

SUB-COMMITTEE ON SHIP DESIGN AND  
CONSTRUCTION  
5th session  
Agenda item 15

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**REPORT TO THE MARITIME SAFETY COMMITTEE**

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\* See document SDC 5/15/Add.1.

\*\* See document SDC 5/15/Add.2.

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## 1 GENERAL

1.1 The Sub-Committee on Ship Design and Construction (SDC) held its fifth session from 22 to 26 January 2018, chaired by Mr. K. Hunter (United Kingdom). The Vice-Chair, Mrs. T. Stemre (Norway), was also present.

1.2 The session was attended by delegations from Member States, an Associate Member of IMO and observers from intergovernmental organizations and non-governmental organizations in consultative status, as listed in document SDC 5/INF.1.

### Opening address

1.3 The Secretary-General welcomed participants and, having expressed condolences for those that lost their lives in the **Sanchi** accident, delivered the opening address, the full text of which can be downloaded from the IMO website at the following link: <http://www.imo.org/MediaCentre/SecretaryGeneral/Secretary-GeneralsSpeechesToMeetings>

1.4 The delegations of Bangladesh, China, the Islamic Republic of Iran, Japan, Panama, the Republic of Korea and Hong Kong, China, made statements regarding the **Sanchi** accident, expressing condolences and providing the Sub-Committee with updated information. The full text of these statements is reproduced in annex 7.

### Chair's remarks

1.5 In responding, the Chair thanked the Secretary-General for his words of guidance and encouragement and assured him that his advice and requests would be given every consideration in the deliberations of the Sub-Committee. The Chair extended the condolences of the Sub-Committee to all those affected by the reported incident.

### Adoption of the agenda and related matters

1.6 The Sub-Committee adopted the agenda (SDC 5/1) and agreed to be guided in its work, in general, by the annotations contained in document SDC 5/1/1 (Secretariat) and the arrangements in document SDC 5/1/2 (Chair).

## 2 DECISIONS OF OTHER IMO BODIES

2.1 The Sub-Committee noted the decisions and comments pertaining to its work made by MSC 98, III 4 and A 30, as reported in documents SDC 5/2 and SDC 5/2/1 (Secretariat), and took them into account in its deliberations when dealing with the relevant agenda items.

2.2 In particular, the Sub-Committee noted that MSC 98, following the consideration of the issues identified by the Secretariat in regard to the practical application of the *Guidance on drafting of amendments to the 1974 SOLAS Convention and related mandatory instruments* (MSC.1/Circ.1500), had taken the following decisions:

- .1 for draft amendments having a long history of development and refinement, sub-committees should ensure completion of check/monitoring sheets and records for regulatory development;

- .2 for the draft amendments to be considered and finalized by sub-committees in plenary within one session, the Secretariat may be instructed, when necessary, to complete part III of the check/monitoring sheet and the records for regulatory development after the session, instead of establishing a specific working/drafting group;
- .3 "minor corrections" (referred to in paragraph 3.2(vi) of document C/ES.27/D) could be excluded from the application of the provisions for completion of the check/monitoring sheet and the records for regulatory development; and
- .4 the application of MSC.1/Circ.1500 should be expanded to all safety-related IMO conventions and instruments mandatory under those conventions.

### **3 AMENDMENTS TO SOLAS REGULATION II-1/8-1 ON THE AVAILABILITY OF PASSENGER SHIPS' ELECTRICAL POWER SUPPLY IN CASES OF FLOODING FROM SIDE RAKING DAMAGE**

#### **General**

3.1 The Sub-Committee recalled that SDC 4 had re-established the Correspondence Group on Subdivision and Damage Stability (SDS) for the development of draft amendments to SOLAS regulation II-1/8-1 including functional and performance requirements, in order to improve the availability of passenger ships' electrical power supply in cases of flooding from side raking damage.

#### **Report of the SDS Correspondence Group and related document**

3.2 The Sub-Committee considered the report of the SDS Correspondence Group (SDC 5/3), providing information regarding the progress made in the development of the draft amendments to SOLAS regulation II-1/8-1 and advising on the specific issues requiring further consideration.

3.3 The Sub-Committee also had for its consideration document SDC 5/3/1 (ICS et al.), commenting on the SDS Correspondence Group's report and recommending that the Sub-Committee, when deciding on the damage extents for side raking damage, further take into account the need to harmonize the proposed new requirements relating to side raking damage with the existing safe return to port requirement, in particular with respect to the one compartment threshold.

3.4 In considering the above documents, the Sub-Committee noted the following general views expressed:

- .1 before taking any further actions, it was necessary to clarify the purpose of the draft new SOLAS regulation II-1/8-1.2; and
- .2 the work on this output was initiated with a view to improving the availability of passenger ships' electrical power supply in case of an emergency, i.e. ensuring that escape routes and essential services remained available after a flooding incident, then this developed into a major discussion on side raking damages and the original purpose of the work might have been lost. In this context, it was suggested to request the Committee for clarification of the scope of this output and confirmation whether the matter should be solved by applying electrical engineering solutions (e.g. distribution of emergency sources of power), rather than naval architectural solutions, such

as a double hull or other structural requirements that would impact not only the current safe-return-to-port concept, but also the probabilistic requirements in SOLAS chapter II-1.

3.5 Following discussion, the Sub-Committee agreed not to proceed with the finalization of the draft amendments to SOLAS regulation II-1/8-1.2 and requested the Committee to note the comment in paragraph 3.4.2 above and clarify what the exact outcome expected from the Sub-Committee under this output was.

#### **4 COMPUTERIZED STABILITY SUPPORT FOR THE MASTER IN CASE OF FLOODING FOR EXISTING PASSENGER SHIPS**

##### **General**

4.1 The Sub-Committee recalled that SDC 4 had noted that the SDS Working Group established at that session, having considered possible options for the entry into force process of the draft amendments to SOLAS regulations II-1/1 and II-1/8-1, and taking into account that the complexity of the criteria for stability computers in the new set of guidelines would impact the application date of the new draft regulations for existing passenger ships, had not been able to decide on how best to proceed in this regard. The SDS Working Group had only agreed that the date of application should be linked with the renewal survey of the ship, in order to avoid the uncertainties associated with the initially proposed reference to "scheduled dry-docking".

4.2 The Sub-Committee also recalled that SDC 4 had agreed to the draft amendments to SOLAS regulations II-1/1 and II-1/8-1 on computerized stability support for the master in case of flooding for existing passenger ships, for submission to MSC 98 for approval, with a view to their subsequent adoption at MSC 99.

4.3 The Sub-Committee noted that MSC 98 had approved the draft amendments to SOLAS regulations II-1/1 and II-1/8-1, with a view to adoption at MSC 99, provided that SDC 5 confirmed the application date for the draft SOLAS regulation II-1/8-1.3 and finalized the draft guidelines on stability computers and shore-based support for passenger ships constructed before 1 January 2014.

##### **Draft Guidelines on stability computers and shore-based support for passenger ships constructed before 1 January 2014**

###### ***Part 2 of the report of the SDS Working Group established at SDC 4***

4.4 Having considered part 2 of the report of the SDS Working Group established at SDC 4 (SDC 5/4), the Sub-Committee, bearing in mind that the SDS Correspondence Group already considered the draft amendments proposed in the report during its deliberations, approved part 2 of the report in general.

###### ***Report of the SDS Correspondence Group***

4.5 The Sub-Committee, having considered the report of the SDS Correspondence Group (SDC 5/4/1), providing information regarding the finalization of the draft Guidelines on stability computers and shore-based support for passenger ships constructed before 1 January 2014, noted four specific issues that needed to be further considered by the Sub-Committee, with a view to finalizing the draft Guidelines and the associated draft MSC circular.

4.6 In considering the action requested in paragraph 13.2 of the report, the Sub-Committee approved it in general and took the following decisions regarding the specific issues identified by the Group:

- .1 decided not to include the proposed new paragraph 30, taking into account that paragraph 29 may be used to address the cases where the availability of accurate hull model information and data for "old" ships is a significant problem;
- .2 decided not to proceed with addition of the footnote to paragraph 6 of the draft Guidelines, as it may cause inconsistency with the *Revised guidelines on operational information for masters of passenger ships for safe return to port* (MSC.1/Circ.1532);
- .3 agreed to the proposed text of paragraph 10 clarifying that this paragraph does not require continuous electronic inputs from consumable tanks, sensors, etc., provided that the words "the ship departs" and "while at sea" are replaced with the words "the voyage commences" and "during navigation", respectively, to align the text with SOLAS regulation II-1/22; and
- .4 with regard to the three options proposed to address voluntary early installation of stability computers, agreed to the second option (SDC 5/4/1, paragraph 11.2), including the second sentence proposed by the SDS Correspondence Group in square brackets.

#### **Application date of draft SOLAS regulation II-1/8-1.3**

4.7 The Sub-Committee, in considering the request of MSC 98 (see paragraph 4.3 above), agreed that passenger ships constructed before 1 January 2014 shall comply with SOLAS regulation II-1/8-1.3.1 not later than the first renewal survey after five years after the date of entry into force of the amendments to SOLAS regulation II-1/8-1 and invited the Committee to note the above decision when considering the aforementioned draft amendments for adoption at MSC 99.

#### **Establishment of the SDS Drafting Group**

4.8 Following discussion and recalling the relevant decision at SDC 4, the Sub-Committee established the SDS Drafting Group and instructed it, taking into account the decisions taken in plenary, to finalize the draft Guidelines on stability computers and shore-based support for passenger ships constructed before 1 January 2014 and the associated draft MSC circular, based on the annex to document SDC 5/4/1.

#### **Report of the SDS Drafting Group**

4.9 Having considered the report of the SDS Drafting Group (SDC 5/WP.6), the Sub-Committee approved the report in general and took action as outlined in paragraphs 4.10 and 4.11 below.

4.10 In the context of equivalent arrangements, the Sub-Committee noted that the SDS Drafting Group, having discussed the importance of a correct understanding of the application date of draft SOLAS regulation II-1/8-1.3, as described in paragraph 4.7 above, agreed that Administrations should take account of SOLAS regulation II-1/8-1.3.2 when applying paragraph 25 of the draft Guidelines, containing provisions for ships fitted with onboard damage stability computers, before the date of application of SOLAS regulation II-1/8-1.3.

4.11 Subsequently, the Sub-Committee agreed to the draft *Guidelines on operational information for masters in case of flooding for passenger ships constructed before 1 January 2014* and the associated draft MSC circular, as set out in annex 1, for submission to MSC 99, with a view to approval in conjunction with the adoption of the draft amendments to SOLAS regulations II-1/1 and II-1/8-1.

### **Completion of the work on the output**

4.12 The Sub-Committee invited the Committee to note that the work on this output had been completed.

## **5 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**

### **General**

5.1 The Sub-Committee recalled that MSC 96, having considered document MSC 96/23/3 (Norway) proposing to review and revise regulations in SOLAS chapter II-1 to ensure consistency between the probabilistic damage stability requirements in parts B and B-1 of SOLAS chapter II-1 and the requirements for watertight integrity contained in parts B-2 to B-4 of SOLAS chapter II-1, agreed to include in the 2018-2019 biennial agenda of the Committee an output on "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", with three sessions needed to complete the item, assigning the Sub-Committee as the coordinating organ.

### **Review of the existing parts of SOLAS chapter II-1**

5.2 The Sub-Committee, having considered document SDC 5/5 (Norway) providing information on the outcome of an examination of the existing parts of SOLAS chapter II-1, conducted by Norway in order to identify possible inconsistencies and ambiguities between them, and proposing possible solutions in form of amendments to the existing SOLAS chapter II-1, noted the following comments:

- .1 before replacing SOLAS requirements with references to "the International Convention on Load Lines (ICLL) in force", a harmonization is needed to ensure that these SOLAS requirements are not missed out in ICLL;
- .2 the proposed solutions for SOLAS regulations II-1/13 and II-1/13-1 contradict the requirement for valves on piping penetrating the collision bulkhead, i.e. SOLAS regulation II-1/12.6.1, which does not accept the valves of cast iron. Cast iron is not allowed for the valve at the collision bulkhead for the reason that these valves shall be located inside the forepeak tank, namely in the front of the collision bulkhead, as required in SOLAS regulation II-1/12.6.1, and would be exposed to high risk of damage in case of collision;
- .3 bearing in mind that this output was agreed to review parts B-2 to B-4 of SOLAS chapter II-1, with a view to ensure consistency with parts B and B-1 with regard to watertight integrity, any enhancement of requirements would be out of the scope of this output; and
- .4 it should be noted that the term "watertight deck" used in the proposed solution for paragraph 7 of SOLAS regulation II-1/22 is not defined in the current SOLAS regulations and, therefore, a definition of this term is needed.

## Re-establishment of the SDS Correspondence Group

5.3 In order to progress the work on this output intersessionally, the Sub-Committee re-established the Correspondence Group on Subdivision and Damage Stability (SDS), under the coordination of the United States,<sup>1</sup> and instructed it, taking into account the comments made at SDC 5, to further consider the proposals contained in the annex to document SDC 5/5, as well as any additional proposals that may be provided to ensure consistency, and submit a report to SDC 6.

