

## GUIDANCE ON PROCEDURES FOR OPERATIONAL CONTROLS

### 1. INTRODUCTION

#### 1.1. Goals and purpose

This Guideline is solely drafted for the purpose of providing guidance to the PSCO in performing a PSC inspection on the subject matter. This Guideline does not restrict the PSCO in the scope of inspection or in using his/her professional judgement while performing the PSC inspection. Third parties cannot claim any rights based on this guideline with regard to the PSC inspection as performed by the PSCO.

The goal of this guidance is to provide Port State Control Officers with procedures how to carry out operational controls including drills.

#### 1.2. Application

This guidance is applicable for operational controls carried out during an inspection on ships.

#### 1.3. Relevant guidance

Guidance scenarios for drills are presented in Annex 1.

#### 1.4. Definitions and abbreviations

The PSCC Instruction containing "Definitions and Abbreviations" serves as general document and is to be used in conjunction with this Paris MoU document.

Operational control: A control to check the effectiveness, communication, interaction and familiarity of the crew, including processes/procedures and the human interface.

Functional test: A test of an item to prove the correct operation and function of equipment. Functional tests may be carried out during an initial, more detailed or expanded inspection.

### 2. BACKGROUND INFORMATION

#### 2.1 When should operational controls be witnessed:

- .1 **PMoU Annex 9:** Whenever there are clear grounds for believing, that the condition of a ship or its equipment or crew does not substantially meet the relevant requirements of a Convention, a more detailed inspection shall be carried out, including further checking of compliance with on board operational requirements, as appropriate.
- .2 **Inspection type:** Expanded inspections require a fire drill, including a demonstration of the ability to use firemen's outfits and firefighting equipment and appliances, for ships in general and an abandon ship drill (including lowering a rescue boat and a life boat to the water) on passenger ships.

## **2.2 Clear grounds**

- .1 Clear grounds found during an initial inspection which may warrant an operational control could be, but are not limited to the following:
  - .1 Muster List does not conform to SOLAS requirements
  - .2 Random questioning of the crew going about their normal duties reveals:
    - .1 a lack of knowledge of what their emergency duties are;
    - .2 a lack of knowledge of the use of emergency equipment that they should be reasonably familiar with or ;
    - .3 key members of crew are unable to communicate with each other
  - .2 Inspection of logbooks/records reveals that drills have not been carried out as required by SOLAS
  - .3 Evidence that the crew have not been trained in accordance with SOLAS. e. Serious deficiencies in the LSA or Fire Fighting Equipment.
  - .4 Absence of a decision support system as required by SOLAS – (Only applicable for passenger ships).
  - .5 Crew unfamiliar with Life-saving training Manual in accordance with SOLAS. h.  
Crew unfamiliar with Fire-fighting Training Manual in accordance with SOLAS. i.  
Crew unfamiliar with Fire Safety Operational Booklet in accordance with SOLAS. – May be combined with the Fire-Fighting training manual.
  - .6 Training manuals and booklets not written in the working language of the ship.

## **2.3 Initial Inspection**

- .1 During an initial inspection functional tests may be carried out. Operational controls are never part of initial inspections.

## **2.4 More Detailed Inspection or expanded inspection**

- .1 Any operational controls, other than a drill, which include the elements as mentioned in the definition in 1.4. should be recorded under operational controls as “other”.  
  
In case the option “other” is used in the database PSCO(s) should specify in free text which operational control(s) were performed. See remark on page 1 of Annex 1.

## **3. PROCEDURES DURING OPERATIONAL CONTROL**

### **3.1 General Paris MoU Procedures**

- .1 Depending on the extent of the operational exercise it should be decided whether one or more PSCO’s should attend the vessel. With a large cargo ship or with a ship carrying large numbers of crew and passengers it is not reasonable to expect one person to adequately comment upon all areas of e.g. an emergency exercise.

- .2 Upon arrival on board the ship, the master should be informed about the purpose of the visit and the extent of the control.
- .3 At the beginning of the operational control, the master should present evidence of the crew's last participation in emergency drills on board. The master may be asked to produce documentary evidence of the crew members familiarisation and basic training (personal survival techniques, fire prevention and firefighting, elementary first aid, personal safety and social responsibility).
- .4 At the master's discretion, the areas and methods of operational control, such as fire, man-over-board (MOB), enclosed space entry or evacuation drills, should be agreed upon. The master should be instructed to notify the crew about a drill which is to be performed, but without mentioning the specific content of the drill and the areas of operational control, since this could lead to a distorted picture of the crew's performance in an emergency situation.
- .5 To ensure a safe execution of the operational control, the sequence of operational controls should be arranged with the master and the senior officers.
- .6 The passengers if any, should be informed about a drill. The information should be broadcasted by public announcements in all relevant languages for the route concerned. The announcement should be repeated during the drill with appropriate intervals. The completion of the drill should be announced to the passengers.
- .7 During the operational control, the PSCO(s) should question the crew members, particularly those assigned to assist any passengers, in order to get an impression of the safety awareness on board the ship.

### **3.2 Planning and organising operational controls including drills**

- .1 Operational controls, including drills, should be planned, organised and performed in accordance with relevant shipboard requirements so that the recognised risks are minimised. The on-board SMS should detail this.
- .2 The PSCO(s) must not request any operational controls or impose physical demands which, in the judgement of the master, could jeopardise the safety of the ship, crew, passengers, or cargo.
- .3 When requesting an operational control, the PSCO(s) should ensure, as far as possible, no interference with normal shipboard operations, such as loading and unloading of cargo or ballast, which is being carried out under the responsibility of the master, nor should the PSCO(s) require the demonstration of any operational aspect which could unnecessarily delay the ship.
- .4 Operational controls should be carried out at a safe speed. PSCO(s) should not expect to see operational controls including drills conducted in real time. Care should be taken to ensure that everybody familiarises themselves with their duties and with the equipment. If necessary, operational controls including drills should be stopped if the PSCO(s) considers that the crew are carrying out unsafe practices or if there is a real emergency.
- .5 The PSCO(s) should devise the emergency scenario on which a drill will be based in conjunction with the master. Experience has shown that the best assessment is achieved when the PSCO(s) devises and controls the scenario, (in collaboration with the master) since there is then an element of uncertainty on the part of the ship's officers as to how a drill will

progress and is more realistic to the actual on board situation facing crew members in a critical situation.

