

CENTRAL FIRE BRIGADES ADVISORY COUNCILS FOR

ENGLAND AND WALES AND FOR SCOTLAND

Report of the Joint Committee

on Fire-fighting at Sea

20 SEP 1990

80688

Introduction

1. We were appointed as a Joint Committee of the Central Fire Brigades Advisory Councils to consider the question of fire-fighting at sea with the following terms of reference:-

"To consider the problems of fire-fighting operations at sea and to ascertain whether any guidance on these matters can usefully be offered to fire authorities".

The membership of the Committee is set out at Appendix A. We held six meetings, one of which was attended by representatives of the Ministry of Defence and the Board of Trade, who advised us on the use of helicopters for transporting firemen and equipment to fires at sea, and on the communications facilities of the coast-guard service which might assist the fire service in maintaining liaison with other services concerned with off-shore life saving operations.

2. At the outset of our deliberations we circulated a questionnaire to all fire authorities in England, Wales and Scotland with coastal boundaries or whose areas include estuarial waters, to assess the extent to which brigades undertake off-shore fire-fighting operations, and to find out what arrangements were made to deal with the problems involved. Their replies showed that between January 1960 and October 1965 fire brigades in Great Britain attended 47 fires at sea or in estuarial waters. We wish to thank the brigades concerned for their ready co-operation and for the helpful information which they provided. A number of our members attended exercises arranged by the Kent and Liverpool fire brigades to train members of the brigades in helicopter operations. These were of value in demonstrating the problems of transporting men by helicopter to a vessel at sea and we wish to thank these brigades and the other services which took part for the facilities which they afforded to our members.

Legal Position

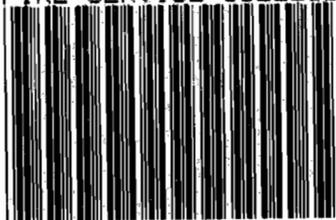
3. We understand that a fire authority has no legal responsibility for fighting fires at sea outside its area. In England and Wales the position of the off-shore boundary of a local authority is governed generally by section 144 of the Local Government Act, 1933, which provides that every accretion from the sea, whether natural or artificial, and any part of the sea shore to the low water mark shall be annexed to and incorporated with the area of the authority which it adjoins; and that low water mark for this purpose is normally taken to mean low water at ordinary tides. There are variations to this rule where the boundary of a borough which abuts on the sea or a river has been extended by local Act or provisional order. To determine the seaward boundary of such an authority it is necessary to refer to the extension map attached to the Act or order in deciding how far land covered by water is included in the authority's area. Where a fire authority attends a fire at sea outside its area, it does so in the exercise of its power under section 3 (1) (d) of the Fire Services Act, 1947. The position in Scotland is generally the same as in England and Wales except that there is no statutory provision equivalent to section 144 of the Local Government Act, 1933. We understand that a member of a brigade engaged on off-shore fire-fighting operations would be on duty while so engaged and, therefore, subject to discipline; and that a man injured during such operations would be injured in the execution of his duty for the purposes of the Firemen's Pension Scheme.

Attendance at Fires at Sea.

4. Against this background, we considered the circumstances in which it would be appropriate for fire authorities to respond to calls for assistance at fires at sea. We were unanimously of the opinion that no fire authority or member of a

VK
1258

FIRE SERVICE COLLEGE



00029885W

fire brigade would refuse to respond to a call for assistance where human life was endangered, and in practice we understand that a distressed vessel is seldom abandoned completely. We recommend, therefore, that all fire authorities with coastal boundaries should consider whether they were willing to send members of the brigade to a fire at sea outside their area and should resolve accordingly, empowering the chief officer to make an attendance at his discretion, subject to any limitations specified in the resolution. Appropriate contingency plans should then be made in consultation with other services concerned to ensure that arrangements were made for transporting firemen and equipment to fires at sea and providing suitable communications facilities; that all members of the brigade who might be required to take part in such operations were fully trained for the purpose; and that appropriate arrangements were made for the safety and welfare of the men.