## 6 FINALIZATION OF SECOND GENERATION INTACT STABILITY CRITERIA

### General

6.1 The Sub-Committee recalled that SDC 4 had invited Member States and international organizations to submit proposals regarding the application of operational limitations and/or operational guidance within the framework for the second generation intact stability criteria for consideration at this session.

6.2 The Sub-Committee also recalled that SDC 4 had approved the revised plan of action for matters related to intact stability (SDC 4/WP.4, annex 2) and re-established the Correspondence Group on Intact Stability (IS), with the terms of reference set out in paragraph 5.35 of document SDC 4/16, to continue the work on development of second generation intact stability criteria, taking into account the revised plan of action.

### Part 2 of the report of the IS Working Group established at SDC 4

6.3 Having considered part 2 of the report of the IS Working Group established at SDC 4 (SDC 5/6/1), the Sub-Committee, bearing in mind that the IS Correspondence Group already considered the matters outlined in the report during its deliberations, approved part 2 of the report in general.

### Report of the IS Correspondence Group and related documents

#### *Draft Guidelines for the specification of direct stability assessment*

6.4 The Sub-Committee considered the relevant part of the report of the IS Correspondence Group (SDC 5/6, paragraphs 17 and 18), providing information regarding the collection of application examples and the difficulties related to complicated numerical simulation codes with expensive experimental work for validations of the simulation codes.

6.5 The Sub-Committee noted with appreciation the information collected by the Group regarding the direct assessment for broaching failure (SDC 5/INF.4, annex 18).

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6.6 The Sub-Committee also had for its consideration the following documents related to this issue:

- .1 SDC 5/6/3 (China), providing results of sample calculations for vulnerability of ships to surf-riding/broaching and commenting on the draft Guidelines of direct stability assessment procedures for surf-riding/broaching stability failure mode;
- .2 SDC 5/6/4 (China), providing comments and proposals on the vulnerability criteria of parametric roll and relevant draft guidelines of direct stability assessment procedures;
- .3 SDC 5/6/6 (China), providing a verification sample of the mathematical model for the direct stability assessment as well as proposals and comments on the draft guidelines of the direct stability assessment procedures for pure loss of stability;
- .4 SDC 5/6/7 (China), providing the results of the sample calculations for direct stability assessment of excessive acceleration as well as comments and proposals regarding the relevant draft guidelines of direct stability assessment procedures;
- .5 paragraphs 2 to 8, 20, 21, 22.1, 23.1, 23.2 and 23.7 of document SDC 5/6/9 and Corr.1 (Germany), providing background information and proposing actions for finalization of the draft guidelines for the specification of direct stability assessment; and
- .6 SDC 5/6/13 (Japan), providing application examples of direct stability assessment for excessive acceleration failure mode.

6.7 The Sub-Committee noted with appreciation the information provided in the following documents:

- .1 SDC 5/INF.12 (Brazil), providing results of sample ship calculations of the vulnerability criteria for two different stability failure modes under the scope of the second generation intact stability criteria;
- .2 SDC 5/INF.8 (China), providing information on sample calculations and validation results of the direct stability assessment of parametric roll;
- .3 SDC 5/INF.9 (China), providing information on the validation of the simplified formula for acceleration in the vulnerability criteria of excessive acceleration stability failure mode; and
- .4 SDC 5/INF.7 (Japan), providing application examples of direct stability assessment for pure loss of stability, parametric rolling and dead ship condition failure modes.

6.8 In considering the above documents, the Sub-Committee noted, inter alia, the following general comments expressed during the discussion:

- .1 second generation intact stability criteria may not be finalized without proper guidelines for direct stability assessment, because there are many existing ships failing to comply with the level 2 vulnerability criteria and not for all of them a slight increase of stability might be possible;

- .2 bearing in mind that "direct stability assessment requires several weeks/months to perform complicated numerical simulation codes with expensive experimental work for validations of the simulation codes", it is questionable whether direct stability assessment can be considered as a practical alternative or not;
- .3 there are some existing tools available to address "correctly" some of the dynamic stability phenomena, but these tools have to be widely validated, especially in irregular waves, moreover, these tools are sophisticated and require strong hydrodynamic knowledge, i.e. only an expert-level user can use them properly;
- .4 from a regulatory point of view, there may be a problem of the use of direct stability assessment, noting that the numerical tools to address direct stability assessment should be available and usable worldwide;
- .5 for overall consistency of second generation intact stability criteria, all three levels should be released together; however, there are some concerns about direct stability assessment, e.g. a simple guideline will not be sufficient, it is necessary to have clear criteria like in levels 1 and 2;
- .6 it should be admitted that currently the approval of direct assessment calculations requires a significant effort every time such calculations are required to be done; in view of the complexity of this assessment, it may be that the calculations can only be done by experts during the design process and the results will be presented for onboard use by a stability limiting curve;
- .7 there are many programs available that are capable of doing the calculations; however, these are not yet in a state where they can be used quickly and practically by a member of the ship's crew and, therefore, there are doubts about their practicality both for use on board and from a regulatory perspective;
- .8 it is impossible to get much further without finalizing the draft amendments based on the test results currently available, and let the industry start using it, with a view to providing a feedback, and based on the experience gained, the criteria can be reviewed and revised, if and when necessary;
- .9 this project has been ongoing now for well over a decade and a huge amount of resources has been put into it; however, it is impossible to continue forever. In this context, before taking on such difficult technical outputs in the future, much more work is needed both from a scientific and technical point of view, prior to IMO accepting new outputs, i.e. IMO should not function as a project group; and
- .10 the Sub-Committee should consider the scope of second generation intact stability criteria and, at this stage, decide what is feasible to finalize by SDC 6.

6.9 Bearing in mind the general comments provided in paragraph 6.8 above, the Chair invited the Sub-Committee to consider whether the levels 1 and 2 vulnerability criteria and the direct stability assessment could be finalized as a package at SDC 6, provided that direct stability assessment should be feasible with effective guidelines for practical stakeholders other than academics, or whether the Committee should be advised that the Sub-Committee was unable to complete this output.

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6.10 In responding to the above request of the Chair, the delegation of Japan, supported by other delegations, informed the Sub-Committee as follows:

- .1 The work under this output should be continued, with a view to providing a package of the levels 1 and 2 criteria and the guidelines for making direct stability assessment and operational limitations and operational guidance feasible, together with the draft MSC circular inviting Member States to use this package as interim measures, for consideration at the next session.
- .2 When deciding whether such criteria are really necessary or not, it should be noted that section 1.2 of part A of the 2008 IS Code clearly states:

"It is recognized by the Organization that performance-oriented criteria for the identified phenomena listed in this section need to be developed and implemented to ensure a uniform international level of safety."

The "listed phenomena" are: righting lever variation, resonant roll in dead ship condition, broaching and other manoeuvring-related phenomena. In this context, the Organization has no choice other than developing such criteria, which are nothing other than second generation intact stability criteria.

- .3 With regard to the possibility to develop such criteria by the next session, it should be noted that the Sub-Committee had already spent more than 10 years for this development. While so far no real output had been presented, the draft text of vulnerability criteria and standards for five failure modes has already been developed (SDC 2/WP.4, annexes 1 to 3; and SDC 3/WP.5, annexes 1 and 2) as well as the draft guidelines for direct stability assessment (SDC 4/WP. 4, annex 1). For the vulnerability criteria, several undecided elements relating to inconsistencies between levels 1 and 2 exist, but in the documents submitted for consideration at this session possible solutions to remove almost all inconsistency issues are provided.
- .4 Regarding the draft guidelines for direct stability assessment, major remaining elements are values for the acceptance criteria for quantitative validation. If these acceptance criteria for validation are very stringent, no numerical tool can be used. Thus, it is proposed to:
  - .1 request Member States and international organizations to submit comparison results between the model experiment and the numerical tool for the subject ship or a very similar ship; and
  - .2 authorize the Administration to make the final judgement, based on them.

This scheme will make the direct stability assessment feasible for the stakeholders.

- .5 Based on the above, it can be concluded that it is possible to complete the work under this output by the next session, except for the explanatory notes that should be finalized at SDC 7.

6.11 Following the discussion of the proposals in paragraph 6.10 above, the Sub-Committee agreed that:

- .1 the work on this output should be continued, with a view to finalizing a package of the levels 1 and 2 vulnerability criteria and the guidelines for direct stability assessment, operational limitations and operational guidance;
- .2 the IS Correspondence Group should be re-established to progress the work intersessionally (see paragraph 6.15);
- .3 all documents submitted for consideration at this session should be noted and the re-established IS Correspondence Group should be instructed to assess them for their relevance and use when finalizing the package, as specified in paragraph 6.11.1 above; and
- .4 terms of reference for the re-established IS Correspondence Group should be extremely clear and detailed enough to ensure that the package can be sent to a drafting group for finalization.

6.12 Having further discussed possible solutions for the completion of this output, taking into account that the establishment of an Intersessional IS Working Group, as proposed by some delegations, may not be realistic, the Sub-Committee noted the following views:

- .1 it might be impossible to finalize the methodology for direct stability assessment, operational limitations and operational guidelines before SDC 6, due to the lack of reliable data and time for gaining practical experience;
- .2 further consideration of the sustainability of the draft dead-ship vulnerability criteria is needed before their finalization;
- .3 it is necessary to proceed with the development of non-mandatory dead-ship vulnerability criteria, taking into account that they will not affect the application of the mandatory weather criterion;
- .4 levels 1 and 2 vulnerability criteria could be finalized at SDC 6 as matter of the highest priority; however, the draft guidelines for direct stability assessment might be developed for interim application only; and
- .5 an incomplete package (see paragraph 6.11.1 above) will not be of use from technical and regulatory points of view.

6.13 Following the discussion, the Sub-Committee agreed to the way forward as outlined below:

- .1 the IS Correspondence Group should be re-established to progress the work on this output intersessionally, with a view to submitting a progress report for consideration at SDC 6;
- .2 an IS Experts' Group should be established at SDC 6 to consider the progress report to be submitted by the IS Correspondence Group, established at this session, and take action as appropriate towards the finalization of a draft package of the levels 1 and 2 vulnerability criteria, and the guidelines for direct stability assessment, operational limitations and operational guidance;

- .3 the IS Correspondence Group should continue its work, with a view to preparing a complete draft package of the levels 1 and 2 vulnerability criteria and the guidelines for direct stability assessment, operational limitations and operational guidance for finalization at SDC 7; and
- .4 if a complete draft package of levels 1 and 2 vulnerability criteria, and the guidelines for direct stability assessment, operational limitations and operational guidance is submitted to SDC 7, then an IS Drafting Group will be established at that session to finalize it, and the IS Correspondence Group will be re-established and instructed to finalize the draft explanatory notes for all five stability failure modes, based on annex 19 to document SDC 5/INF.4 (Japan), for consideration at SDC 8.

6.14 The Sub-Committee also agreed that if the complete draft package was not presented in a state such that a drafting group could complete the work at SDC 7, with the exception of the draft explanatory notes for all five stability failure modes, the Committee should be advised that the Sub-Committee could not complete the output and, therefore, the work on this output should be considered "complete" and it should be removed from the work programme of the Committee. Any further work on this issue should be then proposed and justified by interested Member States in accordance with section 4 of the document on *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).

#### **Re-establishment of the IS Correspondence Group**

6.15 Subsequently, in order to progress the work on this output intersessionally, the Sub-Committee re-established the Correspondence Group on Intact Stability (IS), under the coordination of Japan,<sup>2</sup> and instructed it, taking into account the comments made and decisions taken at SDC 5, to:

- .1 finalize, in their essential aspects, the draft Interim guidelines for the specification of direct stability assessment based on document SDC 4/WP.4 and, in particular, to:
  - .1 provide the definition of stability failure, including heel angle and lateral acceleration, taking into account documents SDC 5/6, SDC 5/6/9, SDC 5/INF.4 and SDC 5/INF.7;
  - .2 identify and select specific direct stability assessment procedures, in particular, environment (scatter table or design sea states), wave directions and ship speeds, and evaluated criteria (failure rate or other measures), taking into account documents SDC 5/6/3, SDC 5/6/9, SDC 5/6/13 and SDC 5/INF.7;

