HOME OFFICE

Queen Anne's Gate London SW1H 9AT
Direct line: 01-273 2531
Switchboard: 01-273 3000

Our reference: FEP/89 59/1507/3
Your reference: FEP/89 59/67/6
FEP/89 59/67/4
FEP/88 59/408/1
FIR/84 41/2/2
FEP/90 16/64/4
FEP/89 64/245/1
FEP/88 17/20/12
FEP/87 26/45/1
FEP/90 6/51/1

9 May 1990

Dear Chief Officer

DEAR CHIEF OFFICER LETTER 7/1990

Items

1. RADIO COMMUNICATIONS AT INCIDENTS
2. ROUTING OF 999 EMERGENCY CALLS
3. CELLULAR RADIO
4. GUIDANCE ON THE EVALUATION OF RADIO MAINTENANCE OPTIONS
5. WARNING SIGNS ON CROP SPRAYING AIRCRAFT
6. TRANSPORT OF HAZARDOUS SUBSTANCES - PETROLEUM
7. METEOROLOGICAL ADVICE IN THE EVENT OF A RELEASE OF TOXIC CHEMICALS - CHEMET
8. THE USE OF HIGH PRESSURE AND LOW PRESSURE PUMPS WITH HOSEREEL SYSTEMS - CFBAC REPORT No 36
9. ANNUAL FIRE PREVENTION RETURNS - FORM 45/D

10. FIRE PRECAUTIONS IN HEALTH BUILDINGS - COMMERCIAL ENTERPRISES ON HEALTH SERVICE PREMISES.

Yours faithfully

SIR REGINALD DOYLE
Her Majesty's Chief
Inspector of Fire Services

ITEM 1
DCOL 7/1990

RADIO COMMUNICATIONS AT INCIDENTS

Background

The Joint Committee on Fire Brigade Communications (JCFBC) set up a working group two years ago to investigate a perceived fire service requirement for additional fireground radio channels. The Working Group submitted a report in November 1988 which put forward several recommendations which were agreed in principle by the Home Office frequency managers, subject to the provision of formal policy statements in support of the operational requirement for the new channels and on the understanding that the frequency spectrum would not be available until 1990. This report was endorsed by the JCFBC.

A Dear Chief Officer Letter - 1/1989 (Item H Fireground Radio Channel Allocation) - announced the changes and also stated that further guidance would be issued to cover regulatory, operational and equipment matters. This guidance has now been prepared and is given below.

It should be noted that the extra UHF radio channels are available for operational use with immediate effect. A table of channel usage is provided at paragraph 2.3 below.

Chief Officers will be interested to note that a further UHF channel is available for inter-agency radio communications, although for the present this facility is restricted to airport and local authority fire service operations only (paragraph 2.4.2 refers).

The formal policy statement by Home Office Radio Frequency and Communications Planning Unit on fire incident channels will be sent to Chief Officers under separate cover. (Note: the term "incident" is used in preference to "fireground").

1. Regulatory Issues

1.1 Licensing

The Wireless Telegraphy Act 1949 requires users of radio communications to obtain a licence from the Department of Trade and Industry (DTI). As a result, all fire brigade radio transmitting and receiving equipment has to be licensed. Simplified arrangements exist under which one "block" licence covers the whole of a brigade's radio facilities, with the exception of marine radio equipment. The number of stations is not limited by this licence, which may also be taken to include 'on-scheme' paging facilities which operate on the normal speech channel.

The frequencies are assigned by the Home Office's Radio Frequency and Communications Planning Unit (RFCPU) from spectrum allocated for the use of Home Office sponsored services. In addition, the block licence enables a brigade to transmit and receive with 'open channel' (CB) radios. Details of these frequencies are given in the policy statement being sent under separate cover.

So long as any frequency for use at incidents is assigned from frequencies managed by the RFCPU, then such facilities will be included in the brigade's block licence. Compilation of the licence schedule is carried out by the RFCPU and forwarded to DTI for appending to the licence, which is then issued by the DTI to the brigade upon receipt of the appropriate fee. In the event of a brigade requiring the use of frequencies from the civil frequency bands managed by the DTI (and not RFCPU), then a separate licence will be required from the DTI and the appropriate fee paid to them.

All queries about radio licence schedules should be addressed to the Radio Frequency and Communications Planning Unit, F7 Division, Home Office, Horseferry House, Dean Ryle Street, London SW1P 2AW.

1.2 Regulatory

It is necessary to exercise regulatory control of all allocated frequencies in order to maximise the efficient use of these frequencies and to maintain operational viability. In its role as frequency manager of Home Office allocations, the RFCPU is responsible for the establishment of regulatory conditions of use. Such conditions are established in close liaison with HM Fire Service Inspectorate.

Technical and operational considerations are taken into account as follows:-

1.2.1 Technical

The RFCPU must establish technical parameters to ensure that the maximum re-use of frequencies can be obtained, whilst also ensuring that the operational requirements are met.

The factors that need to be considered are as follows:

a) Transmit Power

The maximum transmitted power is normally limited to that which enables the operational requirements to be met, thus limiting the risk of interference to other users.

b) Height above Ground

The height of the aerial above ground level may have to be limited to that required to achieve adequate coverage.

c) Sensitivity of Receiver

Receivers of a certain minimum sensitivity must be used so that excessive transmitter power is not required, thus creating spectrum inefficiency.

d) Spurious Transmission

If transmissions other than those of the required frequency are radiated by transmitters, then this likely to cause interference to other radio receivers. Certain standards are thereby defined to limit the power of such spurious transmissions.

Fire Service radio equipment, using Home Office managed frequencies, must be approved by the Radio Frequency and Communications Planning Unit. Generally, compliance with Department of Trade and Industry specifications such as MPT 1301 will be acceptable. Equipment used in aircraft and the method of installation must also be approved by the Civil Aviation Authority.

To administer the operational use of fire service frequencies, the RFCPU consult with HM Fire Service Inspectorate regarding the parameters to be adopted. By way of example: in considering the uses of Channels 21 and 22 VHF, primary and secondary uses have been agreed ie. Channel 21 primary is for vehicle to vehicle communications and secondary for portable to portable communications. Channel 22 primary is for portable to portable usage, secondary is vehicle to vehicle and tertiary, air to ground.

Summary

1.2.2 Provided the frequencies used for fire service radio communications are within frequency bands allocated to the RFCPU for use by Home Office sponsored services, they will be added to the brigade's block licence without any additional fee being charged. But the RFCPU will stipulate the regulatory conditions applicable to the use of frequencies contained in the brigade's licence schedule.

2. Operational Issues

2.1 Policy Note

To be issued separately. It will comprise a formal policy statement by Home Office Radio Frequency and Communications Planning Unit on fire incident channels. It includes three appendices, namely:

A. VHF Incident Channels

B. UHF Incident Channels

C. Air to Ground Channels

This document provides detailed information about channel usage, frequencies and technical parameters.