Contingency Plans

5. The importance of pre-planning for the success of off-shore operations and the safety of the firemen taking part cannot be over-stressed. Contingency plans of fire authorities must necessarily vary according to local circumstances. In areas where there are estuarial waters, we recommend that riparian fire authorities should combine in certain aspects of their contingency planning and there may be advantage in their forming joint committees to co-ordinate the planning. Whatever local arrangements are made, we recommend that there should be close consultation with the coastguard and lifeboat organisations. We understand that the coastguard service accepts responsibility for informing all other services concerned about incidents at sea. Whenever the fire service becomes involved in a incident at sea, therefore, they should inform the coastguard as a matter of routine. This will ensure the notification of other interested services and the attendance of a lifeboat at all off-shore incidents in which the fire service is engaged.

The Coastguard Organisation

6. The coastguard organisation in Great Britain is divided into nine divisions, each of which has an Inspector in charge. The divisions are divided into districts, each with a radio equipped headquarters station which is continuously manned. We are informed that liaison with these headquarters stations is best effected through the appropriate Inspector.

7. We have considered whether in making contingency plans fire authorities should ask the coastguard to inform the fire service of all messages received about fires at sea whether or not fire service assistance had been requested. Although there might appear to be advantage in the fire service receiving earliest notification of off-shore fires, we understand that their assistance is not always requested by the owners of the distressed vessel because of possible salvage claims, and that the arrangements for requesting fire service assistance may vary in different parts of the country. We recommend, therefore, that arrangements for informing the fire service of fires at sea should be left to individual brigades when drawing up their contingency plans with the coastguard; that before attending a fire at sea a brigade should confirm that fire service assistance had been requested by the master, owners or agents; and that the officer in charge of the first attendance should on arrival confirm with the ship's master that the brigade's assistance was still required before starting fire-fighting operations.

Sea Transport

8. Since few brigades operate fire boats and these do not normally undertake operations at sea, the fire service depends on other services for transporting firemen and equipment to fires at sea. Many brigades have made arrangements for the provision of surface craft by the Royal National Lifeboat Institution

, port and river authorities and tug companies. We understand that in most parts of the country tug companies are willing to make a tug available to the fire service for a nominal annual charge, and that brigades are expected to meet the cost of additional insurance premiums to cover these operations. In making contingency plans for the provision of surface transport, fire authorities should ensure that only safe and suitable craft with appropriate certificates of sea-worthiness are used.

F95000324

Helicopters

9. A few fire authorities have made satisfactory arrangements with the Royal Air Force for their search and rescue helicopters to be used for transporting firemen and equipment to fires at sea where circumstances are appropriate. The advantage of this form of transport is the speed of first attendance where the distressed vessel is some distance from the shore, which also enables a quick reconnaissance to be carried out and an early report to be sent back to the fire control ashore. It is important in planning such operations however that the limitations of this form of transport are well understood. The helicopter facilities available and their capabilities and limitations are set out at Appendix C. Because the range of helicopters and the time that they can remain airborne are limited by fuel considerations, operations involving their use must be thoroughly preplanned. The experience of those of our members who have participated in helicopter operations is that the fire service can have complete confidence at all times in the judgement and skill of the highly trained and experienced Royal Air Force helicopter crews. The captain of the aircraft is responsible at all times for deciding the amount of equipment and the number of men he can carry for a particular operation and whether weather conditions permit the operation to be carried out. It is relevant to mention that in general the Royal Air Force do not regard helicopter operations at sea as being particularly hazardous.

Communications

10. The experience of those brigades which have undertaken fire-fighting operations at sea shows that much pre-planning is required to ensure that the best use is made of available communications facilities. The basic requirements are a forward link from the control vessel from which operations are being conducted to the distressed ship, and a rearward link from the control vessel to a mobile or static control ashore over which fire service operational messages about such matters as additional equipment required may be passed. We have discussed with the appropriate authorities the communications facilities available to the coastguard, lifeboat and R.A.F. helicopter services to determine to what extent the fire service might make use of these facilities, but we understand that they cannot rely on using them for passing operational fire service messages. We recommend, therefore, that in their contingency plans brigades should plan to provide their own communications facilities such as a loud-hailer or pack set for the forward link and a boxed portable set or pack set for the rearward link. If the incident is beyond the range of the fire brigade wireless scheme it may well be possible to make use of the communications facilities of the distressed or transporting vessel.