- .6 It is essential that meetings are held between the PSCOs and key members of the ship's personnel before and after the exercise. An initial briefing should be used to explain in general terms how the drill will be conducted and should also enable the ship's staff to recognise the PSCOs who are witnessing the drill, it is recommended that all PSCOs witnessing the drill wear high visibility waistcoats to distinguish them from crewmembers.
- .7 Effective communication among the PSCO themselves and between the PSCO(s) and the crew is essential to enable the drill to be effectively divided into stages e.g.
  - .1 Stage I: Incident
  - .2 Stage II: Fire Drill
  - .3 Stage III: Abandon Ship Drill.
- .8 Language difficulty between the PSCO(s) and non-English speaking crews can make it difficult to put across the intentions for the conduct of the exercise.

***Note:** Care needs to be exercised when an unsatisfactory drill takes place; this is to ensure differentiation between the crew possibly failing to understand the attending PSCO's intention and failure through lack of crew competence.*
- .9 A final de-brief meeting should identify any shortcomings and if appropriate where the drill did not meet the required standard.

### 3.3 Communication

- .1 The PSCO(s) may determine if the key crew members are able to communicate with each other, and with passengers as appropriate, in such a way that the safe operation of the ship is not impaired, especially in emergency situations.
- .2 Key crew members could be but are not limited to:
  - .1 Bridge Team including GMDSS operators who must also be able to communicate with the shore and other vessels
  - .2 Fire Parties
  - .3 Damage Control Parties
  - .4 Boat Preparation Parties
  - .5 Passenger Muster Personnel on passenger ships
- .3 The PSCO(s) should verify the working language of the vessel.
- .4 The crew members assigned to assist passengers should be able to give the necessary information to the passengers in case of an emergency.
- .5 The PSCO(s) may determine, if UHF or VHF hand held radios are being used, that the crew are familiar with the equipment, that they are aware of reception dead zones/areas and what alternative communication methods are available.

- .6 Passenger ships constructed on or after 1 July 2010 shall have on board a safety centre. The safety centre shall either be a part of the navigation bridge or be located in a separate space adjacent, but having direct access to the navigation bridge.
- .7 The PSCO should verify effective means of communication between the safety centre, the central control station, the navigation bridge, the engine control room, the storage room(s) for fire extinguishing system(s) and fire equipment lockers are provided.

### **3.4 Command**

- .1 PSCO(s) should establish that there are sufficient personnel on the bridge or command centre to make decisions, navigate the ship as necessary and deal with the considerable amount of communication that is likely.
- .2 A frequently neglected aspect of emergency drills is communication with the shore. When a ship is in difficulty it is likely that shore based organisations will be involved and it follows that these should be alerted as soon as possible. The crew's lack of familiarity with shore based organisations and the shore based organisations' lack of familiarity with the shipboard organisation means that difficulties can occur in mounting a coherent response to an emergency. For large cargo ships and passenger ships it is recommended that PSCO(s) make use of Maritime Rescue Coordination Centre (MRCC) facilities during operational drills. The ability of the local Search And Rescue (SAR) centre to participate and a working channel over which communication for the purpose of the exercise can be passed should be agreed beforehand (by reference to the SAR plan). Experience has shown that this is of benefit to both parties in promoting familiarity with the procedures.

### **3.5 The Muster List**

- .1 The PSCO(s) may determine if the crew members are aware of their duties indicated in the muster list, that they are familiar with the duties assigned to them and are aware of the locations where they should perform their duties, this is done by asking the crew relevant questions. This could be done prior to the drill or during the drill, for instance questioning of stairway guides on a passenger ship.
- .2 To determine whether the muster list is up to date, the PSCO(s) may require an up to date crew list.
- .3 The PSCO(s) should ensure that muster lists are exhibited in conspicuous places throughout the ship, including the navigational bridge, the engine room and the crew accommodation spaces. When determining if the muster list is in accordance with the regulations, the PSCO(s) may verify whether:
  - .1 the muster list shows the duties assigned to the different members of the crew;
  - .2 the muster list specifies which officers are assigned to ensure that life-saving and fire fighting equipment is maintained in good condition and ready for immediate use;
  - .3 the muster list specifies the manning of fire parties assigned to deal with fires;

- .4 the muster list special duties assigned in respect to the use of fire-fighting equipment and installations; and for passenger ships only, damage control for flooding emergencies;
  - .5 the muster list specifies the substitutes for key persons who may become disabled, taking into account that different emergencies may call for different actions;
  - .6 the muster list shows the duties assigned to the crew members in relation to passengers in the case of emergency;
  - .7 the format of the muster list used on passenger ships is approved
- .4 The PSCO(s) may determine that the duties of assigned crew members manning the survival craft are in accordance with the SOLAS requirements and should verify that a deck officer or certificated person is placed in charge of each survival craft to be used. A second in command should also be nominated in the case of lifeboats.

**Note:** The flag State, having due regard to the nature of voyage, the number of persons on board and the characteristics of the ship, may permit a person practiced in the handling and operation of life rafts to be placed in charge of life rafts in lieu of persons qualified above.

- .5 Every motorized survival craft shall have a person assigned who is capable of operating the engine and carrying out minor adjustments.