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- .3 provide the design scenarios, including sea states, wave directions and ship speeds for all stability failure modes, if relevant, taking into account documents SDC 5/6, SDC 5/6/9, SDC 5/INF.4 and SDC 5/INF.7;
  - .4 provide general descriptions of the selected direct stability assessment procedures, taking into account documents SDC 5/6, SDC 5/6/9, SDC 5/INF.4 and SDC 5/INF.7; and
  - .5 provide interim acceptance standards, taking into account documents SDC 5/6, SDC 5/6/9, SDC 5/INF.4 and SDC 5/INF.7;
- .2 prepare, in their essential aspects, the draft Interim guidelines for the preparation of operational limitations and operational guidance, based on documents SDC 3/INF.10, SDC 3/6/7 and SDC 5/6/9 and, in particular, to:
- .1 by the end of April 2018, prepare the first draft of the Interim guidelines for the preparation of operational limitations and operational guidance, based on document SDC 5/6/9;
  - .2 decide on the criteria (failure rate or other measures);
  - .3 provide the descriptions of the preparation procedure for operational limitations and operational guidance; and
  - .4 provide the interim acceptance threshold;
- .3 finalize the draft vulnerability criteria (levels 1 and 2) for each of the five stability failure modes, based on documents SDC 2/WP.4 and SDC 3/WP.5, and the existing comprehensive sample calculation results in document SDC 5/INF.4; and taking into account documents SDC 4/5/1, SDC 4/5/2, SDC 5/6, SDC 5/6/2, SDC 5/6/4, SDC 5/6/5, SDC 5/6/8, SDC 5/6/11, SDC 5/6/12, SDC 5/6/14, SDC 5/INF.4 and SDC 5/INF.12, in particular, to:
- .1 provide the number of ship speeds to be used for calculation of the parametric roll amplitude in the second check of the level 2 vulnerability criteria for parametric rolling failure mode, taking into account documents SDC 5/6, SDC 5/6/4 and SDC 5/INF.4;
  - .2 provide the solution method to be used for calculation of the parametric roll amplitude in the second check of the level 2 vulnerability criteria for parametric rolling failure mode, taking into account documents SDC 5/6, SDC 5/6/14 and SDC 5/INF.4;
  - .3 provide the approach to execute numerical simulations for calculation of the parametric roll amplitude in the second check of the level 2 vulnerability criteria for parametric rolling failure mode, if the time domain simulation is adopted as a solution method, taking into account documents SDC 4/5/2, SDC 5/6, SDC 5/INF.4 and SDC 5/6/2;
  - .4 provide the standards for all five stability failure modes, taking into account document SDC 5/INF.4;

- .5 resolve the inconsistency between the levels 1 and 2 vulnerability criteria for the pure loss of stability failure modes, taking into account documents SDC 5/6, SDC 5/INF.4 and SDC 5/6/5;
  - .6 resolve the inconsistency between the levels 1 and 2 vulnerability criteria for the parametric rolling failure modes, taking into account documents SDC 5/6 and SDC 5/INF.4;
  - .7 resolve the inconsistency between the levels 1 and 2 vulnerability criteria for the dead ship stability failure mode, taking into account documents SDC 5/6/11 and SDC 5/INF.4;
  - .8 provide the guidance to present stability limiting information for resonant failure modes, taking into account document SDC 5/INF.4; and
  - .9 harmonize the symbols with the 2008 IS Code, if relevant, taking into account document SDC 5/INF.4;
- .4 based on the outcome of the work required in paragraphs 6.15.1 to .6.15.3 above, finalize the draft Interim Guidelines based on annexes 1 to 3 to document SDC 2/WP.4 and annexes 1 and 2 to document SDC 3/WP.5, and, in particular, to:
- .1 realize the appropriate structure, including preface, taking into consideration document SDC 5/6/10; and
  - .2 clarify the regulatory relationships with the current weather criterion; and
- .5 submit a progress report to SDC 6, taking into account that the final report will be submitted to SDC 7.

#### **Establishment of the IS Experts' Group at SDC 6**

6.16 Following the decision in paragraph 6.13.2, the Sub-Committee invited the Committee to authorize SDC 6 to establish an experts' group (i.e. in addition to the three working groups expected to be established) to consider the progress report of the IS Correspondence Group, re-established at this session, and take action as appropriate towards the finalization of a draft package of the levels 1 and 2 vulnerability criteria and the draft guidelines for direct stability assessment, operational limitations and operational guidance.

#### **Extension of the target completion year**

6.17 In light of the above decisions, the Sub-Committee invited the Committee to extend the target completion year for this output to 2020.

## **7 MANDATORY INSTRUMENT AND/OR PROVISIONS ADDRESSING SAFETY STANDARDS FOR THE CARRIAGE OF MORE THAN 12 INDUSTRIAL PERSONNEL ON BOARD VESSELS ENGAGED ON INTERNATIONAL VOYAGES**

### **General**

7.1 The Sub-Committee recalled that SDC 4 had established the Correspondence Group on Carriage of more than 12 Industrial Personnel (IP) on board Vessels engaged on International Voyages, with terms of reference set out in paragraph 8.8 of document SDC 4/16, to begin the development of the draft new code and the draft new SOLAS chapter [XV], taking into account the updated roadmap (MSC 97/WP.7, annex 2).

### **Report of the IP Correspondence Group**

7.2 The Sub-Committee considered the report of the IP Correspondence Group (SDC 5/7), providing information regarding:

- .1 the development of a matrix listing the various mandatory and non-mandatory IMO instruments and their applications, to be used as a "checklist" for the development of the draft new SOLAS chapter [XV] and the draft new code;
- .2 the progress made on the development of the draft new SOLAS chapter [XV]; and
- .3 the preliminary discussions on the development of the draft new code.

7.3 The Sub-Committee also had for its consideration the following documents:

- .1 SDC 5/7/1 (Denmark), providing information on the outcome of a safety analysis for high-speed offshore vessels carrying up to 60 persons, carried out with a view to identifying potential hazards in connection with the carriage of more than 12 industrial personnel on high-speed offshore vessels and providing the Sub-Committee with the findings in order to support and facilitate the development of mandatory regulations for ships carrying industrial personnel;
- .2 SDC 5/7/2 (France), commenting on the report of the IP Correspondence Group with regard to the carriage of multiple categories of personnel and proposing amendments to:
  - .1 the draft new SOLAS chapter [XV], with a view to inclusion of special personnel; and
  - .2 the draft new code, with a view to replacing the title of chapter 2 with the new title "Operational management of personnel", and including provisions relating to personnel transfer and the continuous monitoring of the situation regarding personnel on board;
- .3 SDC 5/7/3 (United States), summarizing the key functional and other requirements developed in the United States through drafting of a voluntary consensus standard addressing accommodation service vessels, and proposing that these requirements should be considered by the Sub-Committee, when developing the draft new code;



- .4 SDC 5/7/4 (IACS), advising that the draft text of the new SOLAS chapter [XV] does not make it sufficiently clear that, in the application of SOLAS chapters I to IV, "industrial personnel (IP) need not be regarded or treated as passengers" and proposing that the safety standard, as provided in the draft new SOLAS chapter [XV] and the draft new code, should be considered equivalent to the standard provided in SOLAS chapters I to IV; and
- .5 SDC 5/7/5 (Vanuatu and ICS), commenting on the report of the Correspondence Group and identifying a number of further considerations to be taken into account, when developing a mandatory instrument and/or provisions addressing safety standards for the carriage of more than 12 industrial personnel on board vessels engaged on international voyages, such as impacts on other IMO instruments and guidance (in particular on other categories of persons defined in IMO instruments and guidance), considerations related to ship design and construction; the transfer of persons to ships or offshore installations; and certification of ships.

7.4 In considering the above documents, the Sub-Committee agreed to the following general principles:

- .1 all submitted documents should be further considered by an IP Working Group, if established;
- .2 applicable requirements of the Seafarers' Training, Certification and Watchkeeping (STCW) Code should be included in the draft new code as extracted texts (not as references to the Code); and
- .3 the draft new SOLAS chapter [XV] and the draft new code should address industrial personnel only (not any other categories of persons that may be carried on board ships).

7.5 The Sub-Committee also noted with appreciation the information provided by Denmark on the outcome of a safety analysis for high-speed offshore vessels carrying up to 60 persons (SDC 5/INF.2) and the Danish interim guideline for approval of high-speed offshore vessels carrying industrial personnel in accordance with MSC.418(97) (SDC 5/INF.3).

7.6 In considering the action requested in paragraph 24 of the report of the IP Correspondence Group, the Sub-Committee approved the report in general and took the following decisions:

- .1 endorsed the proposal to use the matrix listing the various mandatory and non-mandatory IMO instruments and their applications as a "checklist", when developing the draft new SOLAS chapter [XV] and the draft IP Code;
- .2 having endorsed the proposal not to have any references to the Code for the Construction and Equipment of Mobile Offshore Drilling Units, 2009 (2009 MODU Code) in the draft new SOLAS chapter [XV], agreed that the relevant and applicable provisions of the 2009 MODU Code may be included as extracted texts;
- .3 endorsed the view that the new code shall apply to ships regardless of date of construction, taking into account that, in the context of the 1974 SOLAS Convention, as amended, there are no existing ships carrying industrial personnel and some kind of grandfathering should be considered at a later

stage of the development, with a view to addressing ships currently transporting industrial personnel based on the provisions of the *Interim recommendations on the safe carriage of more than 12 industrial personnel on board vessels engaged on international voyages* (resolution MSC.418(97));

- .4 endorsed the proposal not to include a definition of "passenger" applicable to the draft new SOLAS chapter [XV] only and concurred with the view that the inclusion of some wording in the draft new SOLAS chapter [XV], stating that industrial personnel are not considered to be passengers, would be sufficient to meet the "unless expressly provided otherwise" provisions of SOLAS chapter I;
- .5 with regard to the proposal not to include a definition of "international voyage" applicable to the draft new SOLAS chapter [XV] only, noted that a similar approach as for the International Code for Ships Operating in Polar Waters (Polar Code) may be used and agreed that an IP Working Group, if established, should further consider this issue and advise the Sub-Committee on how best to proceed; and
- .6 endorsed the proposal to use annex 3 to document SDC 5/7 as a starting point for discussion on the development of the draft new code.

#### **Establishment of the IP Working Group**

7.7 Following discussion and recalling the relevant decision at SDC 4, the Sub-Committee established the Working Group on Carriage of more than 12 Industrial Personnel (IP) on board Vessels engaged on International Voyages and instructed it, taking into account the documents submitted for consideration at this session, and the comments made and decisions taken in plenary, to:

- .1 further develop the draft new SOLAS chapter [XV];
- .2 further develop the draft new code;
- .3 consider whether it is necessary to re-establish a correspondence group and, if so, prepare terms of reference for consideration by the Sub-Committee; and
- .4 submit a written report (part 1), continue working through the week and submit part 2 of the report to SDC 6, as soon as possible after the current session, so that it can be taken into account by the Correspondence Group on Carriage of more than 12 Industrial Personnel on board Vessels engaged on International Voyages, if re-established.

#### **Report of the IP Working Group**

7.8 Having considered the report of the IP Working Group (SDC 5/WP.4), the Sub-Committee approved it in general and took action as outlined in paragraphs 7.9 to 7.20 below.

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***Principles to be considered in the development of the draft new SOLAS chapter [XV] and the draft new code***

7.9 The Sub-Committee considered the following principles proposed by the IP Working Group as a basis for the development of the draft new SOLAS chapter [XV] and the draft new code:

- .1 the draft new code is an add-on to the SOLAS provisions;
- .2 the draft new code applies to cargo ships of 500 gross tonnage and above;
- .3 the definition of the term "international voyage" should not be modified (i.e. the definition in SOLAS regulation I/2(d) should apply);
- .4 non-mandatory instruments should not be referenced in the aforementioned instruments, the relevant parts of the text should be reproduced instead; and
- .5 with regard to training criteria for industrial personnel, the STCW Convention should not be referenced in the draft new code, relevant parts of the text should be reproduced in the code.

7.10 Following discussion, the Sub-Committee agreed, in principle, to further proceed with the development of the aforementioned instruments, based on the principles set out in paragraph 7.9 above, and endorsed the view that the application of the draft new code to ships below 500 gross tonnage carrying more than 12 industrial personnel and ships not engaged on international voyages on a voluntary basis should be considered either in the resolution adopting the draft new code or in a separate resolution. However, having noted the information provided by the IP Working Group regarding statements made by its participants expressing concerns about the correctness of the basic principles agreed by the Group (SDC 5/WP.4, paragraphs 6 to 8, 17 and 18), the Sub-Committee:

- .1 with regard to the principle that the draft new SOLAS chapter [XV] and the draft new code should only be applicable to cargo ships, decided to proceed further, based on this principle, and invited the Committee to note that objecting Member States and international organizations (i.e. those who had expressed their view that "the SOLAS provisions applicable to cargo ships are to be used as a basis for developing the requirements of the draft new code and further consideration should be given to ships complying with other SOLAS equivalent standards, which is within the scope of this output") were invited to provide concrete proposals for consideration at MSC 99, as comments on the report of SDC 5;
- .2 regarding the concerns expressed on the carriage of special personnel on board ships to which the draft new code applies (SDC 5/7/2), agreed that at this stage only industrial personnel should be taken into consideration; however, when the content of the code has matured, it could be considered if ships complying with the code can carry both industrial personnel and special personnel, noting that the code could have requirements based on the total number of persons on board without specifying those persons, which would allow for the carriage of special personnel without the need for future amendments to the code, and invited interested Member States and international organizations to provide proposals for consideration at MSC 99, as comments on the report of SDC 5; and

- .3 in the context of the concern about the lack of consideration of the different categories of persons that might be carried on ships subject to the draft new code and how those persons might be aggregated to minimize any unintended consequences to IMO instruments or any consequential amendments being required thereto, noting that there had been considerable support for aggregating the number of other persons, agreed that such a discussion would be outside the scope of this output and invited interested Member States to submit a justification for the expansion of the output for consideration at MSC 99, with a view to providing a possible solution, if any, for consideration at SDC 6.

