



## NEWS BRIEF: SSE 8

The IMO Sub-Committee on Ship Systems and Equipment (SSE) held its 8th session virtually from February 28 to March 4, 2022. This Brief provides an overview of the more significant issues progressed at this session.

### KEY DEVELOPMENTS

- New Requirements for Ventilation of Survival Craft
- Fire Safety on New and Existing Ro-Ro Passenger Ships
- Prohibition of Fire-Fighting Foams Containing PFOS
- New SOLAS Regulations for Onboard Lifting Appliances and Anchor Handling Winches
- Revised Code of Safety for Diving Systems

### ABS RESOURCES

- ABS Engineering ([link](#))
- ABS Type Approval and Certification Services ([link](#))
- ABS Guide for Lifting Appliances ([link](#))
- ABS Regulatory News ([link](#))
- ABS Rules and Guides ([link](#))

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## LIFE-SAVING APPLIANCES

### Ventilation of Survival Craft

The Sub-Committee finalized amendments to the LSA Code and *Recommendation on testing of life-saving appliances* MSC.81(70) to provide performance requirements for the ventilation of totally enclosed lifeboats, partially enclosed lifeboats, and life rafts. Building on work which began at the 4<sup>th</sup> session of the Sub-Committee in 2017, the draft amendments approved by the Sub-Committee will require totally enclosed lifeboats to provide a means of ventilation operable from inside the lifeboat at a rate of not less than 5 m<sup>3</sup>/hour per person, for the number of persons which the lifeboat is permitted to accommodate and for a period of at least 24 hours. Where the means of ventilation is powered, the source of power shall not be the radio batteries, and if dependent upon the lifeboat engine, then sufficient fuel shall be provided. The openings for the ventilation are to be provided with a means of closing that is operable from inside the lifeboat and positioned so as to minimize the ingress of water.

For the ventilation of partially enclosed lifeboats and life rafts, these survival crafts will be required to admit sufficient air at all times that prevents the long-term CO<sub>2</sub> concentration from exceeding 5,000 ppm for the number of persons the craft is intended to accommodate. The means of ventilation is to be operable from inside the craft, and if powered, sufficient energy shall be provided for at least 24 hours.

Corresponding amendments to the *Recommendations on testing of life-saving appliances* (MSC.81(70)) require that the capacity of the lifeboat's fuel tank, needed to maneuver the lifeboat at a minimum speed of 6 knots for 4 hours, include the fuel consumed by the powered ventilation system.

- For totally enclosed lifeboats, a ventilation performance test is required with all entrances and hatches closed to confirm the ventilation rate noted above. Additionally, the lifeboat is to be incrementally rotated to an angle of heel of 180° and, upon release, the lifeboat is to return to the upright position without assistance of its occupants.
- For partially enclosed lifeboats, the testing will require a demonstration that ventilation system is capable to provide (1) a rate of not less than 5 m<sup>3</sup>/hour per person for 24 hours or (2) a CO<sub>2</sub> concentration not exceeding an 8 hour time-weighted average concentration of 5000 ppm or a 15-minute time-weighted average of 15000 ppm.

**Next Steps:** The draft amendments will be presented to MSC 106 (Nov-2022) for further consideration and, if approved, they would be considered for adoption at MSC 107 (Jun-2023) which would have an anticipated entry into force on 1 January 2026. Upon their acceptance, the draft new ventilation requirements in the LSA Code will be applied to life rafts, totally enclosed lifeboats, and partially enclosed lifeboats installed



on or after 1 January 2029, so as to allow ample time for Administrations and manufacturers to implement the new ventilation requirements.

### **Amendments to the Interim Guidelines on Life-Saving Appliances and Arrangements for Ships Operating in Polar Waters**

The Sub-Committee agreed to draft amendments to the *Interim Guidelines on Life-Saving Appliances and Arrangements for Ships Operating in Polar Waters* (MSC.1/Circ.1614), providing a methodology for estimating the maximum expected time of rescue in determining resources needed to support survival following abandoning ship under section 8.3 of part I-A of the Polar Code. This time duration will affect the type and amount of survival equipment and supplies to be provided

**Next Steps:** The draft Interim Guidelines will be presented to MSC 106 (Nov-2022) for further consideration and approval, and subsequent release as MSC.1/Circ.1614/Rev.1.