11. For maintaining communications between the fire service, the lifeboat service and the coastguard the maritime communications channel 16 (156.8 mc/s.V.H.F. F/M) which is used by the coastguard, some lifeboats, and most harbour boats and tugs and trawlers within port operational limits, would appear to be the most suitable channel. There would be advantage, therefore, if fire authorities planned to use vessels equipped on this frequency for transporting men and equipment to a distressed ship. Lifeboats and helicopters have two common frequencies but no common frequency is used by lifeboats, coastguard and R.A.F. search and rescue helicopters. We are informed, however, that a lifeboat would normally be in attendance at an incident in which a helicopter was used for transporting firemen to a fire at sea. For maintaining communications, therefore, with other services during helicopter operations, we recommend that use be made of the wireless facilities carried by the attendant lifeboat which would be able to communicate both with R.A.F. helicopters and with the coastguard.

Fire-fighting Equipment

12. Although there may be occasions when reconnaissance will show that it is possible to use the fire-fighting equipment of the distressed vessel, it will be apparent that the serviceability of such equipment cannot always be relied upon. We recommend, therefore, that the fire service should plan always to provide its own equipment for fire-fighting operations at sea, which we suggest would have the additional merit of maintaining the confidence of the men in the efficiency and reliability of the equipment to be used. In some brigades it is the practice to

pre-box the equipment which has been designated for use in off-shore operations to facilitate the rapid loading of the equipment on to the transporting vessel. This operation, which may be a difficult one depending on the facilities available at the place of embarkation; can in certain circumstances be facilitated by the use of ramps. Appropriate methods for facilitating rapid embarkation should be considered in drawing up contingency plans. We attach at Appendix D a list of equipment which for planning purposes we recommend as suitable for first attendance. Because circumstances and risks will vary in different parts of the country, fire authorities will wish to consider which of these items it would be appropriate to designate for use in their area. It may not always be practicable to use all the equipment specified e.g. for helicopter operations or when it is necessary first to make a quick reconnaissance with the minimum of essential equipment. We think, however, that the list will assist fire authorities in preparing their contingency plans. We have not thought it practicable to suggest equipment for second attendance because the circumstances of each fire would differ and the equipment required would depend on the reconnaissance report.

13. As we have already stated the total weight of fire-fighting equipment which can be carried in a helicopter is limited. It is essential, therefore, that the equipment designated for each helicopter lift, which should be pre-boxed, should be agreed with the R.A.F. helicopter commander, who, we understand, will wish to know the exact weight of each item to be carried. We have included in Appendix D the equipment designated by two brigades for use in helicopter operations.

Safety and Welfare Equipment

14. It will be apparent that off-shore fire-fighting operations may have to be undertaken in varying weather conditions. Particular attention should therefore be paid to appropriate provision being made for the safety and welfare of the officers and men taking part. We recommend that the safety and welfare equipment which is designated for first attendance should include life jackets, first aid kit, full fire-fighting uniform, protective gloves, oilskins, sea sickness pills and self-heating tins of food. We stress particularly that life jackets should be worn by all officers and men from the moment of embarkation for off-shore operations. The decision whether life jackets may be discarded during actual fire-fighting operations should be left to the discretion of the officer in charge. We understand that surface craft and helicopters which may be used for off-shore operations cannot be relied upon to carry enough life jackets for the firemen as well as the crew. We recommend, therefore, that each brigade should plan to provide its own life jackets and should place no reliance for this purpose on the service providing the transport. Before embarkation every fireman should be issued with a life jacket, conforming to the requirements of Schedule 12 to the Merchant Shipping (Life Saving Appliances) Rules 1965. We understand that experience has shown that none of the life jackets at present available is entirely satisfactory for fire-fighting operations at sea, and we have, therefore, asked the Joint Committee on the Design and Development of Appliances and Equipment to consider whether a more suitable design can be recommended. We have also asked the Committee to consider the suitability of an immersion suit, which has been used by the Liverpool Fire Brigade for helicopter operations.