This note is the basis on which matters are regulated, but it is important to point out that it encompasses England, Wales, Northern Ireland, the Isle of Man and the Channel Islands only. It does not relate to Scotland. Nevertheless, it is considered that guidance issued under the authority of the Central Fire Brigades Advisory Councils via the JCFBC should have UK wide application as an aid to interoperable efficiency and safety. It is expected that UHF radio interoperability can be achieved by the fire service

nationwide. The Scottish Home and Health Department will issue appropriate guidance to Firemasters.

2.2 Conventions

In recognition of current equipment design and the problems of inter-operations, the JCFBC Fireground Radio Communications Channels Working Group recommends the adoption of a numbered convention for UHF equipment - the former A, B and C channels should now be identified as 1, 2 and 3 respectively. With some notable exceptions, the actual usage of individual channels is not a regulatory matter. There are, however, obvious dangers with a non-disciplined approach: in this respect, Item c of Dear Chief Officer letter 4/1988 recommended that the use of channels should be identified. With the increased number of channels available and the resultant need to rationalise the bands in use - and to achieve radio inter-operability across the England/Scotland border - 9 channels, of which the maximum use of 6 only is permissible, will be accessible until 1 January 1993. In addition, an inter-agency channel is also being provided, initially to aid airport and local authority fire service operations.

2.3 Table of channel usage

This information modifies Appendix 7 of item C of DCOL 4/88. Authorised frequencies are listed in the policy note sent under separate cover.

Channel		Primary	Secondary Uses in Order of Priority
1.	(formerly A or 82)	General Incident	Breathing Apparatus
2.	(formerly B	UHF-VHF relay	1. Incident Command 2. Breathing Apparatus (using mobile or authorised fixed UHF base stations with or without leaky feeders)
3.	(formerly C or 84)	Breathing Apparatus	General Incident
4.		General Incident	Breathing Apparatus
5.		Breathing Apparatus (using mobile or fixed UHF base stations with or without leaky feeders)	1. Incident Command 2. UHF-VHF relay
6.		Breathing Apparatus	1. General Incident 2. Air to ground

7.	Inter-Agency liaison	NB (Airport operations only)
VHF		
21	Vehicle to vehicle communications	Portable to portable communications
22	Portable to portable communications	1. Vehicle to vehicle communications 2. Air to ground communications

2.4 Special Facilities

2.4.1 Air to Ground Operations

The following arrangements are authorised in order of priority

1. Channel 22 VHF Simplex

2. UHF Channel 6

3. VHF main scheme broadcast channels

4. Police operated VHF Air/Ground channels

Information regarding special equipment for use with radio in air operations is contained in Appendix A. Guidance about the Civil Aviation Authority's approval of the Exicom AWA 830 (1) is attached at Appendix B.

2.4.2 Inter-Agency Channel

As a result of the recommendations which followed recent major incidents - and the new arrangements for UHF channel spacing referred to in DCOL 8/89 - it has been necessary to consider inter-operable radio communications between the various emergency and public utility agencies. As a first step, a further channel is to be provided in order to permit immediate radio contact between an airport fire officer and the first responding local authority fire appliance equipped with UHF radio facilities. Chief Officers are advised to:-

a. liaise with airport authorities locally with regard to equipment requirements and to

b. make application to the RFCPU for use of the channel.

Further discussions are taking place in the wider context of inter-agency radio communications. In the circumstances, the above arrangements may be subject to change at a later date.

2.5 Rationalisation of UHF Bands

As a consequence of these changes, it will be necessary to rationalise the UHF band currently in use. To achieve this throughout the United Kingdom, it is intended that the frequencies currently associated with Channels 1, 2 and 3 UHF (formerly A, B and C) will be taken out of use and replaced by frequencies which exist in the same band as the new allocations. It is intended that this should take place by 1 January 1993.

3. Equipment Implications

3.1 The four most commonly used transceivers in current service are as follows:-

Pye PF85, Burndept BE 600, Philips PFX and the Motorola HT600E

It should be noted that replacement of UHF/VHF mobile repeater equipment may also be necessary.

In simple terms, the Pye PF85 has a 3 channel capability only. Channel changing can be achieved by recrystallising and retuning. The BE600 will not operate over the full range of channels available. Channel modifications are as for the PF85. Both the Motorola and Philips PFX are capable of operating on all channels available. These sets can be converted to operate on all the new as well as the original channels.

3.2 It is important to note, however, that a total of six channels only by any individual brigade are authorised for use. In recognition of the problems that may arise for brigades during the transitional period, they are authorised to make use exceptionally of any or all the channels. In the longer-term, brigades should restrict their use of radios to the authorised channels only.

It would be extremely difficult to coordinate centrally the move towards the new channel arrangements because of the product range, quantity and life expectancy of the equipment currently in use. Chief Fire Officers will need therefore to bear in mind the operational requirement for radio interoperability between neighbouring brigades. It is suggested that Chief Officers may wish to consider a phased approach:

(i) channels A, B, C and 4, 5, 6 should be utilised for fireground operations immediately; and

(ii) channels A, B and C should be phased out by 31 December 1992.

4. Cost Implications

4.1 It should be noted that the demand for these extra channels may have cost implications for fire authorities.

File reference number: FEP/89 59/1507/3
Telephone number of contact: 071-273 3842

ANNEX A
ITEM 1
DCOL 7/1990

EQUIPMENT APPROVAL BY CAA FOR USE IN AIRCRAFT

138 Mhz Band

EQUIPMENT Type	POWER LIMIT (Maximum ERP)	CAA CERTIFICATION DETAIL Number	Issue	Date
Pye/Philips PF85LSB	2 Watts	PYCX-10c	B	9. 3.87
Pye/Philips PF85LSB	2 Watt	PYCX-10b	D	9. 3.87
Storno CQM 6114S	2 Watts	HMCX-1	A	1O. 7.87
Philips FM 1100	2 Watts	PHCZ-1	A	1.12.89
Global Wulfberg	2 Watts	WUCX-3	C	16. 7.87
Nova R242 (41-4391-06)	2 Watts	NCCX-2	B	4. 9.84
TAC/COM NT 150	2 Watts	NTCY-1	A	20.11.89

Home Office VHF Wide Area Bands

EQUIPMENT Type	POWER LIMIT (Maximum ERP)	CAA CERTIFICATION DETAIL Number	Issue	Date
Burndept BE 544	2 Watts	BUCN-1	A	17. 5.89
Pye P5001	2 Watts	PYCX-10b	D	9. 3.87
Pye/Philips MX293	2 Watts	PYCX-12c	A	3. 4.87
Exicom AWA830	2 Watts	PHCZ-1	A	20.11.89
Philips FM 1100	2 Watts	WUCX-3	A	1.12.89
Global Wulfberg	2 Watts	WUCX-3	C	16. 7.87

Home Office UHF bands

EQUIPMENT	POWER LIMIT	CAA CERTIFICATION DETAIL		
Type	(Maximum ERP)	Number	Issue	Date
Pye/Philips PF85	20 milliwatts	PYCX-10c	B	9. 3.87
Pye/Philips PFX	20 milliwatts	PYCX-10b	D	9. 3.87
Global Wulfberg	20 milliwatts	WUCX-3	C	16. 7.87
Philips FM 1100	20 milliwatts	PHCZ-1	A	1.12.89
TAC/COM NT450	20 milliwatts	NTCY-1	A	20.11.89

NB. Interface equipment must also be approved for this purpose.

