stations. The stations are located at Mansfield (company HQ) near Nottingham in the Midlands, Crossgates in Scotland, Houghton-le-Spring in the North East of England, Selby in Yorkshire, Ashby–de–la–Zouch in the South Midlands and Dinas in South Wales. These represent the principal regions in which underground coal mining is currently taking place within the UK, although historically coal mining has also taken place in Kent; a single small mine in Lancashire is covered by the Selby rescue station in North Yorkshire. A map of the UK showing the six locations is shown in Figure 1.
As at December 2001, it was the intention of MRSL to have available at least 60 full-time rescue men and 20 suitably qualified and competent full-time rescue officers, out of a total staff complement of approximately 100. From this staff, each of the six rescue stations is under the control of a Rescue Station Manager, who reports to the Chief Operating Officer of MRSL at the Mansfield Headquarters. It is the responsibility of the Chief Operating Officer to secure deployment of the Rescue Service staff at the 6 rescue stations, to ensure, in conjunction with the individual mine managers and their emergency plans, that the requirements of Regulation 12 are met.

The deployment of staff at the six rescue stations is not uniform; there are different numbers of rescue officers and/or brigadesmen at each station. Table 2.1 shows rescue station staffing, the underground mines covered by that station and the number of registered part-time rescue men employed at each of the mines. The part-time rescuemen are trained in underground rescue at MRSL’s establishments and form an integral and essential part of the UK’s overall rescue response.
**Table 2.1. Rescue station staffing: Mines covered and Rescue men employed**

<table>
<thead>
<tr>
<th>Station</th>
<th>Full-time Staff</th>
<th>Mines Served</th>
<th>Part-time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mansfield</td>
<td>5 officers</td>
<td>Clipstone (UK Coal)</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>17 brigadesmen</td>
<td>Thoresby (UK Coal)</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Welbeck (UK Coal)</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Harworth (UK Coal)</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Maltby (UK Coal)</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rossington (UK Coal)</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Eckington</td>
<td>0</td>
</tr>
<tr>
<td>Selby</td>
<td>4 officers</td>
<td>Wistow &amp; Gascoigne Wood (UK Coal)</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>12 brigadesmen</td>
<td>Stillingfleet (UK Coal)</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Riccall (UK Coal)</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Kellingley (UK Coal)</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Prince of Wales (UK Coal)</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hatfield</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hay Royds (J. Flack)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hill Top Colliery</td>
<td>0</td>
</tr>
<tr>
<td>Dinas</td>
<td>4 officers</td>
<td>Tower</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>14 brigadesmen</td>
<td>Betws</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gleison</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Blaencuffin</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Aberpergwm</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Blaentillery</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nant Hir</td>
<td>1</td>
</tr>
<tr>
<td>Houghton</td>
<td>4 officers</td>
<td>Ellington (UK Coal)</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>5 brigadesmen</td>
<td>Blenkinsopp</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ayle East</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Clarghyll (temporary closure)</td>
<td>1</td>
</tr>
<tr>
<td>Crossgates</td>
<td>5 officers</td>
<td>Longannet (Scottish Coal)</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>6 brigadesmen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ashby</td>
<td>3 officers</td>
<td>Daw Mill (UK Coal)</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>7 brigadesmen</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 2.3.1 Incident Response

Regulation 12 specifies that, in the event of an incident, two fully equipped teams of trained rescuemen shall be deployed to the mine. These two teams are known as the ‘first’ and the ‘second’ response teams. The system of deployment, at five of the rescue stations, is that the first response team departs from the mines rescue station with the team’s quota of full-time staff, together with a Rescue Officer and all the equipment, including breathing apparatus, required for both the first and second response teams. The exception is the Ashby Station, which services solely Daw Mill Colliery and where all the rescue equipment is retained at the mine.
In a similar manner to the way in which the number of full-time staff deployed at each station varies from region to region, the staffing of the first and second response teams, with either part-time or full-time staff, also varies, as shown below in Table 2.2.

**Table 2.2 Rescue Station and Emergency Response Team Staffing**

<table>
<thead>
<tr>
<th>Rescue Station</th>
<th>Full Time* (MRSL)</th>
<th>Part-time*</th>
<th>Team Staffing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Officers</td>
<td>Brigade</td>
<td>Coal</td>
</tr>
<tr>
<td>Dinas</td>
<td>4</td>
<td>14</td>
<td>26</td>
</tr>
<tr>
<td>Ashby</td>
<td>3</td>
<td>7</td>
<td>40</td>
</tr>
<tr>
<td>Mansfield</td>
<td>5</td>
<td>17</td>
<td>82</td>
</tr>
<tr>
<td>Selby</td>
<td>4</td>
<td>12</td>
<td>113</td>
</tr>
<tr>
<td>Houghton</td>
<td>4</td>
<td>5</td>
<td>36</td>
</tr>
<tr>
<td>Crossgates</td>
<td>5</td>
<td>6</td>
<td>38</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>24</strong></td>
<td><strong>62</strong></td>
<td><strong>333</strong></td>
</tr>
</tbody>
</table>

*Operational Personnel at December 2001

In practice, the first response teams shown above for Ashby, Houghton and Crossgates may not utilise the full quotas of full-time staff; the rescue officer in charge determines the combination of part-time and full-time staff, as appropriate.

Third and subsequent rescue teams may consist of any combination of full-time or part-time staff, though always with a rescue officer from MRSL.

The provision of teams from the rescue stations forms part of the contractual arrangements agreed between MRSL and the individual mines.

As can be seen from the Table above, an essential feature of the way in which mines rescue is organised within the UK is that, even with 80 full-time rescue staff, MRSL have to rely on the involvement of part-time rescue men from mines, in order to be able to coordinate and provide first and second response teams, as required by Regulation 12. Since the part-time rescuemens are an integral part of the Scheme, all are supplied with ‘pagers’ by MRSL (as are the full-time brigadesmen).
Longer term, continuous coverage of an incident in any particular region is addressed on each occasion in a separate specific assessment. However, paragraph 84 of the ACOP states that, even under the most favourable conditions, six officers and twelve teams of rescuemen (60 men) could be required at an incident in order to maintain 24-hour cover. These teams may be constructed using rescue men from any part of the UK. It is evident from the information given above, however, that the full quota of rescuemen for this type of operation cannot be provided from MRSL full-time staff, or effective cover in other regions would be affected. This analysis again demonstrates that the national availability of a sufficient pool of part-time rescuemen at the mines is crucial to the provision of an effective mines rescue service in the UK.

A further consideration is the cover required in the unlikely event of two serious incidents occurring almost simultaneously. During the study, MRSL confirmed that they considered the existing organisation to be capable of responding effectively to this possibility.

Implicit within the above arrangements, and a fundamental requirement within the UK mines rescue Scheme, is that the owners of mines have arrangements for mutual assistance in the case of an emergency situation at any mine owned by one of the members of the scheme.

The UK Mines Rescue Stations make provision for:

- Storage, servicing and charging of breathing apparatus
- Communications and co-ordination in the event of an incident
- Suitable training facilities for full-time and part-time rescue men

A full list of the breathing apparatus and other equipment which the rescue stations are required to maintain in full operational condition is given in Appendix 2 to the ACOP. All UK mines rescue personnel use the SEFA (Selected Elevated Flow Apparatus) breathing apparatus, which has been in use now for over fifteen years, and is no longer manufactured.

All of the stations have common communication links both to each of the other stations and to the central HQ, which provides the coordination centre during an incident.

2.3.2 Training

Under the Scheme, MRSL has an obligation to arrange facilities for training purposes and each of the rescue stations currently retains an on-site training facility. Each training facility is equipped with specially constructed chambers, designed for training practices under hot and humid conditions.

In addition to the training of their own full-time rescue staff, MRSL is responsible for the training of part-time rescuemen and assists the mine owners in the selection of these staff. A requirement is that these staff have each worked in a mine for a period of at least two
years. The training provided is initial training in rescue work, involving at least 20 hours practical experience in using breathing apparatus and a continuous programme of practises. Under ACOP 109, rescuemens are required to undertake practices wearing breathing apparatus at least once per quarter and at least six times per year, of which two are in a hot and humid atmosphere and the remainder are in the mines. The training undertaken is common throughout the UK and involves using the same type of breathing apparatus and equipment such that, at all times, teams or team members, part-time or full-time, are predominantly interchangeable.

3 MRSRL FINANCIAL INCOME

3.1 Scheme Income

MRSRL receives its income primarily from two sources, the first being income from the mines rescue Scheme and the second being income derived from separate commercial activities.

All members of Mines Rescue Service Ltd are owners of underground coal mines and are members of the Scheme. The members of the Scheme contract with MRSRL for the provision of rescue services and membership fees are paid to retain Scheme membership. The membership fees are paid at a rate per tonne of coal output from the members’ mines. This rate per tonne is fixed by the voting members of the Board of Directors of MRSRL. The coal output figures are provided by the Coal Authority, with the permission of the mine owners, and relate to the quarterly output immediately preceding the previous quarter. Fees payable by the members are made quarterly in advance, in order to provide MRSRL with sufficient working capital.

At the time that MRSRL commenced its operations in March 1996, deep mined coal output in the UK was 31.9 million tonnes per year and the fee rate was set at 12 pence per tonne. This provided a levy income of £3.6M against an overall running cost of £4.07M (Table 3.1). However, Table 3.1 shows how deep mined coal output has consistently reduced over the last 5 years, with the result that current deep mined output is only 17.8 million tonnes. Furthermore, despite continuing moves by MRSRL to gradually reduce the costs of its service, this cost has remained relatively unchanged. The company has a relatively fixed cost base, with almost 75% of the overall cost relating to the employees of the company. Consequently, without financial income obtained by MRSRL for other (non-Scheme) commercial work, the 2000/2001 required levy would have been in the region of 23 pence per tonne.

A significant feature of the changes in the levy income over the years is the extent to which it is a reducing percentage of MRSRL’s gross income. The result is that, whereas in 1996 a notable fall in MRSRL’s external income would not have affected the levy required from the mines significantly, in 2001 this would not have been the case. An additional aspect of the gross operating costs given in Table 3.1 is that these costs are predominantly revenue costs. Although these costs can include the purchase of some capital items, they do not provide for the replacement of major capital items such as the purchase of new sets of breathing apparatus.
Table 3.1 Deep Mine Production and Scheme Costs

<table>
<thead>
<tr>
<th>Year</th>
<th>Deep Mine Output (million tonnes)</th>
<th>Fee Rate (pence)</th>
<th>Total Fees (£m)</th>
<th>Gross Costs (£m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>96/97</td>
<td>31.9</td>
<td>12p-10p</td>
<td>3.601</td>
<td>4.072</td>
</tr>
<tr>
<td>97/98</td>
<td>30.6</td>
<td>10p</td>
<td>3.061</td>
<td>3.749</td>
</tr>
<tr>
<td>98/99</td>
<td>25.6</td>
<td>12p</td>
<td>3.075</td>
<td>4.219</td>
</tr>
<tr>
<td>99/00</td>
<td>21.8</td>
<td>12p</td>
<td>2.647</td>
<td>4.046</td>
</tr>
<tr>
<td>00/01</td>
<td>16.7</td>
<td>13p</td>
<td>2.180</td>
<td>4.043</td>
</tr>
<tr>
<td>01/02</td>
<td>17.8</td>
<td>14p</td>
<td>2.489</td>
<td>4.430(Proj)</td>
</tr>
</tbody>
</table>

It should also be noted that the current method of collecting contributions from members of the mines rescue Scheme, a per tonne levy, is potentially less onerous to those mines that are producing higher value products. The marketable value of coal is related primarily to its calorific value and industrial prices tend to be set in terms of a price per Gigajoule. Consequently, producers of higher grade coals and anthracites, such as those mined in South Wales, pay a smaller percentage of their total product value under the current levy system than do the majority of larger mines in the rest of the UK, which typically produce larger quantities of lower grade product.

3.2 MRSL Commercial Income

Within the Memorandum of Association of MRSL, provision is made for the company to provide other services, ‘with the object that the income thereby derived be used to defray the expenses of operating the mines rescue service, and thereby reduce the fees charged to the mine owners’. In undertaking such work, however, MRSL must be vigilant in ensuring that these other activities do not adversely affect their ability to fulfil all their obligations under the Scheme.

The majority of this commercial income is derived from providing services to the mining industry, including non-coal mines, and training in the disciplines in which MRSL staff have particular expertise. The training courses are normally held on the MRSL premises, where they have both lecture rooms and training galleries. Furthermore, the MRSL staff are then at hand should a Scheme incident occur.

Commercial income has been gained from:

- The provision of training in:
- Statutory HSE first aid and gas testing certificates
- Fire fighting
- Confined space working
- H&S Risk Assessment

- Acting as a distributor for Breathing, Escape and Resuscitation Equipment
- Supplying emergency support services to a range of other mines and businesses
- Research associated with mines rescue work.

Outside the mining industry, clients for this third-party work have included power generating companies, nuclear power stations, the brewing and chemical industries, the aircraft industry, local authorities and water utilities.

MRSL also contract with some mines to provide Emergency Mobile Winders. This service to mines is funded separately from the mines rescue Scheme.

Table 3.2 illustrates how commercial income has increased over the last 5 years, from 13.3% of gross operating costs in 1996/97 to 43% in 2000/01.

**Table 3.2 MRSL’s Gross Costs and Income**

<table>
<thead>
<tr>
<th>Year</th>
<th>Gross Costs £m</th>
<th>Total Fees £m</th>
<th>Other Income £m</th>
<th>Surplus/(Deficit) £</th>
</tr>
</thead>
<tbody>
<tr>
<td>96/97</td>
<td>4.072</td>
<td>3.601</td>
<td>0.542</td>
<td>71,000</td>
</tr>
<tr>
<td>97/98</td>
<td>3.749</td>
<td>3.061</td>
<td>0.803</td>
<td>115,000</td>
</tr>
<tr>
<td>98/99</td>
<td>4.219</td>
<td>3.075</td>
<td>1.285</td>
<td>141,000</td>
</tr>
<tr>
<td>99/00</td>
<td>4.046</td>
<td>2.647</td>
<td>1.451</td>
<td>52,000</td>
</tr>
<tr>
<td>00/01</td>
<td>4.043</td>
<td>2.180</td>
<td>1.739</td>
<td>(124,000)</td>
</tr>
<tr>
<td>01/02</td>
<td>4.430(proj)</td>
<td>2.489</td>
<td>2.100(proj)</td>
<td>159,000(proj)</td>
</tr>
</tbody>
</table>

4 **VIEWS OF THE MINE OWNERS**

At an initial stage of the study the views of the Scheme members, the mine owners, were sought concerning the key features of the mines rescue framework within the UK. Within the legal context, these key features were considered to be :-

(i) the mine owners’ obligations, which include the obligations under Regulation 12 of the Regulations to make effective arrangements for rescue, together with their
obligations to be participants in an approved mine rescue Scheme and to liaise with the administrators of that Scheme, in order that effective arrangements for rescue are in place.

(ii) the existence and structure of an approved mine rescue Scheme

(iii) the operation and administration of a mines rescue Scheme by the Mines Rescue Service Limited, including the influence of MRSL’s other activities, on the functioning and financing of the Scheme.

4.1 Functionality of the Current Structure in Enabling Mine Owners to Meet their Obligations for Mines Rescue Provision

In addressing items (i) and (ii) above, the mine owners were invited to present their views against the six key objectives identified within the Scheme. These objectives were listed earlier, in Section 2.2, as items (a) to (f) and the owners’ views are presented here, under the same (a) – (f) headings:

(a) full-time rescue team workers are available to participate in rescue activities and that an adequate pool of full-time rescue workers and part-time rescue workers is maintained;

All owners believed that the pool of rescue officers, full-time rescue workers and part-time workers was adequate and that, to date, the existing UK structure had proved to be satisfactory. However, there were differing views expressed by the larger and smaller operators on the provision of full-time and part-time rescuemen.