### 3.6 Witnessing drills

- .1 Gauging that the drill is of the required standard is highly subjective. Deficiencies in hardware are generally easy to identify and report on but identifying and reporting significant procedural deficiencies is far more difficult. If a drill is very good or very bad, these tend to be self-evident and more readily lend themselves to reporting. It is the drills which lie on the borderline between acceptable or unacceptable which provide the greatest difficulty.
- .2 To resolve this problem, the PSCO(s) needs to have clearly in his own mind a list of assessment objectives based on the 3 principles of command, control and communication.
- .3 As the drill progresses, areas of concern or of failure are noted against each of these objectives. At the end of the exercise a judgment as to whether or not the drill is acceptable should be based on these observations. It is of considerable importance to make notes to support and justify the PSCOs actions.
- .4 Having assessed the extent to which operational requirements are complied with, the PSCO(s) should then exercise their professional judgement to determine whether the operational proficiency of the crew as a whole is of sufficient level to allow the ship to sail without danger to the ship or persons on board, or presenting an unreasonable threat of harm to the marine environment.
- .5 When witnessing a drill, the PSCO(s) should seek:
  - .1 Confirmation that the crew follow what is required of them by the muster list.
  - .2 Confirmation that there are sufficient personnel assigned to the various parties to cope with the duties given to them.

- .3 Confirmation that there is an effective means of communication between the party, the party leader and the Bridge or a control centre where applicable in passenger ships and that relevant information is being passed bi-directionally.
- .4 Confirmation of the efficiency of the crew working as a team. This would be based on questioning of personnel and observation of their actions. The response times should be noted of the various parties in assembling at their stations. The reaction of the parties to unplanned events should also be noted.
- .5 Confirmation that key members of the crew are able to understand each other.
- .6 Confirmation of the efficiency of the equipment used, for example -
  - .1 that the fire alarms are audible and efficient
  - .2 that the fire doors close as required
  - .3 that items of personal fire fighting equipment or atmosphere testing instruments appear well maintained.
- .7 Confirmation that the response time was considered fast enough, considering the size of the ship and the locations of fire, personnel and fire fighting equipment.
- .6 In the case of evacuation or abandon ship drills:
  - .1 Confirmation that the escape arrangements for passengers/crew from lower decks are adequate, that the assembly or muster stations are clearly indicated, that the crew are familiar with the layout of the ship and are able to respond to changes in circumstances, for example directing passengers so as to avoid a smoke filled area
  - .2 Confirmation that the boat lowering party is proficient and that boats are lowered and ready for embarkation with ancillary equipment deployed
  - .3 Confirmation that the evacuation was carried out in a reasonable time, but without unnecessary risk to drill participants. Benchmark times from SOLAS should be:
    - .1 Survival crafts and lifeboats shall be stowed in a state of continuous readiness so that preparation for embarkation and launching can be carried out in less than 5 minutes by 2 crew members. (keeldate > 01-07-1986)
    - .2 Lifeboats can be boarded with its full complement of persons within 3 minutes (cargo ships) and 10 minutes (passenger ships with keeldate > 01-07-2008).
    - .3 30 minutes to abandon a passenger ship from the time the abandon ship signal is given after all persons have been assembled, with lifejackets donned.

## ANNEX 1

### Guidance scenarios for drills.

#### Content

1. **SCENARIOS**
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  - 1.8. **Enclosed space entry and rescue drill**
  - 1.9. **Steering Gear drill**

**Remark: Other operational controls** Operational controls, other than a drill, are possible as well, but should include the elements as mentioned in the definition of ‘operational control’ under 1.4 of this instruction. In that case the option ‘other’ is used and in free text it should be specified which operational control was performed.

2. **EVALUATION AND REPORTING**

3. **DRILLS AIDE-MEMOIRE – Cargo ships**

This Aide-Memoire have been provided for use by the PSCOs to assist with the planning and organisation of drills on cargo ships.

4. **DRILLS AIDE-MEMOIRE – Passenger ships**

This Aide-Memoire have been provided for use by the PSCOs to assist with the planning and organisation of drills on passenger ships.

5. **DRILL REPORT FOR AN UNSATISFACTORY DRILL**

## 1. SCENARIOS

### 1.1 Standard Scenarios

- .1 A suggested standard scenario which could be adapted to various types of vessel consists of four phases – e.g.:
  - .1 incident Stage - A fire report or alarm received on the bridge and acted upon by an incident party;
  - .2 fire Alarm - The incident progresses to a major fire which requires the ship to deploy fire, boundary cooling, evacuation and closing down parties;
  - .3 muster - Personnel should be mustered at some time to be determined by the master, lifeboats should be prepared and;
  - .4 abandon Ship – The fire fighters should withdraw and the crew abandon ship. Lifeboats/rafts should be lowered and sent away.
- .2 The starting point of the scenario needs to be first established. High risk locations include main and ancillary engine machinery, galley spaces. Alternatively, electrical sources such as switchboard rooms or cabling runs in deckheads could be considered. If the ship carries Dangerous Goods a simulated fire involving these would test knowledge of recommended emergency procedures.
- .3 The drill scenarios should, as far as practicable, be made as realistic as possible to simulate an actual emergency but always carried out at safe speed .

### 1.2 Fire drill

- .1 A suitable area should be selected for the fire drill. Before initiating the drill, one or more unconscious casualties may be placed in the affected area. Where possible, a PSCO should be in the same area as the casualties in order to observe how the search team perform their task of search and rescue of the casualties from the affected area.
- .2 The PSCO should observe how the casualties are rescued and how the fire fighting team leader, fire fighting team members and fire fighting team assistants perform the actual fire fighting operation.
- .3 The scene of the fire should be arranged in co-operation with the master, for example the engine room, ro-ro deck or a passenger area.
- .5 If the scene of fire is arranged on the car deck, the cargo manifest and loading plan should be checked for dangerous cargo.
- .6 A PSCO should observe the effectiveness of the bridge team.
- .7 The scene of the scenario can be blacked out or the smoke divers' masks can be blinded; however, it is recommended to use a smoke generator, if accepted by the master, since this gives the most realistic drill.
- .8 If a member of the rescue team enters the scene of fire without a breathing apparatus and protective clothing, the person must be removed from the team.