ANNEX B
ITEM 1
DCOL 7/1990

CAA APPROVAL OF EXICOM AWA 830 (1)

The AWA 830 has been approved for use by the fire service in an aeronautical role. It can be used either as part of a permanent installation or as a temporary communications medium when required. Brigades may wish to apply for an addition to their licence to enable airborne access to existing force VHF frequencies. The terms of the CAA, (Civil Aviation Authority) approval are thus:

PERMANENT INSTALLATIONS

Installations which are of a permanent nature are the responsibility of the aircraft supplier or their agents, and must be approved locally by a CAA surveyor. All wiring, connectors and any other required components additional to the Exicom AWA830 must be of a type approved for aircraft use. In this configuration the transceiver section alone is connected to the aircraft systems as follows:

(i) to a 24 to 12 volt DC power supply approved for aircraft use.

(ii) to aircraft intercom/station box via an audio interface unit.

(iii) to an approved external aerial via a suitably rated and approved 6 db co-axial attenuator, to restrict ERP to 2 watts.

Note: The responsibility for the design, manufacture and supply of the audio interface lies with the aircraft supplier.

TEMPORARY INSTALLATIONS

When used in this mode the transceiver is operated in conjunction with a Sonic Air/Ground Interface Unit. It is necessary for both units to be modified, details of the modification to the AWA 830 will be published in a "technical instruction" to Home Office Directorate of Telecommunications regional depots, and information relating to the Sonic unit is available directly from the company. The AWA 830 must be powered from its integral battery Portapack power supply type 2776. This battery pack must not be charged from the aircraft supply.

Connections to aircraft systems as follows:

(i) to aircraft intercom/station box via Sonic interface (Pt No CS1054/01).

NB. This interface is also suitable for the Phillips PF85, PFX and P500.

(ii) to either an approved external aerial or an internal helical stick on aerial. In either case the Tx power must be restricted to 2 watts ERP by the use of a 6 db attenuator in the aerial feed line. The attenuator will be supplied as part of the Sonic Unit.

ITEM 2
DCOL 7/1990

ROUTING OF 999 EMERGENCY CALLS

Chief Fire Officers will be aware of problems which have arisen in some areas where 999 emergency calls have been received by the wrong brigade control room. South Wales has been particularly affected and the Home Office has been discussing with British Telecom (BT) the action necessary to remedy the situation. In addition, the matter has been discussed by the Joint Committee on Fire Brigade Communications and the terms of this letter has been agreed with them.

2. There was general agreement within the Joint Committee on Fire Brigade Communications that a definition of what constituted a "misrouted call" was needed and that a more effective means of recording the numbers of such calls nationwide was overdue. The guidance sets out the means by which it is recommended that fire brigades report misrouted 999 calls and which will also enable the Home Office to compile national statistics. The guidance also sets out existing procedures and stresses the importance of maintaining close liaison with the local BT district manager.

3. It is recommended, therefore, that brigades adopt a common reporting procedure for dealing with misrouted calls. A suggested form is attached at Annex A. This form is similar to one already agreed with BT and in use by the emergency services in South Wales. Discussions are currently taking place with BT for developing this initiative to include the other emergency services. A draft procedure for dealing with misrouted 999 calls is attached at Annex B - this draft procedure includes a general definition of the type of call to be reported.

4. To enable an accurate and up-to-date statistical picture of the problem to be drawn up, Chief Officers are requested to ensure that from 1 June their brigade provides: (i) a quarterly summary of all resolved problem 999 calls; (ii) a quarterly summary of all unresolved problem 999 calls; and (iii) provide details of all category (ii) cases to: HM Inspector of Fire Services (Communications), Home Office, 50 Queen Anne's Gate, London SW1H 9AT. The Home Office will review the situation at the end of November.

5. It is expected that most difficulties can be resolved at a local level with BT. When problems cannot be resolved at a local level, brigades should refer the matter to the HM Inspector of Fire Services (Communications), Mr K T Phillips.

6. In order to assist in the resolution of these difficulties, it is important that brigades should follow the guidance issued in 1971 (DCOL No 15/1971) and repeated in 1977 (DCOL No 28/1977). More detailed guidance is given in Chapter 1 of the Manual of Firemanship (Book 10: Fire Brigade communications and mobilising).

7. Liaison with the BT district manager is particularly important where that manager's area covers more than one fire authority area. Periodic reviews of the arrangements agreed with BT are also important. The 1977 letter recommended a check with the BT district manager's office at least once a year with special checks whenever it is known

that changes are to be introduced. A major difficulty is, of course, that Fire Service boundaries do not usually coincide with BT telephone exchange boundaries. Careful mapping is therefore required to ensure that likely problem areas are readily identified. In particular, the situation between adjoining brigades needs very careful planning and general agreement between neighbouring Chief Fire Officers and the BT District Managers concerned.

8. This letter is issued with the knowledge of the BT National Operator and Directory Services Manager who is arranging for an individual copy to be issued to all district managers.

9. Although this letter is written primarily to deal with 999 calls routed on the BT fixed network, the common reporting procedure should also be applied in the cases of any misrouted calls handled on the Mercury or cellular radio networks.

10. The Scottish Home and Health Department will write in similar terms to Firemasters.

11. There are no significant financial or manpower implications arising from the issue of this guidance.

File reference number: FEP/89 59/67/6
Telephone number of contact: 071-273 3842/3524/3583

ANNEX A
ITEM 2
DCOL 7/1990

REPORT FORM - PROBLEM 999 CALLS

SERIAL NO..../....

TO:

FIRE
POLICE
FROM:..... AMBULANCE
COASTGUARD*

1. Date of call:

2. Time of call:

3. Telephone number:

4. Source of call:

5. Caller:

6. Incident:

7. Problem:

8. Action taken:

9. Service and Control Centre to which call was passed:

10. Additional information:

11. Enquiries about this report .....
should be made to: .....
Tel: .....

NB. See notes overleaf.

* Delete as appropriate.

