CHAPTER 10
EMERGENCY PROCEDURES

10.1 Action in the event of fire

10.1.1 The risk of fire breaking out on board a ship cannot be eliminated but its effects will be much reduced if the advice given in this Chapter is conscientiously followed.

10.1.2 Training in fire-fighting procedures and maintenance of equipment should be assured by regular drills in accordance with section 10.2. Access to fire-fighting equipment should be kept clear at all times and emergency escapes and passage ways should never be obstructed.

10.1.3 A fire can usually be put out most easily in its first few minutes. Prompt and correct action is essential.

10.1.4 The alarm should be raised and the bridge informed immediately. If the ship is in port, the local fire authority should be called. If possible, an attempt should be made to extinguish or limit the fire, by any appropriate means readily available, either using suitable portable extinguishers or by smothering the fire as in the instance of a fat or oil fire in the galley.

10.1.5 The different types of portable fire extinguishers on board are appropriate to different types of fire. Water extinguishers should not be used on oil or electric fires.

10.1.6 Openings to the space should be shut to reduce the supply of air to the fire and to prevent it spreading. Any fuel lines feeding the fire or threatened by it should be isolated. If practicable combustible materials adjacent to the fire should be removed.

10.1.7 If a space is filling with smoke and fumes, any personnel not properly equipped with breathing apparatus should get out of the space without delay; if necessary, escape should be effected by crawling on hands and knees because air close to deck level is likely to be relatively clear.

10.1.8 After a fire has been extinguished, precautions should be taken against its spontaneous re-ignition.

10.1.9 Personnel should not re-enter a space until it has been fully ventilated in which a fire has occurred without wearing breathing apparatus.

10.2 Musters and drills

10.2.1 Musters and drills are required to be carried out regularly in accordance with merchant shipping regulations. The guidance contained in this and the following sections should be read in conjunction with information and guidance on these regulations issued in the relevant Merchant Shipping Notices (MSNs, MGNs, MINs).

10.2.2 Musters and drills are designed to prepare a trained and organised response to dangerous situations which may unexpectedly threaten loss of life at sea. It is important that they should be carried out realistically, approaching as closely as possible to emergency conditions. Changes in the ship's function and changes in the ship's personnel from time to time should be reflected in corresponding changes in the muster arrangements.

10.2.3 The muster list must be conspicuously posted before the ship sails and, on international voyages and in ships of Classes IIA and III should be supplemented by emergency instructions for each crew member (eg in the form of a card issued to each crew member or affixed to individual crew berths and bunks). These instructions should describe the allocated assembly station, survival craft station and emergency duty and all emergency signals and action, if any, to be taken on hearing such signals.

10.2.4 An abandon ship drill and a fire drill must be held within 24 hours of leaving port if more than 25% of the crew have not taken part in drills on board the ship in the previous month. As soon as possible but not later than two weeks after joining the ship, onboard training in the use of the ship's life-saving appliances, including survival craft equipment, must be given to crew members. As soon as possible after joining the ship, crew members should also familiarise themselves with their emergency duties, the significance of the various alarm systems and the locations of their lifeboat station and of all lifesaving and fire fighting equipment.

10.2.5 All the ship's personnel concerned should muster/assemble at a drill wearing lifejackets properly secured. The lifejackets should continue to be worn during lifeboat drills and launchings but in other cases may be subsequently removed at the Master's discretion if they would impede or make unduly onerous the ensuing practice, provided they are kept ready to hand.

10.2.6 The timing of emergency drills should vary so that personnel who have not participated in a particular drill may take part in the next.

10.2.7 Any defects or deficiencies revealed during drills and the inspections which accompany them should be made good without delay.

10.3 Fire drills

10.3.1 Efficient fire-fighting demands the full co-operation of personnel in all departments of the ship. A fire drill should be held simultaneously with the first stage of the abandon ship drill. Fire-fighting parties should assemble at their designated stations. Engine room personnel should start the fire pumps in machinery spaces and see that full pressure is put on fire mains. Any emergency pump situated outside machinery spaces should also be started; all members of the crew should know how to start and operate the emergency pump.