- .9 A key person could be removed in order to test the provision of substitutes.
- .10 The following actions should be checked during the drill:
- .1 fire alarm activated, fire doors closed and passengers informed;
  - .2 passengers evacuated from the affected area by the assigned crew members;
  - .3 ventilation stopped and dampers closed;
  - .4 manning of control stations;
  - .5 fire pump(s) started;
  - .6 shore-based organisation informed by a designated person;
  - .7 fire fighting team at entrance to scene of fire ready to assist the rescue team;
  - .8 rescue team at scene performing the search operation;
  - .9 casualties evacuated and taken over by the medical team;
  - .10 fire extinguished;
  - .11 fire leader reports to bridge;
  - .12 boundary cooling;
  - .13 electrical isolation;
  - .14 low level lighting.
- .11 Whichever location is selected it would be expected that the ship's fire plan is examined to find a suitable location from which the fire may spread in as many directions as possible, having regard to the structural fire protection and ventilation arrangements.
- .12 Consideration needs to be given to testing the ships response for control of smoke, this is potentially as important as the ability to fight the fire given that the smoke will penetrate far more areas than the fire and will result in greater casualties.
- .13 If agreed with the Master, casualties should also be simulated both in the immediate area of the fire and in cabins, the latter will test the cabin search organisation of the ship.
- .14 At the location of the fire the PSCO should describe the fire indication to the crew member and observe how the report of fire is relayed to the bridge or damage control centre. At this point most passenger ships will sound the crew alarm to summon the fire-fighting parties to their stations.
- .15 The PSCO may observe how the fire fighting team leader, fire fighting team members and fire fighting team assistants are performing the actual fire fighting operation. The PSCO should observe the fire-fighting party arriving on the scene, breaking out their equipment and fighting the simulated fire. Team leaders should be giving orders as appropriate to their crews and passing the word back to the bridge or damage control centre on the conditions. The fire-fighting crews should be observed for proper donning and use of their equipment. The PSCO should make sure that all the gear is complete. Merely mustering the crew with their gear is not acceptable.
- .16 If a scenario is developed where by the emergency generator is put on load and will be used to supply power to the fire pumps, consideration needs to be given as to whether the crew are over optimistic in the number of hoses deployed. Checks should also be made that the crew are familiar with the location and operation of isolation valves, sprinkler control stations, remote closing devices including watertight doors and establishing emergency lighting.
- .17 Crew response to personnel injuries can be checked by selecting a crew member as a simulated casualty. Where possible a PSCO should be in the same area as the casualty, in order to observe how the search team is performing its task of search and rescue. The PSCO should observe how the word is passed and the response of stretcher and medical teams. Handling a stretcher properly through narrow passageways, doors and stairways is difficult and takes practice and care must be taken if crew members are used as stretcher cases. The use of weighted dummies is just as realistic without the risk of injury.

- .18 Those crew members assigned to other duties related to a fire drill, such as the manning of the emergency generators, the CO2 room, the sprinkler and emergency fire pumps, should also be involved in the drill. The PSCO may ask these crew members to explain their duties and if possible to demonstrate their familiarity.
- .19 On passenger ships, special attention should be paid to the duties of those crew members assigned to the closing of manually operated doors and fire dampers. These closing devices should be operated by the responsible persons in the areas of the simulated fire(s) during the drill. Crew members not assigned to the fire-fighting teams are generally assigned to locations throughout the passenger accommodation to assist in passenger evacuation. These crew members should be asked to explain their duties and the meaning of the various emergency signals and asked to point out the two means of escape from the area, and where the passengers are to report. Crew members assigned to assist passengers should be able to communicate at least enough information to direct a passenger to the proper muster and embarkation stations. It is important to ascertain the procedure for evacuating disabled passengers.

### **1.3 Damage Control drill- Passenger ships**

- .1 Firefighting is not the only area, which should be examined. Damage control is equally important especially on passenger ships. Damage Control Plans should be available on all passenger ships irrespective of year of build and cargo ships built after 1 February 1992.
- .2 In passenger ships a damage control drill shall take place at least every three months. The entire crew need not participate in every drill, but only those crew members with damage control responsibilities.
- .3 For passenger ships the damage control drill scenarios shall vary each drill so that emergency conditions are simulated for different damage conditions and shall, as far as practicable, be conducted as if there were an actual emergency.
- .4 The PSCO should take into account that SOLAS requires each damage control drill to include:
  - .1 for crew members with damage control responsibilities, reporting to stations and preparing for the duties described in the muster list;
  - .2 use of the damage control information and the on board damage stability computer, if fitted, to conduct stability assessments for the simulated damage conditions;
  - .3 establishment of the communications link between the ship and shore-based support, if provided;
  - .4 operations of watertight doors and other watertight closures;
  - .5 demonstrating proficiency in the use of the flooding detection system, if fitted, in accordance with muster list duties;
  - .6 demonstrating proficiency in the use of cross-flooding and equalization systems, if fitted, in accordance with muster list duties;
  - .7 operation of bilge pumps and checking of bilge alarms and automatic bilge pump starting systems; and
  - .8 instructions in damage survey and use of the ship's damage control systems.