ANNEX B
ITEM 2
DCOL 7/1990

PROCEDURE FOR DEALING WITH PROBLEM 999 CALLS

1. Accept call as normal.

2. Redirect call to appropriate Brigade or emergency service.

3. Check with British Telecom (or equivalent):

   a. that call should have been redirected;

   b. reason call was misrouted.

4. Enter in misrouted Call Log and report to Officer-in-Charge, Fire Control.

5. Forward report to appropriate Staff Officer.

6. Report form should be sent to British Telecom/Mercury/Cellular Company with a covering letter, immediately after any difficulty such as a misrouted call is experienced.

7. Any unresolved cases or difficulties should be referred to HM Inspector of Fire Services (Communications), Home Office, Room 946, 50 Queen Anne's Gate, London SW1H 9AT.

Notes

1. The general definition of what constitutes a misrouted 999 call shall be as follows:

   "A misrouted 999 call is one which is routed to a control room for which there is no prior arrangement for the reception of 999 calls from that calling location."

2. This report form should be completed by the Brigade receiving the call in the first instance.

ITEM 3
DCOL 7/1990

CELLULAR RADIO

Attached for the attention of Chief Officers is the "memorandum of understanding" with the cellular radio companies which was referred to in Dear Chief Officer Letter No 10/1985.

2. The Memorandum of Understanding describes the arrangements that have been agreed between the Emergency Authorities (EA), British Telecom (BT), the Cellular Radio Companies (Cellnet and Racal Vodaphone) for forwarding emergency 999 calls originating from cellular radio customers to the appropriate emergency service. The purpose of the Memorandum of Understanding is to set out clear guidelines on how cellular 999 calls should be handled and the respective roles of the Cellular Companies, British Telecom and Emergency Services.

3. The document outlines how the system operates. It gives details of the procedural arrangements that have been agreed by all parties concerned as being the best method of handling cell phone 999 calls at the present time. The document will be subject to annual review in consultation with those involved in its preparation.

4. One area of particular interest has been misrouted calls. Paragraph 5.1 is the result of agreement that the ultimate responsibility for re-directing misrouted calls correctly will rest with the Cellular Radio Companies who have undertaken to take all reasonable steps to meet that requirement.

5. Brigades should aim to provide at least two weeks notice of changes to emergency contact numbers to the Cellular Radio Companies who will follow up their mutually agreed update procedure with British Telecom. The date and time that the new numbers become effective should also be stated. The notice of changes should be forwarded to the Cellular Companies whose addresses and telephone numbers are listed in Annex 1. Communication by post should be in an envelope marked **"URGENT - 999".**

6. It is not expected that there will be any significant manpower or cost implications arising from this guidance.

File reference number: FEP/89 59/67/4
Telephone number of contact: 071-273 3842/3583

MEMORANDUM OF UNDERSTANDING

THE 999 SERVICE

FOR

CELLULAR RADIO

PRACTICES AND PROCEDURES

MEMORANDUM OF UNDERSTANDING

Cellular Radio 999 Emergency Access

NOTES: Reference is made to OACs and OCHCs. OACs stands for Operator Assistance Centres and in this document refers to the cord analogue switchboards BT currently have in use for handling cellular 999 calls. OCHCs stands for Operator Call Handling Centres which will be the digital replacement for OACs.

Cellular radio customer equipment - which may be either hand-portable or fitted carphones - are referred to as "cellphones" rather than "mobiles" to avoid confusion as some Emergency Authorities (EAs) refer to their vehicles as "mobiles".

1) INTRODUCTION

1.1) The following document describes the arrangements that have been agreed between Cellnet, Racal Vodafone, BT and the Emergency Authorities in England, Wales, Northern Ireland and Scotland for forwarding emergency 999 calls originating from cellular radio customers to the appropriate emergency services.

It outlines how the system operates and details the procedural aspects as agreed by all concerned and is accepted as being the best possible method of handling cellphone 999 calls given the facilities that are available.

1.2) Description of system

The principle behind cellular radio is the multiple re-use of valuable radio channels. The country is divided up into a series of "cells", each served by its own low powered transmitter/receiver (base station). Each of these base stations is assigned a set of frequencies differing from those assigned to adjacent cells. The resulting pattern can be repeated enabling radio channels to be used again but geographically far enough away to prevent interference.

The very nature of the provision of radio telephone communication means that users do not necessarily know their exact location and the radio communication system cannot pinpoint the caller either.

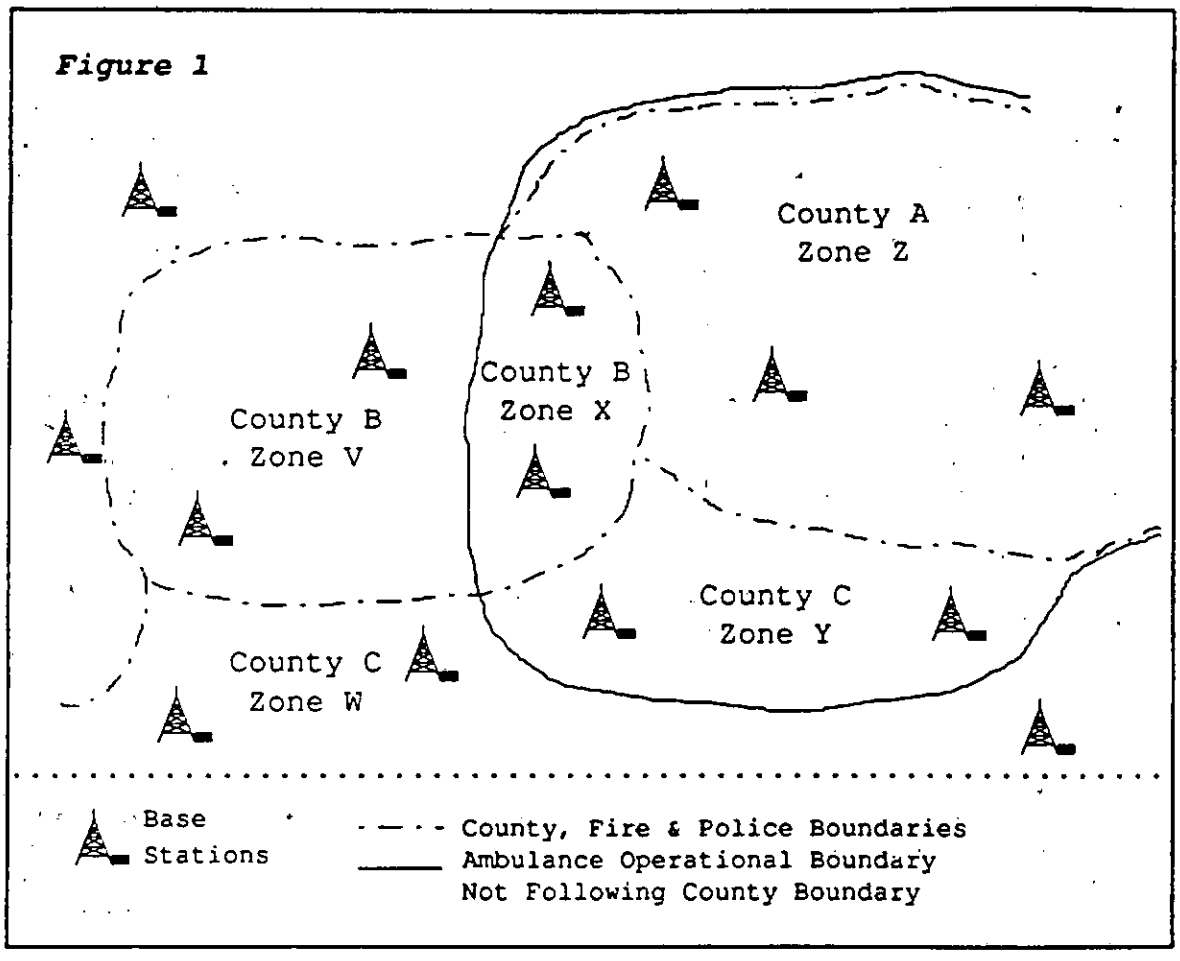
The resultant problem in a cellphone user having to detail this information when making a 999 call is likely to lead to delays in satisfactorily reporting particular incidents.