Because of their overall size, together with the size of the individual mines, the larger mine operators provide the biggest resource of part-time rescuemen. Individual numbers differ, but the larger operators have between 10 and 40 part-time rescuemen at each mine, with the majority having 15 – 20. Consequently, one of the larger operators considered that, in principle, the first and second response teams could be comprised of a rescue officer from MRSL, but with the majority of the rescuemen being provided by the mining company, rather than a full team of MRSL’s full-time brigadesmen. Furthermore, should the overall mines rescue Scheme be structured differently, they believe that they could provide all of the first and second lines of response themselves and would then just require the attendance of a rescue officer from MRSL. They considered that this system would result in them having a comparable rescue capability at an appreciably lower cost.

Conversely, the smaller mines, which often work a single shift system, tend to have a very small number of part-time rescuemen within their own staff and, consequently, are reliant upon the availability of others, either full-time rescuemen provided by MRSL, or part-time rescuemen from other mines belonging to one of the larger operators.

The Approved Code of Practice guideline on part-time rescuemen is that each mine should supply a minimum number of rescuemen, this number being 5 % of the underground workforce. In the hypothetical case of a mine employing 100 people, this implies that 5 should be trained as part-time rescuemen; for a mine with 20 people, or
less, 1 part-time rescueman should be provided. A number of the small mine operators, whilst complying with this recommendation, considered that this arrangement was more onerous to their business than it is to the larger operators. In certain cases, for example a mine employing only five men, the loss of one or more underground workers attending training days had a significant and direct impact on that day’s production and profitability.

(b) Full time rescue team workers to be available to supervise the operation of rescue teams & to operate a common command structure.

All owners believed that the current provisions for having full-time rescue teams, including rescue officers, available to supervise the operation of rescue teams, was satisfactory. In all cases, this provision was met by the rescue officer being provided by the local MRSL rescue station. Moreover, every one of the operators, both large and small, believed that “central” rescue stations should be maintained with rescue officers at these stations.

(c) mines rescue stations are maintained, with common communication systems maintained at each station;

As mentioned above, all operators believed that a central rescue function was required. However, some comments were received, from both large and small operators, that they considered that the mines rescue function could be operated with a smaller number of full-time rescuemen and/or a smaller number of rescue stations. These comments were made largely on financial grounds, although at least one operator believed that a smaller scale operation could be put in place which would not compromise safety. Almost all operators commented that at least the central rescue station function should be government funded. Operators believed that the common communication systems worked satisfactorily.

(d) the same types of equipment are used by the full and part-time brigades;

All mine owners and mines rescue personnel considered that the use of common equipment for rescue incidents was an extremely important safety aspect which should be maintained. Each rescue station, together with Daw Mill mine, has similar facilities for the storage and servicing of breathing apparatus, cutting and lifting equipment, and other specialised apparatus and transport; the exception is that Daw Mill does not have facilities to charge cylinders with oxygen.

(e) the same training is common to all rescue personnel.

All operators believed that common training was vital to the efficient functioning of the mines rescue service in the UK. This was confirmed even by those organisations who would prefer some changes to the existing structure, but who were very specific that a central rescue function, which would undertake common training, should be retained. For the small operators, the common training system also enabled their small number of part-time rescuemen to integrate with other mines rescuemen and to gain experience of other mines.
(f) Owners of mines to have arrangements in place for mutual assistance in an emergency situation at any mine owned by one of the Scheme members.

This issue was one which elicited strong views from all of the mine owners. In the event of an emergency situation arising, where there was risk to life or limb, all of the operators unequivocally stated that all possible assistance would be provided to other mines. The issue of mutual assistance was clearly not a problem between mines owned by the same owner. However both the large and small mine operators expressed some concerns about having to provide assistance to other mines during ‘emergency incidents’ where the only threat was to a mine’s infrastructure or assets. In such cases, both large and small mine owners considered that they would be disadvantaged financially.

The larger operators considered that the mutual assistance agreement in which they participate through the mines rescue Scheme, could potentially be a liability for them. In a strict business sense, they could be obliged to supply a larger number of their staff for a considerable period of time to assist one of their ‘competitors’, if a major incident occurred. The small operators considered that, if their staff had to be utilised in an incident at a competitor’s mine, their mining operations and profitability would be affected in a much larger and more direct way than some of the larger operators.

4.2 Operation and Administration of the Scheme

Primarily, the preceding paragraphs present the mine owners’ views of how their obligations are being fulfilled under the scheme. The views of the owners on a number of other issues including the levy per tonne of coal production and the operation and administration of the Scheme by MRSL are presented below.

With regard to the current production levy, the general view of all operators was that, although the current levy was marginally acceptable, any further increase would impinge on their future profitability. One larger operator considered that they were supporting other operators to a greater extent and believed that the total monies being paid in to the Scheme were excessive. In addition, they expressed some concern about the generally increasing trend of the levy, in view of their on-going attempts to control and reduce coal production costs.

Irrespective of their views on the amount of levy, all operators believed that the complete UK mines rescue service, which comes under the Scheme, should be government funded.

The mine owners’ views on MRSL’s operation and administration of the Scheme were all extremely favourable. On all occasions when the operation of the Scheme had been tested by actual incidents over the last six years, the operators commented that effective arrangements had been put in place by MRSL, in accordance with the Regulations.

Furthermore, all operators considered that MRSL’s ability to obtain an increasing amount of third party commercial work had been particularly important in enabling them to sustain coal production at manageable costs. However, most operators (along with some of MRSL’s own staff) believed that, because of the finite number of MRSL’s existing
staff, the opportunities to continue to expand this side of their business were becoming limited.

Some concerns were expressed about potential problems associated with recruitment to the service in future years. To date, this issue has not been a problem, but nevertheless, in general, mine workers’ salaries are noticeably higher than those of MRSL staff and consequently the opportunity to recruit rescue men with the required two year’s ‘in-mine’ experience may become an issue.

Some comments were made about the gradually ageing workforce in the industry, and its potential impact on the future of the rescue service. At present, 80% of full-time brigadesmen and 65% of part-time brigadesmen are in the age group 36-45 years old, which is probably a reasonable reflection of the overall age profile of the industry. Although the maximum allowable age for rescuemen is above 45, this age is towards the upper end of a front line rescueman’s career. Consequently, there is a possibility that the age profile within MRSL may become more of a concern in the future.

5 VIEWS OF MRSL STAFF

MRSL believe that a national rescue service is the type of organisation that makes best provision for effective rescue arrangements to be put in place throughout the UK, for the benefit of both large and small operators. Although there have not been a large number of incidents to which they have had to respond since they took over responsibility for the Scheme (Table 5.1), one incident in 1998 illustrates the scale of support that is required if a serious incident does occur. In this particular case, rescue staff were involved in the evacuation of the mine and its subsequent recovery during an operation lasting some 78 hours. During the incident 101 rescuemen were used, with full-time staff being supplied from 4 rescue stations and part-time staff from 7 mines.

<table>
<thead>
<tr>
<th>Year</th>
<th>No. Incidents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996/97</td>
<td>6</td>
</tr>
<tr>
<td>1997/8</td>
<td>3</td>
</tr>
<tr>
<td>1998/9</td>
<td>5</td>
</tr>
<tr>
<td>1999/2000</td>
<td>0</td>
</tr>
<tr>
<td>00/01</td>
<td>0</td>
</tr>
<tr>
<td>01/02 (to date)*</td>
<td>3</td>
</tr>
</tbody>
</table>

* to December 2001
MRSL commented that although they do have interaction with the Fire Service, Fire Brigade staff have been used at mines for surface incidents and do not go underground. Fire Brigade staff do not have the skills, experience, knowledge and training to operate underground in UK coal mines.

MRSL expressed some concern about the shrinking UK deep mined coal industry, which they consider is likely to continue to contract, and which may therefore affect the numbers of staff that become available as either part-timers or full-timers. Most of the full-time recruits to the service over recent years have not been active in the mines at the time of their recruitment. Nevertheless, as mentioned in the previous section, overall recruitment has not been a problem to date. MRSL has recruited 14 brigadesmen since its formation in 1996, representing some 22.5 % of brigadesmen. In practice, this has been of significant benefit to the service, in that in every case the replacement has proved to be as capable and of greater potential than the out-going brigadesman.

In a similar manner to the way in which the age profile of mine workers was mentioned by some of the operators, some parts of MRSL mentioned the age profile of their existing staff and considered that both the age issue and the experience of recruits may become an issue in 5 years or so. Should this be the case, one possible option might be to use more support staff (akin to the French system described in Section 8.1). A further potential difficulty in terms of bringing in younger recruits is that there is limited scope for MRSL to ‘lose’ staff. Generally, if brigadesmen become unable to continue in their role as rescue men, as a result of medical conditions or age, they work in a supportive role or on MRSL’s third-party work.

MRSL continue to seek third party work, but several of their field staff considered that the scope to increase this was becoming limited. Some already utilise part-time and sub-contracted staff to assist with third party work. However, they do not see any conflict of interest in undertaking this work and they have in the past turned down third party work, where it has had the possibility of impinging on their core rescue function. The ability to continue to undertake third party work was viewed as having considerable merit, in terms of enhancing the overall capabilities of the rescue staff.

Any reduction in income from the Scheme had an almost immediate affect on MRSL’s operations, in that this impacted very quickly on the company’s cashflow position. Some staff commented that there was cause to consider some form of government support funding for the rescue service; however, they considered that this would be better if it were not full funding of the entire Scheme, and that the mine operators retained some ‘ownership’ of the mines rescue provision. Concern was also expressed about the funding of large capital items, such as the possible need to replace their full supply of breathing apparatus at some stage in the not-too-distant future.
6 POTENTIAL EFFECTS OF FUTURE CHANGES IN UK COAL PRODUCTION

6.1 Changes in Overall Coal Production

In the short term period (up until 2005), most mine operators believed that their overall output would remain reasonably constant, with no major increase or decrease in deep mined coal production.

However, in this respect, perhaps note should be taken of the review of the industry that was undertaken in 1998, in which the views of the mine owners were sought. A summary of this review report, which was prepared for the DTI, can be found in Annex E of the White Paper entitled “Conclusions of The Review of Energy Sources for Power Generation and Government response to fourth and fifth Reports of the Trade and Industry Committee”.

Although the report is just 3-4 years old, it was significantly over-optimistic in terms of the predictions of deep mined coal output for the years 1999 and 2000. Table 6.1 provides a comparison of predicted total production against the actual totals reported in MRSL’s annual report for the year 2000/2001.

<table>
<thead>
<tr>
<th>Year</th>
<th>Predicted production</th>
<th>Actual production</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>26m tonnes</td>
<td>20.8m tonnes</td>
</tr>
<tr>
<td>2000</td>
<td>27m tonnes</td>
<td>17.1m tonnes</td>
</tr>
</tbody>
</table>

Current deep mine production figures are considerably below the projections made in the 1998 review. Furthermore, recent announcements about Blenkinsopp and Prince of Wales collieries indicate that there continue to be commercial pressures on deep-mined coal production in the UK. If this trend continues, a further fall in output from the 17.8 mtpa of 2001 can be envisaged over the next 18 months to 2 years, most notably after mid-2002, when the existing Government subsidy is due to end.

Mine operators agreed with the view that current coal subsidies were extremely helpful in terms of ensuring the continuing viability of their deep mine operations. However, when the current round of subsidies expires, a greater degree of uncertainty is likely to be introduced. It is probable that, in the medium to long term beyond this 2002 date, the trend within the coal industry will be one of further reductions in production capacity and hence, a greater potential for the closure of more deep mines.

A downward trend in terms of the number of operational deep mines implies a subsequent reduction in the number of underground workers available to serve as part-time mines rescue brigadesmen. This represents the most likely and challenging scenario
that any form of future mines rescue provision will need to address. It is most appropriate, therefore, to examine a range of possible scenarios that may arise as a result of mine closures. The following sections examine each of the mining areas covered by the current mines rescue stations and consider the possible consequences of changes in production and key mine closures within these areas.

6.2 Changes in Regional Production

The various scenarios examined below are postulated on the basis of “what if” a particular mine closes; they do not reflect any implied view that the mines discussed will, or are likely to, close prematurely.

6.2.1 North East England

Houghton mines rescue station currently has 4 officers and 5 brigadesman and provides mines in the North East of England with a first response cover consisting of a minimum of one officer and one brigadesmen. The remaining emergency response requirement, 9 brigadesmen, is fulfilled by utilising part-time rescue men employed at the mines in this area. The Scheme member mines covered by Houghton mines rescue station and the number of part-time brigadesmen employed by these mines are as follows:

- Ellington 27
- Blenkinsopp 7 –(scheduled for closure)
- Ayle East 1
- Clarghyll 1 - (temporary closure)

Ellington, the single large mine in this area is owned by UK Coal. IMC’s 1998 review of this mine noted, at the time, that ‘readily accessible areas of reserves were nearing exhaustion and the mine was undertaking major development to access new areas which are relatively little known; if commercially viable production can be sustained, the mine life can be extended until 2009’.

However, if a proportion of the remaining reserves at Ellington prove not to be commercially viable, the actual life of the mine could be considerably shorter. In the event of this single large mine closing, the numbers of part-time brigadesmen available in the North East of England would be insufficient to provide the effective emergency response cover for the other mines required under Section 12 of the Regulations. In such a situation, there are three possible courses of action:

1. Increase the number of part-time brigadesmen supplied by the remaining mines in the area.

2. Increase the number of full-time brigadesmen supplied by the Houghton Rescue Station.
3. Examine the risk profile of the remaining mines and consider the potential for providing some relaxation from the Regulations on response time, whilst minimising the risk by other means.

The first of these options, increasing the number of part-time brigadesmen supplied by the remaining mines, is unlikely to provide a practical solution. Small mines already feel that releasing members of their workforce to undertake the required routine rescue training places a larger cost burden on them than is typically the case with larger mines, as there is a greater disruption to production. Hence, the additional cost of providing more that the statutory minimum number of part-time brigadesmen is likely to be viewed by small mine owners as being an unacceptable solution. In addition, the really small mines may not have sufficient staff with the appropriate underground mining experience to further supplement their existing part-time brigadesmen. Furthermore, the situation may well arise where, even with all of the suitable underground workers in a particular geographical area trained to act as brigadesmen, there would still be insufficient numbers available to provide the required emergency response cover at certain times of the day. For example, the majority of small mines tend to operate with a single production shift during the working day. As a result, the majority of trained part-time brigadesmen are likely to be working underground at the same time, and hence unavailable in terms of providing first response cover, under the existing Regulations.

The second option, increasing the number of full-time brigadesmen supplied by the Houghton Rescue Station, would result in quite a significant increase in the cost of running the current Scheme. Based on the staffing levels of those rescue stations that currently provide a full team (5 brigadesmen) to Scheme member mines, somewhere between 7 and 9 additional full-time brigadesmen would need to be employed at Houghton to provide a similar first response capability.

Furthermore, it is questionable whether the numbers of part-time brigadesmen available from the remaining small mines in the area would be sufficient to ensure that a second team was available to make up the full response capability required under Section 12 (one rescue officer and two teams of five brigadesman). Whilst the law may require the remaining mines to increase the number of part-time brigadesmen required to make up the second emergency response team, it may be impractical for them to do so. If this were the case, there would be a need to increase the rescue station’s full-time staff complement even further. In a ‘worst case’ scenario, it may even become necessary to have sufficient full-time rescue staff to provide one rescue officer and two teams of five brigadesmen. It is not possible to provide a definitive estimate of the total rescue station staffing complement likely to be required to provide such a full emergency response capability. However, to provide an indication of the likely cost implications, a minimum requirement of 4 officers and 18 brigadesmen has been assumed.

Hence, should this second option be adopted, to provide cover from 4 officers and 18 brigadesmen would require Houghton to employ a further 13 brigadesmen. At an estimated cost of £30K per head, this would increase MRSL’s gross operating cost from £4.43m to around £4.8m. Furthermore total UK coal production would fall. If a fall of 1mtpa is assumed, Scheme income would fall by £140K pa. Overall these combined
effects would equate to an increase of approximately 2.2p per tonne on the levy, taking the total production levy to 16.2p per tonne.