- .5 At least one damage control drill each year shall include activation of the shore-based support, if provided, to conduct stability assessments for the simulated damage conditions. The PSCO should liaise with the ship's captain whether to include in the drill shore-based control, if provided.
- .6 During the drill the crew's knowledge of the Damage Control Plan including their knowledge of cross flooding arrangements, convention valve location, local/remote operation of the watertight doors etc. should be tested. Their assessment of the effect on stability of large quantities of water in a damaged compartment should be assessed along with the countermeasures taken to minimize the effects.
- .7 The PSCO may determine if the officers of the ship are aware of the contents of the damage control booklet which should be available to them, or of the damage control plan. The officers may be asked to explain the action to be taken in various damage conditions.
- .8 The relevant officers may also be asked to explain about the boundaries of the watertight compartments, the openings therein with the means of closure and position of any controls thereof and the arrangements for the correction of any list due to flooding.
- .9 The relevant officers should have a sound knowledge of the effect of trim and stability of their ship in the event of damage to and consequent flooding of a compartment and countermeasures to be taken.

#### **1.4 Abandon Ship Drills – Cargo Ships**

- .1 In order for the PSCO(s) to satisfy themselves with the lifeboat, its launching arrangements and competence of the crew, the crew should demonstrate the following as part of an abandon ship drill:
  - .1 lowering of the boat to the water;
  - .2 release the hooks;
  - .3 take the boat away.
- .2 Care needs to be taken when requiring a ship to lower lifeboats. The number of persons inside the lifeboats during launching for the purpose of a drill shall be at the Masters discretion. It is now acceptable to allow lifeboats to be lowered without an operating crew being inside. The purpose of this is to reduce the risk of accidents during launching and recovery, however this must be balanced out with the risk of embarking/disembarking the boat whilst it is in the water, if the boat is to be taken away and run.

However, the attending PSCO must satisfy themselves that the hooks can be released and the boat taken away. If a lifeboat is lowered without any operating crew inside, then the PSCO should see the 5 yearly load test certificate.
- .3 If it is intended for the crew to embark the lifeboat using the embarkation ladder the attending PSCO should be satisfied that the ladder is in a suitable condition and aware of the difficulties that can be encountered when using ladders such as trim and list of ship. If there is any doubt the ladders should be deployed to check for length and condition.
- .4 If the embarkation ladders are not in a satisfactory condition or the Master does not wish to use them, it will be necessary to initially launch the lifeboat with no operating crew inside, if this is done satisfactorily the lifeboat should be recovered and then launched for a second time with the operating crew who can demonstrate the use of the hooks and take the lifeboat away.

Prior to recovering lifeboats to the davit it is recommended that after securing the hooks the lifeboat is raised 1 metre and left in this position for a short period of time, e.g. 5 minutes prior to recovering the vessel to the davits to ensure that the hook release mechanism has reset.

- .5 If boats are fitted with “on load” release hooks prior to releasing the hooks the lifeboat should be fully waterborne the hydrostatic interlock system, where fitted, should be triggered prior to releasing the hooks manually.
- .6 The effectiveness of the bowing and tricing-in arrangements needs to be confirmed. When assessing whether the bowing-in arrangements is suitable the PSCO should bear in mind that the bowing equipment should be suitable for use with a fully loaded lifeboat with the vessel having an adverse list of 15°.
- .7 For vessel built after 1-7-1986 SOLAS requires that all lifeboats on cargo ships shall be so designed that they can be boarded and launched directly from the stowed position and that davit launched liferafts can be boarded and launched from a position immediately adjacent to the stowed position. In light of the recent IMO Guidelines on Safety During Abandon Ship Drills using Lifeboats whilst undertaking abandon ship drills the emphasis shall be put on the words “shall be so designed” and as such the attending PSCO should satisfy themselves that the remote wires for the launching are in good condition and the crew are able to operate them, however it is not necessary to launch the boat fully loaded from the stowed position using the remote wires.
- .8 Free-fall lifeboats should not be free-fall launched as part of an operational control or drill. Simulated launching of free fall lifeboats may be an alternative to full launching. <sup>1</sup>
- .9 SOLAS states that "Lifejackets selected for free-fall lifeboats, and the manner in which they are carried or worn, shall not interfere with entry into the lifeboat, occupant safety or operation of the lifeboat." This should be checked as there is a risk of neck injuries when free-fall boats are launched. Space may be an issue if lifejackets are carried, rather than worn. Some administrations require inflatable lifejackets for use with free-fall boats on ships built since 1998.
- .10 On cargo ships, it is required that survival craft are stowed in a state of continuous readiness so that the preparation for embarkation and launching can be done by two crew members in less than 5 minutes. For the purpose of an inspection it is not necessary for the crew to meet the required times during a drill. . The preparation of the survival craft and the subsequent launching process should be a controlled and safe procedure whereby the attending PSCO should be able to assess the proficiency of the crew.

## **1.5 Abandon Ship drill – Passenger ships**

- .1 After consultation with the Master, the PSCO may require an abandon ship drill for one or more survival craft. The essence of this drill is that the survival craft are manned and operated by the crew members assigned to them on the muster list. If possible the PSCO should include the rescue boat(s) in the abandon ship drill. SOLAS Ch III gives specific requirements on abandon ship training and drills.
2. The master should raise the alarm from the bridge. If possible, two PSCOs should observe the performance of the crew members assigned to evacuate passengers to the designated

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<sup>1</sup> Refer to latest edition of MSC Circular 1206 on Measures to Prevent Accidents with Lifeboats.

assembly areas. It should be observed whether all compartments and passenger areas are checked.