10.3.2 The fire parties should be sent from their designated stations to the selected site of the supposed fire, taking with them emergency equipment such as axes and lamps and breathing apparatus. The locations should be changed in successive drills to give practice in differing conditions and in dealing with different types of fire so that accommodation, machinery spaces store rooms, galleys and cargo holds or areas of high fire hazard are all covered from time to time.

10.3.3 An adequate number of hoses to deal with the assumed fire should be realistically deployed. At some stage in the drill, they should be tested by bringing them into use, firstly with water provided by the machinery space pump and secondly with water provided by the emergency pump alone.

10.3.4 The drill should extend, where practicable, to the testing and demonstration of the remote controls for ventilating fans, fuel pumps and fuel tank valves, the closing of openings and the appropriate isolation of electrical equipment.

10.3.5 Fixed fire extinguishing installations should be tested to the extent practicable.

10.3.6 Portable fire extinguishers should be available for demonstration of the manner of their use. They should include the different types applicable to different kinds of fire. At each drill, one extinguisher or more should be operated by a member of the fire party, a different member on each occasion. Extinguishers so used should be recharged before being returned to their normal location or sufficient spares should otherwise be carried for demonstration purposes.

10.3.7 Breathing apparatus should be worn by members of the fire-fighting parties so each member in turn has experience of its use. Search

and rescue exercises should be undertaken in various parts of the ship. The apparatus should be cleaned and verified to be in good order before it is stowed; cylinders of self-contained breathing apparatus should be recharged or sufficient spare cylinders otherwise carried for this purpose.

10.3.8 In addition to the statutory inspection, fire appliances, fire and watertight doors, other closing appliances, and fire detection and alarm systems which have not been used in the drill should be inspected, either at the time of the drill or immediately afterwards.

10.4 Survival craft drills

10.4.1 When arranging drills reference should be made to the relevant M Notice. Arrangements for drills should take account of prevailing weather conditions.

10.4.2 Crew members taking part in life-raft or lifeboat drills should muster wearing warm outer clothing and lifejackets properly secured.

10.4.3 Where appropriate, the lowering gear and chocks should be inspected and a check made to ensure that all working parts are well lubricated.

10.4.4 When turning out davits or when bringing boats or rafts inboard under power, seamen should always keep clear of any moving parts.

10.4.5 The engines on motor lifeboats should be started and run ahead and astern. Care should be taken to avoid overheating the engine and the propeller shaft stern gland. All personnel should be familiar with the engine starting procedure.

10.4.6 Hand-operated mechanical propelling gear, if any, should be examined and similarly tested.

10.4.7 Radio life-saving appliances should be examined and tested, and the crew instructed in their use.

10.4.8 Water spray systems, where fitted, should be tested in accordance with the lifeboat manufacturer's instructions.

10.4.9 When a drill is held in port, as many as possible of the lifeboats should be cleared and swung out. Each lifeboat should be launched and manoeuvred in the water at least once every three months. Where launching of free-fall lifeboats is impracticable, they may be lowered into the water provided that they are free-fall launched at least once every six months. However, this may be extended to twelve months provided that arrangements are made for simulated launching which will take place at intervals not exceeding six months.

10.4.10 When fast rescue boats/rescue boats are carried which are not also lifeboats they should be launched and manoeuvred in the water every month so far as is reasonable and practicable. The interval between such drills must not exceed three months.

10.4.11 Where simultaneous off-load/on-load release arrangements are provided great care should be exercised to ensure that the hooks are fully engaged before a boat is recovered, after it has been stowed and prior to launching.

10.4.12 Where davit-launched liferafts are carried then on-board training, including an inflation, must be carried out at intervals not exceeding four months. Great care should be taken that the hook is properly engaged before taking the weight of the raft. The release mechanism should not be cocked until just prior to the raft landing in the water. If the raft used for the inflation is part of the ship's statutory equipment and not a special training raft, then it MUST be repacked at an approved service station.