The practicality of the third possible option, considering the potential for some relaxation of the Regulations cannot be determined here; risk analyses would have to be considered on a mine by mine basis and an effective safety case made to the Mines Inspectorate. Even though there are some small mines where fire and explosion risks are particularly low, seeking exemption to compensate for the difficulties and/or financial costs of providing effective emergency response is unlikely to provide an acceptable solution.

In summary, the closure of a single large mine in this area would have a significant impact on the cost of providing mines rescue services. In the event that none of the three options considered above, or some combination of them, provided an acceptable solution, the only remaining possibility is that the small mines in this area could be forced to close.

6.2.2 South Wales

Dinas mines rescue station has 4 full-time officers and 14 brigadesmen and provides Scheme member mines with a first response cover of one officer and five brigadesmen (a complete rescue team). The Scheme member mines covered by Dinas mines rescue station and the number of part-time brigadesmen provided by these mines are as follows:

- Tower 20
- Betws 3
- Aberpergwm 2
- Blaencuffin 1
- Blaentillery 1
- Nant Hir 1
- Gleison -

Given the smaller numbers of part-time brigadesmen available from the member mines in the South Wales area, it is currently necessary for Dinas to maintain sufficient full-time brigadesmen to ensure that they can provide a full first response team and rescue officer. The currently available numbers of part-time brigadesmen in the area are then used to provide the second response team.

Tower Colliery is the largest deep mine producing coal in South Wales and is owned by Goitre Tower Anthracite Company. Tower Colliery’s reserves are known to be limited and it is understood that the mine is to maintain production at its current levels, in order to maximise the viable life of the mine. On this basis, the company’s projections foresee production continuing through 2008.
In effect, the smaller mines in South Wales currently rely heavily on the part-time brigadesmen employed by Tower. Consequently, there would be a potential problem if the number of available part-time brigadesmen fell to a level whereby Tower could no longer reliably provide the emergency response cover necessary to supplement the full-time cover provided by the Dinas station. In this case, the only practical alternative to premature closure of the remaining small mines would be an increase in the number of full-time rescue staff employed at the rescue station under the mines rescue Scheme.

When compared to some of the other mining areas, production from mines in the South Wales area is already relatively small and therefore the levied scheme income is also relatively small. As a result, current Dinas staffing costs could potentially be viewed by the mine owners in some of the other mining areas as being disproportionately high. The increase in staffing costs that would almost inevitably occur in the event of a single large mine closure in South Wales would exacerbate this situation. Assuming that the station staffing requirement would rise to 4 officers and 18 brigadesmen, Dinas would require to employ an additional 4 brigadesmen.

However, at an estimated cost of £30K per head this would increase MRSL’s gross operating cost from £4.43m to around £4.55m and the total UK coal production would fall. If a fall of 0.7 mtpa is assumed, Scheme income would fall by £98K pa. Overall this would have the effect of increasing the levy per tonne to 14.1 pence.

### 6.2.3 Scotland

Crossgates mines rescue station has a full-time rescue staff complement of 5 officers and 6 brigadesmen. This rescue station provides a first response cover of one officer and one brigadesman to the only deep coal mine in Scotland, Longannet. Longannet is a relatively large mine which is owned by Scottish Coal and provides 30 part-time rescuers who make up the balance of the required first and second response rescue teams.

In the event of the mine closing, one possibility could be that the rescue station would also close. However, discussions with MRSL revealed that the third-party income currently being attracted by rescue staff at the Longannet station covers a significant part of the total running cost of the station. Consequently, should Longannet close, MRSL have indicated that they would consider keeping the station open, in order to continue attracting the third-party income that is currently being used to off-set the cost of running the overall UK mines rescue Scheme.

A much more significant factor, however, is that if the Crossgates rescue station were to close, this would almost preclude any future coal mining in Scotland, under the existing Regulations, and there would also be the loss of cover for any non-coal mines, which is currently provided by MRSL.

In the light of this situation, should Longannet close, the subsequent loss of income to the Scheme from the levy imposed on production from the mine could be offset, if the
Crossgates station remained open. This income offset could be obtained either by the additional income raising capacity released as a result of staff not having to ensure their availability to provide emergency cover, or by the numbers of staff employed at the Crossgates rescue station being reduced accordingly.

6.2.4 South Midlands
The Ashby mines rescue station has 3 full-time officers and 7 full-time brigadesmen who provide a first response cover of 1 officer and two brigadesmen to a single mine, Daw Mill. Daw Mill is a large mine, owned by UK Coal, and employs 40 part-time rescue men. With extensive known reserves and low production costs, Daw Mill was predicted to have a long-term future in the 1998 review. Even in the event of Daw Mill colliery closing, the subsequent loss of income to the Scheme from the levy imposed on production from the mine could be offset by the closure of the Ashby station and the subsequent reduction in the number of full time rescue staff employed.

Consequently, the most probable scenario for any change to the existing arrangements in the South Midlands is not a closure of Daw Mill, but an examination of the costs and potential benefits of relocating the current rescue station functions from Ashby to the mine site, together with a review of the rescue provision.

6.2.5 Yorkshire (North)
The Selby mines rescue station in Yorkshire has 4 full-time officers and 12 full-time brigadesmen and provides a first response cover consisting of one rescue officer and one rescue team (5 brigadesmen). The mines covered by the Selby mines rescue station and the number of part-time brigadesmen provided by each of these mines are as follows:

- Wistow & Gascoigne Wood 26
- Stillingfleet 25
- Riccall 16
- Kellingley 18
- Prince of Wales 17
- Hatfield 11
- Hay Royds (J. Flack) 1
- Hill Top Colliery 0

The five larger mines covered by the Selby rescue station are all owned by UK Coal. Three of these mines, Wistow, Stillingfleet and Riccall, are the production units of the Selby Complex from which coal is transported to the surface via the Gascoigne Wood Drifts. The 1998 review predicted that ‘if the Selby Complex continues to the end of its natural life, production must be expected to cease in 2009’. Kellingley was identified in
the 1998 review as being one of the mines with major reserve bases which could be expected to continue production over the long term. The sixth largest mine in this area, Hatfield, which ceased production during the course of this study and was until recently under care and maintenance, has recently re-opened.

Given the predicted viability of mines in Yorkshire, even in the longer term, it is most probable that the mines in the Yorkshire (North) area will continue to have sufficient part-time rescuemens available to ensure the effective provision of emergency response cover, in conjunction with the Selby and Mansfield stations.

6.2.6 Nottinghamshire and Yorkshire (South)
Mansfield mines rescue station is the headquarters of MRSL and has 5 full-time officers and 17 full-time brigadesman who provide mines in this area with a first response cover consisting of one officer and five brigadesmen. The mines covered by the Mansfield mines rescue station and the number of part-time brigadesmen provided by each of these mines are as follows:

- Clipstone 10
- Thoresby 17
- Welbeck 15
- Harworth 20
- Maltby 16
- Rossington 11
- Eckington 0

All of the mines in the Mansfield rescue station area are relatively large mines and all are owned by UK Coal. Three of these mines, Harworth, Maltby and, subject to investment, Rossington were among the five mines for which long-term production was predicted in the 1998 review. Thorseby and Welbeck were also identified as having access to additional reserves from adjacent abandoned collieries, with Thoresby having the long-term prospects of sustaining production well beyond 2010 and potentially a mine life extending beyond 2020.

In the Nottinghamshire area, there are sufficient large mines with predicted long-term futures and a suitable pool of part-time brigadesmen to ensure that effective emergency response cover will continue to be provided under the existing Scheme, even in the longer term.

The Selby and Mansfield stations provide mines rescue cover to the Scheme’s largest producer and contributor, UK Coal. During discussions with UK Coal, they indicated that they considered that it would be of benefit to themselves to predominantly run their own
Scheme, with the support of solely a small central rescue service supplying Rescue Officers. In effect the Selby and Mansfield rescue stations provide most of the rescue services required by UK Coal. Hence, there was a view that it would be practicable to have a single rescue station site which could service the Yorkshire and Nottinghamshire regions, and facilitate the maintenance and servicing of rescue equipment and the training of rescue men. Mine based, ‘B’ stations, could then be used to ensure the availability of rescue equipment and the formation of rescue teams within the required response time. Similar ‘B’ station provisions would also be required at Daw Mill and Ellington, however.

6.3 Potential Future Scenarios

The various scenarios discussed above fall into three broad categories:

1. Mining areas where any mine closures would be likely to have negligible adverse impact on the Scheme’s cost to the industry, in terms of the required production levy per tonne – Scotland and South Midlands.

2. Mining areas where mine closures would require significant changes to the existing arrangements and potentially could lead to some increase in the total cost of running the current scheme – North East England and Wales.

3. Mining areas where UK Coal, as the UK’s major coal producer, could propose operating an independent rescue scheme, which would have the perceived advantage of them not having to support mines lying outside their principal mining regions - Yorkshire and the North Midlands.

7 SUMMARY POSITION OF MINES RESCUE IN THE UK

The principal concerns currently associated with providing effective mines rescue cover in the future can be summarised as:

- MRSL’s current provisions for mines rescue relate directly to the full-time rescue staff that they are able to provide, together with the number of part time brigadesmen at mines. Whilst the staffing figures are considered to be adequate, at the present time, only three of the six UK stations are staffed to “A”-station levels. In addition, both the industry workforce and MRSL staffing have a relatively high age profile for rescue purposes, and the on-going ability to recruit new full-time staff of the required experience could be influenced in the future by the fact that mineworkers generally receive higher salaries than full time rescue men.

- All owners are aware of the commercial pressures within the UK deep mined coal industry and the potential effects that a shrinking industry could have on mines rescue provision. However, all owners are concerned that future mines rescue provisions should ensure that effective arrangements for rescue are in place to cover any major incident occurring. All believe that some form of national body is required.
• The major UK coal producer does not have operational mines in two of the existing mining areas (Wales and Scotland) and expressed a belief that it subsidises the provision of mines rescue services in these areas. Consequently, they considered it possible to provide their own rescue arrangements at a lower cost than that imposed on them by the current Scheme, under a “skeleton” national body responsible for mines rescue.

• UK coal production has been steadily decreasing and it is anticipated that, overall, it will continue to fall. Even during the course of this study, one of the pre-existing mines has given notice of closure and another is under review. Due to the current funding arrangements for mines rescue, this fall in production has the potential to have a very significant direct and adverse impact on the levy and hence the costs of production of all the remaining mines. Many mine owners, particularly those with smaller but consistent production, consider this situation to be unfair and not sustainable.

• The cost situation has the potential to be worse if key mines in particular regions were to close. In order to comply with the UK Regulations, MRSL could be required to increase their full-time staff complement at particular stations in order to offset the loss of local part-time rescue men from any ‘closed’ mine, with a consequent increase in their operational costs.

• MRSL’s potential to gain third party income has a direct impact on the levy paid by the mining companies. Although Scheme member organisations have little direct influence or control over MRSL’s third-party business performance, there is the potential for them to be adversely affected by this performance.

8 MINES RESCUE ORGANISATIONS IN OTHER COUNTRIES

Internationally there exists a wide range of organisational structures responsible for handling mines rescue operations. Whereas most, if not all, of these structures do not comply with the criteria defined within the UK regulations in their entirety, there are potentially a number of elements within them which are worthy of discussion within the current study.

8.1 France

The French mining industry is one which has been in terminal decline since the late 1990’s, when the French government stated its intention that all mining in France would cease in approximately 2005/2006. There has been a phased closure of the industry taking place since then, which has enabled both the mining industry and the mines rescue organisation to plan accordingly, with total coal production over this period falling from 10 to 6mtpa. A consequence of this phased reduction is that a large number of part-time brigadesmen remain available in France.
The Statutory requirements for mines rescue in France are contained within the National Mines Regulations (RGMC) which became law in 1951. These Regulations contain three articles (320, 321 and 322) relating to mines rescue which are, essentially, as follows:

(320) Mines with more than 100 underground workers must have a rescue room at the surface equipped with breathing apparatus (effectively these have become secondary ‘B’ stations, but without the presence of full-time rescue staff on site).

(321) A Ministerial decree, issued in 1965, fixed the general conditions of the organisation of rescue posts (stations) and the rules to be followed in terms of training of the rescue teams and the maintenance and use of apparatus. It defined under what conditions a number of rescue stations could be grouped to form a ‘Central’ Rescue Station.

(322) In the larger coalfields (such as the one in Lorraine), a ministerial decree prescribed the installation of a central rescue station; it defined the boundaries and the conditions of working (of this central station) in connection with the rescue posts (rescue rooms) at the affiliated mines.

These latter two decrees enabled the formation of the Merlebach Centre which is a Primary (Central) Rescue Station for the Lorraine coalfield. In former times, when mining was taking place in the Nord Pas de Calais coalfield, there was also a Central rescue station located at Lens.

Beyond these three very general articles, it is the responsibility of Charbonnage de France, which is the only coal mining company in France, and which is state-owned, to define the details of its operations. These details include, for example, response times in the case of an incident, brigade structure and staffing, and methods of operation.

CdF now operates from two ‘central’ mines rescue stations – the principal station at Freyming Merlebach and the ‘secondary’ station in Provence at Aix. However, only the primary station at Freyming operates with full time CdF company rescue brigade staff.

The Freyming station covers mines in a geographical region some 20 Km N-S and 20 Km E-W. It is located very close to an east-west motorway link and consequently there is rapid access to any mine in the Lorraine area. There is no statutory response time in France, following notification of an incident, but in practise the central station generally provides first and second response teams to any of mine sites within 20 – 40 minutes, and always within one hour.

Historically, pre-1998 there were four mines in the Lorraine region, two of which each supplied 5 of their part-time rescue men to the central station on a weekly basis. As the number of mines closed, however, in order to minimise disruption at the mines (re. shift patterns etc.) and to facilitate an improved rescue service, the French moved to a permanent, full-time, corps team of 18 at Freyming Merlebach. They therefore moved towards the UK system of having a permanent corps staff at a central station within a region. In addition to the full-time corps team, however, a number of part-time rescue
men must be available at the mines. The minimum number of rescue men is prescribed in the government regulations, Article 321, and these are shown in Table 8.1.

**Table 8.1. Overall structure for Equipment and Staffing (Re: Article 321)**

<table>
<thead>
<tr>
<th>No. of employees at Mine</th>
<th>Minimum No. of BA sets</th>
<th>Rescuers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Station</td>
<td>N/A</td>
<td>Between 12 and 20</td>
</tr>
<tr>
<td>Secondary Station</td>
<td>&lt;1200</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>&gt;1200</td>
<td>18</td>
</tr>
</tbody>
</table>

* permanent rescue men ** part-time brigadesmen at the mines

In practice, and partly as a result of the gradual closure of the French mining industry, many more rescue staff are available. The current position is shown in Table 8.2, which also includes the data from Provence.

**Table 8.2 Actual Staffing of Mines Rescue in France**

<table>
<thead>
<tr>
<th>Permanent Staff: (at Central Rescue Station)</th>
<th>CdF (Lorraine)</th>
<th>CdF (Provence)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rescue Officers</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>Brigadesmen</td>
<td>14</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part-time Staff:</th>
<th>CdF (Lorraine)</th>
<th>CdF (Provence)</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘A’-teams</td>
<td>248</td>
<td>46</td>
</tr>
<tr>
<td>Support staff*</td>
<td>191</td>
<td>32</td>
</tr>
</tbody>
</table>

Consequently the Lorraine rescue unit can utilise 18 full-time rescue men, 248 part-time rescuers (of which 1 in 5 is a rescue officer) plus additional backup support of 191. These support staff are ex-mines rescue staff, who are perhaps too old to be retained in the main teams, or who have failed medicals. They are often engineers, or other specialists with detailed knowledge of the underground mines. They are used to ensure the maintenance of the rescue equipment, or of the station itself, or they may be used as ‘guides’ to the main front line rescue teams.
The team of 18 maintains cover over 24 hour periods during the working days of Monday to Friday; at weekends, there is a direct telephone line to 60 people. Each rescue team of five permanent corps staff is comprised of one rescue officer and 4 rescuemen. The 18 permanent corps operate a rota system (Table 8.3) which enables the two first and second response teams to be deployed almost immediately. Simultaneously they then contact another 10 rescue staff to be on standby, and generally they can have 30 people on site within 2 hours. As additional “insurance” against two incidents occurring at the same time in different mines, CdF have an agreement with the German DSK rescue service in the Saar region.