- .3 During the drill, crew members should be questioned about their duties, for example the davit launched liferaft operators, the life boat operators or the MES/MEC system operators.
- .4 It should be ensured that the drill is carried out in such a way that it is safe in every respect and elements of the drill that may involve unnecessary risk will need special attention or may be excluded from the drill. For example, lowering a boat with its full complement of persons is an example of an element of a drill that may, depending on the circumstances, involve unnecessary risk. Such drills should only be carried out if special precautions are observed.
- .5 The abandon ship drill should include:
  - .1 summoning of crew (and passengers) to the muster station(s) with the required alarm and ensuring that they are aware of the order to abandon ship as specified in the muster list;
  - .2 reporting to the stations and preparing for the duties described in the muster list;
  - .3 checking that crew (and passengers) are suitably dressed;
  - .4 checking that lifejackets are correctly donned;
  - .5 lowering of at least one lifeboat after the necessary preparation for launching;
  - .6 starting and operating the lifeboat engine; and
  - .7 operation of the davits used for launching liferafts.
- .6 Care needs to be taken when requiring a ship to lower lifeboats. The number of persons inside the lifeboats during launching for the purpose of a drill should be at the Masters discretion. It is acceptable to allow lifeboats to be lowered without an operating crew being inside. The purpose of this is to reduce the risk of accidents during launching and recovery, however this must be balanced out with the risk of embarking/disembarking the boat whilst it is in the water, if the boat is to be taken away and run. If the lifeboat lowered during the drill is not the rescue boat, the rescue boat should be lowered as well, taking into account that it is boarded and launched in the shortest possible time. The PSCO should ensure that crew members are familiar with the duties assigned to them during abandon ship operations and that the crew member in charge of the survival craft has complete knowledge of the operation and equipment of the survival craft.
- .7 Each survival craft should be stowed in a state of continuous readiness so that two crew members can carry out preparations for embarking.
- .8 On passenger ships, it is required that all lifeboats and davit-launched liferafts are capable of being launched within a period of 30 minutes from the time the abandon ship signal is given after all persons have been assembled, with lifejackets donned. For the purpose of an inspection it is not necessary for the crew to launch the lifeboats and liferafts within 30 minutes. The preparation of the lifeboats and the launching process should be a controlled and safe procedure whereby the attending PSCO should be able to assess the proficiency of the crew and the likelihood that they are capable of launching the lifeboats and davit launched life-rafts within 30 minutes.
- .9 If a sequential lowering of lifeboats is specified on the muster list this should be known by all and should be capable of being demonstrated.
- .10 SOLAS requires that a deck officer or certified person shall be in charge of each survival craft. A second in command shall also be nominated for life boats. At each liferaft davit or liferaft

launching position one person has to be similarly qualified. The PSCO should check these qualifications and confirm the ability of each person to perform their role, including the starting and operating of the lifeboat engine, and the operation of davits. It should be noted that the flag State, having due regard to the nature of voyage, the number of persons on board and the characteristics of the ship, may permit persons practiced in the handling and operation of liferafts to be placed in charge of liferafts in lieu of persons qualified above.

- .11 For passenger vessels with a Marine Evacuation System (MES) these obviously cannot be deployed, thus only a simulation can be undertaken to ensure the crew are familiar with the operation.

## **1.6 SOPEP/SMPEP drill**

Shipboard Oil Pollution Emergency Plan (SOPEP) and Shipboard Marine Pollution Emergency Plan (SMPEP).

- .1 The PSCO may determine if a SOPEP or SMPEP is provided and whether the appropriate crew members are familiar with their duties and the proper use of the ship's installations and equipment for pollution emergency response purposes.
- .2 The PSCO may determine if:
- .1 the officers of the ship are aware of the contents of the SOPEP or SMPEP, which must be available to them and;
  - .2 the SOPEP or SMPEP is provided and written in a language or languages understood by the master and officers.
- .3 The PSCO may be assisted from Section 3 "Steps to Control Discharge" of the SOPEP or SMPEP where for every given emergency situation the plan must provide the responsible persons for every action needed to be taken. Further to this, a lot of SOPEP or SMPEP are provided in the non-mandatory sections with a comprehensive list of the personnel responsibilities.

## **1.7 MOB drill**

- .1 This shall always be carried out in full co-operation with the master and will depend on schedule, weather conditions etc. When the master has found a suitable area on the route, the PSCO requests a crew member to throw a lifebuoy or "dummy" over board. The PSCO should observe how the master and the crew manage the situation. To establish the professional use and operation of the equipment, the time from the start until the readiness to launch the rescue boat should be noted. It should also be observed whether the crew is correctly dressed.
- .2 The rescue boats embarkation and launching arrangements shall be such that the rescue boat can be boarded and launched in the shortest possible time. Recovery time of the rescue boat shall be not more than 5 minutes in moderate sea conditions.
- .3 The PSCO should in particular observe the communication between the rescue boat crew and the master.
- .4 It should be observed how the crew perform their look-out task.

## **1.8 Enclosed space entry and rescue drill.**

- .1 The drill will serve to confirm that the requirements for familiarization, training and instruction have been met. The drill is to be conducted in a safe area on the ship and in a safe manner.
- .2 The PSCO should devise the emergency scenario on which the drill will be based in conjunction with the master. The scenario should reflect a designated enclosed space on the ship, and the hazards associated with entry into that particular space.
- .3 The PSCO should verify that enclosed space entry and rescue drills are carried out, with the participation of crew with enclosed space entry and rescue responsibilities, at least once every two months.
- .4 During the drill the PSCO should verify that those responsible for the drill can identify the specific hazards of the enclosed space, including but not limited to:
  - .1 the atmosphere in the enclosed space;
  - .2 what testing is needed to confirm that entry is safe and will remain safe;
  - .3 any limitations on the ability to confirm that conditions are safe and;
  - .4 any difficulties with access, or matters that may impede quick and effective rescue.
- .5 Verify that the prescribed safety briefings are given, and the required authorisations (permits) are completed and sign-offs are obtained. Those taking part should be identified on the appropriate checklists and authorisations.
- .6 Verify that personal protective equipment is available and correctly worn.
- .7 Verify that communications equipment is available and working correctly, and that communications procedures, including emergency signals, are agreed and tested prior to entry. This should include stationing a crew member at the entry point for the duration of the entry, confirmation of entry, monitoring of persons in the space and confirmation of exit.
- .8 Verify that equipment for testing the atmosphere is available, is working, and is suitable for the purpose for which it is being used, is correctly calibrated and has been serviced in accordance with the manufacturer's instructions.
- .9 Verify that those crew members responsible for testing understand how to use the equipment and any limitations of the equipment.
- .10 Verify what steps are taken to make the space safe if testing indicates that the atmosphere is not safe to enter.
- .11 Verify that rescue equipment is in place, in good order and ready for use, and that those who have designated rescue responsibilities are trained in its use.