### ***Draft new SOLAS chapter [XV]***

#### *Title*

7.11 The Sub-Committee noted that the Group, bearing in mind that the words "more than 12" and "on international voyages" were superfluous as these words are clearly outlined in the draft text, and that, unless expressly provided otherwise, SOLAS applies to ships engaged on international voyages (regulation I/1(a)), had agreed that the title of the draft new SOLAS chapter [XV] should be "Safety measures for ships carrying industrial personnel".

#### *Application*

7.12 In regard to the scope of application of the draft new SOLAS chapter [XV], the Sub-Committee noted that:

- .1 the Group had agreed that the application of the new chapter should not be restricted to cargo ships of 500 gross tonnage and above, in order to allow the carriage of industrial personnel on ships regardless of size;
- .2 the standards should be developed for ships of 500 gross tonnage and above; and
- .3 the Group, taking into account that the application to ships below 500 gross tonnage falls under the responsibility of national Administrations, had prepared draft text to be further considered by a correspondence group, if re-established.

7.13 The Sub-Committee noted that partial grandfathering could be necessary. The extent of the grandfathering in relation to operational requirements and equipment versus construction and design requirements will be further considered in the development of the draft new code.

7.14 The Sub-Committee also noted the need to include provisions regarding the application of other chapters of SOLAS to ships carrying more than 12 industrial personnel engaged on international voyages, as set out in the draft SOLAS regulation [XV]/4 (SDC 5/WP.4, annex 1). In this context, the Sub-Committee further noted the view that the aforementioned draft regulation might not actually resolve the issue of how SOLAS chapters I to IV have to be applied and that a possible solution would be to consider the requirements of the draft new SOLAS chapter [XV] and the draft new code as equivalent to SOLAS chapters I to IV and SOLAS regulations V/18, V/19 and V/20.

7.15 The Sub-Committee noted the view that further consideration should be given to existing ships that have not carried industrial personnel prior to the entry into force of the draft new code but that might be allowed to do so at a later stage, and how such a change of use might be regulated, taking into account that no physical modification may be required.

7.16 In discussing a proposal to have a separate definition of "port" in the draft new SOLAS chapter [XV] to accommodate the application of the draft new code to ships operating between offshore structures and ports (i.e. not on international voyages), the Sub-Committee noted a statement by the delegation of the Bahamas that a clear and consistent approach to the carriage of industrial personnel needs to be established, particularly with regard to having a clear and common understanding of the term "international voyage" and especially the terms "port" and "outside such country" contained in SOLAS regulation I/2. This required in light of the suggestion that some Member States view voyages from their ports to offshore locations where they have jurisdiction under UNCLOS as "domestic voyages" and if this view was widespread. In this context, the delegation questioned the basis for the new chapter in SOLAS and proposed to follow up on this statement at the next session of the Committee.

7.17 Following the above discussion, the Sub-Committee noted the progress made by the IP Working Group on the development of the draft new SOLAS chapter [XV], as set out in annex 1 to document SDC 5/WP.4.

### **Draft new code**

#### *Format and content*

7.18 The Sub-Committee noted that the IP Working Group had agreed that the draft new code should have a goal and functional requirements for each chapter; however, this decision could be reconsidered at a later stage of the development of the draft new code, if necessary.

#### *Certificates*

7.19 The Sub-Committee noted that the IP Working Group, having considered the need for a separate certificate, in addition to the Safety Certificate for Cargo Ships, for ships carrying industrial personnel, had agreed to the need for a separate certificate for compliance with the draft new code.

7.20 Following the above discussion, the Sub-Committee noted the progress made by the IP Working Group on the development of the draft new code, as set out in annex 2 to document SDC 5/WP.4.

### **Re-establishment of the IP Correspondence Group**

7.21 In order to progress the work on this output intersessionally, the Sub-Committee re-established the Correspondence Group on Carriage of more than 12 Industrial Personnel (IP) on board Vessels engaged on International Voyages, under the coordination of Norway,<sup>3</sup>

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<sup>3</sup>

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and instructed it, taking into account the relevant information contained in documents submitted to SDC 5 under this output and the outcome of the IP Working Group, as outlined in parts 1 (SDC 5/WP.4) and 2 of its report, to:

- .1 further develop the draft new SOLAS chapter [XV];
- .2 further develop the draft new code; and
- .3 submit a report to SDC 6.

7.22 Following the above discussion on the terms of reference for the re-established IP Correspondence Group, the Sub-Committee noted that the Group will continue its work as per the agreed terms of reference and all decisions that may be taken at MSC 99 will be considered at SDC 6.

## **8 AMENDMENTS TO THE 2011 ESP CODE**

### **General**

8.1 The Sub-Committee recalled that SDC 4 had endorsed the actions in paragraphs 9.1 to 9.5 of document SDC 4/9 (IACS, Secretariat) and had authorized IACS and the Secretariat to analyse the 2011 ESP Code, with a view to proposing editorial changes to identify all mandatory requirements; improve the format of the tables and forms; and provide a report on the progress made for consideration at this session.

### **Clarification regarding footnotes in the draft new consolidated version of the ESP Code**

8.2 Having considered document SDC 5/8 (Secretariat) requesting clarification as to how the existing footnotes in the 2011 ESP Code, as amended, that provide substantive provisions, rather than references, should be addressed in a new consolidated version of the Code, and providing the Secretariat's understanding that all substantive provisions currently contained in the Code should be included in the main body of the new consolidated text, the Sub-Committee agreed:

- .1 to the aforementioned understanding of the Secretariat; and
- .2 that a Working Group on Amendments to the 2011 ESP Code, if established, should be instructed to prepare some illustrative examples of how exactly the existing footnotes containing substantive provisions should be included in the main body of the new consolidated Code for the Sub-Committee's review.

### **Analysis of the 2011 ESP Code – Editorial changes to identify all mandatory requirements and to improve the format of tables and forms**

8.3 The Sub-Committee, having considered document SDC 5/8/1 (IACS and Secretariat), providing a report regarding the analysis of the 2011 ESP Code, carried out by IACS and the Secretariat in accordance with the instructions of SDC 4, and inviting the Sub-Committee to consider a number of issues, with a view to facilitating the development of the draft consolidated text of the Code:

- .1 agreed, in principle, to the proposed editorial changes identifying all mandatory requirements and improving the format of tables and forms;

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- .2 decided to merge the endorsed editorial changes with the new substantial amendments to the 2011 ESP Code, proposed by IACS in order to deal with the recent updates to the IACS Unified Requirements (UR) Z10 series (SDC 5/8/2 and SDC 5/INF.6), with a view to preparing a draft MSC resolution on amendments to the 2011 ESP Code;
  - .3 endorsed the proposal to submit the aforementioned draft MSC resolution to MSC 99 for approval, with a view to subsequent adoption of the amendments at MSC 100 and entry into force on 1 July 2020; and
  - .4 agreed to proceed with the development of the draft consolidated version of the ESP Code, based on the draft amendments expected to be approved at MSC 99 and the outcome of the intersessional review of the existing footnotes, with a view to preparing a draft Assembly resolution for adoption of the draft consolidated version of the ESP Code, revoking resolutions A.744(18) and A.1049(27), for consideration and finalization at SDC 6, taking into account the related outcome of MSC 100; subsequent submission to MSC 101, for endorsement; and final adoption at A 31.

8.4 The Sub-Committee requested IACS and the Secretariat to take into account the above decisions when preparing the draft consolidated text of the ESP Code for consideration at the next session.

#### **New substantial amendments to the 2011 ESP Code**

8.5 Having considered document SDC 5/8/2 (IACS) explaining further updates to the IACS UR Z10 series that have been recently adopted by IACS and inviting the Sub-Committee to consider consequential amendments to the 2011 ESP Code, the Sub-Committee agreed to the understanding of IACS that the Code provides survey instructions to verify compliance with technical requirements that are specified in other IMO instruments and, therefore, these technical requirements should not be subject to discussion or amendment; and decided to establish a Working Group on Amendments to the 2011 ESP Code, with a view to preparing a draft MSC resolution on amendments to the Code.

8.6 The Sub-Committee also noted with appreciation the consequential amendments to the 2011 ESP Code, shown by IACS in tracked changes for ease of reference (SDC 5/INF.6).

#### **Establishment of a working group**

8.7 Following discussion and referring to paragraph 3.2 of document SDC 5/1/2 (Chair), the Sub-Committee established the Working Group on Amendments to the 2011 ESP Code and instructed it, taking into account the comments made and decisions taken in plenary, to:

- .1 consider the new substantial amendments to the 2011 ESP Code, proposed by IACS in order to deal with the recent updates to the IACS UR Z10 series;
- .2 prepare a draft MSC resolution on adoption of amendments to the 2011 ESP Code, based on documents SDC 5/8/1, SDC 5/8/2 and SDC 5/INF.6; and
- .3 if time permits, prepare some illustrative examples on how the existing footnotes containing substantive provisions should be included in the main body of the new consolidated Code for the Sub-Committee's consideration.

## Report of the Working Group

8.8 Having considered the report of the Working Group on Amendments to the 2011 ESP Code (SDC 5/WP.5), the Sub-Committee approved it in general and took action as outlined in paragraphs 8.9 to 8.24 below.

### ***Draft amendments to the 2011 ESP Code***

#### *Terms "Company" or "Firm"*

8.9 The Sub-Committee noted the Group's discussion on the need to differentiate between companies, i.e. a thickness measurement company and a shipowner company (as defined in SOLAS regulation IX/1.2) by replacing the term "company", when referring to a thickness measurement company, with the term "firm"; and endorsed such a replacement.

#### *Ship Construction File*

8.10 In considering the Group's agreement not to include provisions regarding the coating technical file, the Sub-Committee noted a comment by the observer from IACS that, taking into account paragraph 3.4.5 of the *Performance standard for protective coatings for dedicated seawater ballast tanks in all types of ships and double-side skin spaces of bulk carriers* (resolution MSC.215(82)), the aforementioned decision was incorrect and that IACS will take action as appropriate, with a view to amending the IACS UR Z10 series and providing an explanation why the review of the technical coating file should be included in the draft new consolidated ESP Code to SDC 6 for consideration.

#### *Acceptance criteria in relation to IACS Common Structural Rules*

8.11 The Sub-Committee noted that:

- .1 in the draft new sections proposed for inclusion in the 2011 ESP Code, regarding acceptance criteria (i.e. new sections 8 of parts A and B of annex A, and part A of annex B), the IACS Common Structural Rules (CSR) are referred to without specifying which is the applicable version of those Rules; and
- .2 the Group, in order to assure the correct application of the IACS CSR to a specific ship, had agreed that the words "as applicable" should be inserted after specific general references to the application of the IACS CSR.

8.12 The Sub-Committee also noted a concern that the wording "latest version of the IACS UR Z10 series" was used in the IACS submissions to the Sub-Committee, without specifying which version of the Unified Requirements was being referred to, and invited IACS to consider quoting the revision number of IACS UR Z10 series in future submissions to IMO bodies.

#### *Examination, survey and close-up survey*

8.13 The Sub-Committee, having noted the Group's discussion on the difference between an examination, a survey and a close-up survey, and which of those implied a more detailed review, agreed to the proposed replacement of the term "examination" with the term "survey" in paragraph 3.4.2.2 of part A of annex A.



*Classification society/recognized organization*

8.14 With regard to the use of the term "classification society" in paragraph 5.1.2.4 of parts A and B of annex A, the Sub-Committee noted:

- .1 the Group's views that this term should be replaced with the term "recognized organization", in line with the texts in parts A and B of annex B, and the IMO standard terminology; and
- .2 the discussion on whether the reports of a recognized organization include all the information that would be contained in classification society reports or not,

and agreed that the term "recognized organization" should be used in the draft new consolidated version of the ESP Code.

*Cherry pickers*

8.15 The Sub-Committee, in addressing concerns that cherry pickers would be used while the ship was at sea or at anchor, rather than tied up alongside or in a dock, endorsed the Group's opinion that the use of cherry pickers at sea is not a matter for the ESP Code and invited Member States and international organizations to submit relevant proposals, if any, for consideration at future sessions.

*Exclusive surveyor*

8.16 Regarding the new draft paragraph 1.4 (Surveyors) proposed for inclusion in all parts of all annexes of the 2011 ESP Code, the Sub-Committee agreed that, at a later stage, a reference to the *Code for recognized organizations (RO Code)* (MSC.349(92)), quoting the definition of the term "exclusive surveyor", should be included in the draft new consolidated ESP Code.

*Communication between IACS and the IMO Secretariat*

8.17 Having referred to the existing flow of information between IACS and the Secretariat, the Sub-Committee invited IACS to take into account, in a timely manner, the amendments to the 2011 ESP Code, as set out in the annex to the draft MSC resolution prepared by the Group (SDC 5/WP.5, annex 1), when considering whether the UR Z10 series require any further updating.

*Fresh water ballast tanks*

8.18 The Sub-Committee noted that survey requirements for ballast tanks, which had previously contained salt water ballast but now contain permanent fresh water ballast, are not covered by the 2011 ESP Code and invited interested Member States and international organizations to submit relevant proposals, if any, for consideration at future sessions.