1.3) Cell/EA boundaries

Comparison of cell site boundaries and EA boundaries shows that cell boundaries are unlikely to overlap more than two adjacent EA coverage areas. Where a cell coverage area straddles two or more EA coverage areas, neighbouring EAs are asked mutually to agree and then nominate a control centre to which 999 calls from that cell are to be directed.

A number of cells pertinent to particular EA areas - generally a county or region - are grouped together for 999 purposes and allocated a zone code. Such a zone code is unique to that county or region and also to each individual Cellular Radio Company.

Figure 1



This figure shows typical cellular 999 zone code allocation with a hypothetical situation where the EA operational boundaries do not coincide.

The fire and police authorities are organised on a strict county by county basis, while the ambulance authority covers parts of several counties. The calls to the fire and police authorities from zones X and Y will be connected via the BT Operator to the EA control rooms in counties B and C respectively.

Calls to the ambulance authority for zones X, Y and Z will all be connected to the ambulance control room located in county A.

2) METHOD OF ROUTING

2.1) 999 calls originating from a cellphone on either network are routed to one of two of the BT Public Switched Telephone Network (PSTN) OACs - Shoreditch in London, Motherwell in Scotland - so that calls appear at the BT 999 Emergency Operators positions. The calls are connected via dedicated circuits from the Mobile Switching Centre (MSC) to the BT OACs. The zone location of the receiving base station associated with the calling cellphone is given a code number for signalling and displaying to the BT Emergency Operator using special display equipment. These code numbers currently comprise three digits.

The BT Emergency Operator is equipped to translate the displayed digit code to an individual EA's access number. A look-up table is used for this purpose. The list of routings, whether directly connected or dial up, shown in this look-up table has been agreed between the Cellular Radio Companies and EAs. This information is updated as necessary to account for number changes, new zone codes, etc. The Operator is also equipped with a list of all EA contact numbers filed alphabetically against counties, regions and operational names such as Thames Valley Police.

The BT Operator will determine from the cellphone user which service is required and from the zone code display and look-up table the appropriate EA contact number for that zone code. He/she will connect the cellphone user by using either the existing private circuit links to the appropriate authority or by the PSTN to reach designated numbers. The Operator will introduce him/herself as a Motherwell or Shoreditch Operator when offering a cellphone 999 call and will , whenever possible, pass to the EA the caller's cellphone number (to facilitate recall).

2.2) Emergency Authorities' contact numbers

The EAs should aim to provide at least two weeks notice of changes to emergency contact dial up numbers to the Cellular Radio Companies who will follow their mutually agreed update procedure with BT. The date and time that the new numbers become effective should also be stated. The notice of changes should be forwarded to the Cellular Companies whose addresses and telephone numbers will be found in Annex 1.

Communication by post should be in an envelope boldly marked **"URGENT - 999"**

3) SECURITY OF CONNECTIONS

Both OACs have full UK capability, but are designed such that calls in the North of England, Scotland and Northern Ireland route to Motherwell as a first choice and calls from the remainder of the UK route to Shoreditch as a first choice.

Both Cellular Radio Companies have provided a minimum of four private circuits from the MSCs to both BT OACs. These circuits are separately routed where possible to minimise the effect of equipment or line plant failures.

Further safeguards exist in the form of back up service provided between the two OACs which will be effective against temporary closure of one site due to emergencies such as fire alarms or bomb threats. Alternative routings from the MSCs will be automatically invoked when route congestion to or failure at either OAC is detected.

4) ZONE DISPLAY FAILURE

In the event of a common failure causing the zone code display to malfunction, BT will make use of the Cellular Radio Companies' facilities to locate the cell of origin of a cellphone call and hence the zone code. Although this may lead to delays in call connection, the Home Office and Emergency Authorities have agreed to the use of the cellphone location facilities which the Cellular Radio Companies are able to provide in these circumstances. It is recognised that extra time will be needed to go through this procedure.

Whilst every effort is made to ensure that all calls are connected to the appropriate EA, procedures are in place to meet the possibility of system malfunction or failure. Indications to the BT Operator will be:

a) no display at all (an inherent display fault),

b) no information received from the cellular switch - the display will flash three "0s",

c) mutilated display or insufficient digits received - the display will flash what it has received.

Should a display failure occur on an incoming call, the BT Operator will tell the cellphone caller that there is a network fault and that some information checking will be necessary. It should be noted that both OACs have the zone display equipment repeated four times along the switchboard suite, thus inconsistencies in displayed information would indicate a specific display fault rather than a network problem.

It is essential that the BT Operator is given a zone identity code by the Cellular Radio Company on all occasions and with the minimum of delay. If the Cellular Radio Company is unable immediately to determine the zone code, it will persist in determining the cellphone user's whereabouts. Once the zone identity is provided, the BT Operator will refer to the look up table and forward the call to the corresponding EA control.

The cell and zone location facilities described above can be carried out providing the calling cellphone holds the connection.

Post event traces are not possible but records are kept by the Cellular Radio Companies which include time of call, duration, originating cellphone number, the cell which received the call, from which the resulting zone code may be established. These records are kept and will be readily available for cross checking for approximately three months. The BT Operator will also make a written record of the details of the call.

Any circuit suspected of being faulty will be removed from service - either by the BT Operator or the Cellular Radio Company - until such time as engineering tests have proved the fault rectified and operational tests have been performed. Whoever removes a circuit from use should inform the other party as soon as possible.

In the event of a common failure causing the zone code display to malfunction, all calls will be diverted to the alternative BT OAC at the earliest opportunity, (see paragraph 3).