10.4.13 Where the handle of the lifeboat winch would rotate during the operation of the winch, it should be removed before the boat is lowered on the brake or raised with an electric motor. If a handle cannot be removed, personnel should keep well clear of it.

10.4.14 Personnel in a fast rescue boat/rescue boat or survival craft being lowered should remain seated, keeping their hands inside the gunwale to avoid them being crushed against the ship's side. Lifejackets should be worn. In totally enclosed lifeboats seat belts should be secured. Only the launching crew should remain in a lifeboat being raised.

10.4.15 During drills, lifebuoys and lines should be readily available at the point of embarkation.

10.4.16 While craft are in the water, crews should practice manoeuvring the vessel by oar, or the appropriate motive power and should operate the water spray system when fitted on enclosed lifeboats.

10.4.17 Seamen should keep their fingers clear of the long-link when unhooking or securing blocks onto lifting hooks while the boat is in the water, and particularly if there is a swell.

10.4.18 Before craft in gravity davits are recovered by power, the operation of the limit switches or similar devices should be checked.

10.4.19 A portable hoist unit to recover a craft should be provided with a clutch or have an attachment to resist the torque. These should be checked. If neither device is available, the craft should be raised by hand.

10.4.20 Where liferafts are carried, instruction should be given to the ship's personnel in their launching handling and operation. Methods of boarding them and the disposition of equipment and stores on them should be explained.

10.4.21 The statutory scale of life-saving appliances must be maintained at all times. If the use of a liferaft for practice would bring equipment below the specified scale, a replacement must first be made available.

10.5 Drills and rescue from dangerous spaces

10.5.1 There is a statutory requirement for drills simulating the rescue of an incapacitated person from a dangerous space to be carried out every two months. Each drill should be recorded in the official log book. A drill should normally be held soon after significant changes in crew members.

10.5.2 Any attempt to rescue a person who has collapsed within a space should be based on a pre-arranged plan, which should take account of the design of the individual ship. Allocation of personnel to relieve or back-up those first into the space should be borne in mind.

10.5.3 Regular drills should prove the feasibility of the ship's rescue plan under different and difficult circumstances. The space should be made safe or, for operational convenience, a non-dangerous space may be used, provided that it provides realistic conditions for an actual rescue.

10.5.4 If there are indications that the person in the space is being affected by the atmosphere, the person outside the space should immediately raise the alarm. ON NO ACCOUNT SHOULD THE PERSON STATIONED AT THE ENTRANCE TO THE SPACE ATTEMPT TO ENTER IT BEFORE ADDITIONAL HELP HAS ARRIVED. NO ONE SHOULD ATTEMPT A RESCUE WITHOUT WEARING BREATHING APPARATUS AND A RESCUE HARNESS AND, WHENEVER POSSIBLE, USE OF A LIFELINE.

10.6 Assisting a casualty

10.6.1 Anyone on board ship may find a casualty, and everyone should know the basic priorities for action, the positioning of an unconscious

casualty and how to give artificial respiration. These actions may save life until more qualified help arrives.

- Personnel encountering a casualty should first ensure that they are not themselves at risk.
- If necessary the casualty should be removed from danger, or danger removed from the casualty - BUT SEE BELOW ON CASUALTIES IN AN ENCLOSED SPACE
- **If there is only one unconscious casualty** (irrespective of the total number of casualties)
  - immediate basic treatment should be given to the unconscious casualty;
  - then help should be summoned.
- **If there is more than one unconscious casualty**
  - help should be summoned first;
  - then appropriate treatment should be given, priority being given to any casualty with stopped breathing/heart.
- **If the unconscious casualty is in an enclosed space:**
  - personnel MUST NOT enter the enclosed space unless they are a trained member of a rescue team acting upon instruction.
  - help should be summoned and the master informed.
  - it must be assumed that the atmosphere in the space is unsafe. The rescue team must not enter unless wearing breathing apparatus
  - separate breathing apparatus or resuscitation equipment should also be fitted on the casualty as soon as possible.
  - the casualty should be removed quickly to the nearest safe adjacent area outside the enclosed space unless his injuries and the likely time of evacuation makes some treatment essential before he is moved.