## **1.9 Emergency steering drill.**

- .1 The PSCO should verify that emergency steering drills are carried out at least once every three months with the participation of crew with emergency steering responsibilities.
- .2 The PSCO should devise the emergency scenario on which the drill will be based in conjunction with the master.
- .3 During the drill the PSCO should verify that relevant crew members are familiar with ship specific emergency steering procedures.
- .4 Crew members with emergency steering responsibilities should, where applicable during the drill be able to demonstrate:
  - .1 direct control within the steering gear compartment;
  - .2 proper knowledge and functioning of communication procedures with the bridge and associated equipment and;
  - .3 the switch over to and operation under alternative power supplies.

## **2. EVALUATION AND REPORTING**

- .1 At the completion of a drill the PSCO(s) should evaluate the full exercise, including the debriefing by the master and senior officers. Findings and remedial action should be discussed. Depending on the seriousness of the operational deficiencies, drills may need to be repeated to the satisfaction of the PSCO(s).
- .2 The PSCO(s) should ensure that the deficiencies and action needed for their rectification are understood by the master and senior officers.
- .3 The attached forms in section 3 and 4 could be used as an aide-memoire when carrying out drills of various areas.
- .4 If the conduct of the drill, is in the professional judgment of the PSCO(s), is so poor that it warrants a detention it is recommended that in addition to completing the relevant Report of Inspection and Detention Notice the PSCO should complete a Drill Report for an Unsatisfactory Drill. This report should be completed using the assessment and status definitions described in the report. In turn the report should be left on board with the Master and a copy faxed with the Notice of Detention and Report of Inspection to the relevant interested parties. The purpose of the report is to give a clear indication of the problem areas identified during the operational drill to those parties involved with rectifying the deficiencies.

### 3. DRILLS AIDE- MEMOIRE

#### FOR CARGO SHIPS

	<b>FIRE DRILLS</b>	<b>YES</b>	<b>NO</b>	<b>REMARKS</b>
1.	Is the Fire Control Plan posted in a prominent position?			
2.	Is the Muster List posted in a prominent position?			
3.	Is the crew aware of their duties as indicated in the Muster List?			
4.	Is the emergency training and drills recorded in the logbook?			
5.	Is the crew able to communicate and understand each other?			
6.	During the fire drill did the crew demonstrate that they were able to undertake their duties and use the fire fighting equipment properly? (Including proper donning of equipment, use of appropriate access, tending of fire hoses etc.)			
7.	Was the fire fighting equipment complete?			
8.	Was the reporting of the fire to the bridge satisfactory?			
9.	Did the crew on the bridge take the appropriate decisions, navigate the ship as necessary and undertake the necessary communication?			

	<b>ABANDON SHIP DRILLS</b>	<b>YES</b>	<b>NO</b>	<b>REMARKS</b>
1.	Were the crew aware of the order to abandon ship?			
2.	During the abandon ship drill did the crew demonstrate that they were able to undertake their duties and use the life saving appliances properly?			
3.	Were the lifejackets donned correctly and were the crew aware of the location of the immersion suits?			
4.	Was at least one lifeboat lowered to the water after the necessary preparation was done and found acceptable?			
5.	Was the davit found to be operating satisfactorily?			
6.	Was the lifeboat engine operated properly?			
7.	Did the appropriate crew members have knowledge of the operation of the lifeboat and its equipment?			

**DESCRIPTION OF SCENARIO FOLLOWED:**


<b>REMARKS:</b>

Date: \_\_\_\_\_

Surveyor: \_\_\_\_\_

#### 4. DRILLS AIDE-MEMOIRE

##### FOR PASSENGER SHIPS

	<b>FIRE DRILLS</b>	<b>YES</b>	<b>NO</b>	<b>REMARKS</b>
1.	Are the crew members familiar with their duties and the proper use of the ships installations and equipment?			
2.	Was a fire drill witnessed?			
3.	Which location was selected for a simulated fire?			
4.	How was the fire alarm activated?			
5.	Was the reporting of the fire (from the location to the bridge or damage control centre) satisfactory?			
6.	When and how was the crew alarm sounded?			
7.	Was the performance of the fire fighting parties acceptable?			
8.	Were the team leaders orders and reporting to the bridge and/or damage control centre?			
9.	Was the donning and use of equipment acceptable?			
10.	Was the fire fighting equipment complete?			
11.	Were the medical teams taking care of injured persons in a satisfactory manner?			
12.	Was the use of stretchers through narrow passageways, doors, stairways etc found acceptable?			
13.	Was the drill conducted as an actual emergency?			
14.	Was the manning and operation of the emergency generator, the CO2 room, the sprinkler and emergency fire pumps acceptable?			
15.	Was the operation of manually operated fire doors and fire dampers satisfactory?			
16.	Are crew members assigned to assist passengers able to explain their duties, the meaning of various emergency signals, point out the two means of escape from the area and where the passengers are to report?			
17.	Are crew members assigned to assist passengers able to communicate at least enough information to direct a passenger to the proper muster and embarkation stations?			

