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WORK PROGRAMME

Review of mandatory requirements regarding watertight doors on cargo ships

Submitted by Liberia, Marshall Islands, New Zealand, Norway, United States and IACS

SUMMARY

Executive summary: This document proposes a new output to review the mandatory requirements in the SOLAS, MARPOL and Load Line Conventions and the IBC and IGC Codes regarding watertight doors on cargo ships, to address the inconsistencies that currently exist

Strategic direction, if applicable: SD 1 and SD 6

Output: To be decided

Action to be taken: Paragraph 21

Related documents: SDC 6/9/1 and SDC 6/13 (paragraph 9.8)

Introduction

1 This document is submitted in accordance with the provisions of paragraph 4.6 of the *Organization and method of work of the Maritime Safety Committee and the Marine Environment Protection Committee and their subsidiary bodies* (MSC-MEPC.1/Circ.5/Rev.1), taking into account the *Application of the Strategic Plan of the Organization* (resolution A.1111(30)), and section 3.2.1 of the *Guidance on drafting of amendments to the 1974 SOLAS Convention and related mandatory instruments* (MSC.1/Circ.1500/Rev.1).

2 The co-sponsors propose a new output to review the mandatory requirements in the SOLAS, MARPOL and Load Line Conventions and the IBC and IGC Codes regarding watertight doors on cargo ships, to address the inconsistencies that currently exist.

IMO's objectives

3 The co-sponsors consider the proposal in this document entirely consistent with, and supportive of, IMO's mission as stated in paragraph 1 of the annex to the *Strategic Plan for the Organization for the six-year period 2018 to 2023* (resolution A.1110(30)):

- .1 "The mission of the International Maritime Organization (IMO), as a United Nations specialized agency, is to promote safe, secure, environmentally sound, efficient and sustainable shipping through cooperation. This will be accomplished by adopting the highest practicable standards of maritime safety and security, efficiency of navigation and prevention and control of pollution from ships, as well as through consideration of the related legal matters and effective implementation of IMO instruments, with a view to their universal and uniform application."

4 This proposal is also understood to be consistent with IMO's strategic direction 1 (SD 1: Improve implementation) and strategic direction 6 (SD 6: Ensure regulatory effectiveness). In this regard, it is noted that:

- .1 "only through the entry into force of those instruments and the effective, efficient and consistent implementation and enforcement of their provisions can the full benefits from this extensive body of international law be realized" (resolution A.1110(30), annex, paragraph 13); and
- .2 "IMO instruments must continue to be globally implemented and applicable, and will continue to ensure a level playing field" (resolution A.1110(30), annex, paragraph 33).

Need

5 SDC 6 considered document SDC 6/9/1 (IACS), which primarily invited the Sub-Committee to review Revision 1 of IACS UI SC156 on Doors in watertight bulkheads of cargo ships and passenger ships. The original version of this IACS UI have been used as the basis for the unified interpretations in MSC.1/Circ.1572 of the SOLAS requirements on Doors in watertight bulkheads of passenger ships and cargo ships.

6 However, paragraphs 8 to 10 of document SDC 6/9/1 advise the Sub-Committee as follows:

- .1 "8 During the development of Rev.1 of UI SC156, IACS noted that there appears to be some inconsistencies between the requirements in the SOLAS and MARPOL Conventions and International Convention on Load Lines 1966 (LL) regarding doors in watertight bulkheads. These are:
 - .1 the requirements related to hinged watertight doors are only clearly specified in SOLAS; and
 - .2 in SOLAS, the requirements for doors in watertight bulkheads vary according to the frequency of use of the doors, i.e. "Norm Closed", "Perm Closed", "Norm Open", "Used", etc. as shown in the table in the unified interpretation. However, the requirements in IMO instruments other than SOLAS are compatible with those in SOLAS for doors in watertight bulkheads to be used while at sea, which are described as "Used" in the table in the unified interpretation; and there are no requirements for doors, other than "Used" doors, in these other instruments.

9 Taking account of the comments in paragraph 8 above, IACS has reviewed the MARPOL Convention, the ICLL, and the IBC and IGC Codes in relation to the requirements therein for doors other than those defined as "used", such as hinged doors which are "permanently closed" and especially hinged doors which are "normally closed", etc. It is apparent that these types of doors are not clearly specified in these IMO instruments. IACS is of the view that it would be reasonable to consider such doors in accordance with the requirements in SOLAS, which have only recently been updated regarding the requirements for doors in watertight bulkheads.

10 IACS wishes to draw the attention of the Sub-Committee to issues discussed in paragraphs 8 and 9 above; and to propose that a discussion be initiated, with a view to improving the consistency of application of these requirements across all conventions and codes."