Table 8.3 CdF Mines Rescue 2 Week Rota System

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>T</th>
<th>W</th>
<th>T</th>
<th>F</th>
<th>M</th>
<th>T</th>
<th>W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team A (5)</td>
<td></td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24-hour duty.</td>
<td></td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Team B (5)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24-hour duty.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Team C (8)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>This team works solely a single shift.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Breathing apparatus and other equipment is held at the central rescue station, but additional breathing apparatus is also held in the rescue room at each mine, as shown in Table 8.1.

Training of the “A”-team part time rescuemen includes 5 times a year, when they undertake a 24 hour duty at the Merlebach station, 3 times a year training in the training chamber and twice a year underground in a mine. This is the CdF standard. There is therefore common training for the Lorraine region rescuemen; however there is, no common training with the rescuemen in Provence.

Within the last five years, most call-outs for the Lorraine station have been to fires and mechanical ignitions, where the primary tasks have been the erection of stoppings and inertisation. However, there was a fatality in 2001, due to a rockburst in the floor.

In terms of covering ‘distant’ workings, within CdF, this only applies to the Provence mine. Essentially this operates as a self-contained ‘B’ station and the mine’s own part-time rescuemen provide the first and second response teams themselves. Provence also has a link with the Marseilles Fire Service to provide additional cover, but the latter are only utilised for personnel recovery, not to ‘work’ in the mine. Secondary cover is provided by the Freyming brigade, but they are several hours travelling distance from Provence and do not have provision for helicopter transport.

The overall cost of running the mines rescue provision in Lorraine, based around the Merlebach rescue station, is £1.4m, a figure which has been relatively constant since
1988. This cost includes the manpower costs for the 18 full-time rescue men, revenue costs of £200K and capital costs which have varied between £30k and £60k over the last four years.

8.2 Spain

Spain is another Western European country with declining deep-mined coal production. As in France, Governmental decisions have been instrumental in this decline, with a phased programme of reduced production scheduled through to 2005. Unlike France however, there is no specific intention to close the industry.

In Spain, the overall mines rescue function is much more fragmented. National Regulations concerning mines rescue are contained within the Royal Decree 863/1985 of 2 April 1985 “Reglamento General de Normas Basicas de Seguridad Minera”, which is general mining safety legislation.

These mining regulations themselves are minimalist with regard to prescriptive rules (Article 1), allowing individual companies and territorial provinces to form their own regulations relevant to their particular mining conditions. The regulations concerning Mines Rescue (Articles 18 to 20), but principally Articles 18 and 19, are equally non-prescriptive. Article 18 states that mines with a risk of fire, gas emissions or dust explosions must have an association with a mines rescue station. The Article also provides for the formation of regional mines rescue centres serving a number of mines. Article 19 relates merely to the rescue station staff being sufficiently trained, qualified and experienced in mining and mines rescue, with the only definition being that the station manager is a qualified mining engineer. The numbers of brigadesmen are not defined, nor are response times.

All of the coal mine rescue functions in Spain are company owned, although the small scale operation at MSP Bierzo Alto operates as a co-operative. The mining companies involved in coal production vary greatly in size, from less then 20 persons to over 6,500, and the respective organisations responsible for mines rescue also vary significantly in size, structure and responsibility.

At the top end of the scale is the company Hunosa, which, as with Cdf in France, is government owned. Within the Hunosa mining company itself are a number of mines in close proximity to the central mines rescue station at Langreo. There is no statutory response time in Spain and Hunosa’s most distant mine is at some 135Km distance where road access is extremely difficult. In order to respond to serious incidents at this mine, where life may be threatened, Hunosa have access to a helicopter from the nearby Oviedo airport. The helicopter facility is provided by the local regional government of Asturias. Additionally, however the terrain in Asturias is very mountainous and therefore response times can be 1 to 2 hours using conventional road transport. In addition to being responsible for the Hunosa mines, the Langreo rescue station provides a ‘communal response’ to surrounding smaller mines, some of which have a formal ‘association’ with Hunosa, but which are unable to fund their own mines rescue organisation, and some of which are even smaller and who operate on a ‘pay for call-out’ basis.
The mines rescue operation in Hunosa is comprised of seven Headquarters staff, which includes three trained rescue vehicle drivers, three engineers and one team captain. In addition there are twenty rescuemen, including 4 rescue officers, who are essentially part time, ten working on mines rescue duty each month whilst the other ten are working at the mines. There are no additional, trained part-time rescuemen. The rota system which provides 24 hour cover using these twenty staff is:-

1\textsuperscript{st} team \quad 4 \text{ men} \quad 8 \text{ hour duty}

2\textsuperscript{nd} team \quad 3 \text{ men} \quad 8 \text{ hour duty}

3\textsuperscript{rd} team \quad 3 \text{ men} \quad 8 \text{ hour duty}

With the Headquarters staff, who are essentially on 24 hour call, Hunosa are therefore always able to put out a first response team of 5 brigadesmen and an officer within 1 to 2 hours. A second team arrives typically after 2 hours. The number of teams responding to the incident is not prescribed.

Breathing apparatus (Fenzy) and other equipment, including transportation vehicles, is kept at the mines rescue station in Langreo.

Training, which consists of gallery work, keep fit exercises and lectures take place at Langreo on a regular daily basis whilst the teams are on mines rescue duty. This training is only common within the Hunosa area of responsibility.

At the next level down in Spain are the company owned rescue teams of MSP (Villablino) and S.A. Hullera Vasco-Leonesa. The rescue station at Villablino covers the local MSP operations, which comprise five underground mines, four opencast mines and five other coal transport and processing sites. As with Hunosa, they are also obliged to cover some local small mines (five) who pay for any services required. The area covered is approximately 100km radius. There is no maximum response time and in practice, the response can be 1 to 2 hours.

The rescue station staff is 11, which includes 1 full-time rescue officer, plus 2 teams of five. The 10 brigadesmen are essentially part-time, working in the mines 4 days a week and on mines rescue duty (training) on the fifth day.

SA Hullera Vasco Leonesa has a much smaller geographical distance to cover than Hunosa or MSP Villablino, a maximum of 5km. The company does not have a fixed maximum response time, but in practice they respond within twenty minutes. They are responsible for covering 3 company deep mines, an adjacent opencast operation, a coal transport tunnel and a washery.

Staffing is 14 men, including one full-time rescue officer. This forms two teams of 6, with one ‘spare’. The staffing number of fourteen is a historic company figure which is unlikely to change. All the rescuemen, except for the rescue officer, work in the mines except for 1 day on mines rescue duty (training) every two weeks. Only 1 rescue team is required to respond, but in practice, all available rescue workers tend to respond. Those
already in the mine are considered to be ‘eligible’ for rescue response. Training is to company standards, but takes cognisance of the Hunosa training regimes. The only on-site rescue station is fully equipped, including Fenzy breathing apparatus.

At a tertiary level of rescue services in Spain is the function at MSP Bierzo Alto. It essentially operates a co-operative, servicing some 14 small mines, many of which have less than 50 underground workers. It has 20 brigadesmen within the unit including the rescue officer, but all of these essentially work full time in the mines (with either 1 or 2 at each of the 14 mines). Mines rescue duties (training) are undertaken in groups of 4, who attend once per month at the rescue station and once per month at a mine (on Saturdays).

At MSP Villablino, the cost of operating their central company safety function is £92K per year. This includes the cost of the full time rescue officer, but also includes part of the cost of the head of the safety department. Since the rescuemen are part-time mineworkers, their costs are excluded form this figure, but amount to an additional £40K. This figure of £132K essentially covers 3 man-year’s effort per year on mines rescue. The annual budget is decided internally by MSP annually. There is no direct government funding for mines rescue, but the company overall get substantial government grants.

The Vasco Leonesa company rescue station in Spain has an annual running cost of approximately £135k, which covers the 1 full-time rescue officer and the availability of the 13 part-time staff for 25 days each per year. 90% of this is the cost of salaries and the remainder is split between revenue materials and capital equipment. All the costs of operating the brigade are decided by company management annually. The costs of the station building are covered within the overall company budget.

The smaller MSP unit at Bierzo Alto has annual operating costs of only £40K, of which half is paid by the 14 smaller mines contracting the rescue cover.

8.3 Germany

Germany is another country with a declining deep-mined coal industry and is the one whose industry most closely resembles the state of the UK industry. Although total production in Germany now comprises both the East and West German components, the majority of deep mining is that associated with the former Western block.

Current hard coal production is approximately 30 mtpa from 11 Mines, but is scheduled to reduce further, to 26 mtpa, by 2005 as viable reserves become exhausted.

The national legislative position on mines rescue in Germany is defined within the Federal German Law of 13 August 1980 (paragraph 131). The document specifies that enterprises which run mineral-winning operations that have ‘special hazards’ need to run a mine rescue centre, or need to be organisationally connected to such a centre.

At the next level down, the regulations themselves are drawn-up by the mines in co-operation with the Mines Inspectorate and then agreed with the national ‘mines rescue committee’. A new coal mine operator, for example, would agree a system of mines
rescue for its working(s), effectively producing a ‘safety case’, and agree this with the Inspectorate. Consequently, in Germany, changes to mines rescue regulations are much easier to achieve than if changes to the Federal laws were required.

There are 2 operational systems in place for mines rescue in Germany, one run by DSK and the other by BBG. The principal system is the company owned rescue service of DSK which has 2 central rescue stations, one in the Ruhr region at Herne, and the other in the Saar. DSK is essentially the coal mining business in Germany. The DSK central station in the Ruhr region covers 12 mines (one of which has recently closed) in an area some 100km by 40km.

There is no national legislation on response times in Germany, but the DSK internal rules stipulate 10 people (2 teams) within ½ hour and another within the full hour.

The DSK brigade at Herne comprises 120 full-time mines rescue staff of which 20 are rescue officers, whose main function is the training of the part-time rescue men who are employed by DSK at the mines. Ten of these are engineers and ten are technicians. Of the remaining staff, 11 are on 24-hour duty during all working days and are deployed, in the event of a mine incident, to supplement the part-timers at the mine. Typically, however, 6 teams from the total staffing of 120 arrive at a mine within 1 hour.

In the Ruhr region there are 1000 trained part-time rescuemen. (DSK believe that a lower limit of these would be 500-600). Typically a mine with a production of 3 Mtpa has a workforce of 2000-3000 persons and 12 groups of part-time rescue workers, constituting some 80-90 persons. Generally, these groups are formed into brigades, with a small brigade being perhaps 3/4 groups, consisting of 20 persons in total. Only the person in charge of breathing apparatus held at the mine is a full-time rescue professional. At any incident, DSK typically get 20 out of the 80-90 trained rescuemen at the mine within 1 hour.

Training involves 5 days per year in the DSK galleries plus 1 week long mines rescue courses. These are repeated every 4 years. Initial training is 20 hours theory plus two 2-hour short training units.

The DSK brigade at Herne works on a maximum radius span of 300km. The Saar coalfield at 350km distance, is therefore outside the Herne response zone. The DSK-run operation in the Saar region is on a smaller scale to that at Herne. Here there are 10 full time rescue officers, but there is also an historic ‘specialist’ brigade of 28 rescuemen, which also doubles as a fire brigade service. Seven of these are always present on 24 hour duty. Each of the two mines in the region also has approximately 100 part-time rescuemen. In the case of a large fire, however, as many as 300-350 rescuemen may be used.

The BBG organisation in Germany, which operates 3 rescue stations, covers just 1 small coal mine which has approximately 70 miners. BBG has only a small rescue staff of 12 people, who spend half their time on the mines rescue activities (training) and half of
their time investigating accidents. These staff are not allowed to participate in coal mine rescues.

The rescue station at Herne costs approximately £1.4M per year to run, of which half is paid by the mines directly, as a levy, and half is paid by the mining and coal fired power plants. In addition, the central mining services function (120 staff) costs some £6.25M to run. This money is paid by DSK, but is offset by some commercial income. The rescue officers, for example, spend approximately 30% of their time on commercial work and other rescue staff can spend 30-40% of their time on commercial activities. This includes, for example, exploration drilling, nitrogen inertisation and maintenance work on gas detectors.

DSK Herne also assist Rheinbraun who have a lignite opencast mine with 30 rescue staff. Rheinbraun pay £6K per year for having the Herne ‘cover’ and also pay Herne for training their 30 staff.

Costs of operating the Saar rescue service are reported to be £2M (for the 10 rescue officers, the station, and half of the 28 ‘professional’ rescue brigade staff).

In terms of costs to the mines, each of the rescue brigades, of approximately 80-90 part-time staff at the mines has running costs of £160K per year, which is largely the cost of training courses.

8.4 United States

The United States is the world’s second largest coal producer after China, with total production in the region of 1000 million tonnes. Whilst a significant proportion of this is from opencast operations, particularly in Wyoming, the majority of US production continues to be from deep mine operations. The US also has the world’s largest recoverable reserves and is therefore probably the most significant coal mining country in the world.

In the United States, Section 115(e) of the USA’s Federal Mine Safety and Health Act 1977 requires every operator of an underground mine to assure the availability of mine rescue capability for the purposes of emergency rescue and recovery. The US legislation, however, is written to cover all mines, including coal, metal and non-metal and many of the non-coal mines are quite dispersed throughout various states. The Mine Safety and Health Administration (MSHA) is the enforcing agency and administration body for mines rescue provisions.

The federal regulations also include provisions for the operators of ‘small and remote’ mines and for operators of mines with ‘special mining conditions’ to apply for exemptions from the general regulations. In these cases, operators may apply to provide an alternative form of mine rescue capability. However, to be considered as "small and remote" the total underground employment of the operator’s mine, plus those of any other mines within two hours ground travel time of the operator’s mine, should be less than 36. Operators of coal mines would not be considered for exemption on the basis of
“operating under special mining conditions”, as one of the primary requirements is that the mined substance is non-combustible and the mining atmosphere non-explosive;

Under the Act every operator is required to establish at least two mine rescue teams which are available at all times when miners are underground. First and second response teams are specified, each consisting of 5 rescuemen and an alternate. These rescue teams should be based no more than two hours ground travel time from the mine.

There are a number of different options available in the USA, in terms of the means by which mining companies are able to comply with the federal mine rescue regulations. These are (a) Company sponsored rescue teams (b) State-funded teams (c) Certified private company teams and (d) Co-operative teams. In addition, mine owners also have the option of utilising another mining company’s team or a mine may use a combination of all of the above types of organisation. Whichever option is chosen, the mine operators enter into an arrangement for mine rescue services which assures that the federal requirements are met.

Rescue equipment, including breathing apparatus can be located at the rescue station, at a mine site, or at a separate mine rescue structure. Each site must be equipped with 12 sets of breathing apparatus with a minimum 2 hours capacity. Different rescue units are able to use whichever approved apparatus they wish, however - there is no uniformity in terms of equipment.

Mines rescue brigadesmen may be recruited if the men have had just one year’s underground mining experience, but this must have been within the last five years. There is uniformity of training, which is set out in MSHA documentation. Initial training is 20 hours, with at least 40 hours of annual refreshment training. Underground training sessions are required at least every 6 months.

Company sponsored teams in the US cost approximately £75K per year to run and these are self-funded within the company.

State-funded teams are generally funded by a combination of general revenue funding and MSHA grants. Grants are on an 80% federal/ 20% state matching basis. Where state inspectors are used for the team, the state pays the wages of the salaried staff; where ‘volunteer’ employed miners are used, the company pays the wages and the state provides a stipend for the training time.

