HOME OFFICE
Queen Anne's Gate, LONDON. SW1H 9AT
Direct line: 01-213 - 5352
Switchboard: 01-213 3000

Our reference: a. FIR/82-620/33/10 b. FIR/82 619/3/20
Your reference: c. FIR/79 15/91/1 d. FIR/82 620/33/11

No 6183

8 June

To all Chief Fire Officers

52587

Dear Chief Officer

A. EMERGENCY ACTION CODES AND SUPPLEMENTARY INFORMATION FOR DEALING WITH INCIDENTS INVOLVING DANGEROUS SUBSTANCES CONVEYED IN BULK BY ROAD OR RAIL (LIST NO 4)

B. CONVEYANCE BY ROAD OF EXPLOSIVES IN FREIGHT CONTAINERS

C. UNDERFLOOR REST COMPARTMENTS IN LONG DISTANCE COACHES

D. SAFE WORKING WITH HIGH EXPANSION FOAM

A. EMERGENCY ACTION CODES AND SUPPLEMENTARY INFORMATION FOR DEALING WITH INCIDENTS INVOLVING DANGEROUS SUBSTANCES CONVEYED IN BULK BY ROAD OR RAIL (LIST NO 4)

1. Since I wrote to Chief Fire Officers on 27 October 1982 (DCO letter 14/1982) enclosing a copy of Hazchem list No 4, a number of amendments and additions to the entries in the list have been agreed by the United Nations Committee of Experts on the Transport of Dangerous Goods. There are also some typographical errors which need to be corrected in the published list.

2. In order to ensure that the Hazchem publication remains comprehensive and up-to-date, I enclose at Annex A a list of the additional entries, their emergency action codes and, where appropriate, supplementary information. I also attach a list of amendments, including corrections, that should be made to the existing entries in the list. Amendments to take account of the changes to the numerical list will also be required in the alphabetical index. Additional copies of the amendments will be available on request from the Home Office Fire Department, Room 944, Queen Anne's Gate, London, SW1H 9AT.

B. CONVEYANCE BY ROAD OF EXPLOSIVES IN FREIGHT CONTAINERS

3. Chief Officers will wish to note that the Health and Safety Executive, using the powers granted to them under the Explosives Act 1875 (Exemption) Regulations 1979, have made an exemption, effective from 8 April 1983, permitting the carriage by road of up to 16 tonnes of explosives in a freight container, subject to additional precautions being taken over and above those already required for the movement of explosives by road. The exemption follows the issue in February 1982 of Special Packing Authority 1376 by HM Chief Inspector of Explosives, which permitted the packing of up to 16 tonnes of explosives into specially constructed freight containers, mainly for the purpose of export, and their subsequent handling. The Special Packing Authority did not permit movement of such a quantity of explosive by road, necessitating the packaging of freight containers at the quayside. An HSE working party is preparing new regulatory controls over the conveyance by road of explosives, and subject to a period of satisfactory operation of the provisions of the exemption, these provisions would be incorporated into the new Regulations.

Annex B to this letter identifies those provisions of the Exemption Certificate considered to be of most interest to brigades.

C. UNDERFLOOR REST COMPARTMENTS IN LONG DISTANCE COACHES

4. My predecessor wrote to Chief Officers in March 1979 (DCOL No 25/1979) about the provision of sleeping accommodation in long haul vehicles, usually in the driver's cab, and the need to ensure that nobody is trapped there during an incident. It has recently been drawn to my attention that some long-distance coaches now in use contain an underfloor rest compartment. This is a new development of which Chief Officers may also wish to be aware.

5. The underfloor accommodation of which we have detailed information is to be found in High-line coaches made by Vanhool Acron. In these coaches it is located across the body of the coach under the floor and immediately in front of the passenger entrance half-way along one side. The compartment is large enough for one person to lie down and it may contain a mattress and other bedding. Access is gained through a small door at the side of the passenger stair well half-way along the coach. There is also an emergency exit for the occupant through a small rectangular window at the other end of the compartment, in the side of the coach opposite the passenger door. This window has no mechanism which can be operated from the outside; the occupant needs to operate a rip-cord to release a hinge-down flap or else the glass has to be removed to allow him to escape. There are no outward markings to show that a coach is fitted with an underfloor compartment; this can only be established by finding the stair-well or looking for the escape window.