7 SDC 6 agreed that the proposal to remove the inconsistencies for requirements for doors in watertight bulkheads between SOLAS and other IMO instruments, including MARPOL, ICLL, and the IBC and IGC Codes, while supported in general, would require consideration by the Committee, in the form of a new output proposal (SDC 6/13, paragraph 9.8).

Analysis of the issue

8 SOLAS regulations II-1/13-1.2 and 13-1.3 state:

.1 "2 Doors provided to ensure the watertight integrity of internal openings which are used while at sea are to be sliding watertight doors capable of being remotely closed from the bridge and are also to be operable locally from each side of the bulkhead. Indicators are to be provided at the control position showing whether the doors are open or closed, and an audible alarm is to be provided at the door closure. The power, control and indicators are to be operable in the event of main power failure. Particular attention is to be paid to minimizing the effect of control system failure. Each power-operated sliding watertight door shall be provided with an individual hand-operated mechanism. It shall be possible to open and close the door by hand at the door itself from both sides.

3 Access doors and access hatch covers normally closed at sea, intended to ensure the watertight integrity of internal openings, shall be provided with means of indication locally and on the bridge showing whether these doors or hatch covers are open or closed. A notice is to be affixed to each such door or hatch cover to the effect that it is not to be left open."

Thus, SOLAS requires watertight doors that are used while at sea to be of the sliding type; while watertight doors that are normally closed at sea are not required to be of the "sliding" type i.e. they may be "hinged" watertight doors.

9 Regulation 28.3.1 of MARPOL Annex I states:

.1 "3 Oil tankers shall be regarded as complying with the damage stability criteria if the following requirements are met:

.1 The final waterline, taking into account sinkage, heel and trim, shall be below the lower edge of any opening through

which progressive flooding may take place. Such openings shall include air-pipes and those which are closed by means of weathertight doors or hatch covers and may exclude those openings closed by means of watertight manhole covers and flush scuttles, small watertight cargo tank hatch covers which maintain the high integrity of the deck, remotely operated watertight sliding doors, and sidescuttles of the non-opening type."

Thus, on oil tankers, MARPOL requires all watertight doors to be of the sliding type. The same requirements for watertight doors to be of the sliding type are to be found in paragraph 2.9.2.1 of the International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk (IBC Code) and paragraph 2.7.1.1 of the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (IGC Code).

10 Regulation 27(13)(a) of the LL states:

.1 "(13) The condition of equilibrium after flooding shall be regarded as satisfactory provided:

(a) The final waterline after flooding, taking into account sinkage, heel and trim, is below the lower edge of any opening through which progressive downflooding may take place. Such openings shall include air pipes, ventilators (even if they comply with regulation 19(4)) and openings which are closed by means of weathertight doors (even if they comply with regulation 12) or hatch covers (even if they comply with regulation 16(1) through (5)), and may exclude those openings closed by means of manhole covers and flush scuttles (which comply with regulation 18), cargo hatch covers of the type described in regulation 27(2), remotely operated sliding watertight doors, and sidescuttles of the non-opening type (which comply with regulation 23). However, in the case of doors separating a main machinery space from a steering gear compartment, watertight doors may be of a hinged, quick-acting type kept closed at sea whilst not in use, provided also that the lower sill of such doors is above the summer load waterline."

Thus, LL requires watertight doors to be of the sliding type, except for doors separating a main machinery space from a steering gear compartment, when they may be of the hinged type.

11 Paragraphs 8 to 10 above demonstrate the lack of consistency in the mandatory requirements regarding watertight doors.

12 The co-sponsors consider that the practicability, feasibility and proportionality of the proposal are evident taking into account that the co-sponsors are aware that there is considerable uncertainty in the industry as to which of the requirements discussed in paragraphs 8 to 10 above are applicable or take precedence in the case that more than one of these instruments are applicable to a particular ship. While the outcome of the proposed review is feasible (it is possible and practical), the co-sponsors consider that it will also be practicable (it will easily be capable of being done). The proposal would also satisfy the test of proportionality in that this action would not exceed that which is necessary to achieve the overall objective of facilitating the safety of ships' crews and the global and consistent implementation of IMO-agreed requirements.

Analysis of implications

13 It is intended that the outcome of the review, in the form of any necessary amendments to the mandatory requirements referred to in paragraphs 8 to 10 above, will provide a justified, reasoned and rational set of requirements regarding the fitting of watertight doors on cargo ships. It is proposed that any such amendments will apply to "new" ships constructed on or after the entry into force of the amendments. It is neither intended nor expected that there will be any significant additional costs to the industry as a consequence of the outcomes from this new output.

14 It is acknowledged that there will be a legislative and administrative burden to flag States in transposing the outcomes of this new output into national legislation and/or guidance to industry applicable to ships that fly their flags.