Generally there is no fee to the company using a state team.

Funding grants usually cover all aspects of health and safety, not just mine rescue. An order of magnitude of this funding is given by the state of Illinois, whose figure for 2000 was £470K and the MSHA grant was £145K.

Where ‘centralised’ private companies operate the mines rescue service, funding is usually a combination of grants from the state and fees paid by the mines contracting the service.
For co-operative teams, fees are paid by the mine to the co-operative, based on the number of mine employees (not tonnes produced). A mine requiring services then also pays for incurred expenses.

8.5 Canada

At present, Canada no longer has any deep mined coal production; however, it’s mines rescue organisation, which covers all types of mining, has an international reputation.

All fourteen jurisdictions in Canada have adopted their own approach to mines rescue legislation. As in the US, however, this legislation covers all mines, including opencast, not just coal mines.

A range of different funding mechanisms exists in Canada, particularly where mines rescue comes under provincial law, but few of these relate to coal mining which is currently solely opencast.

In British Columbia one rescue team is required for a mine with more than ten persons. If there are more than 50 persons per shift underground, two teams are required. Each team is comprised of 6 members, including 1 rescue officer and 1 team captain. Of the rescue team staff, not all are allowed underground as normal workers at the same time, but maintaining a sufficient number of rescue workers to constitute a full team outside the mine is not specified.

Elsewhere in Canada, however, the legislation is much less specific and, in many provinces, states solely that ‘a sufficient number of rescuemen shall be available’. New Brunswick refers to 12 sets of breathing apparatus being available at a mines rescue station, but otherwise the provincial mines rescue functions are ill-defined.

Mines under Federal Government of Canada jurisdiction, however, are covered by more specific legislation. At coal mines, at least two response teams are required, one to be operating on the underground rescue, and the other to be on stand by at the fresh air base. All rescue team workers in coal mines are part-timers, appointed from the workforce by the mine manager. Each coal mine must have at least one team of 5 men.

In British Columbia all mines rescue stations are equipped and maintained by the government, under the direction of the Chief Inspector. In Ontario, however, the costs of establishing, equipping, operating and maintaining the mines rescue stations are covered by levies imposed on the employers. There is a similar system prevailing in the Yukon and the North West Territories, where the operational and maintenance costs, together with the costs of mine rescue superintendents, is recoverable from the mine owners at rates determined on a quarterly basis. The rate relates to the numbers of employees, not production figures.
8.6 South Africa

The South African coal mining industry is still robust and a major force in the world coal market. It has a large reserve base and has been a steadily growing industry over the last 20 years, producing almost 250 million tonnes per annum.

The introduction of the Mine Health and Safety Act (Act 29 of 1996) in South Africa marked a change from a prescriptive to a goal setting legislative framework. Although there is provision for a new set of regulations (Chapter 16 Rescue and First Aid) within the Mine Health and Safety Act, these regulations have not yet been promulgated. Hence, the current legal requirements for providing mines rescue services are those defined by the South African Minerals Act.

The Act requires that companies which have mines where the total men working underground exceeds 100, must provide at least one rescue brigade. At mines where the total exceeds 700, two brigades are required. All of these are classified as “A” class mines. Smaller mines that are unable to maintain a rescue team due to their small underground complement of staff are classified as “B” class mines. Rescue provision at these mines is provided by the “A” class mines, as part of an arrangement within the South African Rescue Service. All rescue team members, equipment and rescue facilities are therefore provided at these “A” class mines.

The legislation is thus significantly different from other national legislation in that it identifies the mines themselves as being directly responsible for the stationing of mines rescue brigades at the mine sites.

Government involvement in South Africa is restricted to the requirement that training courses for brigadesmen are approved by the Government Mining Engineer. Currently, only one organisation provides an approved training scheme, the company Mines Rescue Services (Pty) Ltd., which is essentially the South African Rescue Service.

MRS (Pty) Ltd is a private sector organisation, which has four rescue stations located at Carletonville, Dundee, Evander and Welkom, for the training of volunteers for rescue work and from which it administers the rescue service scheme. The stations are situated in the major geographical mining areas and all member mines throughout the country are serviced through these stations. MRS is under the direction of a Board of Directors, who are responsible for strategic policy and major financial decisions. The Board of Directors is comprised of eight members who represent the country’s major mining groups, a Director representing the Chamber of Mines and a Director representing MRS. In addition to the provision of training, when required, MRS co-ordinates the responses of teams from other mines at an incident.

MRS (Pty) Ltd. is a non-profit making organisation and is funded by the member mines via subscriptions based on each mine’s production and underground labour complement. The funding covers the cost of providing training services, and hence, no further direct charges are made to mines for the individual training of Brigadesmen. User charges are applied to stores, equipment and rescue teams supplied via MRS to mines requiring assistance from other mines and this revenue is used to reduce subscriptions.
At the beginning of 2000, MRS staffing comprised 23 trainers at the four rescue centres: Carletonville, Head Office, (5), Welcom (7), Evander (8) and Dundee (3). During an incident, at the request of mine management, these staff assist in the co-ordination and supply of rescue teams, the mobilisation of specialist equipment and the provision of technical expertise and advice.

The principal rescue response is provided by the mines rescue staff working at the mines. For the 54 coal mines in existence at the end of 1999, the total mine rescue staffing was 297. The mines which retain a rescue team, (or teams), have one of their mine managers appointed as Rescue Manager, in addition to his normal duties, to oversee the rescue teams and to liaise with MRS.

Brigadesmen are volunteers selected from the underground workforce at a mine. Generally they are mid-management personnel, but the brigades also include artisans. All are experienced in underground work, although this experienced is not ‘specified’, and are between 21 and 46 years of age. Prior to initial training, each candidate must successfully undergo a medical examination, a one-hour ‘Heat Tolerance Test’ and a ‘workload’ test wearing breathing apparatus. Initial training consists of technical instruction coupled with practical exercises in specially equipped simulated mine galleries over five consecutive 8-hour days. Refresher training involves a one-day session every three months.

Each rescue brigadesman is responsible for the routine maintenance and inspection of the Draeger BG174 breathing apparatus allocated to him and ancillary equipment stored in the rescue room at the mine. However, all functions and components of their apparatus is thoroughly inspected and tested by an MRS staff member on a quarterly basis. The rescue rooms themselves are inspected by the MRS at least once per year.

**8.7 Australia**

Australia’s coal industry continues to be buoyant and is one of a relatively small number of countries where coal production is increasing. Australia enjoys a young coal mining industry, with an infrastructure focused on export markets, producing over 300 million tonnes per annum.

There are two principal centres of coal mining activity in Australia, Queensland and New South Wales.

New legislation for safety and health in the mining industry in Queensland was introduced to Parliament in 1999. The Coal Mining Safety and Health Act 1999 was passed on 2 September 1999 and came fully into effect on 16 March 2001. The main purposes of part 13 of this Act are to ensure that each operator of an underground coal mine provides a mines rescue capability for the mine; and to provide for accreditation of Corporations to help coal mine operators provide a mines rescue capability.

‘Mines rescue capability’ is defined as the ability to provide a suitable number of trained persons and maintained equipment to allow continuous rescue operations to take place to
help the escape or safe recovery of anyone from a mine if it has, or may have, an irrespirable atmosphere.

The Act also states that each coal mine operator must be a party to a ‘mines rescue agreement’ with an accredited Corporation and that the accredited Corporation may require contributions from the operator.

A Corporation may apply to the Minister for a grant of accreditation to provide mines rescue services. One of the conditions that may be placed on a Corporation’s accreditation is that there is provision of mines rescue services for every underground mine and compliance with certain performance criteria.

The performance criteria to be met by a mines rescue corporation are also given in the Act. These performance criteria require that a Corporation:

- provides appropriate mines rescue training programmes;
- provides equipment and resources
- ensures that mines rescue equipment is maintained, tested and certified
- effectively performs audits or other exercises to show the Corporation’s ability to respond to an emergency;
- provides an effective procedure for coal mine operators to help each other in an emergency.

However, the Act does not define required response times, numbers of rescue men or an organisational structure.

In New South Wales the Mines Rescue Act (Act No 13, 1994) is used to provide for a rescue service capable of responding to, and dealing with, emergencies arising at underground coal mines. The rescue service may also be used in connection with emergencies at other mines. The Mines Rescue Board of New South Wales is constituted by this Act. This Board comprises seven directors, three representing the interests of coal owners, one representing the staff association, two representing mine unions and a further representative nominated by a Government minister.

The legislation establishes a Mines Rescue Fund and the New South Wales Mines Rescue Brigade. The function of the Brigade is defined as being to provide, under the control and direction of the Board, a mine rescue service for responding to, and dealing with, emergencies arising at underground coal mines in New South Wales and at other mines.

The principal functions of the Board are:

- making available rescue services and facilities to deal with emergencies in those mines and, in particular, ensuring that the Brigade has the capacity to deal with any such emergencies;
• ensuring that adequate rescue equipment (such as breathing apparatus) is available to enable members of the Brigade to deal with emergencies in those mines;

• training members of the Brigade in mine rescue procedures at those mines and, in particular, in the use of breathing apparatus;

• establishing appropriate procedures and arrangements for ensuring the mobilisation of members of the Brigade and the supply of rescue equipment in response to emergencies in those mines;

• ensuring that persons with an adequate knowledge of mine rescue work are available to provide technical advice to the owners of those mines if emergencies should arise in those mines.

The Board is responsible for ensuring that members of the Brigade are adequately trained in:

• the use of breathing apparatus and other mine safety equipment;

• mine safety procedures;

• the work involved in rescuing persons who may become trapped in a mine or who may otherwise need to be rescued from dangerous situations occurring at or in a mine;

• the procedures involved in sealing an underground coal mine and in reopening such a mine that has been sealed;

The Board also determine:

• the number of persons employed at the mine whose services the owner of the mine must make available to the Board for mine rescue purposes; and

• the number of items, and the kinds, of breathing apparatus and other rescue equipment that the owner must provide at the mine for use by those persons; and

• the amount of area, and the kinds of facilities, that the owner must make available at the mine for the storage of that equipment when not in use, for training members of the Brigade and for use by those members during emergencies at the mine.

The owner of a mine who employs a member of the Brigade must allow that member to attend official training for members of the Brigade and emergencies to which the member is called to attend as such a member.

While engaged in mine rescue work or undergoing training for mine rescue purposes, a member of the Brigade is paid such fees and allowances as the Board may determine.
In addition the Board may, but is not obliged to, exercise the following additional functions:

- providing rescue services and facilities at those mines, including rescue equipment (such as breathing apparatus);
- providing training courses in connection with mine safety and emergency procedures at those mines (including, for example, fighting fires and rescuing mine workers and others who are trapped in those mines).

The Board serve, on the owner of each coal mine, an annual notice specifying the amount that the owner is required to pay into the Mines Rescue Fund, in order to maintain the New South Wales Mines Rescue Brigade. Contributions for each mine are calculated by considering:

- the quantity of coal produced from the mine during the period of 12 months preceding the financial year concerned;
- the average number of employees employed at the mine during that period;
- the cost incurred during that period in meeting the expense of having members of the Board’s staff on stand-by in respect of the mine;
- the cost incurred during that period in training members of the Brigade to carry out mine rescue work at the mine;
- an amount, quantified by the Board, representing the risk of a mining accident occurring at the mine;
- the cost likely to be incurred in actually responding to a call to the Board to provide rescue services at the mine.

8.8 Ukraine

Whilst coal production in the Ukraine has gradually reduced since 1992, along with most other European coal producers, it still produces in the region of 90 million tonnes of coal per year. It is, therefore, a significant coal producing country with an on-going future.

The State Mines Rescue Service of the Ukraine (SMRSU) is one of the emergency Services operating within the Ministry of Fire and Energy of the Ukraine. It is a militarised government service with a structure and function similar to those of the Ukraine’s civil fire fighting units. SMRSU covers all coal mines in the Donbass basin which includes the Lugansk, Donetsk and Dniepropetrovsk regions. It is obliged to operate within the Law of the Ukraine on Emergency and Rescue Services Operations, which regulate the major principles of organisation and implementation of mine rescue activities in coal mining companies. Regulations at national level are therefore quite
prescriptive, but SMRSU does have some autonomy in terms of identifying the structure, quantity and locations of mines rescue squads and the detachments. In addition to the SMRSU ‘central’ rescue stations, it is also legislated that each mine has its own ‘mini’ rescue station. A mine’s own rescue “station” normally has 2-3 staff whose Commander is a member of the central rescue station which serves the particular mine. Essentially, these local staff are part-time rescuemen.

There are also ‘local mines rescue teams’, which are groups of specially trained miners working underground, who would undertake firefighting when a fire is at an initial stage. These local mine rescue teams should be comprised of all the engineering and technical personnel of the underground section, with at least of 1-2 individuals ‘on duty’ in each shift. The members of the local mine rescue teams normally constitute approximately 10% of the total underground workforce. Local mine rescue stations are positioned in all longwalls, \(+500\) m development headings and in every main conveyor roadway, in order that the staff of a local mine rescue team can reach any accident within 30 minutes.

Currently SMRSU incorporates 10 mine-rescue divisions and one training division whose function is the training of staff on mines rescue units. Each division comprises 3 to 6 rescue stations, or ‘sections’, which must be located within 10 – 16 km of the mines attended; in 2002 there will be 38 such rescue stations. Each rescue station includes 5 to 10 detachments of brigade staff and in 2002 there will be 273 in total. A detachment maintains a permanent watch/duty of 5 or more brigade members. The structure, quantity and location of squads and detachments, including the quantity of operating teams (operating personnel), are identified by the management of the SMRSU according to five-year statistics of average number of accidents. Overall throughout the organisation, the number of operating personnel of the SMRSU is approximately 3,200 people.

All mines, open-cuts and coal preparation plants have a direct telephone connection with their mine rescue station.

For the central mines rescue functions, the work schedule for personnel is as follows:-

1\(^{st}\) work day – 7:00-19:00
2\(^{nd}\) work day – 19:00-7:00
3\(^{rd}\) and 4\(^{th}\) - days off.

Each mine rescue station holds breathing apparatus, oxygen masks, special purpose transportation, alarm and communication systems and mine air components analysis equipment.

Theoretical and practical training are usually given to the staff during the day shift. Station Commanders usually have the same work schedule as other personnel at the station.

Management of a section normally work from 8:00 till 17:00 every day except Saturdays and Sundays. However, twice a week each of the managers undertakes a 24 hour shift.
In the last 10 years, divisions of the State Mines Rescue Services (assisted by local mine rescue teams) have, on average, attended 170-180 accidents and evacuated 200 miners per year.

The primary objectives of the Mines Rescue Service divisions are rescuing people affected by an accident at a mine and recovery of assets. However, the Mines Rescue Service divisions have a substantial quantity of specialised equipment for rescue and they also use this for various accidents and the rescue of people affected by accidents outside mining.

8.9 Organisational Models

It is evident from the foregoing sections that, throughout the world, there exists a broad range of organisational systems within the mines rescue functions, all of which are intended to ensure compliance with their own National Regulations should an emergency incident occur. However, none of the systems currently employed in other countries would fully meet the requirements for mines rescue as defined by UK Regulations. Nevertheless, there are elements of some of these systems which merit further discussion and consideration in terms of their potential to be applied in a UK context.

Essentially the systems can be classified as falling into the following general models:

- Company owned mines rescue teams
- State funded rescue organisations
- Mines rescue operated by certified private companies
- Co-operative mines rescue teams

The full range of models is present within the United States mines rescue organisations where essentially all four models are in operation. In addition, however, the US retains an overall “umbrella” body, MSHA, which provides some co-ordination between these models at a national level. Spain also utilises a hybrid of these models. This is despite Spain having a much smaller mining industry than the US over a much smaller geographic area.