6. British manufacturers such as Duple and Plaxtons, and various other continental coach-builders are also known to be incorporating this type of accommodation beneath raised passenger compartments. It is intended principally for drivers' over-night accommodation, but it is possible that it might be used by a co-driver or a passenger while a coach is in motion, and brigades may need to check whether a compartment is occupied if a coach fitted with one becomes involved in any incident. The means of access may vary from one coach to another.

7. Information on these developments in coach design is being sought from manufacturers by the Department of Transport who are considering whether further steps should be taken to control the construction and use of these compartments. I will inform Chief Officers of any further developments.

D. SAFE WORKING WITH HIGH EXPANSION FOAM

8. The guidance attached at Annex C concerns measures to be considered when high expansion foam is used. It supplements existing advice in the Manual of Firemanship on effective and safe use of high expansion foam and should be read in conjunction with it. The guidance has been approved by the Joint Committee on Fire Brigade Operations and in consultation with the Health and Safety Executive.

9. Dear Chief Officer Letter No 31/1970 is cancelled.

10. There are no significant cost or manpower implications arising from the issue of this letter.

Yours sincerely

Amendments to Hazchem List No 4

Notes to the List - Page 4, line 2, delete "with" insert "without"

Numerical List

Page 9	- SIN 1005	-	after "SOLUTIONS" insert "relative"
Page 14	- SIN 1101	-	add "(deleted from UN list)"
	- SIN 1102	-	add "(deleted from UN list)"
	- SIN 1103	-	add "(deleted from UN list)"
	- SIN 1105	-	amend "ALOCHOL" to read "ALCOHOL"
Page 16	- SIN 1137	-	amend "DISTILATE" to read "DISTILLATE"
Page 17	- SIN 1160	-	amend "DIEMTHYLAMINE" to read "DIMETHYLAMINE"
Page 23	- SIN 1271	-	amend "either" to read "ether"
Page 24	- SIN 1286	-	delete "RESIN" insert "ROSIN"
Page 30	- SIN 1367	-	add"(deleted from UN list)"
	- SIN 1368	-	add "(deleted from UN list)"
Page 31	- SIN 1378	-	amend "activited" to read "activated"
Page 32	- SIN 1384	-	delete "DOTHIONITE" insert "DITHIONITE"
Page 33	- SIN 1408	-	delete "more than"; after "per cent" insert "or more"
Page 41	- SIN 1564	-	delete "except Barium Sulphate"
Page 49	- SIN 1712	-	amend entry to read "ZINC ARSENATE, ZINC ARSENITE or ZINC ARSENATE and ZINC ARSENITE MIXTURES"
Page 51	- SIN 1754	-	amend "TROXIDE" to read "TRIOXIDE"
Page 56	- SIN 1845	-	after "SOLID" add "(DRY ICE)"
Page 57	- SIN 1866	-	delete EAC "3WE" insert "2WE"
Page 61	- SIN 1924	-	add "(deleted from UN list)"
	- SIN 1925	-	add"(deleted form UN list)"
	- SIN 1926	-	add"(deleted from UN list)"
Page 62	- SIN 1927	-	add"(deleted from UN list)"
	- SIN 1930	-	add "(deleted from UN list)"
	- SIN 1939	-	amend entry to read "PHOSPHORUS OXYBROMIDE"
	- SIN 1941	-	amend entry to read "DIBROMODIFLUOROMETHANE"
Page 63	- SIN 1944	-	after "SAFETY" add "(book, card or strike on box)"
	- SIN 1951	-	"REFROGERATED" should read 'REFRIGERATED"
	- SIN 1952	-	delete sub risk "6.1"
Page 70	- SIN 2033	-	amend entry to read "POTASSIUM MONOXIDE"
Page 71	- SIN 2047	-	amend entry to read "DICHLOROPROPENE"
Page 72	- SIN 2067	-	amend "segregatring" to read "segregating"
Page 77	- SIN 2110	-	delete from "not" onwards, insert "more than 72 per cent but not more than 77 per cent in solution"
	- SIN 2112	-	amend entry to read "1,4-DI-(2-tert-BUTYLPEROXYISOPROPYL) BENZENE technically pure or more than 40 per cent with inert solid or 1,3-DI-(2-tert-BUTYLPEROXYISOPROPYL)