5) MISROUTED CALLS

5.1) Valid but incorrect zone code

It is possible that the zone code display could give an incorrect but apparently valid code to the Operator. This could occur as a result of:

a) a faulty zone code display unit,

b) a fault in transmitting the display information from the MSC,

c) more commonly, where a cellphone has accessed a base station located in a different zone to the one where that cellphone is actually located, due to an anomaly in radio propagation. This most typically will occur across river estuaries and between the coastal areas of the mainland within cellular radio distance of offshore islands.

In all these cases, the Operator would forward these calls to the EA shown in the look up table in the usual manner. Once connection is established to the EA control, it would be incumbent on the EA controller to establish that the call is proper to the EA area and to instigate means of transfer if it is not. The EA may find it advantageous within the authority's own procedure to take the details of the call and pass the information on to colleagues in the correct authority.

A pre-requisite of the Cellular Radio Companies and BT for the cellular 999 scheme was to put into place means to enable the EA controller to recall the Operator back into circuit and request that the call is passed to another EA exchange line (see paragraph 5.2).

The EA controller will, whenever possible, advise the BT Operator of the correct EA to handle the call. If this is not possible, the BT Operator will instigate a call trace procedure as described in paragraph 4 resulting in the cellular company providing the zone code pertinent to the area from where the cellphone accessed the cellular network. The Operator will then reroute the cellphone customer to the EA of this zone.

The ultimate responsibility for redirecting the call to the correct EA , however, will rest with the operating company who will take all reasonable steps to do so.

NOTE: Call traces can only be carried out providing the cellphone customer continues to hold the connection.

5.2) Ways of calling the BT Operator back into circuit

The means of calling the BT Operator back into circuit will depend upon the type of equipment the EA uses to handle emergency calls.

The three ways of calling the BT Operator back into circuit, in preferred order, are:

a) BT operating procedures require the Operator to note salient points of the initial 999 conversation between the cellphone customer and the EA controller. To carry out this function, the Operator will remain on line but in monitor mode until satisfied that relevant details have been passed to the EA. During this period, it is possible for the EA controller to recall the BT Operator into circuit with a verbal request. However, should multiple 999 calls occur, Operators may make themselves available to answer the new calls, thus removing themselves from monitor mode on an existing call.

b) The BT Operator has supervisory lamps associated with both incoming and outgoing circuits; these lamps will independently indicate to the Operator the status of the connection to the cellphone customer and the called EA controller; a lit supervisory lamp indicates that the customer or EA controller has cleared, an unlit lamp indicates that the party is still on the line.

   If the EA equipment is suitable, the EA controller may "flash" the BT Operator by disconnecting and reconnecting himself from circuit; the supervisory lamp associated with the connecting circuit to the EA will be flashing on the OAC switchboard, thus alerting the BT Operator that he/she should go back into circuit. It is suggested that individual EAs satisfy themselves whether their control equipment is able to successfully carry out this function.

NOTE: The BT Operator, having set up the connection to the EA, will be in control of that connection until he/she chooses to release it.

c) A separate call can be made to the OAC concerned, (the BT Operator, when offering the call, will advise that he/she is calling from Shoreditch or Motherwell). The number to be called will be a supervisor's line within the switchroom concerned, contact numbers can be found in Annex 1. A particular 999 call can be identified by the EA controller quoting his county or region. The supervisor will then be able to associate the 999 call with the Operator concerned who can then reroute the call as advised or go back into circuit and speak further with the EA controller.

NOTE: As a provision of last resort, the police control for a given zone will accept an emergency call from BT, should another EA ever fail to take that call.

6) FUTURE SYSTEMS

Within the BT replacement scheme for analogue OACs, both Shoreditch and Motherwell will continue to provide the cellular 999 service until replaced by digital switchboards. The latter are known as Operator Call Handling Centres (OCHCs).

Development work is being carried out by BT for the Cellular Radio Companies to ensure that OCHCs can handle cellular 999 calls. The salient features of the new service will be:

a) Calls will be routed from the cellular networks to OCHCs via priority routes through the BT System X network.

b) The BT Operator will be presented with details of the company's identity, ie. Vodafone or Cellnet, the cellphone number and the caller's zone number.

c) The Operator having ascertained the EA required may then access a purpose built database to associate the "connect to number" of the EA required for that zone. Call set up will follow automatically.

d) The call details will remain on the Operator's connecting circuit until the call is released by the Operator, unlike ordinary assistance calls which will not be retained on the position once they are set up.

e) The call procedure will appear identical to both the calling cellphone customer and the recipient EA.

7) SUMMARY

Certain points should be borne in mind when considering the type of 999 service given by the cellular network:

a) The cellphone 999 service complements rather than replaces the existing fixed 999 service.

b) The time taken in connecting cellphone calls to the correct EA can be offset by removing the need to find a fixed network phone before being able to report an incident.

c) The Cellular Companies provide direct circuits from their respective networks to the BT 999 Operator ensuring a rapid connection to a trained Operator who is able to offer a level of comfort at an early stage.

d) Onward connection by the BT Operator is completed via the BT PSTN where the Operator has the facility of alternative routing.

e) Use is made of EA contact numbers which back up the normal direct routes from local BT OACs. These in turn are also often backed up by having a number of lines in a hunting group or even by use of the normal administration number used by the services.

f) Development of future systems continues with the current main objective being the BT rationalisation programme for OACs and the introduction of digital switchboards.

g) "999" progress meetings continue under the chairmanship of the Home Office where developments, difficulties and improvements can be discussed by representatives of all parties.

Issued by BT, Cellnet, and Racal Vodafone under the auspices of the Home Office Cellular 999 Liaison Committee.

Annex 1

Contact points

1) CELLULAR RADIO COMPANIES:

1.1) For on-line call trace facilities, contact the Cellular Operations Centres.

CELLNET	VODAFONE
(0860 ......)	(0836 & 0831 ......)
01-251 3922 or 01-251 5711 01-251 5155 Ext 201	01-847 3153 01-847 2131

1.2) For operational aspects, advice of control room contact numbers, post event traces and misroute advice.

CELLNET	VODAFONE
Network Planning Department TSCR LTD Hanover House 49-60 Borough Road London SE1 1DS	Engineering Department (Telecomms) Racal Vodafone Ltd The Courtyard 2-4 London Road Newbury BERKS RG13 1JL
01-378 7141 ext 5042	0635 33251
Fax 01-407 6707	Fax 0635 523615

2) MOTHERWELL OAC

Supervisor's contact numbers for assistance and advice

0698 62601 or 0698 62401

3) SHOREDITCH OAC

Supervisor's contact numbers for assistance and advice

01-729 6770 or 01-739 2222

ITEM 4
DCOL 7/1990

GUIDANCE ON THE EVALUATION OF RADIO MAINTENANCE OPTIONS

On 11 December 1989, G1 Division wrote on my behalf to Chief Officers enclosing volumes 1, 2 and 3 of the guidance prepared by consultants on the evaluation of the various radio maintenance options that should be considered in order to determine value for money.