### **Goal-Based Framework for SOLAS Chapter III and the LSA Code**

Continuing work from the previous session and an intersessional correspondence group, the Sub-Committee progressed an action plan for the revision of SOLAS Chapter III and the LSA Code, using a safety level approach (SLA) in order to identify a broader spectrum of risks and hazards and remove gaps, inconsistencies, and ambiguities in SOLAS Ch III and the LSA Code.

Discussions have produced the following goals for a revised SOLAS Chapter III:

- 1) a safe, effective process and means to maintain human life during and after abandon ship;
- 2) the detection and recovery of people after abandonment;
- 3) the ability to safely recover people from the water who are in need of assistance; and
- 4) the means to safely transfer sick or injured people from the vessel without further injury.

In support of these goals, the following areas of concern (i.e. major events) have been identified:

- 1) abandoning ship;
- 2) survival at sea;
- 3) detection and recovery;
- 4) person overboard; and
- 5) transferring an injured person.

A working group was established to further work on identifying hazards which are currently addressed, hazards which should be additionally addressed, and to consider a possible restructuring of SOLAS Chapter III based on functional requirements and expected performance.

**Next Steps:** Discussions on this subject will continue in an intersessional experts' group and at SSE 9 (Mar-2023).

### **Proposed Amendments to the LSA Code and SOLAS Chapter III**

The Sub-Committee had for its consideration a proposed amendment to LSA Code paragraph 4.6.3.1 which would clarify the coloring requirements of safety harnesses for free-fall lifeboats. The amendment serves to clarify that the safety harness fitted at each seating position onboard such craft is to be a contrasting color to the harness fitted on seats immediately adjacent. Additionally, the amendment clarifies that the above provision applies to lifeboats installed on new and existing ships on or after the date of entry into force of the amendments which is yet to be determined.



The Sub-Committee also had for consideration a proposed amendment to SOLAS Chapter III / Regulation 19 “Emergency Training and Drills”. This amendment would incorporate the donning of immersion suits (if applicable to the vessel) as part of abandon ship drills.

**Next Steps:** The Sub-Committee’s current output on SOLAS Chapter III and the LSA Code is primarily focused on the development of a goal-based framework of functional requirements and expected performance criteria through hazard identification related to life-saving appliances. Because these proposed amendments are secondary to this work, their consideration has been postponed to a future session.

### **In-Water Performance of SOLAS Lifejackets**

The Sub-Committee received for consideration several items related to LSA Code and the *Revised Recommendation on Testing of Life-Saving Appliances* (MSC.81(70)) for in-water performance of life jackets. After considering the results of investigations on the capability of a SOLAS lifejacket to retain a person's airways clear of the water and the level of safety carried out by a group of experts chaired by the UK Maritime and Coastguard Agency, the Sub-Committee assigned a working group to consider a draft MSC circular on “Guidance on the In-Water Performance of Lifejackets and Consideration for Selection of a Lifejacket”, which should be applied in determining whether a lifejacket will perform satisfactorily for its intended use. The Sub-Committee also received for consideration draft amendments to the *Revised Recommendation on Testing of Life-Saving Appliances* (MSC.81(70)) providing detailed requirements for lifejacket marking, righting and buoyancy requirements for testing, and new criteria for clothing worn by test subjects during the lifejacket testing.

**Next Steps:** Due to time constraints, this subject was not able to be addressed at this session. Discussions on this subject will continue in an intersessional correspondence group and at SSE 9 (Mar-2023).

### **Amendments to the Revised Standardized Life-Saving Appliance Evaluation and Test Report Forms (Survival Craft) (MSC.1/Circ.1630)**

Subsequent to amendments to the *Revised Recommendation on Testing of Life-Saving Appliances* MSC.81(70) that were adopted by resolution MSC.488(103), the Sub-Committee agreed to associated amendments to the *Revised Standardized Life-Saving Appliance Evaluation and Test Report Forms (Survival Craft)* (MSC.1/Circ.1630). These amendments are intended to update references to testing standards for oil resistance testing of inflatable life rafts.

