



Technical Information

Nb. : 167 - 2019

08 February 2019

To : Whom It May Concern

Subject : Summary Report on IMO Meeting of Sub-Committee on Ship Design and Construction (SDC) 6th sessions

Summary

This Technical Information summarizes the result of 6th Session of IMO Meeting of Sub-Committee on Ship Design and Construction (SDC) that was held from the 4 to 8 February 2019, at IMO headquarters in London.

Information

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The following agenda are among those discussed during the meeting:

| Agenda Number | Topic |
|---------------|--|
| 3 | Revised SOLAS regulation II-1/3-8 and associated guidelines (MSC.1/CIRC.1175) and new Guidelines for safe mooring operations for all ships |
| 4 | Review SOLAS Chapter II-1, Parts B-2 to B-4, to ensure consistency with Parts B and B-1 with regard to watertight integrity |
| 5 | Finalization of second generation intact stability criteria |
| 6 | Mandatory instrument and/or provisions addressing safety standards for the carriage of more than 12 industrial personnel on board vessels engaged on international voyages |
| 7 | Amendments to the 2011 ESP CODE |

The Agenda above are several technical issues discussed during the meeting. A brief coverage among the issues is expressed in the attached document.

More info

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BRIEF INFORMATION ON IMO MEETING OF SUB-COMMITTEE ON SHIP DESIGN AND CONSTRUCTION (SDC) 6TH SESSIONS

A. REVISED SOLAS REGULATION II-1/3-8 AND ASSOCIATED GUIDELINES (MSC.1/CIRC.1175) AND NEW GUIDELINES FOR SAFE MOORING OPERATIONS FOR ALL SHIPS (AGENDA ITEM 3)

Taking into account the report of Correspondence group established in SDC 5, the Sub-Committee considered the following main outstanding issues in relation to the finalization of draft SOLAS regulation II-1/3-8.7, the draft new Design Guidelines, the draft new Inspection Guidelines and the draft Revised guidance on shipboard towing and mooring equipment (MSC.1/Circ.1175) inter alia:

1. application and inclusion of the human-centred design approach;
2. requirement for load monitoring equipment;
3. approval of ships' towing and mooring arrangement plans; and
4. definitions for WLL and LDBF.

Application and inclusion of the human-centred design approach

The Sub-Committee agreed not to include any reference on human-centred design in draft SOLAS regulation II-1/3-8.7 or the Design Guidelines and requested to the Working group to further discuss on the issues relating human element.

Requirement for load monitoring equipment

In considering provisions requiring load monitoring equipment, the Sub-Committee agreed not to include provisions requiring load monitoring equipment.

Approval of ship's towing and mooring arrangement plans

Some delegations raised the issue of whether or not the approach to be taken in devising new or amending instruments on mooring and towing arrangements would require ships' towing and mooring arrangement plans to be approved by the Administration and if the provisions that had been developed so far allowed for a consistent and global verification of plans.

Use and definitions for strength requirements of mooring lines and equipment

The Sub-Committee noted the divergent views in the Correspondence Group on the use and definitions for strength requirements of mooring lines and equipment, such as Ship Design Minimum Breaking Load (MBL_{SD}), Working Load Limit (WLL), the relation between SWL and MBL and others, and agreed to task the Working Group to consider the matter further.

Establishment of the Working Group

Taking into account comments made in the plenary, the Sub-Committee agreed to re-establish the Working Group on Safe Mooring Operations. The results of the Working Group inter alia:

1. Amendments to SOLAS reg. II-1/3-8
 - The Group agreed to use of term "occupational safety" in place of "human-centred design approach".
 - The Group agreed to insert the new requirement of "The design of mooring arrangements and rationale of selection of the mooring equipment including lines shall be documented and kept onboard".