Amendments to Hazchem List No 4 continued:

BENZENE technically pure or more than 40 per cent with inert solid, or 1,4-DI-(2-tert-BUTYLPEROXYISOPROPYL) BENZENE, MIXTURES, technically pure or more than 40 per cent with inert solid.

Page 79 - SIN 2126 - delete "in solution", insert "with phlegmatizer, or METHYL ISOBUTYL KETONE PEROXIDE, not more than 62 per cent with 20 per cent methyl isobutyl ketone and 20 per cent phlegmatizer".

Page 85 - SIN 2200 - add "INHIBITED"

Page 86 - SIN 2211 - delete from "impregnated" insert "evolving flammable vapour"

Page 87 - SIN 2220 - add "(deleted from UN list)"

- SIN 2221 - add "(deleted from UN list)"

- SIN 2230 - add "(deleted from UN list)"

Page 90 - SIN 2285 - amend "TRIFLOURIDES" to read "TRIFLUORIDES"

Page 91 - SIN 2308 - amend Tremcard number to read "80G05"

Page 93 - SIN 2351 - amend "NITRITE" to read "NITRITES"

Page 97 - SIN 2429 - entry should read "CALCIUM CHLORATE, SOLUTION"

Page 98 - SIN 2452 - add "INHIBITED" and under sub-risk "3"

Page 99 - SIN 2490 - entry should read "DICHLOROISOPROPYL ETHER"

Page 100 - SIN 2518 - delete Hazard Class "8", insert "6.1"

Page 103 - SIN 2570 - delete "except" onwards

Page 105 - SIN 2596 - amend "BUTYLPERXOY" to read "BUTYLPEROXY"

Page 110 - SIN 2706 - add "(deleted from UN list)"

Page 111 - SIN 2718 - add "(deleted from UN list)"

- SIN 2727 - add under sub risk "5.1"

Page 116 - SIN 2807 - delete "SUBSTANCES", insert "MATERIAL"

Page 120 - SIN 2870 - entry should read ".....BOROHYDRIDE in DEVICES"

Page 122 - SIN 2892 - delete "22" insert "42"

Page 123 - SIN 2906 - add comma after "SOLUTION", and "(70.....weight)"

Page 123 - SIN 2909 - amend "URANDIUM" to read "URANIUM"

Page 124 - SIN 2922 - entry should read"CORROSIVE...." - EAC 4WE

Page 126 - SIN 2926 - amend EAC to read 2 [Y], delete "L" from Harmful

Page 127 - SIN 2941 - delete "2-", and add "s" to "FLUOROANILINE"

Page 128 - SIN 2944 - add ("deleted from UN list")

Page 129 - SIN 2960 - delete "32", insert "42"

Page 130 - SIN 2980 - amend "HEXAHYRDRATE' to read "HEXAHYDRATE"

Page 133 - SIN 3006 - amend "PETICIDES" to read "PESTICIDES"

- SIN 3007 - amend "DERIVATIVIE" to read "DERIVATIVE"

Page 135 - SIN 7005 - amend "POTASIUM" to read "POTASSIUM"

Amendments to Hazchem List No 4 continued:

Insert new entries

SIN	SUBSTANCE	EAC	HAZARD CLASS	ADR
1719	CAUSTIC ALKALI LIQUIDS N.O.S miscible with water non-toxic	2R	8	80
2829	CAPROIC ACID	3Z	8	
2996	ORGANOCHLORINE PESTICIDES, LIQUID HARMFUL, N.O.S immiscible with water	3X	8	
2996	ORGANOCHLORINE PESTICIDES, LIQUID HARMFUL, N.O.S miscible with water	2X	8	