*Status of provisions in the 2011 ESP Code*

8.19 Having noted that some annexes to the 2011 ESP Code are of a recommendatory nature, the Sub-Committee endorsed the Group's decision to modify the headings of the following annexes to reflect their recommendatory status:

- .1 annexes 8A, 8B, 9 and 11 to part A of annex A;

- .2 annexes 8A, 8B and 9 to part B of annex A;
- .3 the new annexes 11A and 11B, and the renumbered annex 12 to part A of annex B; and
- .4 annexes 10 and 11 to part B of annex B,

and noted that mandatory language has not been used in these annexes.

#### *Terminology inconsistencies*

8.20 The Sub-Committee noted that the Group had identified a number of terminology inconsistencies which would need to be revisited.

#### *Consolidation of the draft text of the ESP Code*

8.21 The Sub-Committee invited IACS and the Secretariat to work together intersessionally in order to prepare the new draft consolidated text of the ESP Code, taking into account the progress made at this session and the inconsistencies identified by the Group (see paragraph 8.20 above), for consideration at the next session.

#### *Draft MSC resolution on amendments to the 2011 ESP Code*

8.22 The Sub-Committee agreed to the draft amendments to the International Code on the Enhanced Programme of Inspections during Surveys of Bulk Carriers and Oil Tankers, 2011 (2011 ESP Code), as amended, and the associated draft MSC resolution, as set out in annex 2, for submission to MSC 99 for approval, with a view to subsequent adoption at MSC 100. In this context, the Sub-Committee authorized the Secretariat to make any necessary editorial changes to the aforementioned draft amendments and the associated draft MSC resolution.

#### **Consideration of footnotes**

8.23 The Sub-Committee noted that the Group, taking into account document SDC 5/8 and having considered all footnotes in document SDC 5/INF.6, had identified those footnotes that could be considered as substantive text and, therefore, should be included in the main body of the draft new consolidated ESP Code, and those footnotes that are referential and should remain as footnotes (SDC 5/WP.5, annex 2).

8.24 The Sub-Committee, having considered two illustrative examples of the footnotes provided by the Group, agreed that:

- .1 footnote 22 containing references to the MARPOL Convention should be included in the main body of the draft new consolidated ESP Code; and
- .2 regarding footnotes 30, 32, 39 and 41 referring to resolution MSC.108(73) which in turn refers to resolution A.744(18), this would require a substantive revision to remove references to IACS documents which could be amended without reference to IMO and, therefore, should be further considered by IACS and the Secretariat, when preparing the draft new consolidated Code for consideration at the next session.

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## **9 UNIFIED INTERPRETATION TO PROVISIONS OF IMO SAFETY, SECURITY, AND ENVIRONMENT-RELATED CONVENTIONS**

### **General**

9.1 The Sub-Committee recalled that this was a continuous item on the biennial agenda and that the Assembly, at its twenty-eighth session, had expanded the output to include all proposed unified interpretations to provisions of IMO safety, security, and environment-related conventions, so that any newly developed or updated draft unified interpretation could be submitted for the consideration of the Sub-Committee, with a view to developing an appropriate IMO interpretation.

### **Clarification on the safe return to port requirement for the liquid level monitoring systems**

9.2 The Sub-Committee considered document SDC 5/9 (IACS), seeking clarification on the application of the SOLAS safe return to port requirements for liquid level monitoring systems and advising that there are two opposite understandings on the issue as to whether the liquid level monitoring systems for tanks containing liquids, which are not installed with a flooding detection system, need to meet the safe return to port requirement in SOLAS regulation II-2/21.4.13. The Sub-Committee agreed to the view expressed by the majority of those that spoke that such systems should meet the safe return to port requirement and invited IACS to develop a unified interpretation, taking into account that there should be no retroactive application of the agreed understanding, and submit it for consideration at the next session.

### **Means of escape from control stations, accommodation and service spaces in case of flooding**

9.3 The Sub-Committee considered document SDC 5/9/1 (CLIA), providing the view that doors in vertical emergency escape trunks may open out of the trunk in order to permit the trunk to be used both for escape and for access, provided that such doors are not located below the bulkhead deck, and proposing a draft unified interpretation of SOLAS regulation II-2/13.3.1.5.2 regarding general requirements for means of escape from control stations, accommodation and service space in case of flooding.

9.4 Following discussion, the Sub-Committee, having supported the proposed draft interpretation in principle, noted that SOLAS regulation II-2/13.3 applies to control stations, accommodation and service spaces, but not to machinery spaces and, therefore, agreed that the proposal should be considered as an amendment to SOLAS regulation II-2/13.3.1.5.2, rather than an interpretation.

9.5 The Sub-Committee, having noted the intention of CLIA to also bring this matter to the attention of SSE 5, requested the Secretariat to advise SSE 5 of the Sub-Committee's decision in paragraph 9.4 above.

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

### **General**

10.1 The Sub-Committee recalled that SDC 4, to progress the work intersessionally, had re-established the Correspondence Group on Safe Mooring Operations, with the terms of reference set out in paragraph 11.9 of document SDC 4/16.

## Report of the Correspondence Group on Safe Mooring Operations

### *Part 1 of the report and related documents*

10.2 The Sub-Committee considered part 1 of the report of the Correspondence Group (SDC 5/10), providing information regarding further consideration of the draft revised SOLAS regulation II-1/3-8, draft new Guidelines for safe mooring operations on all ships, review of the *Guidance on shipboard towing and mooring equipment* (MSC.1/Circ.1175), and consideration of the references in the draft revised SOLAS regulation I-1/3-8 to the draft new Guidelines.

10.3 The Sub-Committee also had for its consideration the following documents related to part 1 of the Correspondence Group's report:

- .1 SDC 5/10/1 (Marshall Islands and United Kingdom), providing, in paragraphs 4 and 6 to 13, information on the findings from the marine safety investigation report into the mooring deck accident that occurred on the Marshall Islands registered liquefied natural gas (LNG) carrier **Zarga** in March 2015, and proposing to:
  - .1 agree to human-centred design to ensure that seafarer safety is addressed at the design stage; and
  - .2 include mooring lines in the draft SOLAS regulation;
- .2 SDC 5/10/3 (Democratic People's Republic of Korea), providing comments regarding the draft amendments to SOLAS regulation II-1/3-8;
- .3 SDC 5/10/4 (Antigua and Barbuda et al.), providing, in paragraphs 5 to 13, 18.1 to 18.3 and 19, comments regarding the establishment of a working group, draft amendments to SOLAS regulation II-1/3-8, draft new Guidelines for safe mooring operations and draft revised MSC.1/Circ.1175, based on the knowledge and experience gained in developing the industry guidance on mooring equipment (i.e. Mooring Equipment Guidelines (MEG 4));
- .4 SDC 5/10/5 (Japan and Republic of Korea), providing comments regarding the draft amendments to SOLAS regulation II-1/3-8; and
- .5 SDC 5/10/6 (Japan), providing comments regarding the draft Guidelines on the design of mooring arrangements and the selection of appropriate mooring equipment and fittings for safe mooring.

10.4 In considering the above documents, the Sub-Committee noted the following general comments:

- .1 a working group should be established to further consider unresolved issues outlined in part 1 of the report of the Correspondence Group on Safe Mooring Operations (SDC 5/10);
- .2 the use of words "as far as reasonably practicable" should be assessed by a working group on a case-by-case basis, because flexibility may not be necessary, in the context of all requirements identified by the Correspondence Group;

- .3 the definitions of the term "mooring personnel", which include crew and shore-based personnel, provided in the draft new Guidelines on design of mooring arrangements and the selection of appropriate mooring equipment and fittings for safe mooring, and in the draft separate Guidelines on safe mooring operations should be aligned; and
- .4 proper attention should be paid to the content of a towing and arrangements plan as this plan is a communication tool between crew and shore-based personnel.

10.5 In considering the action requested in paragraph 37 of part 1 of the Correspondence Group's report, the Sub-Committee approved the report in general and took the following decisions:

.1 *Draft revised SOLAS regulation II-1/3-8*

- .1 Agreed, in principle, to include a reference to mooring lines in the draft revised SOLAS regulation II-1/3-8; however, the retroactive application and the scope of assessment/verification during statutory surveys should be further considered by a working group on Safe mooring operations, if established.
- .2 Noted the slight preference to use the term "human-centred design" and agreed that this issue should be further considered by a working group on Safe mooring operations, if established, with a view to finally deciding on what term, i.e. "occupational health" or "ergonomic requirements", should be used and in which instrument, i.e. the draft revised SOLAS regulation II-1/3-8 or the draft new Guidelines, it should be included.
- .3 With regard to the status of provisions for ships below 3,000 gross tonnage, decided that the use of the word "shall" together with the words "in so far the Administration deems reasonable and practicable" may be used by a working group on Safe mooring operations, if established, as a basis for further consideration.
- .4 Agreed that the draft revised SOLAS regulation II-1/3-8 should be finalized by a working group on Safe mooring operations, if established, taking into account paragraphs 10.5.1.1 to 10.5.1.3 above.

.2 *Draft new Guidelines for safe mooring operations*

Having considered the reflection of exceptional mooring and towing operations in the draft Guidelines; flexibility expressed by the wording "as far as reasonably practicable"; interrelation of the functional objectives in section 4 of the draft Guidelines and the achievement of the functional objectives in section 5; need to include relevant parts of the appendix to annex 2 in the draft Guidelines; relevant terms and definitions to be used on line safety; and supplementary information to be included to the mooring arrangements plan, agreed that these issues should be further considered by a working group on Safe mooring operations, if established, with a view to advising the Sub-Committee on how best to proceed.

.3 *Draft revised MSC.1/Circ.1175*

Having considered the term to be used for not normal towing operations; definition of safety limits of mooring lines; need to include the strength of attachments in the draft revised Guidelines; attachment and selection of double bollards; appropriate marking of fittings used for both mooring and towing purposes; and final content of the towing and arrangements plan, agreed that these issues should be further considered by a working group on Safe mooring operations, if established, taking into account the information to be provided by IACS regarding the updates to the IACS resolution which was a base document for the development of MSC.1/Circ.1175, with a view to advising the Sub-Committee on how best to proceed.

.4 *References to the Guidelines in the draft revised SOLAS regulation II-1/3-8*

Agreed that the footnotes contained in the draft revised SOLAS regulation II-1/3-8 (SDC 5/10, annex 1) should be further considered by a working group on Safe mooring operations, if established, with a view to advising the Sub-Committee on how best to proceed.

**Part 2 of the report and related documents**

10.6 The Sub-Committee considered part 2 of the report of the Correspondence Group (SDC 5/10/Add.1), providing information regarding development of separate guidelines on safe mooring operations and consideration of any consequential amendments to relevant IMO instruments.

10.7 The Sub-Committee also had for its consideration the following documents related to part 2 of the Correspondence Group's report:

- .1 SDC 5/10/1 (Marshall Islands and United Kingdom), providing, in paragraphs 4 and 14 to 16, information on the findings from the marine safety investigation report into the mooring deck accident that occurred on the Marshall Islands registered liquefied natural gas (LNG) carrier **Zarga**, which occurred in March 2015, and highlighting the critical importance of having an effective in-service maintenance and condition monitoring regimes in place;
- .2 SDC 5/10/2 and Corr.1 (Democratic People's Republic of Korea), providing comments regarding the development of separate guidelines on safe mooring operations and consideration of any consequential amendments to relevant IMO instruments; and
- .3 SDC 5/10/4 (Antigua and Barbuda et al.), providing, in paragraphs 14 to 17, 18.4 and 19, comments regarding draft separate guidelines on safe mooring operations, based on the knowledge and experience gained in developing the industry guidance on mooring equipment (i.e. Mooring Equipment Guidelines (MEG 4)).

10.8 In considering the above documents, the Sub-Committee noted that paragraph 1.2.3.2 of the International Safety Management (ISM) Code explicitly refers to MSC.1/Circ.1371, not to the relevant GISIS module, and this may lead to a potential concern that needs to be addressed in the context of compliance with the aforementioned requirement of the ISM Code.

10.9 In considering the action requested in paragraph 47 of part 2 of the Correspondence Group's report, the Sub-Committee approved the report in general and took the following decisions:

- .1 *Draft separate Guidelines on safe mooring operations*
  - .1 With regard to the Group's opinion that a reference to the separate Guidelines should be included in MSC.1/Circ.1371, agreed that a working group on Safe mooring operations, if established, should further consider the use of the "Non-mandatory Instruments" module of GISIS, and advise the Sub-Committee on how best to proceed.
  - .2 With regard to the result of discussion on the scope of the separate Guidelines and the associated draft MSC circular, agreed that these issues and, in particular, the use of the word "retirement" should be further considered by a working group on Safe mooring operations, if established, with a view to advising the Sub-Committee on how best to proceed.
  - .3 agreed that the draft separate Guidelines should be further developed by a working group on Safe mooring operations, if established, based on the annex to document SDC 5/10/Add.1.
- .2 *Consequential amendments to relevant IMO instruments*

Having considered the results of the Group's work, noted that in July 2017 FAL.2/Circ.127-MEPC.1/Circ.817-MSA.1/Circ.1462 was superseded by FAL.2/Circ.131-MEPC.1/Circ.873-MSA.1/Circ.1586-LEG.2/Circ.3 and agreed that the draft consequential amendments to relevant IMO instruments should be further considered by a working group on Safe mooring operations, if established, taking into account the above comment, with a view to advising the Sub-Committee on how best to proceed.