**Next Steps:** The draft amendments will be presented to MSC 106 (Nov-2022) for further consideration and approval, and subsequent release as MSC.1 Circ.1630/Rev.1.

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## **FIRE PROTECTION**

### **Fire Safety on Ro-Ro Passenger Ships**

In pursuing work to build upon the *Interim Guidelines for Minimizing the Incidence and Consequences of Fires in Ro-Ro Spaces and Special Category Spaces of New and Existing Ro-Ro Passenger Ships* (MSC.1/Circ.1615), the Sub-Committee further progressed development of several amendments to SOLAS Chapter II-2 and associated codes to improve fire safety requirements on new and existing Ro-Ro passenger ships. The amendments, applicable to enclosed ro-ro spaces and on weather decks intended for carriage of vehicles on Ro-Ro passenger ships, will introduce several key features intended to improve fire safety.

The amendments applicable to new Ro-Ro passenger ships include requirements for:

- 1) Individually identifiable fixed fire-detection and alarm systems, compliant with the FSS Code, providing smoke and heat detection throughout vehicle, special category and ro-ro spaces;



- 2) Fixed fire-detection and alarm systems for the area on weather decks of passenger ships intended for the carriage of vehicles;
- 3) Continuous video monitoring of vehicle, special category and ro-ro spaces;
- 4) New requirements for structural fire protection and arrangement of openings; and
- 5) Fixed water-based fire extinguishing systems for weather decks intended for carriage of vehicles.

The amendments applicable to existing Ro-Ro passenger ships include requirements for the following:

- 1) Fixed fire-detection and alarm systems, compliant with the FSS Code, providing smoke and heat detection throughout vehicle, special category and ro-ro spaces; and
- 2) Continuous video monitoring of vehicle, special category and ro-ro spaces.

However, issues related to openings in boundaries of ro-ro decks and safety distance between ro-ro weather decks and accommodations are still pending agreement and will be further discussed intersessionally.

**Next Steps:** The draft amendments will be further developed in an intersessional correspondence group and at SSE 9 (Mar-2023). The anticipated entry into force date will be 1 January 2026 for new ships. Requirements for existing ships are anticipated to be applicable by the first survey after 1 January 2028.

### **Amendments to the FSS Code**

In conjunction with the above noted amendments to SOLAS Chapter II-2, the Sub-Committee further progressed development of several amendments to Chapter 7 (Fixed Pressure Water-Spraying and Water Mist Fire Extinguishing Systems) and Chapter 9 (Fixed Fire Detection and Fire Alarm Systems) of the FSS Code.

- 1) A new section 2.5 will be added to Chapter 7, to address fixed water-based fire-extinguishing on ro-ro passenger ships' weather decks intended for the carriage of vehicles. Specifications are provided for the positioning, volumetric capacity, and water supply for fire monitors in this service.
- 2) Several new requirements are introduced into section 2.5.1 of Chapter 9, to specify system control requirements for the fixed fire-detection and alarm systems provided in vehicle, special category and ro-ro spaces

However, issues related to the inclusion of linear heat detection in the FSS Code, as well as consideration of the feasibility of existing ships to comply with these amendments, are still pending agreement and will be further discussed intersessionally.

**Next Steps:** The draft amendments will be further developed in an intersessional correspondence group and at SSE 9 (Mar-2023). The anticipated entry into force date will be 1 January 2026 for new ships. Requirements for existing ships are anticipated to be applicable by the first survey after 1 January 2028.

### **Prohibition of Use of Fire-Fighting Foams Containing PFOS Onboard Ships**

The Sub-Committee finalized amendments to SOLAS Chapter II-2 and the HSC Codes (1994 and 2000) to introduce the prohibition of use or storage of fire-fighting foams containing PFOS (perfluorooctane sulfonic acid) for fire-fighting on board ships. PFOS has been deemed hazardous to the marine environment and human beings, and this prohibition will apply to both fixed and portable systems. This prohibition is being introduced into SOLAS and the HSC Codes by the addition of a new section "Fire Extinguishing Media Restrictions" in each respective text, so that it will be easier to include future prohibitions or limitations of extinguishing media shown to be dangerous to people and the environment. This prohibition will be applicable to both new and existing ships from 1 January 2026, with a phase-in approach implemented for existing ships.