Benefits

15 The co-sponsors are of the view that the benefit of undertaking the work related to this new output will be the removal of the inconsistencies in the mandatory requirements relating to watertight doors on cargo ships, which will facilitate their global and consistent implementation and the intended objective of promoting the safety of ships and the lives of those who sail on them.

Industry standards

16 The co-sponsors are not aware of any internationally recognized standards, other than those IMO instruments referred to above, that exist, or are being developed, which are of relevance to the issues discussed above.

Output

17 The co-sponsors propose that the Committee endorses the following new output:

- .1 "Review the mandatory requirements in the SOLAS, MARPOL and Load Line Conventions and the IBC and IGC Codes regarding watertight doors on cargo ships, to address the inconsistencies that currently exist".

18 Parts I and II of the check/monitoring sheet given in annex 2 to MSC.1/Circ.1500/Rev.1 has been completed and is provided in annex 1 of this document.

Human element

19 The checklist for considering "human element issues by IMO bodies" (MSC-MEPC.7/Circ.1) is set out in annex 2 of this document.

Urgency

20 The co-sponsors recommend the proposed output should be included in the post biennial agenda of the Committee, with SDC as the associated organ, and should be completed in no more than two sessions.

Action requested of the Committee

21 The Committee is invited to consider the proposal above and decide as appropriate.

ANNEX 1

CHECKLIST FOR IDENTIFYING ADMINISTRATIVE REQUIREMENTS

<p>(A) If the answer to any of the questions below is YES, the Member State proposing an output should provide supporting details on whether the requirements are likely to involve start-up and/or ongoing costs. The Member State should also give a brief description of the requirement and, if possible, provide recommendations for further work, e.g. would it be possible to combine the activity with an existing requirement?</p> <p>(B) If the proposal for the output does not contain such an activity, answer NR (Not required).</p> <p>(C) For any administrative requirement, full consideration should be given to electronic means of fulfilling the requirement in order to alleviate administrative burdens.</p>		
<p>1. Notification and reporting? Reporting certain events before or after the event has taken place, e.g. notification of voyage, statistical reporting for IMO Members</p>	NR	<p>Yes</p> <p><input type="checkbox"/> Start-up</p> <p><input type="checkbox"/> Ongoing</p>
<p>Description of administrative requirement(s) and method of fulfilling it: (if the answer is yes)</p>		
<p>2. Record keeping? Keeping statutory documents up to date, e.g. records of accidents, records of cargo, records of inspections, records of education</p>	NR	<p>Yes</p> <p><input type="checkbox"/> Start-up</p> <p><input type="checkbox"/> Ongoing</p>
<p>Description of administrative requirement(s) and method of fulfilling it: (if the answer is yes)</p>		
<p>3. Publication and documentation? Producing documents for third parties, e.g. warning signs, registration displays, publication of results of testing</p>	NR	<p>Yes</p> <p><input type="checkbox"/> Start-up</p> <p><input type="checkbox"/> Ongoing</p>
<p>Description of administrative requirement(s) and method of fulfilling it: (if the answer is yes)</p>		
<p>4. Permits or applications? Applying for and maintaining permission to operate, e.g. certificates, classification society costs</p>	NR	<p>Yes</p> <p><input type="checkbox"/> Start-up</p> <p><input type="checkbox"/> Ongoing</p>
<p>Description of administrative requirement(s) and method of fulfilling it: (if the answer is yes)</p>		
<p>5. Other identified requirements? <i>As discussed in paragraphs 13 and 14 of this document.</i></p>	NR	<p>Yes</p> <p><input type="checkbox"/> Start-up</p> <p><input type="checkbox"/> Ongoing</p>

ANNEX 2

PARTS I AND II OF THE CHECK/MONITORING SHEET FOR THE PROCESS OF AMENDING THE CONVENTION AND RELATED MANDATORY INSTRUMENTS (PROPOSAL/DEVELOPMENT) (MSC.1/CIRC.1500/REV.1)

Part I – Submitter of proposal (refer to section 3.2.1.1)*

1	<i>Submitted by (Document Number and submitter)</i> MSC 101/21/16 – Liberia, Marshall Islands, New Zealand, Norway, United States and IACS
2	<i>Meeting session</i> MSC 101
3	<i>Date (date of submission)</i> 5 March 2019

Part II – Details of proposed amendment(s) or new mandatory instrument (refer to sections 3.2.1.1 and 3.2.1.2)*