Training

15. We recommend at paragraph 4 that all members of brigades who may be called upon to fight fires at sea should be properly trained for the purpose. We consider that this training should form part of routine brigade training and should include participation in regular exercises, at which those men who were unsuitable for off-shore operations e.g. because of proneness to sea sickness should be identified. We have set out at Appendix E a list of subjects on which we think it appropriate for training to be given. We have not thought it appropriate to include training in ship fires generally because these are dealt with in Part 7 of the Manual of Firemanship "Fireboats and Ship Fires". We recommend, however, that firemen who may have to fight fires at sea should be familiar with the contents of this volume and we attach importance to the inclusion of training based on Part 7 of the Manual in the regular curriculum of brigades with off-shore boundaries. We recommend that

when a fire authority has drawn up its contingency plan, regular exercises should be held in conjunction with other services concerned to familiarise the men with the details of the plan, with the methods of loading equipment on to the transporting vessel or helicopter, with getting equipment to work on a distressed vessel and with the general problems with which they are likely to have to contend on operations. So far as helicopter training is concerned exercises will also accustom firemen to the strong down draught caused by the rotor blades, to the techniques of being winched to and from the aircraft and to the high noise level obtaining inside the aircraft which makes it impossible to pass oral orders during the flight. We recognise that the limitation on the number of flying hours per year allowed at each helicopter station for training purposes must inevitably restrict training and it may not often be possible to include in the training practice in being winched on to and off the deck of a vessel at sea. We recommend, however, that such training should be included where it is feasible to make the necessary arrangements.

Reconnaissance

16. Experience has shown that the fire service may receive little information with the initial request for assistance about the details of the fire at sea. In such circumstances fire control ashore will wish the officer in charge of the first attendance to provide them with a quick and concise report of the fire situation. Where circumstances permit there may be advantage in sending an officer ahead of the main fire-fighting body to carry out this initial reconnaissance. We have set out at Appendix F the information which we suggest might be included in the initial fire reconnaissance report.

Salvage

17. Conflicting views have been expressed on whether salvage can rightly be claimed by firemen who successfully fight a fire at sea. No claims of this nature have come before the courts in Great Britain and the validity of such claims is not clear. We understand however that three brigades have received payment in settlement of salvage claims for fire-fighting operations at sea as a result of which there was a distribution to the officers and men who took part in the operation.

Insurance Arrangements for Transportation by Helicopter

18. A fireman who suffers injury when engaged on off-shore fire-fighting operations is covered by the Firemen's Pension Scheme. We recommend that members of brigades who have private assurance or insurance policies should be advised to consult their insurance companies and where necessary ask them to give an ~~endorsement~~ that the cover provided by these policies should not be prejudiced in the event of injury or death caused during training with or conveyance by helicopters. The companies should be informed that such activities are considered to be part of the normal work of a fireman.

19. The Ministry of Defence are not prepared to accept liabilities for damages arising from the use of helicopters by non-service personnel and suggest that the appropriate way of settling such liabilities is by agreement between the Ministry and the fire authority concerned. The normal arrangement is for the fire authority to indemnify the Ministry against such liabilities and where appropriate to extend their insurance to cover their liability as employers in respect of accidents to firemen arising out of helicopter operations. Fire authorities who enter into arrangements therefore with the R.A.F. to use helicopters for transporting firemen to fires at sea and for joint training exercises are advised to consult the Ministry of Defence, F.8(Air), Adastral House, Theobalds Road, W.C.1.

General

20. We recommend in paragraph 15 that firemen who may have to fight fires at sea should be familiar with the contents of Part 7 of the Manual of Firemanship "Fireboats and Ship Fires". We think it appropriate to draw the attention of fire authorities with coastal boundaries to the report of the Working Party on Fire Prevention and Fire-fighting in Ships in Port (circulated to fire authorities in 1950) which contains much useful guidance about ship fires. It is not within our

Helicopters

R.A.F. search and rescue helicopters are available at the following R.A.F. stations:-

R.A.F. Acklington, Northumberland
R.A.F. Chivenor, Devon
R.A.F. Coltishall, Norfolk
R.A.F. Leconfield, Yorkshire
R.A.F. Leuchars, Fife
R.A.F. Manston, Kent
R.A.F. Thorney Island, Hampshire
R.A.F. Valley, Anglesey

There are two helicopters at each station and cover is provided for the whole coastline of Great Britain with the exception of a small area in north west Scotland. (There are also a number of helicopters at naval air stations but these are operational only when naval flying is in progress and they cannot, therefore, be relied upon for fire service planning purposes.) Search and rescue helicopters exist primarily to save the lives of aircrews, but they would normally be prepared to assist with other life saving operations such as fire-fighting operations at sea and to allocate a small amount of their permitted training time for joint training. The number of flying hours per year authorised for each station is limited for financial reasons and it is therefore important that the facilities are used only for essential purposes. The Ministry of Defence consider whether to make a charge for rendering assistance, especially in operations in which life is not at risk when the ship owner might be expected to meet the costs of the operations. It is unlikely, however, that a charge would be made to a local authority fire brigade for assistance in life saving operations.