	<b>FIRE CONTROL PLAN</b>	<b>YES</b>	<b>NO</b>	<b>REMARKS</b>
1.	Is a fire control plan or booklet provided?			
2.	Are the crew members familiar with the information given in the control plan or booklet?			
3.	Is the fire control plans permanently exhibited or is the booklet supplied to each officer?			
4.	Is one copy of the fire control plan readily available in an accessible position?			
5.	Are the crew (especially those who are assigned to duties on the muster list) aware of the content of the fire control plan/booklet?			
6.	Are the crew aware of what to do in the case of a fire?			
7.	Are the officers in charge of the ship familiar with the fire boundaries and the means of access to the different compartments?			

	<b>MUSTER LIST</b>	<b>YES</b>	<b>NO</b>	<b>REMARKS</b>
1.	Are crew members aware of their duties indicated in the muster list?			
2.	Are the muster lists exhibited in conspicuous places throughout the ship including the bridge, the engine room and the crew accommodation spaces?			
3.	Is it verified that the muster list:			
3.1	Shows the duties assigned to the different crew members?			
3.2	Specifies which officers are assigned to ensure that LSA & FFE are maintained in good condition and ready for immediate use?			
3.3	Specifies the substitutes for key persons who may become disabled?			
3.4	Shows the duties assigned to crew members in relation to passengers in case of emergency?			
3.5	Is the format of the muster list approved?			
3.6	Is the muster list up-to-date?			
3.7	Is it in conformity with the crew list and/or the Safe Manning Document?			
3.8	Are duties assigned to crew members manning survival craft in accordance with SOLAS & STCW?			
3.9	Are boat and raft commander and second in command specified?			

3.10	Are crew members familiar with their duties and aware of the location where to perform their duties?			
3.11	Are operation instructions found satisfactory? (SOLAS CH III Reg. 9.2.1).			
3.12	Are symbols used to indicate the location of LSA & FFE in accordance with IMO Res.A.760(18) Amended by MSC.82(70)? (SOLAS CH III Reg. 9.2.3)			

	<b>COMMUNICATION</b>	<b>YES</b>	<b>NO</b>	<b>REMARKS</b>
1.	Are key crew members able to communicate with each other in emergency situations?			
2.	Which languages is the working language?			
3.	Are key crew members able to understand each other during inspection or drills?			
4.	Is emergency training and drills recorded in the logbook?			
5.	Are crew members assigned and able to assist passengers in case of an emergency and able to give them the necessary information?			
6.	Are the crew members able to communicate with the passengers in emergency situations?			

	<b>DAMAGE CONTROL DRILL</b> (Damage Control Plan applicable to passenger ships built after 1 February 1992)	<b>YES</b>	<b>NO</b>	<b>REMARKS</b>
1.	Is a damage control plan or booklet provided?			
2.	Are the crew members familiar with their duties and the proper use of the ships installations and equipment for damage control purposes?			
3.	Are the officers aware of the contents of the damage control plan/booklet?			
4.	Can the officers explain the actions to be taken in various damage conditions?			
5.	Are the officers knowledgeable in respect of watertight bulkheads and the openings therein with the means of closures and position of any controls?			
6.	Can officers explain arrangements for the correction of any list due to flooding?			
7.	Do the officers have a sound knowledge of the effect of trim and stability in case of damage to and the consequent flooding of a compartment and the countermeasures to be taken?			

	<b>ABANDON SHIP DRILLS</b>	<b>YES</b>	<b>NO</b>	<b>REMARKS</b>
1.	Are the crew members familiar with their duties and the proper use of the ships installation and equipment?			
2.	Was an abandon ship drill witnessed?			
3.	Are the survival craft manned and operated by the assigned crew members?			
4.	Where applicable, was the rescue boat included in the drill?			
5.	Was the drill conducted as an actual emergency?			
6.	Were the crew summoned to the muster station(s) with the required alarm?			
7.	Was it ensured that the crew are aware of the order to abandon ship, as specified in the muster list?			
8.	Were the crew members suitable dressed?			
9.	Were the lifejackets correctly donned?			
10.	Was at least one lifeboat lowered after the necessary preparations for launching was done and found acceptable?			
11.	Was starting and operating the lifeboat engine(s) carried out satisfactorily?			
12.	Was operation of the davits used for launching liferafts acceptable?			
13.	Was the emergency lighting tested in way of areas of mustering and abandonment?			
14.	Are crew members familiar with the duties assigned to them during abandon ship operation?			
15.	Have the crew members in charge of a survival craft complete knowledge of operation and equipment of craft?			
16.	Were two crew members likely able to carry out preparations for embarking and launching of each survival craft in less than 5 minutes?			
17.	Does the equipment and crew performance indicate that abandoning can take place in 10 minutes?			
18.	Was a mock search held for missing passengers?			
19.	Was instructions given to passengers on how to use LSA?			
20.	Does the equipment and crew performance indicate that abandoning can take place in 30 minutes?			

**5. DRILL REPORT FOR AN UNSATISFACTORY DRILL/DETENTION**

<b>Name of Ship:</b>	
<b>IMO Number:</b>	<b>Flag:</b>
<b>Ship Type</b>	<b>Date:</b>
<b>PSCO's:</b>	
<b>Scenario:</b>	
<b>Muster List</b> Correctness, adequacy and familiarity of crew with duties and responsibilities	
<b>Command &amp; Control</b> Effectiveness of communication between ship's personnel and ship-shore, decision making, team working, reaction times	
<b>Firefighting/Damage Control</b> General effectiveness of the exercise, crew's knowledge of the damage control plan, awareness of counter-measures to minimize damage	
<b>Handling of Casualty</b> Adequacy and condition of medical equipment, familiarity with casualty handling procedures	
<b>Equipment</b> General condition, familiarity of the crew with the equipment,	
<b>Other</b>	
<b>Comments</b>	
<b>Strengths/ Weaknesses</b>	