8.9.1 Company Owned Mines Rescue Teams

This model, of companies operating their own mines rescue teams, forms the basis of mines rescue within a number of countries, including France, Spain, Germany, the Republic of South Africa, and the USA.

The Western European countries of France, Spain and Germany use this model despite having some elements of National Government support. In France the entire coal mining industry, CdF, is government owned; in Spain, by far the largest company, Hunosa, is government owned and in Germany the mining industry generally receives significant government support (approximately $ 4 billion in 2001).
The risks associated with company funded operations are that the national training of rescue men to a uniform standard is not obligatory, nor is the requirement to have conformity in the types of breathing apparatus employed. This is the position in Spain where Hunosa have their own training requirements and breathing apparatus which is different to that used by other companies in other parts of the country.

Although there is uniformity of breathing apparatus in France, where there is just one company scheme, there is still no uniformity in terms of training for the Lorraine and Provence coal fields. Furthermore, the rescue provision in Provence appears less rigorous than that in the Lorraine, where full-time trained rescuemen are immediately at hand.

In Germany, the DSK company-funded system covers the Ruhr region effectively, but the Ruhr and Saar areas appear to function independently. Effective cover in the Saar is not achieved solely by DSK, but relies on the services of the ‘specialist’ fire service unit.

The company funded schemes appear to operate most effectively when the rescue teams are essentially mine based, as in the USA and South Africa. In both these countries, however, there is some element of national involvement, by MSHA in the US and by MRS in RSA. These organisations ensure that there is a nationalised standard of cover. In addition, in these countries the company rescue teams are stationed on-site. The exception is where company teams may have responsibility for covering another mine’s or company’s rescue provision. Both the US and RSA systems appear to operate efficiently, even though there is a distinct difference in the way that they operate. In the US, the company mines rescue teams are relatively autonomous, undertaking their own training once their courses are approved by MSHA, and providing the first-line incident responses. In RSA the teams also provide the first-line incident responses, but all of the training is undertaken by the ‘central’ MRS organisation. The RSA system is, therefore, unique in that the core ‘central’ body is essentially a training organisation, albeit that MRS also assist with mine rescues as requested. The principal advantage of the company owned scheme is the facility to have full first and second response cover on-site.

8.9.2 State Funded Mines Rescue Teams

The State funded model is taken to mean ‘national’ funding, either directly from government, or via individual provinces or states. The countries which utilise this model are the USA, Ukraine and, via the private company Hunosa, Spain.

In the USA, state funded mines rescue teams are used either in addition to company teams or may serve as a supplement to them. The structures and programmes operated by the state teams are inspected by MSHA as if they were operated by mining companies. For all the mines which rely entirely upon state teams for rescue provision and compliance, MSHA must be notified.

The composition of state teams varies from one state to another. Some states use volunteer members, who are employed miners (effectively part-time rescuemen) and some states use state inspectors as team members – again, effectively part-time rescuemen. Furthermore, some states have more mines rescue stations than the minimum number mandated by the federal regulations. Where volunteer members are used, the
company pays the wages and the state provides a stipend for training time. If the rescue service is provided by state salaried staff, the state pays their wages. Overall funding is generally a combination of general revenue funding and MSHA grants (ie. effectively government funding).

Different state teams may have different ‘specialities’, such as fire fighting or underground rescue. As with the company-owned rescue teams, 2 state funded teams, each comprised of 5 members and an alternate, must always be available.

In the Ukraine, all costs are met by the government, but, unlike the USA, all team members are full-time staff and in addition the rescue service covers all mines. This ‘national’ facility is also used, rather like the US specialist teams, to provide a rescue capability to other non-mining enterprises.

The Spanish decision to incorporate Hunosa as a state funded mining operation was a strategic financial one, in order to be able to manage the large majority of Spanish coal production at a more economic cost. The benefits as far as mines rescue is concerned are that mines rescue provision is assured to both large and small operators in northern Spain, at an economic cost to the mines. Small mine operators pay a smaller subscription to have the facilities of the Hunosa rescue service available, and the extremely small mines only pay when they have to call out the Hunosa brigade.

In summary, the disadvantages of this model are the costs to government. The advantages are the ability to have specialist teams available for additional rescue operations and the ability to make economic provision for the much smaller operators.

8.9.3 Mines Rescue Operated by Certified Private Companies

Another of the systems of operating Mines Rescue in the USA is that of using a private company to administrate the rescue function, including the maintenance of the rescue stations and their equipment. The private companies contract with individual mines to provide this service. This model is essentially also the one which operates in Australia, Canada and the UK.

In the US, rather than the private companies having a large body of their own staff as full-time rescuemen, active miners are generally used as team members (essentially part-time staff). The private companies then pay team members for training and utilisation time. One particular company in Virginia has contracts with 48 individual mines. Overall funding is usually a combination of grants from the state and fees paid by the mines contracting the service.

In Australia an equivalent system is in operation, whereby the Corporations set up by the respective Mines Rescue Boards function as a private company co-ordinating mines rescue to the ‘contracted’ mines. In Australia, however, the Corporations also act as the supervising body, unlike the separate supervision provided in the US by MSHA.

The Mines Rescue Service Limited in the UK also operates as a private company, albeit one ‘limited by guarantee’. Via the UK Mines Rescue Scheme, it essentially contracts
with each of the mines, through the mining companies, to operate a mines rescue service. It also maintains the six rescue stations and all the equipment required for rescue operations. Unlike the US system, however, the UK MRSL employs a much larger number of its own full-time mines rescue personnel. Furthermore, rather than UK funding being partly private and partly governmental, the individual mining companies have the ultimate responsibility for ensuring funding of the mines rescue service.

The advantages of this model, as practised by the countries studied, are that there is a central overall supervision of the rescue provision and that there is some ‘ownership’ of the rescue service by the mines providing the part-time rescuemen who operate in the schemes.

8.9.4 Co-operative Teams

The cooperate team system operates in three of the countries studied – Spain, USA and, to a much smaller extent, in Germany.

In Spain, as in the US, it is only one of several systems of operation. The formal co-operative system in Spain is part of the overall operations of the mining group Hunosa. As described earlier within Section 7.2, Hunosa has its own Mines Rescue Service to service its own mines. However, the Hunosa mines rescue service is also contracted to function as a service to a co-operative of mines, comprising a number of mines within the Asturias region that are financially unable to sustain their own independent mines rescue operation. Each of the mines pays a levy to Hunosa for provision of the service, based on the number of underground workers at the mine. The levy is lower than the cost of funding the service and the differential is paid by the Asturias government.

Spain also operates with the much smaller co-operative enterprise of MSP Bierzo Alto. This co-operative services some 14 very small mines, many of which have less than 50 underground workers. All of the 20 brigadesmen within the unit, including the rescue officer, essentially work full time in the mines and hence the system functions at a minimum cost. Because of their working hours, within the UK they would not be considered eligible for mines rescue duties.

In the US, the co-operative system is very similar to the Spanish Hunosa system. Fees are paid by the mines to the co-operative, based on the number of mine employees. Each mine must provide at least one team member. In general, several mines form the co-operative and these may be a combination of coal, metal and other non-metal mines. In addition to mines rescue operations, the US co-operative teams may undertake non-mining emergency services or rescue work. Unlike the Spanish system, however, if a mine in the US needs to call out the co-operative team for an incident, the mine requiring this service must pay for the additional expenses incurred.

In Germany, the BBG organisation works as a co-operative, although it does not service the larger underground coal mines which are serviced by DSK.

The co-operative model is one which appears best suited to quite small mining operations, where it is not practicable to locate part of a national mines rescue service in
their vicinity at an economic cost. It is only viable, however, where there are a number of small mines situated in close proximity to each other.

9 OTHER UK SEARCH AND RESCUE ORGANISATIONS

The following section is a summary of the other search and rescue operations functioning in the UK which have similar requirements to the UK mines rescue service, in terms of supplying a national rescue capability.

9.1 Maritime and Coastguard Agency

During the study, discussions were held with the search and rescue policy unit of the Maritime and Coastguard Agency (MCA), which incorporates Her Majesty’s Coastguard and which is now part of the DTLR. HM Coastguard coordinates all civil maritime Search and Rescue (SAR) activities in the UK SAR region, which covers 1.2 million square miles. The organisation operates in a significantly different manner to that of UK mines rescue, but it provides a rapid rescue response by using a combination of full-time professional staff and part-time volunteers.

HM Coastguard’s role and responsibilities were specified by the Secretary of State in a statement laid before Parliament in 1992, as:

*HM Coastguard has a statutory duty, under the Coastguard Act 1925, to be responsible for the initiation and co-ordination of civil maritime search and rescue within the United Kingdom Maritime Search and Rescue Region. This includes the mobilisation, organisation and tasking of adequate resources to respond to persons either in distress at sea, or persons at risk of injury or death on the cliffs or shoreline of the UK."

The Coastguard Act is seen as an enabling act, which in modern terms gives the Secretary of State the authority to determine the duties of HM Coastguard to meet current requirements.

HM Coastguard is split into 4 regions, within which there are 18 districts, each of which acts as a regional coordination centre, manned 24 hours per day, 365 days per year. The 18 districts are then sub-divided into 60 sectors. Since 1978, full-time staffing has been concentrated at the regional, district and sectoral levels, with District Inspectors reporting to their respective Regional Inspectors. Each District Inspector is responsible for a number of Sector Managers.

HM Coastguard operates with three ‘front line’ units: - a) Coastguard Rescue Teams, b) the RNLI and c) Search and Rescue Helicopters. The Coastal Response aspect of HM Coastguard’s obligations is the one nearest to the obligations of the UK mines rescue function and is the one examined in detail here. Overall rescue response is not regulated; rather it is covered by an ‘Operational Procedures’ document, which is effectively a Code of Practice.

Coastal Response is met mainly by Auxiliary Coastguards, who are the part-time volunteers constituting the members of the 390 Coastguard Rescue Teams (CRT’s).
Historically the constituent members of the CRTs were locally based, situated at strategic locations around the coast where there were good visual lookout vantage points, often associated with ports and harbours situated only a few miles apart. The CRT members were relatively numerous, partly because transport links were not satisfactory and partly because, in the past, the employers of these volunteers were more prepared to release staff for rescue purposes. In recent years, however, employers have become less willing to release staff for this ‘voluntary service’.

Generally the CR Teams are comprised of one Station Officer plus ten or more team members (often 12 or more these days), largely because it is not imperative to have the entire team present at a rescue. Consequently, if some team members are not available, the response team may involve as few as 6 persons. This constitutes an effective downsizeing of CRTs since pre-1992, whereby rather than having staff available to man two teams, there is now an emphasis on providing more, but smaller, initial reaction teams backed up by fewer specialist teams. In some locations, however, a full CRT does not exist and the organisation operates through a small CRT capable of solely an ‘initial response’.

All CRTs have a search capability and in addition many have a cliff and/or mud rescue capability, whereas the smaller teams have solely portable radios for reporting purposes.

The CRTs strategically located around the coast are equipped to deal with incidents appropriate to the risks associated with local coastal terrain and local shoreline activities and conditions. Each CRT has an initial response capability for investigation, surveillance and reporting purposes. The initial response depends on the content and quality of the first informant’s report to the co-ordination centre, but may involve as few as one or two persons proceeding to the scene of an incident to provide intelligence. Those involved in this initial response are unlikely to be equipped (except with portable radios), nor to have sufficient manpower to become actively involved in a rescue operation until they have the back-up support of the full CRT. Once the full CRT arrives, the incident co-ordination is under the control of the local Station Officer who takes charge of the rescue. Sector Managers are not expected to be able to respond along with the CRTs to the majority of incidents covered by a 24 hour surveillance organisation, but on most occasions an HM Coastguard Sector Manager is present. If required, more than one CRT may attend an incident.

Response times are not statutorily prescribed, but are a defined target. The initial response time is 30 minutes from being detailed, irrespective of whether the initial response is required to be solely one or two persons or a full CRT. If the full CRT is required to attend an incident after being notified by a smaller initial response team, it must attend within one hour of the original notification.

The system of operating a ‘front line’ response within the Auxiliary Coastguard Service is therefore drastically different to the method of operating in the mines rescue service. CRT members are only paid for training and for each call-out and they are not integrally involved with coastguard work in the way that part-time rescuemens at mines operate permanently in the environment in which incidents may occur. The nearest equivalent
level within the coastguard service is the Sector Manager, whose function is akin to that of a mines rescue officer, being in charge of training and supervising incident rescue.

The two other issues associated with the MCA which are worthy of note are the overall finding of the Agency and their participation in the national strategic committee which reviews Search and Rescue in the UK. The overall funding for the Agency, which provides a national coverage of the UK coastline is in the region of £100 million.

The national strategic committee for SAR in the UK incorporates virtually of the UK’s rescue functions, including cave rescue and mountain rescue, but does not have the involvement of mines rescue. There may be some merit in MRSL having a formal contact with this committee.

9.2 Fire and Emergency Services

The UK Fire and Emergency Planning Directorate is also now part of the DTLR.

The legislation which covers the operations of all the Fire and Emergency Rescue Services in the UK is the Fire Services Act 1947, which places a statutory duty on brigades to attend at fires. This is the only statutory duty; however, each Fire Authority must function under the guidance of the Secretary of State and utilise equipment and resources for other humanitarian issues. In addition to attending fires, brigades often provide a wide and varied range of services, including:-

- Rescues (eg. road traffic accidents, building collapse)
- Animal rescues
- Attendance at incidents involving hazardous materials
- Assistance during flooding or storms
- Fire Safety Inspections/Issuing of Fire Certificates
- Providing statutory and goodwill fire safety advice
- Providing advice on community fire safety
- Maintaining fire extinguishers
- Industrial training courses
- Attendance at fetes/galas to promote the Fire Service

In England, the Fire and Rescue Service is split into either County areas or Metropolitan areas; Scotland operates with what is effectively a ‘County’ structure, whereas Wales has three regions which function in a similar way to the English Metropolitan areas. The
South Yorkshire Fire and Rescue Service, based in Sheffield, is one of seven Metropolitan Brigades within the UK (Figure 9.2).

In practice, the number of fires attended by the Fire and Rescue Service has decreased in recent years, yet the number of traffic accidents has increased proportionately and these now constitute the majority of incidents.

Within the UK there are specialist units/brigades which handle ‘high-rise’ rescue and ‘water’ rescue, but the fire service does not have a ‘diving’ unit. The service has some capability for Confined Space rescue – associated largely with sewers and culverts – but the only Service with responsibility for the coverage of tunnels is the Kent service which handles 50% of the Channel tunnel rail link.

The South Yorkshire Fire service operates essentially with full-time employees in the permanent rescue stations, but they also have 10 ‘retained stations’ which utilise part-time employees.

In terms of mode of operation, generic risk assessments are used, which are akin to Codes of Practice, for each type of ‘call-out’.

The fire crews on duty at the station constitute a minimum of 4 persons per crew and a maximum of 6. These are used for a ‘first incident’ response, and ‘stand-by’ people are then used if other incidents occur. The crews operate on a 4-watch system over 2 days.

50
and 2 nights, and then have 4 shifts off. The shifts are 9.00am – 6.00pm and 6.00pm – 9.00am.

There are no statutory response times defined in the Fire Services Act 1947. Attendance times to incidents are associated with fire risk categories which are based on the Secretary of State's’ recommended standards. In most regions, these fall into 4/5 risk categories, as shown in Table 9.2

In terms of rescue equipment, they do operate with breathing equipment, but this is only half-hour duration compressed air equipment, serviced and maintained under an outside commercial contract with Draeger; they do not operate with long duration oxygen equipment.

Training is less strict than in the mines rescue service, although there is a strict medical prior to entering the service, with medicals undertaken approximately every four years. They do not have a statutory fitness test. The age limit for brigadesmen is 55, but there is pressure from the European Commission to extend this to a higher age limit.