Search and rescue helicopters can be made available for operations within fifteen minutes of a call being received. They are of particular value for use over short distances. Their radius of operations is about 85 nautical miles and their normal speed 80 knots. At this speed the helicopter uses 450 lbs. of fuel an hour. A helicopter equipped with search and rescue equipment and carrying a normal R.A.F. crew could carry a load of 1,300 lbs. (including fuel, and fire-fighting personnel and equipment). The range of the aircraft would be reduced to the extent that fire-fighting personnel and equipment replaced fuel. If sufficient fuel was required for one hour's flying then the weight of fire-fighting equipment and personnel would not exceed 760 lbs. The capacity of the winch is 450 lbs, which is sufficient to allow a portable pump to be lowered.

Helicopter operations are restricted by certain weather conditions. They are not authorised to operate in wind speeds greater than 45 knots; in cold weather the formation of ice on the rotor blades severely restricts operations; and they are unable to operate in visibilities of less than 200-300 yards. In inclement weather it would be for the R.A.F. to decide whether assistance to the fire service was practicable.

Fire-fighting Equipment for First Attendance

Breathing apparatus and stage 1 procedure equipment.
 Portable pump, with suction equipment, slinging devices and fuel as appropriate.
 Small diameter hose, branches, lines and ancillary equipment.
 Heaving lines and line firing rockets for boarding purposes.
 Foam or foam making equipment.
 Tender to ship communications, such as loud hailers or pack sets.
 Portable lights.

- Notes 1. Experience has shown that when using foam at operations at sea it is better to pump a mixture of water and foam compound aboard the affected vessel and to aerate it there. This rules out the use of certain types of foam equipment.
2. Southampton Fire Brigade have developed a boarding hook to assist with boarding abandoned vessels. This is being considered by the Design and Development Committee and will be brought to the notice of brigades in due course.

Equipment designated for transportation to fires
 at sea by helicopter

SouthamptonFirst Lift

2 men fully equipped at 200 lb. per man.	400 lb.
4 x 75' lengths of $1\frac{3}{4}$ " hose at 17 lb. per length.	68 lb.
1 alloy dividing breeching.	4 lb.
2 variable branchpipes at $4\frac{1}{2}$ lb. each.	9 lb.
1 ship's hydrant adaptor, alloy, (if detail is known).	1 lb.
Rations and water for 4 men at 5 lb. per man for 24 hours.	20 lb.
Supply of sea-sickness tablets.	-
	<hr/>
	<u>502 lb.</u>

Second Lift

1 lightweight pump	350 lb.
3 lengths of 4" x 8' suction hose at 35 lb. (alloy couplings).	105 lb.
Pump slings - 1 set.	6 lb.
Suction strainer and wrenches.	5 lb.
5 gallons of petrol.	<u>36 lb.</u>
	<u>502 lb.</u>

Third Lift

2 men fully equipped at 200 lb. per man.	400 lb.
Stage 1 breathing apparatus board.	2 lb.
1 breathing apparatus tool kit.	10 lb.
2 x 1 hour proto B.A. sets.	74 lb.
2 x 1 hour proto cylinders.	<u>20 lb.</u>
	<u>506 lb.</u>

Suffolk and Ipswich

<u>Items</u>		<u>Weight</u>
<u>Boxed Equipment</u>		
Box with sling	1	}
Suction strainer	1	
Hughes type branch	2	
Spare nozzles	2	
Rope 100'	1	
Hand Lamps	2	
Can of oil (1 gal.)	1	
Suction Wrenches, Universal	2	
Rope Slings	2	
Hose lengths 75' x 1 $\frac{3}{4}$ "	4	
<u>F. W. Pump</u>		
Plus fuel	1)
		3 cwt. 50 lbs.
<u>Suction Hose 8' x 4"</u>	4	}
Plus Leather straps with Q/R buckles	2	
		1 cwt. 49 lbs.
Total Weight =		<u>6 cwt. 32 lbs.</u>

Note

The lighter lifts proposed by Southampton enable the aircraft to carry more fuel or firemen.