- The group agreed to delete the term “equivalent level of safety”.
2. Draft new guidelines on the design of mooring arrangements
 - The Group agreed to include one paragraph under section 1 regarding the application of principles of ergonomics and usability.
 - The Group agreed that the automated mooring systems should be more related to SOLAS regulation II-1/55 on alternative design and arrangements.
 - the Group agreed to add a new section for "Documentation on deviation", in order to provide the reason, justification and suitable safety measures
 3. Draft guidelines for inspection and maintenance

The Group noted that the familiarization and training related to safe use of mooring equipment and fittings would be more appropriately addressed by another IMO body. Subsequently, the Group recommended the Sub-Committee to forward this matter to the Committee for consideration.
 4. Draft revised guidance on shipboard towing and mooring equipment (MSC.1/Circ.1175)
 - The Group agreed to clarify that sections 2 and 3 of appendix A provide minimum value of ship design Minimum Breaking Load (MBLSD) and MBLSD should be determined by a ship designer.
 - the Group noted that the draft Revised guidance should be applicable to ships constructed on or after the date of entry into force of revised SOLAS regulation II-1/3-8. Meanwhile, the Guidance on shipboard towing and mooring equipment (MSC.1/Circ.1175) will continue to be applicable to ships constructed on or after 1 January 2007 but before the aforementioned date of entry into force.

B. REVIEW SOLAS CHAPTER II-1, PARTS B-2 TO B-4, TO ENSURE CONSISTENCY WITH PARTS B AND B-1 WITH REGARD TO WATERTIGHT INTEGRITY (AGENDA ITEM 4)

The Working Group on Subdivision and Damage Stability (SDS) was established by the Sub-Committee. The Working Group was instructed to further develop draft amendments to SOLAS chapter II-1, parts B-1 to B-4 and the related provisions in the Explanatory Notes (resolution MSC.429(98)) to:

- finalize the draft amendments to regulation II-1/7-2.5.2;
- consider amendments to regulation II-1/12.6.1 in relation to the location and operation of the collision bulkhead valve;
- further consider the draft application criteria for the amendments.
- revise MSC.1/Circ.1464/Rev.1

Amendments to SOLAS regulation 7-2.5

Considering SOLAS regulations II-1/7-2.5 and II-1/17.1 Group agreed there was a significant inconsistency regarding the treatment of openings in bulkheads that were considered watertight in the damage stability calculations and were located above the bulkhead deck. In this context, the Group

noted that SOLAS regulation II-1/17 was only applicable to passenger ships and, therefore, the amendments to resolve the inconsistency should only apply to passenger ships. The Group agreed to revise SOLAS regulation II-1/7-2.5 to require openings in locations immersed in the final and/or intermediate stages of flooding to be watertight for passenger ships. This was accomplished by making regulation II-1/7-2.5.2.1 applicable only to cargo ships and duplicating the SOLAS regulation II-1/7-2.5.2.1 text as a new SOLAS regulation II-1/7-2.5.3.4 applicable only to passenger ships. The Group also agreed to an amendment to SOLAS regulation II-1/7-2.5.5 to clarify that some of the listed openings were allowed to be opened during navigation in accordance with SOLAS regulations II-1/22 to 24, and were not considered as openings in the damage stability calculations. This was not a change to the existing requirement.

Amendments to SOLAS regulation 17

The Group agreed to amend SOLAS regulation II-1/17.1 to align with the internal watertight subdivision arrangements necessary for compliance with the stability requirements in parts B-1 and B-2. A new SOLAS regulation II-1/17.3 was added to address doors in internal watertight subdivision arrangements above the bulkhead deck that were immersed only in the required range of positive stability for any damage cases contributing to the attained subdivision index A. These doors, which may be hinged or sliding, shall be capable of preventing the passage of water. In addition, these doors may remain open provided they can be remotely closed from the navigation bridge and are always ready to be immediately closed.

Amendments to SOLAS regulation 12.6.1

The Group agreed to the requirement for remotely controlled valves and to retain some of the existing restrictions regarding the location of the valves. In this regard, the Group considered that the valve could be located on either the forward or aft side of the collision bulkhead, provided the space on the aft side was not a cargo space. A provision was also included to ensure that the valve was either fail safe or capable of being closed manually from a position above the bulkhead deck of passenger ships and the freeboard deck of cargo ships if the remote control system should fail. In addition, a new provision was added that the valve shall be normally closed.