ADDITIONS TO HAZCHEM LIST

S.I.N.	Substance	E.A.C.	A.P.P.	Tremcard No.	Hazards		A.D R. No.
					Class	Sub Risks	
3022	1, 2 - BUTYLENEOXIDE, STABLIZED	3YE			3		
3023	tert - OCTYLMERCAPTAN	3WE	BC		6.1	3	
3024	COUMARIN DERIVATIVE PESTICIDES, LIQUID, FLAMMABLE, TOXIC, N.O.S., flashpoint less than 23°C	+	B		3	6.1	
3025	COUMARIN DERIVATIVE PESTICIDES, LIQUID, TOXIC, FLAMMABLE, N.O.S., flashpoint not less than 23°C	+	B		6.1		
3026	COUMARIN DERIVATIVE PESTICIDES, LIQUID, TOXIC, N.O.S.	+	B		6.1		
3027	COUMARIN, DERIVATIVE PESTICIDES, SOLID, TOXIC, N.O.S.	+	B		6.1		
3028	BATTERY, DRY, CONTAINING POTASSIUM HYDROXIDE, electric, storage	+			8		
3029							
3030	2,2' - AZODI (2-METHYL-BUTYRONITRILE)	1 Y E			4.1		
3031	SELF-REACTIVE SUBSTANCES (aliphatic azocompounds, aromatic sulphohydrazides, N-nitroso compounds, diazonium salts) SAMPLES, N.O.S.	+			4.1		
3032	SELF-REACTIVE SUBSTANCES (aliphatic azocompounds, aromatic sulphohydrazides, N-nitroso compounds, diazonium salts), TRIAL QUANTITIES, N.O.S.	+			4.1		

S.I.N.	Substance	E.A.C.	A.P.P.	Tremcard No.	Hazards		A.D R. No.
					Class	Sub Risks	
3033	3-CHLORO-4-DIETHYLAMINO-BENZENEDIAZONIUM ZINC CHLORIDE	+			4.1		
3034	4-DIPROPYLAMINO-BENZENEDIAZONIUM ZINC CHLORIDE	+			4.1		
3035	3-(2-HYDROXYETHOXY)-4-PYRROLIDIN-1-YLBENZENEDIAZONIUM ZINC CHLORIDE	+			4.1		
3036	2,5-DIETHOXY-4-MORPHOLINOBENZENEDIAZONIUM ZINC CHLORIDE	+			4.1		
3037	4-[BENZYL(ETHYL)AMINO]-3-ETHOXYBENZENEDIAZONIUM ZINC CHLORIDE	+			4.1		
3038	4-[BENZYL(METHYL)AMINO]-3-ETHOXYBENZENEDIAZONIUM ZINC CHLORIDE	+			4.1		
3039	4-DIMETHYLAMINO-6-(2-DIMETHYLAMINOETHOXY) TOLUENE-2-DIAZONIUM ZINC CHLORIDE	+			4.1		
3040	SODIUM 2-DIAZO-1-NAPTHOL-4-SULPHONATE	1 Y E			4.1		
3041	SODIUM 2-DIAZO-1-NAPTHOL-5-SULPHONATE	1 Y E			4.1		
3042	2-DIAZO-1-NAPHTHOL-4-SULFO-CHLORIDE	1 Y E			4.1		
3043	2-DIAZO-1-NAPHTHOL-5-SULPHO-CHLORIDE	1 Y E			4.1		
3044	tert - AMYLPEROXYBENZOATE, not more than 92 per cent in solution	2 WE	A		5.2		