**Next Steps:** The draft amendments will be presented to MSC 106 (Nov-2022) for further consideration and approval, with subsequent adoption at MSC 107 (Jun-2023).



## **Revised Guidelines for Approval of Fixed Dry Chemical Powder Fire-Extinguishing Systems on Ships Carrying Liquefied Gases in Bulk**

The Sub-Committee finalized revisions to the *Guidelines for the Approval of Fixed Dry Chemical Powder Fire-Extinguishing Systems for the Protection of Ships Carrying Liquefied Gases in Bulk* (MSC.1/Circ.1315), which will apply to new installations. Under the current version of this circular, a representative system installation is to be subjected to a full-scale fire test to the satisfaction of the Administration. The revised Guidelines will provide details for conducting the full-scale test in support of a system type approval.

**Next Steps:** The draft amendments will be presented to MSC 106 (Nov-2022) for further consideration and approval.

## **Fires on Containerships – Guidelines for Design, Performance, Testing and Approval of Water Mist Lances**

As part of an ongoing effort to improve the detection and control of fires on containerships, the Sub-Committee received a proposal for guidelines for the design, performance, testing and approval of water mist lance systems used for the protection of on-deck cargo areas of ships designed and constructed to carry five or more tiers of containers on or above the weather deck. These guidelines provide a standard of approval by Administrations for such appliances, and also provide guidelines on the operational capabilities of the appliance (i.e. must be capable of being operated by a single crew member within a specified time period).

However, it was noted that the Sub-Committee has an ongoing output concerning fire protection on containerships, which will be informed by a Formal Safety Assessment (FSA) on containerized cargo fires that is currently being conducted by EMSA. Rather than progress the development of these guidelines as a single-risk solution, the Sub-Committee agreed to postpone their consideration in favor of a holistic approach to containership fire safety, once the FSA is complete.

**Next Steps:** Consideration of the draft guidelines will be postponed until a future session, pending completion of an FSA on containership fire safety. The Sub-Committee requested MSC 105 (Apr-2022) to establish an FSA Experts Group to review the outcomes of EMSA's "Study Investigating Cost Efficient Measures for Reducing the Risk from Cargo Fires on Container Vessels (CARGOSAFE)" and to report back to the Sub-Committee.

## **Fire Protection of Control Stations on Cargo Ships**

The Sub-Committee received proposals for amendments to SOLAS Regulation II-2/7.5.5 and MSC.1/Circ.1456 with respect to the protection of control stations on new cargo ships. The draft SOLAS amendment will include "control stations" in the spaces where a fixed fire detection and fire alarm system is required for the construction methods described in SOLAS Regulation II-2/7.5.5. The Sub-Committee also finalized draft revisions to the unified interpretations given in MSC.1/Circ.1456 that will remove the previous interpretation that control stations do not need to be covered by a fixed fire detection and fire alarm system.

**Next Steps:** Due to time constraints, discussions on this subject will continue in an intersessional correspondence group and at SSE 9 (Mar-2023).

## **Unified Interpretations of SOLAS Chapter II-2 / Regulation 9.7**

The Sub-Committee agreed to new unified interpretations of SOLAS Chapter II-2. The following interpretations address arrangements of duct penetrations through fire-rated divisions:



- 1) Regulation II-2/9.7.3.1.2 – The fire insulation required by regulation SOLAS II-2/9.7.3.1.2 should be provided only to the part of the duct and/or sleeve that is on the same side of the division being fire insulated and be extended for a minimum of 450 mm along the duct and/or sleeve.
- 2) Regulation 9.7.3.2 – When a duct passing through a division is to be in accordance with SOLAS regulations II-2/9.3.2 and II-2/9.7.3.2, no clearance should be allowed between the duct and the division.

**Next Steps:** The draft unified interpretations will be presented to MSC 106 (Nov-2022) for further consideration and approval.