An indication of the order of magnitude of the funding fire service throughout the UK can be obtained from the funding of the South Yorkshire metropolitan service, which is £33.5 million on firefighting and rescue operations, out of a total figure for 2001/2002 of £45.1 million.
Table 9.2 Fire Service Risk Categories

<table>
<thead>
<tr>
<th>Risk Category</th>
<th>Percentage of Brigade Area</th>
<th>Number of Appliances and Attendance Times to Incidents</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>0.4%</td>
<td>Two Appliances should arrive within 5 minutes and a further one within 8 minutes.</td>
</tr>
<tr>
<td>e.g.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>2.2%</td>
<td>One Appliance should arrive within 5 minutes and a further one within 8 minutes.</td>
</tr>
<tr>
<td>e.g.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>21.6%</td>
<td>One Appliance within 8 to 10 minutes. Comment: The brigade always sends two appliances to domestic fires. This is a local policy in excess of the minimum standard.</td>
</tr>
<tr>
<td>e.g.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>75.9%</td>
<td>One Appliance within 20 minutes.</td>
</tr>
<tr>
<td>e.g.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remote Rural</td>
<td>0%</td>
<td>No specific times.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Remote Rural
These are isolated from any centres of population and contain few buildings.
10 SUMMARY OF RESEARCH

The study has examined a range of organisations around the world concerned with mines rescue, together with other emergency search and rescue operations. In examining these organisations, particular attention was paid to the potential of their rescue provisions to meet existing UK legislative requirements. In addition, the existing mines rescue function in the UK has been investigated along with credible scenarios for the future size and geographical distribution of the UK deep mined coal industry.

With regard to the overseas mines rescue organisations, none of the systems employed in other countries meet the UK’s current regulatory requirements directly, nor do they have the potential to improve on the UK service provisions without significantly increasing costs. However, some aspects of the overseas models were considered to have some potential merit and hence were worthy of consideration during the development of ideas for future UK mines rescue options.

The company owned systems in place in France and Germany both have the benefit of functioning essentially as state-run operations. Both have had a phased closure of their deep mined business, which has taken place over a number of years and which has enabled them to retain large numbers of staff within their organisations. In Germany these staff are available both at the mines and within DSK’s central rescue service. The central corps in France is more akin to the regional UK position, yet they have considerably more part-time brigadesmen available at the mines. Nevertheless, there are many elements of their systems that are close to the UK “position”, although the overall costs of provision are substantially higher than in the UK.

The Hunosa run rescue service in Spain, is also essentially a state-run operation, and due to this funding support, it is able to provide low cost support to the smaller mines in the Asturias region. However, the rescue provision does not equate to the UK service cover.

The RSA and US company-owned functions are large scale operations, operating in a stable or expanding mining environment. In both countries the mines are therefore able to fund their own teams, stationed at the mines, and to provide both first and second response cover. In RSA the national mines rescue organisation operates primarily as a training service provider.

The existence of these organisations and their arrangements for effective mines rescue indicate that the company-owned model is one which is worthy of consideration, in terms of possible application to the future UK rescue provision.

The state-run operations in the Ukraine can be considered in some ways analogous to the UK system which operated under the National Coal Board. It exists as a strategic facility preserving a “national” mines rescue capability and also providing assistance to other non-mining operations. The Hunosa state funded company in Spain also operates as a strategic facility, in this case on a much smaller scale, for the purposes of managing a strategic run-down of a large part on the Spanish coal mining industry. The benefits in terms of mines rescue are its ability to support smaller mines, mentioned above. State
run schemes in the USA are much more regional. As far as the UK is concerned, a ‘state run’ system could be applicable either on a ‘national’ basis, or on a ‘regional’ one, with the ‘regions’ being England, Scotland and Wales.

The private company funded schemes that operate in Australia and in the US are the ones which are closest to the current UK provision, although both operate in countries with expanding mining industries. The key aspect of the Australian system is the funding mechanism, which, rather than being based solely on a per tonne levy, also combines the elements of mining staff numbers, and mine risk assessments.

The co-operative system operating in Spain, Germany and certain areas of the US is not one which lends itself to the UK situation. Essentially, the co-operatives operate with small scale mining operations, which are generally of a similar size, and which are located in relatively close geographical proximity. In the UK, there are insufficient numbers of smaller operations in close proximity to each other to enable them to fund an independent co-operative mines rescue provision.

From the part of the study undertaken on the current UK mines rescue position, there are a number of factors, both administrative and financial, which were identified as having the potential to impact on the acceptability and viability of any proposed future rescue provision.

The administrative issues include adapting to a shrinking UK mining industry and the resultant potential problems of retaining a sufficient number of part-time and full-time brigadesmen. Although the current numbers of part-time brigadesmen are sufficient to comply with the Regulations, the total numbers are noticeably lower than the numbers of part-time brigadesmen available in other countries where effective rescue cover is considered to be in place, for example in France and Germany. Also, some owners expressed some concern about being able to recruit new ‘volunteers’ in certain areas. This situation has the potential to be made worse in certain regions, as and when key mines cease production, and there is a realistic possibility that this will be the case within the next five to ten years. The continued availability of full-time brigadesmen and rescue officers is also a potential area of concern for the future. There is a general trend in the industry at large of a gradually ageing workforce. Furthermore, recruitment could potentially become a problem. In addition to being an administrative issue, this is also partly a financial one. The issue of recruitment will be allied to the differential in salaries between mine workers and mines rescue workers. Any increase in rescue workers’ salaries would impact directly on the coal levy.

The options considered must also take into account the concerns expressed by mine owners with respect to the amount of levy per tonne that they pay into the current mines rescue Scheme. Other items such as the issue of mutual assistance and the cost of training brigadesmen are all essentially linked to this issue. Furthermore, most projections, and IMC’s view of coal mining in the UK, are that overall deep mined coal production will decrease. This trend will result in reduced income from coal production and hence, via the levy, is likely to result in an increased production cost per tonne of deep mined coal for the mine owners.
To enable effective consideration of the financial aspects of any potential future options, it is necessary to put the costs of operating the current Scheme into perspective. Mines Rescue Scheme members in the UK currently pay a levy of 14 pence per tonne, as a result of the total costs being offset by MRSL’s commercial income. Assuming a typical calorific value for coal of 25 GigaJoules per tonne, the current cost of Scheme membership is around 0.56p per Gigajoule. On average, this cost represents less than 0.5% of a typical operator’s total coal production costs.

Another financial consideration is MRSL’s continuing ability to gain third-party funding. Whilst MRSL’s third-party income has made a most significant contribution to minimising the levy over the past six years, a number of parties consider that the potential to further increase the total business is limited by the number of brigadesmen that they have available for this type of work. Furthermore, this business has been gained largely within a positive economic climate. Recent international events and the general slowing down of the global economy may adversely impact on both current and future business.

The study examined other UK emergency rescue organisations with a view to identifying alternative modes of operation and any potential value in combining their operations with those of the Scheme. Administratively, integrating the UK mines rescue service with other fire, search and rescue operations has the potential benefit of reducing overall costs, whilst still maintaining an efficient mines rescue function. However, it is difficult to see how such an integration might be achieved without the mines rescue service becoming a government funded operation. Furthermore, the HSC’s report of October 1993 ‘The Framework for Health and Safety in Britain’s Coal Mines’ specifically stated that mines rescue work ‘...is not work which could be carried out by local fire services’. Nevertheless some further discussion of the other UK emergency rescue organisations is presented in the section 11.

The options presented in the following section are therefore considered to be those having some realistic potential of providing safe, effective arrangements for mines rescue cover in the UK and those with the potential to overcome, or at least minimise, some of the concerns summarised above. In addition to potential options, the following section also examines potential alternative funding and administrative arrangements.
11 POTENTIAL FUTURE OPTIONS

In examining potential future options IMC have been mindful of the UK requirements for effective arrangements, not only in terms of meeting the requirements of the Regulations, but also in terms of ensuring that future rescue provision is at least as effective as the current provisions.

The various scenarios considered are:

- Retain the status quo
- Operate two or more approved schemes
- Operate a Midlands “super” station, plus Welsh and Scottish stations.
- Move to all B-stations
  - at mines
  - at rescue stations
- Operate as a training only function
- Integrate with other Search and Rescue functions
- Operate with Government “supported” funding
- Move entirely to Government funding

Although the latter two are listed as possible ‘models’, essentially they are alternative funding and administrative arrangements.

11.1 Retain the status quo

The national structure of the mines rescue service in Great Britain, which was set up to ensure effective rescue in the event of an emergency at a mine, has served the industry extremely well over many years. The transitional arrangements which were put in place at the time of privatisation of the industry retained the national structure and, to date, these arrangements have been proved to be effective.

The existing mines rescue function in the UK, which is a private company-run operation, provides for effective mines rescue arrangements to be in place in all parts of the country where deep mined coal operations are taking place. It also provides for rescue provisions to be available to all operators, both large and small, at a cost which is comparable to, and in many cases significantly lower than, that encountered in all the other countries examined. Furthermore, it is able to provide the uniformity of both training and rescue equipment that all operators and UK mines rescue personnel believe is essential and it has in place the provisions for mutual assistance.
In addition, the mines rescue function exists within a flexible underlying organisational structure, the National Mines Rescue Scheme 2000. Consequently, should the extent of mining operations change in various geographical areas, for example, as a result of mine closures, MRSL, in consultation with the Mines Inspectorate and the Deep Mined Coal Industry Advisory Committee, can amend, or modify, the schedule of the Scheme accordingly. In view of the likelihood of a continued reduction in the size of the deep mined coal industry in the UK, it is considered to be important that any future mines rescue provision can also be re-structured appropriately.

A key feature of the existing Scheme structure is that it is capable of evolving to become almost every one of the other potential models. Should mining activity decline in the central belt of England, MRSL, via the Scheme, would be able to assess the technical and financial merits of combining some of the rescue stations in this region, possibly to form a ‘Midlands Super Station’, which could then co-exist with the Scottish and Welsh stations. Similarly, if it were necessary to operate the Scheme with a smaller number of full-time rescue staff, via the Scheme it would be possible to move from the ‘A’ station provision to either some form of ‘B’ station provision, or a training-only function.

Generally, therefore, the current rescue arrangements meet both the current and foreseeable future geographic and organisational requirements. The important remaining issues are then the staffing of the service and the costs of future provisions.

The forecast for UK coal production is that it will continue to decrease, and therefore that the Scheme levy will continue to increase. Existing costs are considered to be low, when compared to other equivalent rescue organisations, partly due to the full costs of rescue provision being offset by MRSL’s third-party income. One advantage of retaining the status quo is that MRSL would be able to continue with its current business of running the mines rescue Scheme, under a guaranteed income, and that it could continue to generate this third party income. The key issue is therefore to what extent the levy is likely to increase, and over what timescale. If the increase is small and gradual, it is probable that the Scheme will continue to provide a very cost efficient mines rescue cover. If the increase is rapid and threatening the operational viability of mines, then the options for consideration would be either to seek additional funding or to examine whether some possible downsizing could result in cost savings without affecting rescue cover.

The issue of the future staffing of the mines rescue service with the appropriate numbers of part-time and full-time rescuersmen is essentially an internal issue for the Scheme to address. Any requirement for more part-timers can be addressed by MRSL and the mine owners; any requirement for an increased number of full-timers can be addressed internally by MRSL.

Despite the general downward trend of the UK’s coal mining industry there also remains a need to consider the possibility of small operators applying for licences to mine coal from some of the UK’s remaining shallow coal reserves. With a mine located within the one hour response time of one of the Scheme’s current rescue stations, the existing first response provisions from this station would be available to support the owner’s rescue
arrangements. However, if the proposed mine was located outside the one hour response zones of any existing rescue stations, the owner would effectively have to make provision for first and second response team plus a rescue officer from his own man-power resources. Providing this level of cover from a small and remote mine is unlikely to be practical. In effect, the current arrangements could be viewed as precluding the possibility of opening small mines in areas such as Kent and much of the Lothian and Ayrshire coalfields in Scotland.

11.2 Operate Two or more Approved Schemes
An option discussed during meetings with the mine operators was that of having a semi-autonomous scheme for UK Coal, together with a separate scheme, or schemes, for other mines. At present UK Coal have by far the largest pool of part-time rescue men and, consequently, could provide a large contribution to any rescue operation. In principle, such a system could still function under an ‘umbrella’ MRSL organisation, with MRSL providing rescue officers for training purposes and for incident supervision. Alternatively, a UK Coal scheme, equivalent to the DSK scheme in Germany, could be totally self-sufficient.

With a totally self-sufficient model, the company would undertake all its own training and provide full first and second incident response itself. However, in order to ensure a commonality throughout the UK, in terms of training, rescue equipment and breathing apparatus, some form of supervisory body would still be required to provide some form of central ‘control’, equivalent to the role undertaken by MSHA in the USA. The smaller ‘non-UK Coal’ mines, geographically located within UK Coal’s region of operation could be part of a separate scheme, or alternatively form an ‘Association’ or ‘Co-operative’ agreement with UK Coal for them to provide their training and incidence cover.

The perceived advantages of this option from UK Coal’s perspective, are that they would lose any responsibility for contributing towards the costs of operating any ‘central’ mines rescue stations. However, they would have to operate with their own rescue officers, and may need to increase their numbers of part-time rescuemen. It is also possible that such an option could be of financial advantage to the smaller mines in UK Coal’s geographical areas, if they agreed a suitable commercial arrangement for a UK Coal rescue scheme to cover their mines.

Clearly there would be no cost offset provided by any third-party income from MRSL, but in principle UK Coal would be able to tailor the size of their rescue provision to the size of their business.

The disadvantages of this option are the difficulties that would be encountered elsewhere, in the regions of the North East of England, Wales and Scotland. In a fully self-sufficient model for UK Coal, the only realistic way of providing cover for the smaller mines in the North East would be via an ‘Association’ with either UK Coal or with a scheme which provided a service for Scotland. The obvious choice would be a link with UK Coal, but the smaller mines would then be entirely dependent upon the future of Ellington mine. Without Ellington, UK Coal would have no interests in the North East region.
In terms of the Scottish and Welsh coalfields, they could be partners in a second scheme, or, more realistically, would run their own schemes. The overall cost to Scottish Coal of having their own scheme may not be dissimilar to their current costs under the existing provisions, but their number of part-time rescuemen would need to be preserved. It would also be necessary to have in place contractual arrangements between the scheme operators, to ensure that the legal requirements for mutual assistance during sustained incidents were met.

The major difficulty with this multi-scheme model, however, is that of providing rescue cover in South Wales. Without a central rescue station at Dinas, almost the full responsibility for staffing to provide incident cover would fall on Tower colliery. At present, without the full-time staff provided from Dinas, South Wales in total does not have sufficient part-time rescuemen to provide all the incident cover required by the Regulations. In addition, because of the geographic location of Tower, relying almost entirely on part-time staff living in the Tower area to provide full first and second response cover to the small mines in the East of Wales within 1 hour is not realistic. Consequently, rescue provision as required by the Regulations could not be provided solely by part-time staff from the mines. Some form of full-time staffing would be required. The conclusion is that this would probably have to be the equivalent of the current provision at Dinas. In retaining a full-time provision equivalent to Dinas, and without a contribution from any MRSL third-party income, the cost of rescue provision under a Welsh scheme is considered to be in the region of 75 pence to £1 per tonne. Such a cost is likely to force the closure of all the mines in South Wales, with the possible exception of Tower.

The overall scenario described above is one without an MRSL ‘umbrella’ organisation in place. However, if the analysis is done for a three-scheme system, and assuming that a skeleton ‘central’ rescue organisation is in place, essentially using rescue officers in a training role, the final outcome is identical to that discussed above. Costs to UK Coal would be higher if MRSL continued to operate from their stations at Houghton, Selby, Mansfield and Ashby, costs to Scottish Coal could be ‘cost neutral’ and there would be the same costs in South Wales as those described above.