Amendments to SOLAS regulation 13

The Group agreed to the proposals from Norway regarding the using of the term “watertight boundary” to replace “watertight bulkhead”. The Group also agreed the proposal from IACS regarding central operating console. Central operating console for all power-operated sliding watertight doors shall be located in the safety centre in accordance with regulation II-2/23. If the safety centre is located in a separate space adjacent to the navigation bridge, a central operating console shall also be located on the navigation bridge. The Group noted that the agreed amendments to SOLAS regulation II-1/13 resulted in the deletion of existing paragraph 6 and subsequent renumbering of the remaining paragraphs. This item was noted because it was believed that provisions in this regulation may be referenced in various other regulations.

Amendments to SOLAS regulation 22.6

The Group agreed to amend SOLAS regulation II-1/22.6 regarding the requirement of watertight hatches to be kept closed during navigation. The group agreed to allow these hatches to be opened for limited access if permitted by the Master. In this regard, the Group did not accept the related SOLAS regulation II-1/16-1 design requirement proposal to fit alarms and open/close indicators on the navigation bridge for these hatches in watertight decks.

Application of the draft amendments

The Group agreed that application text to grandfather existing ships constructed before 1 January 2024 would only be required for the amendments that impact the ship's design arrangements.

Revision of MSC.1/Circ.1464 and Revised Explanatory Notes

Regarding to revision of MSC.1/Circ.1464/Rev.1, the Group noted that MSC.1/Circ.1464/Rev.1 and Corr.1 had been replaced by MSC.1/Circ.1572, for ships constructed on or after 9 June 2017. Regarding to the draft Revised Explanatory Notes to the SOLAS chapter II-1 subdivision and damage stability regulations (resolution MSC.429(98)) and the revision of MSC.1/Circ.1572, the Group recommended that the SDS Correspondence Group be re-established.

C. FINALIZATION OF SECOND GENERATION INTACT STABILITY CRITERIA (AGENDA ITEM 5)

Expert Group on Intact Stability was also established during Sub Committee meeting. The Group continued progressing on developing second generation intact stability as the following items:

- the draft interim guidelines on the specification of direct stability assessment procedures
- the draft interim guidelines for the preparation of operational limitations and operational guidance
- the draft interim guidelines on vulnerability criteria for the second generation of intact stability criteria

Draft interim guidelines on the specification of direct stability assessment procedures

The Group took the following substantive actions to progress the work (and developed draft interim guidelines on the specification of direct stability assessment procedures) , inter alia:

- included symbol "Tp" in the nomenclature;
- defined "direct assessment procedures", "assumed situation" and "nominal ship forward speed", and re-defined "design situation";
- modified the text under the section "Requirements for particular stability failure modes" to bring more clarity, i.e. modified "accedence of lateral acceleration" and inserted provisions in relation to usage of autopilot, ship forward speed and degrees of freedom not included in the dynamic modelling;
- re-drafted the "acceptance criteria" on maximum roll amplitude;
- re-structured the "design scenarios" in a table under the section "Environmental and sailing conditions" in order to simplify;
- re-structured the "extrapolation procedures" in the form of a list;
- harmonized the recommendatory language used in the text, i.e. replaced the text "must" with "should"; and
- included in the text of the draft guidelines extrapolation methods POT, EPOT, critical wave groups, split time method, however, submissions including their validation and assessment examples were pending.