### **Amendments to the 2014 Standard Specification for Shipboard Incinerators (Resolution MEPC.244(66))**

Following proposals made at MEPC 77, the Sub-Committee agreed to revisions to the *2014 Standard Specification for Shipboard Incinerators* (resolution MEPC.244(66)), which were aimed toward correcting discrepancies between the 2014 Standards and SOLAS Chapter II-2 regarding fire protection requirements for incinerators and waste stowage spaces. It was agreed that Annex 2 of MEPC.244(66) (“Fire Protection Requirements for Incinerators and Waste Stowage Space”) should be removed from the resolution, as the content of this annex was not necessarily a part of the technical specifications of the incinerator itself. The fire safety requirements of SOLAS Chapter II-2 are considered sufficient for incinerator and waste stowage spaces and should be applied accordingly.

**Next Steps:** The draft amendments will be presented to MEPC 79 (Dec-2022) for further consideration and adoption of a revised MEPC resolution.

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## **ONBOARD LIFTING APPLIANCES AND ANCHOR HANDLING WINCHES (OLAW)**

### **New SOLAS Regulations for Onboard Lifting Appliances and Anchor Handling Winches (OLAW)**

The Sub-Committee finalized several changes to the new SOLAS regulation II-1/3-13, which was approved in principle by MSC 102 and is pending formal adoption. These finalized changes clarify the applicability of this new regulation to both new and existing ships.

This new regulation prescribes requirements for the design, construction and installation of lifting appliances and anchor handling winches. Lifting appliances include all load-handling equipment on board ship used to handle cargo, stores, hold hatch covers or moveable bulkheads, engine-room equipment, cargo hoses, tender boats and personnel (via cranes). All lifting appliances and anchor handling winches, regardless of installation date, and all loose gear utilized with any lifting appliances and anchor handling winches, are required to be operationally tested, thoroughly examined, inspected, operated and maintained based on the Guidelines referenced below. New installations of lifting appliances will be required to meet the requirements of a classification society, and new installations of anchor handling winches to be to the satisfaction of the Administration, taking into account guidelines for each which have been developed (detailed below). New definitions and terminologies have been added to SOLAS regulation II-1/2. The new regulation II-1/3-13 will not apply to lifting appliances used on MODUs and offshore construction ships (i.e. pipe/cable laying, offshore installation vessels), and will not apply to life-saving launching appliances complying with the LSA Code. Existing lifting appliances and anchor handling winches must undergo a test and thorough examination based on the below guidelines by the first renewal survey after entry into force of these amendments.

**Next Steps:** The draft amendments will be presented for approval at MSC 106 (Nov-2022) and subsequent adoption at MSC 107 (Jun-2023), with anticipated entry into force on 1 January 2026.



### Draft Guidelines for Lifting Appliances

In conjunction with the new SOLAS regulation noted above, the Sub-Committee finalized several changes to the draft MSC circular '*Guidelines for Lifting Appliances*', which was approved in principle by MSC 102 and is pending final approval. The changes made to the draft Guidelines include clarifications of new terminology, load testing standards and 5-yearly testing.

These guidelines include recommendations for design and testing, as well as guidance on operations and record keeping through a register of lifting appliances to be kept onboard. The Guidelines also address loose gear utilized with lifting appliances and recommend a proof test and thorough annual examination of this equipment.

**Next Steps:** These Guidelines will be presented to MSC 107 (Jun-2023) for further consideration and approval, alongside the related amendments to SOLAS Ch.II-1 discussed above.

### Draft Guidelines for Anchor Handling Winches

In conjunction with the new SOLAS regulation noted above, the Sub-Committee finalized a draft MSC circular '*Guidelines for Anchor Handling Winches*'. Similar to the separate guidelines drafted for lifting appliances, these guidelines will provide design, testing, and maintenance requirements for anchor handling winches and associated loose gear.

**Next Steps:** These Guidelines will be presented to MSC 107 (Jun-2023) for further consideration and approval, alongside the related amendments to SOLAS Ch.II-1 discussed above.