1	<i>Strategic direction</i> 1 and 6
2	<i>Title of the output</i> Review the mandatory requirements in the SOLAS, MARPOL and Load Line Conventions and the IBC and IGC Codes regarding watertight doors on cargo ships, to address the inconsistencies that currently exist
3	<i>Recommended type of amendments (MSC.1/Circ.1481) (delete as appropriate)</i> <ul style="list-style-type: none"> • Four-year cycle of entry into force • exceptional circumstance
4	<i>Instruments intended for amendment (SOLAS, LSA Code, etc.) or developed (new code, new version of a code, etc.)</i> SOLAS, MARPOL, ICLL, IBC Code, IGC Code (dependent on the outcome of the review)
5	<i>Intended application (scope, size, type, tonnage/length restriction, service (International/non-international), activity, etc.)</i> Dependent on the outcome of the review and which instruments need to be amended
6	<i>Application to new/existing ships</i> New ships
7	<i>Proposed coordinating sub-committee</i> SDC Sub-Committee
8	<i>Anticipated supporting sub-committees</i> None
9	<i>Time scale for completion</i> 2021
10	<i>Expected date(s) for entry into force and implementation/application</i> 1 January 2024
11	<i>Any relevant decision taken or instruction given by the Committee</i> None

ANNEX 3

**CHECKLIST FOR CONSIDERING HUMAN ELEMENT ISSUES BY IMO BODIES
(MSC-MEPC.7/CIRC.1)**

Instructions:	
If the answer to any of the questions below is:	
(A) YES , the preparing body should provide supporting details and/or recommendation for further work.	
(B) NO , the preparing body should make proper justification as to why human element issues were not considered.	
(C) NA (Not Applicable) the preparing body should make proper justification as to why human element issues were not considered applicable.	
Subject Being Assessed: (e.g. resolution, instrument, circular being considered)	
SOLAS, MARPOL, ICLL, IBC Code, IGC Code (dependent on the outcome of the review)	
Responsible Body: (e.g. committee, sub-committee, working group, correspondence group, Member State)	
The Maritime Safety Committee and the SDC Sub-Committee	
1. Was the human element considered during development or amendment process related to this subject?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
2. Has input from seafarers or their proxies been solicited?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
3. Are the solutions proposed for the subject in agreement with existing instruments? (Identify instruments considered in comments section)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
4. Have human element solutions been made as an alternative and/or in conjunction with technical solutions?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
5. Has human element guidance on the application and/or implementation of the proposed solution been provided for the following:	
• Administrations?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
• Shipowners/managers?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
• Seafarers?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
• Surveyors?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
6. At some point, before final adoption, has the solution been reviewed or considered	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
7. Does the solution address safeguards to avoid single person errors?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
8. Does the solution address safeguards to avoid organizational errors?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
9. If the proposal is to be directed at seafarers, is the information in a form that can be presented to and is easily understood by the seafarer?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
10. Have human element experts been consulted in development of the solution?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA

11. HUMAN ELEMENT: Has the proposal been assessed against each of the factors below?	
<input type="checkbox"/> CREWING. The number of qualified personnel required and available to safely operate, maintain, support and provide training for system.	✓Yes <input type="checkbox"/> No <input type="checkbox"/> NA
<input type="checkbox"/> PERSONNEL. The necessary knowledge, skills, abilities, and experience levels that are needed to properly perform job tasks.	✓Yes <input type="checkbox"/> No <input type="checkbox"/> NA
<input type="checkbox"/> TRAINING. The process and tools by which personnel acquire or improve the necessary knowledge, skills and abilities to achieve desired job/task performance.	✓Yes <input type="checkbox"/> No <input type="checkbox"/> NA
<input type="checkbox"/> OCCUPATIONAL HEALTH AND SAFETY. The management systems, programmes, procedures, policies, training, documentation, equipment, etc. to properly manage risks.	✓Yes <input type="checkbox"/> No <input type="checkbox"/> NA
<input type="checkbox"/> WORKING ENVIRONMENT. Conditions that are necessary to sustain the safety, health and comfort of those on working on board, such as noise, vibration, lighting,	✓Yes <input type="checkbox"/> No <input type="checkbox"/> NA
<input type="checkbox"/> HUMAN SURVIVABILITY. System features that reduce the risk of illness, injury, or death in a catastrophic event such as fire, explosion, spill, collision, flooding or intentional attack. The assessment should consider desired human performance in emergency situations for detection, response, evacuation, survival and rescue and the interface with emergency procedures, systems, facilities and equipment.	✓Yes <input type="checkbox"/> No <input type="checkbox"/> NA
<input type="checkbox"/> HUMAN FACTORS ENGINEERING. Human-system interface to be consistent with the physical, cognitive, and sensory abilities of the user population.	✓Yes <input type="checkbox"/> No <input type="checkbox"/> NA
<p>Comments: (1) Justification if answers are NO or Not Applicable. (2) Recommendations for additional human element assessment needed. (3) Key risk management strategies employed. (4) Other comments. (5) Supporting documentation.</p> <p>(3) Are the solutions proposed for the subject in agreement with existing instruments? The intention of this proposal is to review the mandatory requirements in the SOLAS, MARPOL and Load Line Conventions and the IBC and IGC Codes regarding watertight doors on cargo ships, to address the inconsistencies that currently exist.</p>	