S.I.N.	Substance	E.A.C.	A.P.P.	Tremcard No.	Hazards		A.D R. No.
					Class	Sub Risks	
3045	PEROXYACETIC ACIDE, not more than 16 per cent in a mixture with at least 39 per cent water, at least 15 per cent acetic acid, not more than 24 per cent hydrogen peroxide, 0.5 to 1 per cent stabilizer, containing no or not more than 1 per cent sulphuric acid	2 W	A		5.2	8	
3046	METHYLCYCLOHEXANONE PEROXIDE(S), not more than 67 per cent in solution	2 WE	A		5.2		
3047	tert - BUTYL PEROXYPIVALATE, not more than 72 per cent in solution	2 WE	A		5.2		
3048	ALLUMINIUM PHOSPHIDE PESTICIDES	4 WE	C		6.1		
3049	METAL ALKYL HALIDES, N.O.S.	4 WE	A*		4.2		
3050	METAL ALKYL HYDRIDES, N.O.S.	4 WE	A*		4.2		
3051	ALUMINIUM ALKYLS	4 WE	A*		4.2		
3052	ALUMINIUM ALKYL HALIDES	4 WE	A*		4.2		
3053	MAGNESIUM ALKYLS	4 WE	A*		4.2		
3054	CYCLOHEXYL MERCAPTAN	3 WE	BC		3		
3055	2-(2-AMINOETHOXY) ETHANOL	2T			8		

CONVEYANCE BY ROAD OF EXPLOSIVES IN FREIGHT CONTAINERS

Exemption Certificate No 3 of 1983, issued under the Explosives Act 1875 (Exemption) Regulations 1979 and permitting the conveyance by road of up to 16 tonnes of explosives in a freight containter, contains a number of safeguards concerning the permitted operator, permissible journeys, nature of load, construction and equipping of the vehicle and container, loading, safety precautions and training of operatives. The exemption includes the following provisions of particular interest to brigades.

(i) A switch must be fitted which will cut off all electrical circuits, except for the tachograph and any other devices which are by their design and method of installation intrinsically safe.

(ii) The vehicle must have at least 3 fire extinguishers - one BCF or Halon of at least 1.5kg capacity, or a dry powder extinguisher of similar capacity and of a type designed to cope with liquid hydrocarbon fires and two 9 litre water extinguishers - or an approved comparable fire-fighting system.

(iii) The vehicle must be constantly attended and when conveying explosives which fall within Hazard Divisions 1.1, 1.2 and 1.3 have a second attendant in addition to the driver. Where vehicles are travelling in convoy this latter requirement will apply only to the first and last vehicle.

(iv) Journeys in respect of a vehicle conveying explosives of Hazard Division 1.1 must be notified in advance to the police and to HSE and such vehicles must be accompanied by an escort vehicle which if not a police vehicle must carry a sign, illuminated if necessary, bearing the words "Explosives vehicle ahead", at least 1 water extinguisher of 9 litres capacity and means of communicating with the emergency services.

(v) Written instructions must be carried on the vehicle and any escort vehicle, specialist advice must be available at all times during conveyance and additional resources must be available within a reasonable time of any emergency.

(vi) The Fire Service and the Police are to be informed if the vehicle stops where it might cause danger and is unable to proceed.

(vii) The container will be required to be marked, in accordance with Special Packing Authority 1376, on all four sides with Class 1 hazard labels (complying with the International Maritime Dangerous Goods Code) identifying the appropriate Hazard Division and Compatibility Group and also with the words "SPECIAL PACKING AUTHORITY 1376".

June 1983

Fire Department
Home Office

FIR/82 619/3/20

SAFE WORKING WITH HIGH EXPANSION FOAM

1. The following guidance agreed by the Joint Committee on Fire Brigade Operations supplements that given in the Manual of Firemanship (Book 3, Chapter 10(9) and Part 6A, Chapter 32(2)). The Manual covers general operational considerations and advises caution in committing men into foam because of the known hazards. However, operational experience and knowledge acquired from practical tests have indicated a need to reinforce the guidance on safety procedures.

2. This guidance is intended, in particular, to help the less experienced officer facing the prospect of using high expansion foam at an incident. It is also intended to assist Officers-in-Charge who find on arrival that a fixed high expansion foam installation has been operated either automatically or manually, or that high expansion foam has been introduced by a works fire brigade.