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## OTHER DEVELOPMENTS

### Revision of the Code of Safety for Diving Systems

Continuing work from the previous session, the Sub-Committee further progressed development of revisions to the Code of Safety for Diving Systems, 1995 (1995 Diving Code, resolution A.831(19)). Development of the new Code has been in line with a goal-based standards approach, incorporating relevant parts of the *Guidelines and Specifications for Hyperbaric Evacuation Systems* (resolution A.692(17)). Concerns were raised regarding structure and language in the draft Code which were presented as if it was a mandatory instrument. Changes to the draft Code were made throughout the document at this session to make clear that the revised Code will be a non-mandatory instrument, and it will be up to Member States to decide how to implement the provisions of the document to ships under their registry. Additionally, a new model form of the Diving System Safety Certificate has been drafted, and will require that specified operational limitations of either saturation diving systems or surface-oriented diving systems must be captured on the certificate.

It is planned by the Sub-Committee to allow a grace period in which the certification of existing diving units or systems which were certified and operated under the existing Code to remain valid, before re-certification under the new revised Diving Code will be required.

**Next Steps:** Discussions on this subject will continue in an intersessional correspondence group and at SSE 9 (Mar-2023).



## Unified Interpretations

Due to time constraints, discussion of Unified Interpretations addressing the following subjects will be deferred to the next session:

- 1) Clarification of the fire testing requirements for pipe couplings required to remain operational after a fire casualty;
- 2) Clarification of SOLAS regulation II-2/13.4.2 relating to the means of escape from the steering gear space on cargo ships;
- 3) Clarification of paragraph 6.1.2.2 of the LSA Code, regarding the slewing out a dedicated rescue boat on a cargo ship from its stowed position to ship's side;
- 4) Clarification of requirements regarding the reliability of single essential propulsion components;
- 5) Unified interpretation of SOLAS regulation II-1/41.6, regarding supplementary lighting;
- 6) Inconsistencies in the implementation of resolution MSC.402(96) regarding requirements for maintenance, thorough examination, operational testing, overhaul and repair of lifeboats and rescue boats, launching appliances and release gear;
- 7) Proposed revision of MSC.1/Circ.1557 regarding hazardous area classification for application of SOLAS Regulation II-1/45.11.
- 8) Unified interpretation on liferaft, lifeboat and rescue boat equipment in the LSA Code, and the 1994 and 2000 HSC Codes;
- 9) Proposed interpretation of paragraph 2.2.3.1.2 of chapter 15 of the FSS Code relating to inert gas systems on tankers;
- 10) Draft unified interpretation of SOLAS regulation II-2/4.5.6.1 and paragraphs 3.1.2, 3.1.4 and 3.5.3 of the IBC Code;
- 11) Proposal of a unified interpretation for the detector spacing;
- 12) Draft unified interpretation of paragraph 4.3.1.1.1 of the FSS Code on quantity of medium for fire extinguishers;
- 13) Revision to Unified interpretation of paragraph 1.2.2.6 of the LSA Code concerning lifeboat exterior colour (MSC.1/Circ.1423); and
- 14) Proposed unified interpretation of the testing requirements for the floor covering materials

**Next Steps:** Consideration of these items is deferred to SSE 9 (Mar-2023).

## Draft Interim Guidelines on Safe Operation of Onshore Power Supply (OPS)

After progress made at the previous session, and further comments received from the MSC 103 committee meeting, the Sub-Committee further considered a draft text of interim guidelines on the safe operation of onshore power supply (OPS) service in port, for ships engaged on international voyages. In an effort to support ship energy conservation and emission reduction, these guidelines support the safe operation of the OPS system, both ship-side and shore-side, to allow ships at port to utilize onshore power supply. The interim guidelines address low- and high-voltage OPS systems, compatibility testing at port calls, and personnel protection and training.

Since the previous session, further revisions have been made to incorporate changes to referenced IEC standards (replacing IEC80005 with IEC62613-1 in several locations). The training provisions of the Interim Guidelines have also been reviewed by the 8<sup>th</sup> session of the Sub-Committee on Human Element, Training and Watchkeeping (HTW).

However, in plenary discussion there were numerous additional comments raised regarding clarification of terminology used in the Interim Guidelines, as well as whether OPS operational procedures should be included in the ship safety management system. Acknowledging that additional time would be needed to address these issues, the Sub-Committee invited further submissions to the next session.

**Next Steps:** Discussions on this subject will continue at SSE 9 (Mar-2023).