### **Establishment of a working group**

10.10 Following discussion and recalling the relevant decision at SDC 4, the Sub-Committee established the Working Group on Safe Mooring Operations and instructed it, taking into account the comments made and decisions taken in plenary, to:

- .1 finalize the draft amendments to SOLAS regulation II-1/3-8, based on annex 1 to document SDC 5/10 and taking into account the relevant parts of documents SDC 5/10, SDC 5/10/1, SDC 5/10/3, SDC 5/10/4 and SDC 5/10/5;
- .2 further develop the draft new Guidelines for safe mooring operations, based on annex 2 to document SDC 5/10 and taking into account the relevant parts of documents SDC 5/10/4 and SDC 5/10/6;
- .3 further develop the draft revised *Guidance on shipboard towing and mooring equipment* (MSC.1/Circ.1175), based on annex 3 to document SDC 5/10 and taking into account the relevant parts of document SDC 5/10/4;

- .4 develop the draft separate guidelines, taking into account the relevant parts of documents SDC 5/10/Add.1, SDC 5/10/2 and SDC 5/10/4;
- .5 further consider any consequential amendments to relevant IMO instruments, taking into account the relevant parts of documents SDC 5/10/Add.1 and SDC 5/10/2 and Corr.1, and advise the Sub-Committee on how best to proceed;
- .6 consider whether it is necessary to re-establish a correspondence group and, if so, prepare terms of reference for consideration by the Sub-Committee; and
- .7 submit a written report (part 1), if deemed necessary, and continue working through the week and submit part 2 of the report to SDC 6, as soon as possible after the current session, so that it can be taken into account by the Correspondence Group on Safe Mooring Operations.

### **Report of the Working Group on Safe Mooring Operations**

10.11 Having considered the report of the Working Group on Safe Mooring Operations (SDC 5/WP.3), the Sub-Committee approved it in general and took action as outlined in paragraphs 10.12 to 10.36 below.

#### ***Draft amendments to SOLAS regulation II-1/3-8***

10.12 The Sub-Committee noted that the Group had agreed:

- .1 that the term "all ships" should not be applied for ships constructed "on or after 1 January 2007" as SOLAS regulation II-1/1.1.3.2 defines the term "all ships" as ships constructed before, on or after 1 January 2009; and
- .2 to delete the word "all" in paragraph 1 of the draft revised SOLAS regulation II-1/3-8 (SDC 5/WP.3, annex 1).

10.13 Regarding the inclusion of the words "including lines", the Sub-Committee noted that the Group, having concurred that the words "including lines" should be directly reflected in the draft revised SOLAS regulation II-1/3-8 and should apply to new ships only, had agreed to delete the words "including lines" from paragraphs 4 and 5 and reflect them as "mooring equipment including lines" in paragraph 7 of the draft revised SOLAS regulation II-1/3-8 (SDC 5/WP.3, annex 1).

10.14 In discussing the issue related to the use of terms "occupational health" or "human-centred design", the Sub-Committee noted that the Group had agreed to:

- .1 use the term "applying a human-centred design approach"; and
- .2 limit the scope of the draft new Guidelines (SDC 5/10, annex 2) to the design of mooring arrangements and the selection of mooring equipment and, therefore, to modify the corresponding footnote and revise the title of the guidelines as "Guidelines on the design of safe mooring arrangements and the selection of appropriate mooring equipment and fittings for safe mooring".



10.15 The Sub-Committee also noted that the delegation of the Bahamas, having advised the Sub-Committee that they were not able to accept the draft amendment including the undefined term "human-centred design approach", reserved their position on this issue (see also paragraph 10.21 below). In this context, the Sub-Committee agreed that the words "applying a human-centred design approach", as contained in paragraph 7 of the draft revised SOLAS regulation II-1/3-8 (SDC 5/WP.3, annex 1), should be kept in square brackets pending the finalization of the definition and invited interested Member States and international organizations to submit relevant proposals for the Sub-Committee's consideration at the next session.

10.16 With regard to the requirements for ships of less than 3,000 gross tonnage, the Sub-Committee noted that the Group had agreed that such ships shall, mandatorily, comply with either the requirements for ships of 3,000 gross tonnage and above as far as reasonably practicable, or with applicable national standards of the Administration which provide an equivalent level of safety and, therefore, had proposed to use the word "shall", taking into account that the phrase "as far as reasonably practicable" is used in SOLAS regulations and the phrase "or with applicable national standards of the Administration which provide an equivalent level of safety" is used in SOLAS regulation II-1/3-1. However, the Sub-Committee, referring to the relevant decision of MSC 95 (MSC 95/22, paragraph 19.23.1), agreed to replace the word "shall" with the word "should" in paragraph 8 of the draft revised SOLAS regulation II-1/3-8 (SDC 5/WP.3, annex 1).

10.17 The Sub-Committee noted that the Group had agreed to include in the draft revised SOLAS regulation II-1/3-8 (SDC 5/WP.3, annex 1):

- .1 a new paragraph 9 regarding the inspection and maintenance of mooring equipment for all ships, including existing ships, regardless of date of construction; and
- .2 a footnote referring to the Guidelines for inspection and maintenance of mooring equipment including lines (to be developed based on the annex to document SDC 5/10/Add.1).

10.18 Subsequently, the Sub-Committee agreed, in principle, to the draft revised SOLAS regulation II-1/3-8, as set out in annex 1 to document SDC 5/WP.3, for finalization at SDC 6, taking into account the decisions in paragraph 10.15 and 10.16 above, with a view to submission to MSC 101 for approval.

### ***Draft new Guidelines for safe mooring operations***

10.19 The Sub-Committee noted that the Group had agreed that:

- .1 the title of the draft new Guidelines should be "Guidelines on the design of mooring arrangements and the selection of appropriate mooring equipment and fittings for safe mooring";
- .2 exceptional mooring and towing operations should not be reflected in the draft Guidelines;
- .3 the use of the phrase "as far as reasonably practicable" should be minimized, in principle, and be considered on a case-by-case basis in the context of the individual circumstances; and
- .4 there should be an appropriate interrelation of functional objectives in section 4 and the achievement of the functional objectives in section 5.

### *Introduction*

10.20 The Sub-Committee noted that the Group had agreed to align the introduction of the draft Guidelines with the new paragraphs 7 and 8 of the draft revised SOLAS regulation II-1/3-8, by incorporating the words "a human-centred design approach" and clarifying that the draft Guidelines are relevant to paragraphs 7 and 8 of the draft revised SOLAS regulation II-1/3-8.

### *Definitions*

10.21 In considering the definition of the term "human-centred design", incorporated in the draft Guidelines, the Sub-Committee noted:

- .1 the concern that this definition is more related to "crew-centred design", rather than "human-centred design"; and
- .2 that the Group, having noted that there are several industry guidelines relevant to the draft Guidelines, had agreed that the relevant publications from the Nautical Institute, OCIMF and ISO could be included in the references of the Guidelines at a future stage.

10.22 The Sub-Committee also noted that the Group had agreed to add a new definition for "mooring lines", i.e. *mooring lines* means both ropes, wires and combinations used for mooring operations and may include tails.

10.23 Subsequently, the Sub-Committee noted that the Group had agreed to keep the definitions of the terms "human-centred design" and "mooring lines" in square brackets, with a view to a review of these terms by a correspondence group, if re-established.

### *Goals and functional objectives*

10.24 The Sub-Committee noted that the Group had prepared the draft text for sections 3 (Goals) and 4 (Functional objectives), as set out in annex 2 to document SDC 5/WP.3.

### *Achievement of the functional objectives*

10.25 The Sub-Committee noted that the Group had agreed to hold in abeyance the discussion on the section for "Achievement of the functional objectives" during this session, with a view to further progressing the development, based on the inputs to be provided by interested Member States and international organizations, in a correspondence group, if re-established.

10.26 Following the discussion, the Sub-Committee noted the progress made by the Group on the development of the draft new Guidelines on the design of mooring arrangements and the selection of appropriate mooring equipment and fittings for safe mooring, as set out in annex 2 to document SDC 5/WP.3.

### ***Draft revised Guidance on shipboard towing and mooring equipment (MSC.1/Circ.1175)***

10.27 The Sub-Committee noted that the Group, having briefly discussed the issues raised by the Correspondence Group (SDC 5/10, paragraph 37.3), had agreed:

- .1 to use the term "other towing" for not normal towing operations;
- .2 that the consistency with IACS UR A2 should be further considered;

- .3 not to refer to the attachment of the mooring lines to the bollards as it is an operational issue;
- .4 that the appropriate marking of fittings used for both mooring and towing purposes is to indicate both the safe working load (SWL) and the safe towing load (TOW); and
- .5 that the requirement for towing and mooring arrangements' plans should be included in this draft revised Guidance, but not in the draft Guidelines on the design of mooring arrangements and the selection of appropriate mooring equipment and fittings for safe mooring. The content of the towing and mooring arrangements' plans should be updated in accordance with the latest revision of IACS UR A2 and taking into account the development of revised SOLAS regulation II-1/3-8 and draft Guidelines on the design of mooring arrangements and the selection of appropriate mooring equipment and fittings for safe mooring.

10.28 The Sub-Committee also noted that the Group had confirmed that the draft revised Guidance should be referred to in SOLAS regulation II-1/3-8 only, i.e. the scope of the draft revised Guidance should not be expanded to cover emergency towing referred to in SOLAS regulation II-1/3-4.

10.29 Subsequently, the Sub-Committee noted the progress made by the Group on the development of the draft revised Guidance on shipboard towing and mooring equipment (MSC.1/Circ.1175).

***Draft separate guidelines***

10.30 The Sub-Committee noted that the Group had agreed that the title of the draft separate guidelines should be "Guidelines for inspection and maintenance of mooring equipment including lines".

10.31 With regard to the issues raised by the Correspondence Group (SDC 5/10/Add.1, paragraph 47.1), the Sub-Committee noted that the Group had agreed that there is no need to include any reference to the Guidelines in MSC.1/Circ.1371 or GISIS, taking into account that the Guidelines will be referred to in the footnote to the revised SOLAS regulation II-1/3-8, and that the scope of the Guidelines should be limited to inspection and maintenance of mooring equipment.

10.32 Having recalled the discussion on the revised SOLAS regulation II-1/3-8 (see paragraph 10.17 above), the Sub-Committee noted that the Group had agreed:

- .1 not to specify or limit the personnel who may conduct the inspection and maintenance in the draft section 1.1 (Purpose); and
- .2 in order to clarify that the inspection is not an annual survey required by chapter I of the 1974 SOLAS Convention, as amended, to use the term "in-service inspection".

10.33 Regarding the draft section 1.2 (Application), the Sub-Committee noted that the Group had agreed that "company personnel" should be responsible for selecting and procuring replacement mooring lines.

10.34 With regard to the selection of replacement mooring lines, the Sub-Committee noted that the Group had decided to use the words "replacement mooring lines", as appropriate, to clearly distinguish between the selection of mooring lines at the design stage and when the existing lines are replaced.

10.35 Subsequently, the Sub-Committee noted the progress made by the Group on the development of the draft Guidelines for inspection and maintenance of mooring equipment including lines, as set out in annex 3 to document SDC 5/WP.3.

### ***Consequential amendments to relevant IMO instruments***

10.36 The Sub-Committee noted that the Group had agreed that the consequential amendments should be completed after the finalization of the draft revised SOLAS regulation II-1/3-8 and all related guidelines.

### **Re-establishment of the Correspondence Group**

10.37 In order to progress the work on this output intersessionally, the Sub-Committee re-established the Correspondence Group on Safe Mooring Operations, under the coordination of Japan,<sup>4</sup> and instructed it, taking into account documents SDC 5/WP.3, SDC 5/10, SDC 5/10/Add.1, SDC 5/10/1, SDC 5/10/2 and Corr.1, SDC 5/10/4 and Corr.1, SDC 5/10/6, and the comments made and decisions taken at SDC 5, to:

- .1 further develop the draft new Guidelines on the design of mooring arrangements and the selection of appropriate mooring equipment and fittings for safe mooring, based on annex 2 to document SDC 5/WP.3;
- .2 further develop the draft Guidelines for inspection and maintenance of mooring equipment including lines, based on annex 3 to document SDC 5/WP.3;
- .3 further develop the draft revised Guidance on shipboard towing and mooring equipment (MSC.1/Circ.1175), based on annex 3 to document SDC 5/10;
- .4 further consider any consequential amendments to relevant IMO instruments, taking into account the relevant parts of documents SDC 5/10/Add.1, SDC 5/10/2 and Corr.1 and SDC 5/WP.3, and advise the Sub-Committee on how best to proceed; and
- .5 submit a report to SDC 6.

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## 11 GUIDELINES FOR WING-IN-GROUND CRAFT

### General

11.1 The Sub-Committee recalled that SDC 4, having recalled the decision of MSC 96 to maintain the output on "Guidelines for wing-in-ground craft" in its post-biennial agenda, for inclusion in the provisional agenda for SDC 5, with a view to finalization during the 2018-2019 biennium, had agreed to continue promoting the work regarding the development of the draft Guidelines, as appropriate.