THE SAFETY IMPLICATIONS OF USING HIGH EXPANSION FOAM

3. High expansion foam is particularly suitable for dealing with fires in basements, ships' holds and machine spaces, cable tunnels etc, where difficulties and risk to crews could arise using other methods of fire-fighting. However, its advantages in these situations need to be assessed in the knowledge that the application of high expansion foam in a compartment may hinder the use of other fire-fighting techniques and may make it more difficult at a later stage to commit firemen into the compartment

4. In a compartment filled with foam the effectiveness of normal safety precautions is either reduced or negated. Entering and working in those conditions is therefore extremely hazardous. It is necessary that this is taken into account and time taken to consider the safety aspects before reaching a decision to apply foam to an area in which firemen may have to enter. The Officer-in-Charge needs to assess the possibility of any persons being in or subsequently requiring access to the compartment and to ascertain the physical characteristics of the compartment: its nature, size, layout and contents, including the location of process plant valves or other equipment.

5. Similar considerations apply to the entry of firemen into an area where high expansion foam has already been applied. Before taking any action the Officer-in-Charge will need to take into account the considerations mentioned in paragraph 4 and, in the case of fixed installations, how and where to control the foam injection equipment, how much foam has been applied, and how much is in reserve. It will also be necessary for Officers-in-Charge to bear in mind the possibility of a fixed installation operating automatically after arrival of the brigade and before action can be taken to close valves.

6. It will be seen that Section 1(1)(d) visits to premises fitted with high expansion foam equipment can be valuable. At incidents where such equipment is installed and the brigade has no previous knowledge of the installation, particularly in respect of special risks such as ships, information should be sought from local safety officers, ship's officers or members of works fire brigades.

THE NATURE OF THE HAZARDS

7. In appraising whether high expansion foam should be applied or firemen committed into high expansion foam, regard must be had to the range of hazards which firemen would encounter if so committed:

a. Total immersion in foam causes a general loss in effectiveness of the senses in terms of vision, hearing and sense of direction which can lead to a feeling of disorientation,

b. The penetration of light from torches and other equipment is adversely affected,

c. Audibility of speech, evacuation signals, low pressure warning whistles on BA sets and DSUs will in all cases be much restricted and in some circumstances reduced to under a metre,

d. The transmission of heat is also inhibited by high expansion foam and the location and travel of fire may be much harder to determine than is usual. Personnel working in a foam-flooded compartment could thus be at risk from becoming cut off by fire. Firemen may not be aware when foam is being used that ceilings and other structural features of combustible material out of sight and hearing may be damaged by fire, especially in the space at the top of any compartment which the foam does not completely fill. Men working above foam-filled compartments may also be in a danger for this reason,

e. Gases may be trapped in high expansion foam and a toxic atmosphere in the compartment may linger even after the foam has broken down. Persons without breathing apparatus who are cut off by foam or in compartments being filled with foam may be in danger from lack of oxygen,

f. Even though less water may be evident than with conventional fire-fighting techniques, hidden surfaces may be slippery and care should be taken to keep a secure footing at all times.

SAFETY PRECAUTIONS

8. Because of these hazards it is preferable to avoid sending firemen into high expansion foam wherever possible. Firemen should not be totally immersed solely to determine whether a fire is out or to extinguish any remaining pockets of fire. Total immersion should only be contemplated when persons are thought to be trapped in or by foam or when there is an urgent and compelling operational need which can be met in no other way - for example, in order to take urgent action to prevent a major disaster or to remove a threat to lives at or near the scene of the incident.

9. Entry may also be contemplated when foam is breaking down and entry would not involve total immersion. However, even when it is thought that the fire has been extinguished it is important to resist the tendency to enter the compartment too soon. Time should be allowed to elapse after positive indications that the fire is under control.

10. When total immersion into high expansion foam becomes necessary the following safety precautions should be taken:

a. Entry should be made only by firemen wearing breathing apparatus,

b. Penetration of the compartment must be carried out in a methodical way and all available safety procedures, including use of guidelines, rigorously applied and supervised,

c. Full use should be made of communications equipment, preferably embodying earpiece facilities, and entry into the compartment without communications equipment should be sanctioned only in the most urgent circumstances.

11. Finally, in order to avoid sending firemen into deep-lying foam, it may be helpful to keep in mind the guidance about clearing foam given in Book 3, Chapter 10 of the Manual of Firemanship. In addition to the techniques mentioned there, dry powder extinguishers may produce a rapid knock-down.

June 1983
Fire Department, Home Office
FIR/82-620/33/11