Draft interim guidelines on the preparation of operational limitations and operational guidance

The Group took the following substantive actions to progress the work (and developed the draft interim guidelines for the preparation of operational limitations and operational guidance), inter alia:

- included two new paragraphs under the section "General principles" establishing a connection with the draft interim guidelines for direct stability assessment and highlighting the application of the draft guidelines for any loading condition;
- preferred to use the word "acceptable" and introduced a new paragraph clarifying the cases where too many sailing conditions in too many sea states should be avoided for a certain loading condition under the section "Acceptance of operational measures";
- removed the renormalization provision in relation to "limited scattered table" and agreed to clarify this aspect in the explanatory notes
- inserted a new paragraph referring to environmental conditions under the section "Operational limitations in specific areas, routes or seasons" and "Operational limitations for operation up to a maximum significant wave height";
- removed the provision in regard to a preference for the use of digital media under the section "General principles of preparation of operational guidance";
- simplified the text under the section "Probabilistic operational guidance" and modified the stability failure rate;
- modified the text under the section "Deterministic operational guidance" for clarifying the cases where non-probabilistic criteria and assumed situations were used;
- modified and re-structured the text under the section "Simplified operational guidance" for more clarity in regard to a requirement for model tests or numerical methods of high accuracy, forward speed, nominal speed and the presentation of information in the form of polar diagrams;
- simplified the provisions with regard to the accuracy of weather forecast by defining the responsibility of the ship master under the section "Application"; and
- removed the provision on real-time computations during operation.

Draft interim guidelines on vulnerability criteria for the second generation of intact stability criteria

The Group took the following substantive actions to progress the work (and developed the draft interim guidelines on vulnerability criteria for the second generation of intact stability criteria), inter alia:

- re-phrased the section "Application" under each of the failure modes for clarifying each condition of loading a ship that met neither of the standards contained in levels 1 and 2 vulnerability criteria, with a view to harmonization with other draft guidelines;
- generalized the provision for stability limiting information provided by matrix calculations for a better application for each of the failure modes;
- included a provision for a free surface correction for all relevant failure modes;
- amended and harmonized the formulations to improve their use and understanding;
- provided an exception for ships with extended low weather decks and noted that similar exceptions were required in the draft interim guidelines for direct stability assessment, and the draft interim guidelines on the preparation of operational limitations and operational guidance;
- removed the text involving provisions to the satisfaction of the Administration, where relevant; and
- agreed to introduce a wave scatter table under the section "Level 2 vulnerability criteria for dead ship condition" and "Level 2 vulnerability criteria for excessive acceleration.

Validity of dead ship condition, and regulatory relationship between the existing weather criterion and the draft dead ship condition criteria

The Group also discussed regarding the validity of dead ship condition, and the regulatory relationship between the existing weather criterion and the draft dead ship condition criteria. Following the discussion, the vast majority of the members of the Group agreed on the following:

- the draft dead ship condition criteria should not be considered as an alternative for the existing weather criterion on the 2008 IS Code and, therefore, a draft text should be included in the preamble/introductory section to be developed in order to highlight this;
- the purpose of the interim draft guidelines was to have a tool for addressing second generation intact stability criteria on the basis of the best "state-of-the art" concepts, available at the time they were developed and, therefore, further improvements could be made by experiencing as a result of testing;
- recognizing the differences in their maturity level, sufficient explanations should be made in the preamble/introductory section to reflect this situation;
- the dead ship failure mode should not be excluded from the set of all five stability failure modes.

Establishment of Correspondence Group

The Group agreed to recommend that the Correspondence Group on Intact Stability be re-established, for the matters related to second generation intact stability criteria, to continue its work intersessionally.

D. MANDATORY INSTRUMENT AND/OR PROVISIONS ADDRESSING SAFETY STANDARDS FOR THE CARRIAGE OF MORE THAN 12 INDUSTRIAL PERSONNEL ON BOARD VESSELS ENGAGED ON INTERNATIONAL VOYAGES (AGENDA ITEM 6)

IMO has been addressing issues on safety standards for the carriage of more than 12 industrial personnel on board vessels engaged on international voyages by providing two solution approaches, i.e. short-term solution and long-term solution.