The final issue regarding a split scheme model is that it would be particularly detrimental to the existing MRSL company, which would suffer a significant downsizing of its business. This would probably have a twofold effect, firstly in terms of their overall business and their ability to undertake third party work, and secondly, because of this deficit, the cost of providing any remaining Scheme, or mining industry, services would be increased on a per diem basis. This feature would probably be most disadvantageous to the smaller operators. An additional risk of downsizing the central MRSL operation is that it may prove more difficult to attract suitable candidates for the posts of rescuemen and Rescue Officers.

11.3 Midland’s Super Station plus Wales and Scottish stations

This is conceived as a distinctly different option to the one considered above. The main potential benefit of considering a “super” station in the middle of England is the cost
savings associated with closing up to four of the rescue stations that are there at present, which would impact on all the mine owners. Furthermore, the facility to move to this situation already exists within the current Scheme system; the principal issue is therefore whether it is critical to move to this model in a shorter timescale.

The most probable location for a Midlands ‘super’ station is in the North Nottinghamshire / South Yorkshire region, central to the major mining areas in England. It is considered that this would entail setting up a new rescue station in this area, since neither the Selby nor the Mansfield stations could provide the required cover of first and second response teams for this entire region within one hour. However, if driving under “blue light” conditions and with a ‘central’ station located close to the M1 or M18 motorways, most of the English mines could be covered within one hour.

Nevertheless, there would remain a requirement to cover Daw Mill colliery and, more particularly, the North East. If existing provisions were maintained here, any cost savings would be associated solely with combining the Selby and Mansfield stations. If a central ‘super’ station was intended to cover the entire English coalfields, and the rescue stations at Ashby and Houghton-le-Spring were not maintained, potential cost savings could be larger, but ‘B’ station provisions, or some other arrangements, would need to be put in place to give effective rescue cover to Daw Mill colliery and the collieries in the North East. This would entail storing and maintaining rescue equipment at the mines, and could be considered to be a dilution of the current provisions. In addition, the provision of rescue officers at these mines would require addressing. The principal problem with mine-based ‘B’ station cover would be the rescue provision for the North East of England. Without the Houghton station, cover would be reliant on the Ellington part-time brigadesmen. The difficulties would then be equivalent to those discussed in the previous section 11.2, in terms of rescue cover being dependent upon UK Coal’s continued commercial operation of Ellington mine.

In principle, another possible way of covering the outer most mines of Central England would be by all-weather helicopter. This option is utilised by Hunosa mines rescue service in the North of Spain and is also a means of operation utilised by the Maritime and Coast-guard agency. However, apart from the issues of travelling in adverse weather conditions, helicopter usage is an extremely expensive option.

An additional consideration, in terms of operating from a new central ‘super’ station, is the staffing of a new station (and of any re-located ‘B’ stations). Although at present part-time rescue brigadesmen based at the mines may live at some distance from the mine, in general full-time rescue workers live within just a few minutes’ travelling time of the rescue station. The staffing of new stations would require either the re-location of existing staff and / or the local recruitment of suitable new staff.

The significant changes within this model option are, therefore, associated with the organisation of mines rescue within England. The rescue provisions in Wales and Scotland would be expected to continue in their present form.
In principle, the closure of four of MRSL’s existing rescue stations, and replacement by one ‘super’ station, could significantly reduce the cost of operating the UK mines rescue provision, possibly by up to 25%. However, offset against this there would be a significant loss of probably more than half of MRSL’s income from third-party business, plus the cost of establishing a “super” station at a new location. None of the existing MRSL rescue stations are sufficiently close to the major M1 motorway link to allow an effective response within one hour across most of the central coalfields. If MRSL is able to maintain at least its current level of third-party business, the net effect of this model on the cost of the levy per tonne of coal mined, is considered to be negligible in the longer term, and may actually increase the levy in the short term.

In summary, this is not considered to be a realistic option in the near future. As mines close, because of the exhaustion of available reserves, it may be feasible to move to this position, but this route is available via the existing Scheme.

11.4 Move to all B-stations

There are two possible options here, one being to operate with “B”- stations located at particular mines, and the other to have the “B”-stations at rescue stations. Once again, the facility to move to this system is provided under the present Scheme and the principal issue is then whether it is critical to make this move over a shorter timescale.

In terms of operating with ‘B’ station set-ups at the existing rescue stations, there would be no safety benefits in moving to this position from the current set up; in practice, both systems would result in a dilution of the existing provisions. Furthermore, with a reduction in full-time rescue staff numbers there would be a requirement to increase the number of part-time rescuemen at mines. In particular, the number of rescuemen living in close proximity to the mines, or the mine-based ‘B’ stations, would need to be increased, in order to provide adequate first and second response cover. In some areas of the UK, this could entail mines increasing their own part-time staff numbers in order to provide cover at competitor’s mines. In addition, formal co-operative arrangements for mutual assistance would be required between the operators.

Whether the stations were incorporated at the mines or at the existing stations would be unimportant as far as Scotland, the Midlands and Yorkshire areas are concerned and it is considered that an effective rescue system could be put in place there. However, the smaller mines in the North East would be extremely dependent upon the part-timers at Ellington and could not function under a ‘B’ station system if Ellington were to close. The position is even more unworkable in South Wales, where a full complement of rescue staff is really necessary in the Dinas region, in order to be able to service the mines in the East of Wales, as described within the previous two sections 11.2 and 11.3.

Concerns expressed by full-time mines rescue personnel about the option to utilise solely “B”-stations at the mines were related to the “policing” with this type of arrangement. It was stressed that there would need to be carefully maintained attestations and records of certification in order to preserve the effective rescue arrangements.

In discussions, MRSL stated that, in terms of incident response, their full-time staff were often at the mines prior to the mine-based rescue brigadesmen, because a number of the
part-time men live at some distance from the mine. Consequently, any benefit of moving to a ‘B’ station provision would be solely a perceived reduction in cost to the operators, by reducing the number of MRSL’s full-time rescue workers. With ‘B’ stations located at the mines, there would be the additional reduced cost of maintaining each of the rescue stations. However, this latter option is considered to be the least attractive, since generally the operators themselves did not wish to have mine-based rescue stations.

Offset against any of these perceived cost savings, however, when compared to the current situation, would be almost total elimination of MRSL’s third-party income.

11.5 Training only function

This option was not proposed by any of the mine operators, although one suggested a similar arrangement whereby a small core rescue service would retain officers who would be used for training, but who would also take part in rescue operations. This option would be akin to the system currently operating in South Africa, apart from the fact that there the Rescue Officers are stationed at the mines. In principle, the small core rescue service could be a national organisation or could operate on behalf of individual companies.

Advantages of this system would be that a much smaller central rescue function would be required, possibly at one central station. Direct costs paid by the mine owners outside their own company would therefore be minimised. In principle, a further advantage would be that all rescue staff required at an incident would reside within the proximity of the mine and hence would provide a minimum response time, provided that Rescue Officers and brigadesmen could be situated locally, within a maximum of one hour’s travelling distance of the mine. In practice, however, many part-time rescuemen currently live some distance from the mines, and therefore could only be used as a ‘third’, or subsequent response.

Additional disadvantages include the fact that central rescue costs would not be offset against third party income as they are at present. Furthermore, the system would require breathing apparatus and other equipment to be held at each mine (or geographically proximate group of mines). Financially this could be unviable for very small mines, particularly if they were remotely located. The issue of servicing and maintaining the mines rescue equipment would also have to be addressed. This could be achieved using in-house staff, or by the central training corps staff, or by an independent body such as Draeger, although this latter option would not comply with the Regulations. These latter two options would incur additional ‘external’ expenditure to the mining companies. In the short term, there would also be the costs of setting up more extensive storage facilities on site.

Although this option has the potential to reduce external costs paid by the mine owners, since the central corps function would be much smaller than at present, it is difficult to determine whether this system would result in any overall cost saving to the industry. It is possible that the system could be operated in the central area of England at a lower overall cost. However the major problems are again evident when the key coalfields in the North East and South Wales are considered, as discussed in the sub-sections above.
Once again it should be noted that the facility to move to a ‘central’ training-only system is provided within the present mines rescue arrangements.

11.6 Integration with other SAR operations

Administratively, integrating the UK mines rescue service with other fire, search and rescue operations has the potential benefit of reducing overall costs, whilst still maintaining an efficient mines rescue function. However, it is difficult to see how such an integration might be achieved without the mines rescue service becoming a government funded operation.

Furthermore, despite what may be perceived to be a closeness in terms of their duties and methods of operation, in practice there are quite major differences. In terms of the law relating to mines rescue staff, for example, this requires at least two years underground mining experience. The practicalities of achieving this without the need for a specialist mines rescue unit seem quite slim. Discussions with both the Fire Service and the Maritime and Coast-guard agency confirmed that they saw major differences in the modes of operation. In addition to the ‘mining experience’ issue, neither of the other two organisations operate with the types of long duration self-contained breathing apparatus used by mines rescue teams, and both organisations viewed underground deep mines to be an alien environment to them.

An additional major difficulty associated with any consideration of an integration with the Fire Service is that it operates with semi-autonomous regions. Consequently, it would be relatively difficult to undertake a ‘national’ response as is sometimes required by the mines rescue service, if it operated under such a structure.

One significant potential advantage of such an integration is the broader experience that could be gained by mines rescue personnel. If they had dual duties, in terms of mines rescue and general fire, search and rescue they would undoubtedly experience a far greater number of incidents than they do at present. This facet has the potential to improve their all-round rescue capabilities and, in the broader sense, to improve their career opportunities.

11.7 Government support funding

Many operators and mines rescue personnel believed that a system of government support funding could be an option which would overcome some of the industry’s current difficulties without being an excessive cost to the government. Various modes of operation can be envisaged: to illustrate the pros and cons of this option, one particular scenario is outlined here.

A means of government support can be envisaged whereby all the mine operators would pay a maximum levy per tonne of coal mined. For example, this levy figure could be set at 10 pence or 12 pence per tonne, the figures utilised during MRSL’s first year of operation in 1994 and which seem to have been reasonably acceptable to the mine owners at the time. If the costs of operating the mines rescue scheme exceeded the revenue
brought in by this per tonne levy, government funding could be utilised to make up the difference.

This system is very similar to ones used elsewhere in the world, for example in Australia, the USA and Spain. Using such a system, the mine owners would know exactly what their costs would be in the future, irrespective of the performance of other mines, or of MRSL in obtaining third party income. In principle, this system could actually be used to strengthen the existing UK mines rescue service. With a little extra government funding, the staffing of the existing service could be expanded slightly, thereby providing better ‘central corps’ cover for the smaller and more remote mines, and making them less reliant on mutual part-timer’s assistance. Such additions may also be useful for MRSL if they were also to be utilised in generating third-party income. At minimal additional cost, the salary structure within MRSL could be enhanced, providing the opportunity for ongoing recruitment. Mine owners would still be actively interested in the operation of the Scheme, since they would still be contributing some funds and would therefore have some Scheme ‘ownership’.

As a separate alternative to this type of government support funding, which distributes the funding between all the owners, government support funding could be undertaken on a regional basis. In principle, this could be used to enable some of the alternative models to become feasible options, for example, if the funding were applied in South Wales, the North East and possibly Scotland. This type of support would be discriminatory against UK Coal, however, unless they also received some additional subsidy.

11.8 Fully Government Funded

This was the option favoured by most of the mining companies and indeed they all believed that the government should be responsible for funding mines rescue. For the mine operators, they would not only gain from not having to pay the existing levy but, perhaps more importantly, they would not have to contend with what is likely to be an indeterminate increasing levy in future years impacting on their business. In principle, government funding would be provided to cover the cost of operating the mines rescue Scheme and the Scheme could continue to operate in its current form, but without the levy. MRSL could also continue to seek third-party income, which would have the advantage of maintaining wider career opportunities for mines rescue staff, by enabling them to continue to undertake other types of rescue and emergency service work.

If this option were to be adopted, government funding could be supplied directly to MRSL or, alternatively, could be provided by using the Coal Authority as a vehicle. The advantages of this avenue are that a mines rescue service could be maintained and there could be more opportunity created to attract recruits to a full-time permanent corps.

In absolute terms, the cost of this option to the government is likely to be approximately £4m. Although this would constitute an additional cost to the government, the figure is an extremely small percentage of the total cost of supporting the other UK fire and rescue emergency services.
The principal disadvantage of this option is to the government, in terms of it incurring additional expenditure. Recently the UK government has provided a subsidy to the mining industry which is due to expire in mid 2002, although none of this was specifically directed to the provision of mines rescue. Direct support of the UK mines rescue function would effectively be an alternative means of subsidy to the industry, to the benefit of all the owners, in terms of ensuring continuity of supply of UK mined coal. An additional potential disadvantage could be to the MRS company, unless ongoing third party work continued. Staff working within a mines rescue function serving only the UK coal industry may feel that their future career opportunities were limited and decide to leave; additionally, recruiting may be an on-going problem.

12 CONCLUSIONS AND RECOMMENDATIONS

The study has shown that there exists a wide range of models for providing emergency services, in particular to mines. Each purports to provide adequate arrangements and effective response in the case of an incident, yet it is evident that there is a wide opinion on what is effective response. Relatively few of the organisations guarantee a response within one hour, for example, even though a number of them achieve it. Equally a number of the organisations only “guarantee” attendance of a first response team, not a first and second response.

A feature of mines rescue overseas is the component of funding which is essentially from government, either directly to the organisation, or via provincial aid. Ignoring the current UK government subsidy, which could arguably be seen to provide a small component of funding towards the operator’s internal costs of providing mines rescue, the UK is the only coal mining industry that is in decline which receives no Government assistance towards the provision of mines rescue.

The analysis of the possible future options discussed within the previous section has shown that the existing UK mines rescue arrangements provide one of the most flexible, and lowest cost means of ensuring effective mines rescue cover to both large and small coal mine operators. Within the existing mines rescue Scheme, MRSL, in conjunction with the UK Mines Inspectorate and the DMCIAC, are able to constantly assess the requirements of the deep mined coal industry and to modify the schedule of the mines rescue Scheme accordingly. The principal recommendation of this report is therefore that the existing provisions for mines rescue in Great Britain are maintained.

However, there are a number of subsidiary issues which are recommended for further investigation. Some of these subsidiary issues relate to foreseeable difficulties which are likely to be encountered by the whole of the industry and others relate to those which will predominantly affect MRSL.

A key issue is the likelihood of the coal levy per tonne of coal mined continuing to increase. There are three factors which will influence such an increase :-

- The number of tonnes of coal produced
- Costs to the mine owners of running the Scheme
• Third-party income generated by MRSL

Within a privatised UK mining industry subject to current market forces, the number of tonnes of deep mined coal produced is forecast to fall in future years. Consequently this issue is not one which can be affected by the mines rescue industry, nor by MRSL. However, it is the single most influential factor governing the coal industry levy.

The costs of running the Scheme are largely predetermined by the size of MRSL’s workforce. Comparisons of MRSL’s regional rescue provisions with those from other countries has indicated that there is little, if any, opportunity to reduce these staff numbers further whilst the industry continues to operate in its current geographic locations. The opportunities to reduce Scheme costs to the mine owners therefore rest with the ceasing of deep mined coal production in particular regions, or with the introduction of additional funding – either from national or regional government.

The third party income generated by MRSL is another issue which is governed by MRSL’s total staffing. With existing staff numbers, the opportunities to noticeably increase third-party income are considered to be limited. However, if MRSL were to operate with additional staff whose primary function was third-party work, rather than mines rescue Scheme work, additional income could be generated.

A further subsidiary issue which requires addressing is the provision of full-time mines rescuemen and rescue officers. Whilst the salaries earnable by mine workers continues to be higher than those achieved by rescue workers, the on-going supply of rescuemen and rescue officers remains in some doubt. Furthermore, if particular mines in specific regions were to close, the numbers of available part-time rescuemen may decrease and require supplementing with additional full-time staff.

Funding for the replacement of large ‘capital’ items by MRSL is something which may be required at some time in the future; in particular the position regarding the SEFA breathing apparatus which is no longer manufactured may need to be addressed.

Finally, there may be merit in the MRSL organisation having contact with the national strategic committee for search and rescue in the UK.