This guidance is being given a DCOL number retrospectively. I would be grateful if Chief Officers could arrange to have this guidance recorded as DCOL No 12/1989.

File reference number: FEP/88 59/408/1
Telephone number of contact: 071-273 3583

ITEM 5
DCOL 7/1990

WARNING SIGNS ON CROP SPRAYING AIRCRAFT

DCOL 32/1978 gave details of a voluntary scheme for marking crop spraying aircraft which had been agreed with the Civil Aviation Authority and the National Association of Aircraft Contractors. This action was taken following a number of crashes involving crop spraying aircraft, some of which resulted in injury to firefighters and others who were unaware that the aircraft carried dangerous substances. The marking that was to be used was based on the hazard identification scheme for road and rail transport and carried the Hazchem emergency action code "3WE", a contact number and a pictogram showing the skull and crossbones which was used to denote a toxic substance.

2. Although that scheme worked well, the Association of Chief Police Officers decided in 1985, after an incident in which two police officers were sprayed with pesticide, to seek an arrangement for a marking scheme to provide an adequate warning to the public and the emergency services. The matter was pursued through the HEPOL Committee which is a forum for the Health and Safety Executive and the Police, the Department of Transport and with the Civil Aviation Authority.

3. It was agreed by the Department of Transport and the Civil Aviation Authority in June last year to replace the Hazchem sign with a yellow triangle, bordered in black, bearing a black exclamation mark. This sign is the usual form of non-specific warning sign where dangerous substances are stored. Such a sign was considered appropriate in this case as it is commonly used on agricultural premises to mark pesticide storage sites. This new warning sign has been introduced on a <u>voluntary</u> basis only. Chief Officers will wish to note that the Joint Committee on Fire Brigade Operations has agreed to accept this change.

4. This letter replaces DCOL 32/1978 which should now be cancelled.

5. There are no significant financial or manpower implications arising from the issue of this guidance.

File reference number: FIR/84 41/2/2
Telephone number of contact: 071-273 3342

ITEM 6
DCOL 7/1990

TRANSPORT OF HAZARDOUS SUBSTANCES - PETROLEUM

(Institute of Petroleum Code of Practice for the Development of a Response Plan for Serious Incidents Involving Petroleum Product Road Tankers)

The volume of hazardous materials being transported in Great Britain has led the road transport panel of the Institute of Petroleum to produce formal guidelines for a response plan for an emergency situation where a road tanker has been involved in a serious incident, possibly overturning and causing spillage of petrol/oil which may damage or otherwise affect a third party, property or the general environment.

2. This Code deals in detail with the oil company's in-house response to an incident and also covers the roles of the police, fire brigade, water authority, ambulance service and vehicle recovery contractor, all of whom have been consulted during the preparation of the Code. Chief Officers may be interested to see the Code and a copy is enclosed for information.

3. Further copies are available from:

The Library
The Institute of Petroleum
61 New Cavendish Street
London
W1M 8AR

Telephone: 071-636 1004 Telex: 264380 Fax: 071-255 1472

Price: UK £10.00
Overseas £13.00

4. There are no significant financial or manpower implications arising from the issue of this guidance.

File reference number: FEP/90 16/64/4
Telephone number of contact: 071-273 3342

ITEM 7
DCOL 7/1990

METEOROLOGICAL ADVICE IN THE EVENT OF A RELEASE OF TOXIC CHEMICALS - CHEMET

Please note that the facsimile transmission number for the Bracknell Met Office has changed. There are two numbers which can be used:

0344 854412

or

0344 854411

2. This information updates that given in Appendix 4 of Item 6 of DCOL 6/1989.

File reference number: FEP/89 64/245/1
Telephone number of contact: 071-273 3342

ITEM 8
DCOL 7/1990

THE USE OF HIGH PRESSURE AND LOW PRESSURE PUMPS WITH HOSEREEL SYSTEMS - CFBAC REPORT NO 36

The attached report describes a project carried out at the Fire Experimental Unit at Moreton-in-Marsh, as part of the Home Office Fire Research Programme, to investigate the use and effects of high and low pressure pumps with hosereel systems.

2. The aim of the project was to examine a selection of commercially available hosereel guns in order to obtain qualitative comparisons between the types of water sprays produced. Particular attention was given to the differences in performance of sprays produced by both high and low pressure and information concerning gun pressure/flow rate relationships, mass distribution of water, droplet size and speed within selected sprays was also collected. After evaluating the data, sprays which included the finest and coarsest available and those produced by the highest and lowest gun pressures, were selected for a programme of fire trials. Each spray was used to combat a repeatable test fire designed to represent the fiercest single room fire likely to be encountered by brigades in domestic premises.

3. The room used for the fire tests was 14 feet square and contained instrumentation which measured and recorded fire and air temperatures at various positions in the room. In all, some 40 fire trials were undertaken in which the fuel was timber arranged in cribs within the test room. The fire was fought with each selected spray in turn with the hosereel gun mounted on a remotely operated rotatable rig to ensure that the method of attack remained constant and that the effects of human variations, such as levels of skill etc, were obviated.

4. The main conclusion drawn from this work is that variations in droplet size and speed have little effect on the suppression of this type of fire. It was found that there was a broad trend for higher pressures to produce rather smaller mean droplet diameters and that these finer sprays tended to cool the air in the test room doorway faster than the coarser ones during the first few seconds of the attack. No trends were found which linked any of the measured spray characteristics, or combination of these, to fire suppression. Rather, it was concluded that the skill of the branchmen and the versatility of the hosereel gun could be expected to have a greater effect on the fire than any of the subtle differences in mean droplet size. However, additional pressure capability can give a wider range of options to the firefighter by increasing the flow rate at any given gun setting, increasing the throw and giving a slightly finer spray when the rapid cooling of the hot gases is important.

5. There are no financial or manpower implications arising from this part of the letter.

File reference number: FEP/88 17/20/12
Telephone number of contact: 071-273 2411

ITEM 9
DCOL 7/1990

ANNUAL FIRE PREVENTION RETURNS - FORM 45/D

You will be aware from item B of DCOL 11/1988 that among the changes made when Form 45/D was revised in December 1988 was a request for a return of man-hours rather than man-days involvement in certain key types of inspection. This was expected to provide more precise information in the 1989 returns about the way resources in brigades are deployed and, in particular, the resources required to undertake the key types of inspection.

2. However, some doubts have been raised about the accuracy of the man-hour returns received from a number of brigades and this note seeks to resolve them. Further progress can then be made towards the issue of statutory guidance on inspection frequencies.

3. It is essential that all of the time involved in connection with any particular inspection is included in the appropriate man-hour sections of the return, but rounding off to the nearest hour is acceptable.