For short-term solution, MSC 97 adopted the Interim recommendations on the safe carriage of more than 12 industrial personnel on board vessels engaged on international voyages (resolution MSC.418(97)). While for long-term solution, it was agreed to develop new chapter of SOLAS (Chapter XV) and associated Code (IP Code).

Taking into account the decisions made by the Committee, the Sub-Committee has been working on development of aforementioned mandatory instruments through the establishment of Correspondence Groups and Working Groups.

At this session, following discussion, the Sub-Committee agreed that using an aggregated number of passengers, special personnel and industrial personnel to invoke the application of the IP Code had caused confusion, ambiguity and false interpretations among delegations, which contradicted the Organization's Guidance on drafting of amendments to the 1974 SOLAS Convention and related mandatory instruments (MSC.1/Circ.1500/Rev.1, paragraph 2.1.1).

Given the aforementioned difficulties in the application of draft SOLAS chapter XV and the draft IP Code, the Sub-Committee agreed to seek the Committee's direction on this issue and instructed the IP

Working Group to continue developing both draft instruments without further deliberating the categories of personnel to which SOLAS chapter XV and the IP Code would apply. Subsequently, the Sub-Committee invited MSC 101 to consider the above issue and take action as appropriate.

E. AMENDMENTS TO THE 2011 ESP CODE (AGENDA ITEM 7)

The Sub-Committee further recalled that MSC 100, after having considered the draft amendments to the 2011 ESP Code set out in documents MSC 100/3 (Secretariat) and MSC 100/3/2 (IACS and Secretariat), decided to:

- Hold the adoption of the draft amendments to the 2011 ESP Code in abeyance and invited IACS to work together with the Secretariat intersessionally to prepare a revised set of draft amendments to the Code using "shall/should" instead of "is to/are to", as appropriate, for submission to MSC 101 with a view to adoption; and
- Instruct the SDC Sub-Committee to ensure that the draft 2019 ESP Code, expected to be finalized by SDC 6 with a view to approval by MSC 101 and subsequent submission to A 31, includes the aforementioned revised draft amendments to the 2011 Code.

The SDC 6 established the Drafting Group on Amendments to the 2011 ESP Code and taking into account the comments made and decisions taken in plenary, the Drafting Group was instructed to:

- finalize the text of the consolidated new version of the ESP Code (2019 ESP Code), including the associated draft Assembly resolution, using document SDC 6/7 and addenda as the base documents, incorporating changes from the draft amendments to the 2011 ESP Code, as appropriate (MSC 100/20, paragraphs 3.5 to 3.8), taking into account documents MSC 100/3/2 and SDC 6/J/6.

In general, these amendments to the 2011 ESP Code contain, among others:

- Editorial changes to the consolidated version of the ESP Code
 - a) Aligning the text with mandatory language used by IMO and the incorporation of those footnotes, which could be considered as substantive text, into the main body of the ESP Code;
 - b) Editorial "shall/should" instead of "is to/are to" were used throughout the draft consolidated version of the ESP Code, as appropriate;
 - c) Minor editorial modifications were made to improve readability, consistent wording as far as possible, where the same provisions existed across the four parts of the Code.
- Use of the term "Administration and organizations recognized by the Administration"
 - a) Inclusion of a definition of the term "Administration" with consideration term "Administration" to include recognized organization should additionally be reflected in the main body of the Code;
 - b) It is noted that Administrations did not have exclusive surveyors and therefore, agreed to the delete the word "exclusive" from paragraphs 1.4.1 and 1.4.2.
- Intermediate surveys

According resolution MSC. 409(97) had been adopted regarding harmonizing the intermediate and renewal survey windows between ESP ships and non-ESP ships. the Group decided that the Application should be clarified to allow for those items that were additional to the requirements of

the annual survey to take place between these surveys, and accordingly the relevant paragraph under Application was amended.

- Minimum requirements
The Group decided to retain the paragraph "Minimum requirements" for reference purposes.
- Corrosion prevention system
the Group raised concerns that no clear definitions for "soft" and "semi-hard" coatings had been provided.