11.2 The Sub-Committee also recalled that SDC 4, with a view to finalizing the work on this output, invited all interested Member States and international organizations to:

- .1 proceed with the further development of the draft Guidelines, with a view to submitting the consolidated text for consideration at SDC 5; and
- .2 consider whether the new issues identified in document SDC 4/15 (Antigua and Barbuda et al.) remain within the scope of this output, and, if not, prepare a draft justification for either an expansion of the existing output, or for new output(s), in accordance with the provisions of the document on *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).

### Draft Guidelines for wing-in-ground (WIG) craft

11.3 The Sub-Committee, having considered document SDC 5/11 (China et al.), reporting on the outcome of the revision of the *Interim guidelines for wing-in-ground craft* (MSC/Circ.1054 and Corr.1), carried out intersessionally by the interested Member States and the international organizations, noted the co-sponsors' agreement that the draft Guidelines should apply to WIG craft carrying more than 12 passengers and/or having a full load displacement of more than 10 tonnes and endorsed the view that safety standards for small WIG craft should not be included in the draft Guidelines, at least at this stage.

11.4 The Sub-Committee also noted with appreciation the consolidated text of the draft Guidelines, indicating all proposed amendments to the Interim Guidelines in tracked changes, provided by China et al. (SDC 5/INF.5).

11.5 In considering the action requested in paragraph 12 of document SDC 5/11, the Sub-Committee took the following decisions:

- .1 with regard to the major issues requiring further consideration:
  - .1 referring to the decision in paragraph 11.3 above, agreed that any WIG craft operated in shallow water, to which the draft Guidelines apply, should be fitted with an echo-sounding device and decided not to proceed with amendments to paragraph 12.8 of part B of the Interim Guidelines, addressing WIG craft less than 500 gross tonnage;
  - .2 agreed to the draft amendment to the existing paragraph 1.1.1.6 of part B of the Interim Guidelines and decided not to amend the existing paragraph 1.1.1.1 of part B of the Interim Guidelines; and

- .3 agreed to the draft amendments to paragraphs 4.8, 4.19, 4.20 and 4.42 of part A of the Interim Guidelines;
- .2 noted that the proposed application of the standards developed by the European Aviation Safety Agency, i.e. Certification Specifications and Acceptable Means of Compliance for Normal, Utility, Aerobatic, and Commuter Category Aeroplanes (CS-23), to WIG craft would be a complicated work which needs collaboration of aviation experts, and, therefore, agreed to finalize the draft Guidelines without considering CS-23 standards;
- .3 with regard to the small WIG craft safety standards, noted the decision in paragraph 11.3 above;
- .4 in considering the new issues identified in document SDC 4/15, agreed to follow the recommendations in paragraph 9 of document SDC 5/11 and, regarding measures for avoiding collision, agreed that the draft Guidelines should specifically clarify that WIG craft, when not waterborne, should take all responsibility to avoid collision; and
- .5 having considered the draft amendments to the Interim Guidelines, as set out in the annex to document SDC 5/11:
  - .1 agreed to the amendments (including the proposals in square brackets) proposed in paragraphs 1 to 17, 19 to 21, 24, 26, 32, 36, 38, 39, 42 to 45, 50, 51, 56, 59, 61 to 63, 74, 79, 82, 84, 85, 87, 89 to 92, 94 and 95;
  - .2 agreed to the amendments proposed in paragraphs 18 and 22, without inclusion of the proposals in square brackets;
  - .3 decided that a Drafting Group on Guidelines for Wing-in-ground Craft, if established, should be instructed to finalize the text of the draft amendments proposed in paragraphs 48 and 49, taking into account the decision in paragraph 11.5.2 above;
  - .4 further amended the text of the draft amendment proposed in paragraph 63 to read as follows:

"Craft should be provided with devices to measure speed and distance through both air and water." and
  - .5 further amended the text of the draft amendment proposed in paragraph 65 to read as follows:

"Any WIG craft operated in shallow water should be fitted with an echo-sounding device which will give an indication of depth of water to a sufficient degree of accuracy for use when the craft is in the displacement mode."

### **Establishment of a Drafting Group**

11.6 Following discussion and recalling the relevant decision at SDC 4, the Sub-Committee established a Drafting Group on Guidelines for Wing-in-ground Craft and instructed it, taking into account the comments made and decisions taken in plenary, to finalize the text of

the draft Guidelines for wing-in-ground (WIG) craft, based on the existing text of the *Interim guidelines for wing-in-ground craft* (MSC/Circ.1054 and Corr.1, and MSC/Circ.1126) and the draft amendments provided in the annex to document SDC 5/11.

### **Report of the Drafting Group**

11.7 Having considered the report of the Drafting Group on Guidelines for Wing-in-ground Craft (SDC 5/WP.7), the Sub-Committee took action as outlined in paragraphs 11.8 to 11.10 below.

11.8 With regard to the Preamble of the draft Guidelines, the Sub-Committee endorsed the following decisions of the Group:

- .1 not to amend paragraph 3, as reference to resolution A.910(22) is sufficiently explicit; and
- .2 not to add the word "limited" in paragraph 4, as it is too restrictive.

11.9 The Sub-Committee authorized the Secretariat to delete paragraph 3.8.3.3 of annex 6 to the draft Guidelines, which reproduces an out of date requirement of the International Code of Safety for High-Speed Craft, 1994 (1994 HSC Code), and correct the numbering inconsistencies within the text of the draft Guidelines, when preparing the final text of the draft Guidelines.

11.10 Subsequently, the Sub-Committee agreed to the draft Guidelines for wing-in-ground (WIG) craft and the associated draft MSC circular, as set out in annex 3, for submission to MSC 99 for approval.

### **Completion of the work on the output**

11.11 The Sub-Committee invited the Committee to note that the work on this output had been completed.

## **12 BIENNIAL STATUS REPORT AND PROVISIONAL AGENDA FOR SDC 6**

### **Outcome of MSC 98**

12.1 The Sub-Committee noted that MSC 98 had agreed to change the title of the existing output on "Application of the Mandatory Code to non-SOLAS ships operating in polar waters" to "Safety measures for non-SOLAS ships operating in polar waters" and, taking into account the urgency of this issue, had moved this output from the post-biennial agenda of the Committee to its agenda for the 2018-2019 biennium and the provisional agenda of MSC 99, with a view to taking a policy decision regarding the scope of application of the second phase of the Polar Code, its mandatory or recommendatory status and types of vessels to be addressed.

12.2 The Sub-Committee also noted that MSC 98 had agreed to include a new output on "Development of guidelines for cold ironing of ships and of amendments to SOLAS chapters II-1 and II-2, if necessary" in the agenda for the 2018-2019 biennium and the provisional agenda for SSE 5, with a target completion date of 2020, in association with the SDC and III Sub-Committees, as and when requested by the SSE Sub-Committee.

### **Outcome of A 30**

12.3 The Sub-Committee noted that A 30 had adopted the *Strategic Plan for the Organization for the six-year period 2018-2023* (resolution A.1110(30)) and the document on the *Application of the Strategic Plan for the Organization* (resolution A.1111(30)), and requested:

- .1 all IMO organs to ensure full observance of resolution A.1111(30), which provides a uniform basis for the application of the Strategic Plan throughout the Organization, and for the strengthening of existing working practices through the provision of enhanced planning and management procedures that are simple, manageable, proportional, transparent and balanced; and
- .2 the Council and the committees to review and revise, during this biennium, the documents on the organization and method of their work, taking account of resolution A.1111(30), as appropriate.

12.4 In this context, the Sub-Committee noted the information presented by the Secretariat regarding the Guidance on submission of documents following the adoption of the new Strategic Plan for the six-year period 2018 to 2023; and that the aforementioned Guidance can be found on the main page of IMODOCS, under "Hot Topics".

### **Biennial status report for the 2018-2019 biennium**

12.5 Taking into account the progress made at the session, the Sub-Committee prepared the biennial status report (SDC 5/WP.2, annex 1), as set out in annex 4, for consideration by MSC 99.

### **Proposed provisional agenda for SDC 6**

12.6 Taking into account the progress made at the session, the Sub-Committee prepared the proposed provisional agenda for SDC 6 (SDC 5/WP.2, annex 2), as set out in annex 5, for consideration by MSC 99.

### **Correspondence Groups established at the session**

12.7 The Sub-Committee established Correspondence Groups on the following subjects, due to report to SDC 6:

- .1 subdivision and damage stability (see paragraph 5.3);
- .2 intact stability (see paragraph 6.14);
- .3 carriage of more than 12 industrial personnel on board vessels engaged on international voyages (see paragraph 7.21); and
- .4 safe mooring operations (see paragraph 10.37).

### **Arrangements for the next session**

12.8 The Sub-Committee agreed to establish at its next session working and drafting groups on the following subjects:

- .1 subdivision and damage stability (agenda items 3 and 4);<sup>5</sup>

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<sup>5</sup> Refer to the proposed provisional agenda for SDC 6, set out in annex 5.



- .2 carriage of more than 12 industrial personnel on board vessels engaged on international voyages (agenda item 6);
- .3 amendments to the 2011 ESP Code (agenda item 7); and
- .4 safe mooring operations (agenda item 9),

whereby the Chair, taking into account the submissions received on the respective subjects, would advise the Sub-Committee before SDC 6 on the final selection of such groups.

12.9 In addition to the aforementioned working and drafting groups, the Sub-Committee requested the Committee's authorization to establish at its next session, under agenda item 5, an Experts' Group on Intact Stability (see also paragraph 6.15).

### **Date of the next session**

12.10 The Sub-Committee noted that the sixth session of the Sub-Committee has been tentatively scheduled to take place from 4 to 8 February 2019.

## **13 ELECTION OF CHAIR AND VICE-CHAIR FOR 2019**

In accordance with the Rules of Procedure of the Maritime Safety Committee, the Sub-Committee unanimously re-elected Mr. K. Hunter (United Kingdom) as Chair and Mrs. T. Stemre (Norway) as Vice-Chair, both for 2019.

## **14 ANY OTHER BUSINESS**

### **Review of the 2008 IS Code**

14.1 The Sub-Committee had for its consideration the following two documents related to this issue:

- .1 SDC 5/14 (Secretariat) recalling the instruction of MSC 98 to consider references to part B of the 2008 IS Code in mandatory paragraphs of part A of the Code and providing proposals for the further review of the 2008 IS Code; and
- .2 SDC 5/14/3 (IACS) providing proposals regarding the review/removal of the existing footnotes and references to sections and chapters of part B of the 2008 IS Code in the existing text of part A of the 2008 IS Code.

14.2 In considering the above documents, the Sub-Committee noted that the proposals provided by the Secretariat were supported, in principle, and that the draft amendments to part A of the 2008 IS Code proposed by IACS were relevant to the amendments to the 2008 IS Code entering into force on 1 January 2020.

14.3 Following the discussion, the Sub-Committee agreed to the proposed draft amendments to part A of the 2008 IS Code, as set out in annex 6, for submission to MSC 99 for consideration.

### **Minor corrections of mandatory IMO instruments which refer to resolution A.744(18)**

14.4 Having considered document SDC 5/14/1 (Japan) proposing minor corrections to mandatory IMO instruments which refer to resolution A.744(18), with a view to replacing references to resolution A.744(18) with references to the 2011 ESP Code, the Sub-Committee:

- .1 recalled the decision taken under agenda item 8 (Amendments to the 2011 ESP Code), with regard to the timetable for the development of the consolidated ESP Code (see paragraph 8.4);
- .2 taking into account the four-year cycle for the entry into force of amendments to the 1974 SOLAS Convention and related mandatory instruments (MSC.1/Circ.1481), noted that even if the provisions for exceptional circumstances are followed, the amendments proposed by Japan may not enter into force before the entry into force of the new consolidated ESP Code and, therefore, all references to the 2011 ESP Code will need to be further updated, i.e. replaced with references to the new consolidated ESP Code; and
- .3 requested the Secretariat to:
  - .1 further analyse the matter; and
  - .2 after the adoption of the new consolidated ESP Code:
    - .1 prepare draft MSC resolutions on minor editorial corrections to all MSC resolutions referring to resolutions A.744(18) or A.1049(27) and submit them to the Committee for consideration under "Any other business"; and
    - .2 issue corrigenda to all MSC circulars referring to resolutions A.744(18) or A.1049(27).

### **Fire integrity requirements for steering gear compartments**

14.5 Following the consideration of document SDC 5/14/2 (China), providing an analysis of the problems encountered by the shipping industry regarding the implementation of fire integrity requirements for steering gear compartments and inviting the Sub-Committee to consider amending SOLAS regulation II-2/3.30, with a view to specifying the fire integrity requirements for the steering gear compartment of ships carrying not more than 36 passengers and cargo ships (including tankers), the Sub-Committee noted the following views:

- .1 the consequences of the proposed draft amendment should be carefully evaluated as it may impact many regulations of SOLAS chapter II-2 and lead to retroactive application to existing ships;
- .2 according to the *Unified Interpretations of SOLAS chapter II-2, the FSS Code, the FTP Code and related fire test procedures* (MSC/Circ.1120), steering gear rooms are within category (7); and
- .3 this issue should more appropriately be considered by the SSE Sub-Committee,

and invited the delegation of China to take them into account, when deciding on what further actions, if any, they may wish to take.