10.6.2 Should it be necessary to remove injured persons from a hold, the best available method should be adopted but where practicable all access openings should be opened and the following equipment used where available:

(a) a manually-operated davit, suitably secured over the access opening;

(b) a cage or stretcher fitted with controlling lines at the lower end.

10.6.3 Casualties who have been exposed to a hazardous chemical should rest quietly and be observed for at least 24 hours, in case any complications arise.

10.7 Dangerous Goods

10.7.1 Emergency responses to spillage of dangerous goods are contained in the IMO Medical First Aid Guide and the IMO Emergency Procedures for Ships Carrying Dangerous Goods (EmS). Both of these are available either as free-standing documents or incorporated into the International Maritime Dangerous Goods (IMDG) Code.

General

10.7.2 Recommendations on emergency action differ depending on where the goods are stowed and whether a substance is gaseous, liquid or solid. When dealing with incidents involving flammable gases or flammable liquids, all sources of ignition (eg naked lights, unprotected light bulbs, electric handtools) should be avoided.

10.7.3 Normally dangerous goods in packaged form can be handled without the use of special protective clothing or equipment. If the packaging has been damaged the contents may have spilt or leaked. Under these circumstances the emergency team may have to deal with toxic corrosive or flammable solids, liquids or vapours. Vapours may arise from a spilt substance itself or as a result of the reaction between spilt substances themselves and other materials. Eye protection should always be worn, and if hazardous dust may be encountered, respiratory protection should be used - where the substance offers a significant toxic hazard this should be self-contained breathing apparatus.

Spillages

10.7.4 In general the recommendation is to wash spillages on deck overboard with copious quantities of water, and, where there is likely to be a dangerous reaction with water, from as far away as practicable. Disposal of dangerous goods overboard is a matter for judgement by the master, bearing in mind that the safety of the crew has priority over pollution of the sea. If it is safe to do so, spillages and leakages of substances, articles and materials identified in the IMDG Code as MARINE POLLUTANT should be collected for safe disposal. Absorbent material should be used for liquids.

10.7.5 Spillages collected with absorbent material and kept in plastic bags or other receptacles may need to be stowed safely for ultimate disposal ashore. Collection of spillages with absorbent material under deck may not be fully effective, and precautions for entry into enclosed spaces should be observed.

10.7.6 A careful inspection for structural damage should be carried out after dealing with spillages of highly corrosive substances.

Fire

10.7.7 Water is generally recommended as the fire fighting medium for most dangerous goods at sea. However, reference should be made to the relevant EmS schedules.

10.7.8 Where possible, a package should be removed from the vicinity of the fire. Where there is a possibility that the heat will cause a chemical or physical change in the substance, or affect the integrity of a package, leading to rupture and dispersal of the contents, keeping the packages cool may limit the hazard. Care should be exercised with those substances liable to polymerise, as this reaction can continue long after the removal of external heat.

10.7.9 For incidents under deck, the best course of fire fighting will usually be to batten down the hatch, exclude all ventilation and operate the fixed fire-fighting installation. Self-contained breathing apparatus should be worn when battening down the hatches or if there is any need to enter the space, for example after the fire is out.

10.7.10 For certain substances which are highly reactive with water, only the use of dry chemical fire extinguishers is recommended. This would not preclude the use of suitable powdered inert material if available in sufficient quantity. The only alternative is the use of copious quantities of water, which will have a cooling effect on the fire, although reacting with the substance.

10.7.11 Where an EmS advises against the use of foam, this does not preclude the use of special foams.

10.7.12 The general fire-fighting recommendations for a number of dangerous goods suggest that they should be jettisoned if there is a likelihood of their involvement in a fire. Where full or nearly full container loads or other units are concerned, this may be impractical, in which case everything possible should be done to prevent the spread of fire to those containers. If, despite preventive measures, fire seems likely to affect these containers, it should be borne in mind the contents may burn with explosive violence and personnel should be withdrawn accordingly.