4. For the avoidance of doubt, the time that should be included is all of the time taken by the inspecting officer to:-

(i) research the appropriate files prior to inspection of the premises;

(ii) travel to and from the premises;

(iii) carry out the inspection, and

(iv) draft all necessary documentation resulting from the inspection.

5. I should be grateful if you would ensure that those who are responsible for the compilation of statistical returns are aware of the above details so that returns for 1990 are completed on this basis. It would also be helpful if you could advise me if your 1989 return did not take into account all of the activities described above.

6. One further point that appears to be causing some confusion is the recording of man-hours when the inspection is carried out by an operational crew. There is no simple solution but, in the interests of consistency, the following criteria should be applied:-

(i) Generally, the time taken for the crew to carry out the inspection, including all of the activities described in paragraph 4(i) to (iv) above, should be recorded as if only one individual inspecting officer had carried out the inspection, ie. there should be no aggregation of the time taken by crew members.

(ii) However, when the crew is deployed to deal with specific aspects of an inspection of a large building and this results in a saving of time, then there will need to be an appropriate aggregation of the hours spent by individual crew members.

(iii) Where members of a crew are deployed to separate but adjacent premises to carry out separate inspections then the man-hours for each inspection should include the travel time involved and the time required to research the appropriate file and draft the necessary documentation.

File reference number: FEP/87 26/45/1
Telephone number of contact: 071-273 2855

ITEM 10
DCOL 7/1990

FIRE PRECAUTIONS IN HEALTH BUILDINGS
COMMERCIAL ENTERPRISES ON HEALTH SERVICE PREMISES

I am writing to draw your attention to a letter which was issued by the Department of Health in December 1989. This letter gave urgent interim guidance to health authorities about the procedures and additional care needed with fire precautions when commercial enterprises, mainly shops, are established on Health Service premises, particularly in hospitals.

2. Health authorities are being asked to submit all schemes for introducing shops and other commercial activities into new or existing hospitals to the Fire Service Inspectorate for comment at the planning stage. Although the Inspectorate are responsible for the certification of Crown premises, local fire authorities may have been asked to provide fire precautions advice in the first instance and their reports, where such have been made, will also be submitted by the health authorities to the Inspectorate in support of the proposed schemes. These reports will assist the Inspectorate in giving advice to the Department of Health on the content of the new Fire Practice Note to be issued by that Department for inclusion in the Firecode suite of documents.

3. The text of the letter, as amended by a further letter issued by the Department of Health on 9 February 1990, is annexed.

File reference number: FEP/90 6/51/1
Telephone number of contact: 071-273 2961 or 071-273 2686

DEPARTMENT OF HEALTH
EUSTON TOWER
286 EUSTON ROAD
LONDON NW1 3DN
TELEPHONE 01-388 1188

ANNEX
ITEM 10
DCOL 7/1990

PL/CE(89)2

To General Managers of:-

Regional Health Authorities
District Health Authorities
Special Health Authorities for the
London Postgraduate Hospitals

FIRE PRECAUTIONS IN HEALTH BUILDINGS

COMMERCIAL ENTERPRISES ON HEALTH SERVICE PREMISES

This letter, but not the guidance in FIRECODE to which it refers, will be cancelled and deleted from the current communications index during December 1994, unless notified separately.

SUMMARY

This letter gives urgent interim guidance to health authorities about the procedures and additional care needed with fire precautions when commercial enterprises, mainly shops, are established on Health Service premises, particularly in hospitals.

ACTION

1. General Managers should ensure that this letter is brought to the attention of all officers with responsibilities for:-

   i. fire safety precautions under FIRECODE;

   ii. income generation projects.

2. As an urgent interim measure, agreement has been reached between the Department and the Home Office Fire Service Inspectorate that all schemes for introducing shops and other facilities for commercial activities into new or existing hospitals, should be

submitted to the Fire Service Inspectorate (at the address given in paragraph 10) for comment at the planning stage, together with the reports from the local authority Fire Brigade. General Managers should also ensure that, after schemes have been agreed with the Inspectorate, applications for fire certificates under the Fire Precautions Act 1971 are made when premises are first occupied.

3. The procedures outlined above will remain in force until the publication of the new Fire Practice Note (FPN), in preparation for inclusion in the FIRECODE suite of documents.

BACKGROUND

4. It has been common practice, for a number of years, for hospitals to contain one or more small shopping units. More recently, however, much larger complexes have been considered with the aim of attracting local residents in addition to patients, staff and visitors. The effect of such developments is to introduce new, potentially high fire risk or high fire load, premises into hospitals.

5. The Department's Estates Directorate and the Home Office Fire Service Inspectorate are concerned that previously agreed fire safety precautions for health buildings are not subverted. Attention should be given to completing a thorough assessment of the increased fire risk resulting from such developments and to maintaining the necessary standards for fire separation and fire resisting construction between them and patient care areas.

6. Because of the potentially high fire loading of shops, great care is needed to ensure that the previously established fire integrity of adjacent existing hospital streets, main communication routes and other routes designed as a means of escape, continue to meet the high standards set by the Department's FIRECODE and the Home Office Draft Guide to Fire Precautions in Hospitals. It is essential also to check that the provision of active fire precautions arrangements (automatic fire detection, the overall fire alarm system, fixed fire fighting equipment, etc) can protect both the commercial property and the lives of patients, etc present within the existing health building.

7. The need for fire certificates for designated premises should be considered carefully at an early stage of planning. Shops, offices and factories are designated premises under the Fire Precautions Act 1971 and are required to have a fire certificate if more than 20 people are at work (or more than 10 other than on the ground floor) in the part of the premises put to a designated use. A certificate is also required where those numbers of persons are at work, in the aggregate, in all parts of a building put to designated uses. Where fewer people are at work, the designated premises will still be subject to Section 9A of the 1971 Act, which requires the occupier to ensure that adequate means of escape and means for fighting fire are provided. Applications for fire certificates for designated premises should be made to the Fire Service Inspectorate when premises are first occupied.

8. Similarly, any proposal to make significant changes to premises which already have a fire certificate must not be undertaken unless the proposals have been cleared in advance with the Fire Inspector.

ENQUIRIES

9. General enquiries about the contents of this Circular may be made to Mr S M K Platt, Department of Health Estates Directorate, Room 631, Euston Tower, 286 Euston Road, LONDON NW1 3DN. (Telephone: 01-388 1188, Ext 3245). Alternatively, contact Mr R Wright, (Ext 3496).

10. Specific enquiries about schemes for approval and fire certificates should be made to Mr S Smith or Mr M Jones, Home Office Fire Service Inspectorate, Crown Premises Inspection Group, 50 Queen Anne's Gate, LONDON SW1H 9AT. (Telephone: 01-273 2961 or 01-273 2686 respectively).