## **Consistency of in-water survey (IWS) provisions for passenger and cargo ships**

14.6 The Sub-Committee, having considered information provided by the Secretariat regarding the outcome of III 4 on measurements of the rudder bearing clearances of cargo ships and related discrepancies between the *Survey Guidelines under the Harmonized System of Survey and Certification (HSSC), 2015* (resolution A.1104(29)) and the *Guidelines for the assessment of technical provisions for the performance of an in-water survey in lieu of bottom inspection in dry-dock to permit one dry-dock examination in any five-year period for passenger ships other than ro-ro passenger ships* (MSC.1/Circ.1348) (SDC 5/2/1, paragraph 4), endorsed the view that the problem highlighted in documents MSC 98/17/1 and III 4/8/3 (IACS) was only related to "rudder bearing clearances" and, therefore, should be addressed by the SSE Sub-Committee.

## **Information on an accident involving the fishing vessel Vostok**

14.7 The Sub-Committee noted a statement by the delegation of the Russian Federation, providing information on the accident involving the Russian fishing vessel **Vostok**, which occurred on 25 January 2018, in the Japan Sea, some 90 nautical miles south of Vladivostok, Russian Federation, and expressed condolences to all those affected by the reported incident. The full text of the statement is reproduced in annex 7.

## **Expressions of appreciation**

14.8 The Sub-Committee expressed appreciation to the following delegates and members of the Secretariat, who had recently relinquished their duties, retired or been transferred to other duties, or were about to do so, for their invaluable contribution to its work and wished them a long and happy retirement or, as the case might be, every success in their new duties:

- Mr. John De Rose (RINA) (on retirement)
- Mr. Joseph Angelo (INTERTANKO) (on retirement)
- Mr. Miguel Núñez (Spain) (on transfer)
- Mr. Ashok Mahapatra (IMO) (on retirement)
- Mr. Youqiang Li (IMO) (on retirement)

## **15 ACTION REQUESTED OF THE COMMITTEE**

The Maritime Safety Committee, at its ninety-ninth session, is invited to:

- .1 note the discussion on the scope of the output on "Amendments to SOLAS regulation II-1/8-1.2 on the availability of passenger ships' electrical power supply in cases of flooding from side raking damage" and, in particular, whether this matter should be solved by applying electrical engineering solutions, rather than naval architectural solutions (i.e. double hull or other structural requirements that would impact not only the current safe-return-to-port concept, but also the probabilistic requirements in SOLAS chapter II-1), and clarify what the exact outcome expected from the Sub-Committee under this output is (paragraphs 3.4.2 and 3.5);
- .2 note the agreement that passenger ships constructed before 1 January 2014 shall comply with SOLAS regulation II-1/8-1.3.1 not later than the first renewal survey after five years after the date of entry into force of the amendments to SOLAS regulation II-1/8-1, when considering the text of draft new SOLAS regulation II-1/8-1.3.2 for adoption (paragraph 4.7);

- .3 approve the draft MSC circular on Guidelines on operational information for masters in case of flooding for passenger ships constructed before 1 January 2014, in conjunction with the adoption of the draft amendments to SOLAS regulations II-1/1 and II-1/8-1 (paragraph 4.11 and annex 1);
- .4 note the way forward for the finalization of second generation intact stability criteria agreed by the Sub-Committee (paragraphs 6.13 to 6.15);
- .5 authorize SDC 6 to establish an Experts' Group on Intact Stability (IS) for consideration of a progress report of the IS Correspondence Group (paragraphs 6.16 and 12.9);
- .6 note that Member States and international organizations objecting to the basic principles accepted for the development of the draft new SOLAS chapter [XV] and the draft new code addressing safety standards for the carriage of more than 12 industrial personnel on board vessels engaged on international voyages were invited to provide proposals for the Committee's consideration (paragraph 7.9 and 7.10);
- .7 approve the draft MSC resolution on Amendments to the 2011 ESP Code, with a view to adoption at MSC 100 (paragraph 8.22 and annex 2);
- .8 approve the draft MSC circular on Guidelines for wing-in-ground craft (paragraph 11.10 and annex 3);
- .9 approve the biennial status report of the Sub-Committee (paragraph 12.5 and annex 4);
- .10 approve the proposed provisional agenda for SDC 6 (paragraph 12.6 and annex 5); and
- .11 consider the draft amendments to part A of the 2008 IS Code and take action as appropriate (paragraph 14.3 and annex 6).

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**ANNEX 1**

**DRAFT MSC CIRCULAR**

**GUIDELINES ON OPERATIONAL INFORMATION FOR MASTERS  
IN CASE OF FLOODING FOR PASSENGER SHIPS  
CONSTRUCTED BEFORE 1 JANUARY 2014**

1 The Maritime Safety Committee, at its [ninety-ninth session (16 to 25 May 2018)], having considered a proposal made by the Sub-Committee on Ship Design and Construction at its fifth session, approved the *Guidelines on operational information for masters in case of flooding for passenger ships constructed before 1 January 2014*, as set out in the annex, with a view to providing additional guidance for the uniform implementation of SOLAS regulation II-1/8-1.3 for passenger ships constructed before 1 January 2014.

2 Member States are invited to apply the annexed Guidelines to passenger ships constructed before 1 January 2014 and to bring them to the attention of owners and operators of passenger ships, and all other parties concerned.

## ANNEX

### **GUIDELINES ON OPERATIONAL INFORMATION FOR MASTERS IN CASE OF FLOODING FOR PASSENGER SHIPS CONSTRUCTED BEFORE 1 JANUARY 2014**

#### **General**

1 When an onboard stability computer is provided in accordance with SOLAS regulation II-1/8-1.3.1.1, the system referred to in these Guidelines should comprise an onboard stability computer capable of receiving and processing data to provide the master with regularly updated operational information on the residual damage stability of the ship after a flooding casualty.

2 When shore-based support is provided in accordance with SOLAS regulation II-1/8-1.3.1.2, the system referred to in these Guidelines should comprise two-way communication links to the shore-based support with a stability computer capable of receiving and processing data to provide the master with regularly updated operational information on the residual damage stability of the ship after a flooding casualty.

3 Stability computer software should use an accurate and detailed computer model of the entire hull, the pre-damage loading condition and the status of the watertight doors to calculate the residual damage stability following any flooding casualty by processing data to provide operational information required by the master.

#### **System overview**

4 At least two independent stability computers should be available at all times (either two onboard, or two through shore-based support, or one each), which are capable of receiving and processing the data necessary to provide operational information to the master.

5 The onboard system should have an uninterruptible power supply (UPS) connected to both the main and the emergency switchboards.

#### **Input**

6 The system should be pre-loaded with a detailed computer model of the complete hull including:

- .1 appendages, compartments, tanks and the relevant parts of the superstructure considered in the damage stability calculation;
- .2 wind profile;
- .3 openings generating progressive flooding;
- .4 internal compartment connections;
- .5 cross-flooding arrangements; and
- .6 escape routes or margin line (where applicable).

Each internal space should be assigned the same permeability used in the approved damage stability calculations, unless a more accurate permeability has been calculated.

7 The system should utilize the latest approved lightship weight and centre of gravity information.

8 Details of the damage location(s) and extent(s) or the damaged compartments should be input manually and combined with data from electronic sensors such as draught gauges, tank level devices, watertight door indicators and flooding level sensors, when available.

9 When electronic sensors providing direct data inputs are fitted, if it is considered at any time that a sensor or sensors are faulty, or have been damaged, it should be possible to override the sensor data with manually input data. The system should clearly indicate to its operator if a sensor that should be available is being manually overridden.

10 The system should be updated with the loading condition before the voyage commences and on a daily basis during navigation.

### Calculation methods

11 The system should:

- .1 utilize software capable of analysing the damage stability following any real flooding casualty including multi-compartment, non-linked breaches (see also paragraph 3 above);
- .2 use the actual pre-damage loading condition;
- .3 be capable of accounting for applied moments such as wind, lifeboat launching, cargo shifts and passenger relocation;
- .4 account for the effect of wind by using the method in SOLAS regulation II-1/7-2.4.1.2 as the default, but allow for manual input of the wind speed/pressure if the on-scene pressure is significantly different ( $P = 120 \text{ N/m}^2$  equates to Beaufort 6, i.e. approximately 13.8 m/s or 27 knots);
- .5 be capable of assessing the impact of open watertight doors on stability; and
- .6 have the capability of using the same detailed hull model for damage control drills or to assess potential damage and stability scenarios during a flooding casualty. This should not interfere with the ability of the onboard computer or shore-based support to monitor the actual situation and provide operational information to the master.

### Output

12 The system should output the residual GZ curve both graphically and numerically. It should also provide the following information:

- .1 draughts (forward, amidships and aft);
- .2 trim;

- .3 heel angle;
- .4  $GZ_{max}$ ;
- .5 GZ range;
- .6 angle of vanishing stability;
- .7 down-flooding immersion angles; and
- .8 immersion angles of escape routes or margin line (where applicable).

13 The output format and units of the information supplied to the operators of the system should be consistent with the format and units of the approved stability booklet in order to facilitate easy comparison. The output should be within the tolerances specified in the *Guidelines for the approval of stability instruments* (MSC.1/Circ.1229). Deviation from these tolerances should not be accepted unless there is an explanation satisfactory to the Administration.

14 The system should show a profile view, deck views and cross-sections of the ship indicating the flooded water-plane and the damaged compartments.

#### **Other issues**

15 An operation manual should be provided for the system software printed in a language in which the operators of the system are fully conversant. The manual should also indicate the limitations of the system.

16 At least two crew members should be competent in the operation of the system including the communication links to the shore-based support, when provided. They should be capable of interpreting the output of the system in order to provide the required operational information to the master.

17 When shore-based support is provided in accordance with SOLAS regulation II-1/8-1.3.1.2, there should be a contract for the supply of shore-based support at all times during the validity of the Passenger Ship Safety Certificate.

18 When shore-based support is provided in accordance with SOLAS regulation II-1/8-1.3.1.2, the shore-based support should be manned by adequately qualified persons with regard to stability, i.e. no less than two qualified persons should be available to be on call at all times.

19 When shore-based support is provided in accordance with SOLAS regulation II-1/8-1.3.1.2, the shore-based support should be operational within one hour (i.e. with the ability to input details of the condition of the ship, as instructed).

#### **Ro-ro passenger ships**

20 If applicable, there should be algorithms in the software for estimating the effect of water accumulation on deck.



### **Approval and testing**

21 The stability aspects of the system should be initially approved and periodically checked against validated test conditions based on a number of loading/damage scenarios from the approved stability information book to ensure that it is operating correctly and that the stored data has not been subject to unauthorized alteration.

### **Limitations of the system**

22 The system is not intended to compute transient asymmetrical flooding whereby the ship could capsize under the immediate inrush of floodwater before there is time for equalization measures to take effect.

23 The system is not intended to make any allowance for the motion of the ship in a seaway, including the effects of tide, current or wave action.

### **Equivalence**

24 Equivalent arrangements to the provisions in these Guidelines may be employed to the satisfaction of the Administration.

### **Ships fitted with onboard damage stability computers before required by SOLAS regulation II-1/8-1.3**

25 The Administration should be advised of any ships fitted with systems before they are required by SOLAS regulation II-1/8-1.3, which may not fully comply with these Guidelines, to allow for a decision to be made on what further action, if any, is necessary. As a minimum, the system should have the functionality described under "Calculation methods" (see paragraph 11), "Output" (see paragraphs 12 to 14) and, if applicable, "Ro-ro passenger ships" (see paragraph 20).



**ANNEX 2**

**DRAFT RESOLUTION MSC.[...](...)  
(adopted on [...])**

**AMENDMENTS TO THE INTERNATIONAL CODE ON THE ENHANCED  
PROGRAMME OF INSPECTIONS DURING SURVEYS OF BULK  
CARRIERS AND OIL TANKERS, 2011(2011 ESP CODE),  
AS AMENDED**

(Refer to document SDC 5/15/Add.1)

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**ANNEX 3**  
**DRAFT MSC CIRCULAR**  
**GUIDELINES FOR WING-IN-GROUND CRAFT**

(Refer to document SDC 5/15/Add.2)

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**ANNEX 4**

**BIENNIAL STATUS REPORT AND OUTPUTS ON THE COMMITTEE'S POST-BIENNIAL AGENDA  
THAT FALL UNDER THE PURVIEW OF THE SUB-COMMITTEE**

Sub-Committee on Ship Design and Construction (SDC)									
Reference to SD, if applicable	Output number	Description	Target completion year	Parent organ(s)	Associated organ(s)	Coordinating organ	Status of output for Year 1	Status of output for Year 2	References
SD 2 (Integrate new and advancing technologies in the regulatory framework)	2.3 (5.2.1.2)	Amendments to the IGF Code and development of guidelines for low-flashpoint fuels	2019	MSC	HTW/PPR/SDC/SSE	CCC	No work requested		MSC 94/21, paragraphs 18.5 and 18.6; and MSC 96/25, paragraphs 10.1 to 10.3
SD 2 (Integrate new and advancing technologies in the regulatory framework)	2.4 (5.2.1.4)	Mandatory instrument and/or provisions addressing safety standards for the carriage of more than 12 industrial personnel on board vessels engaged on international voyages	2020	MSC	SDC		In progress		MSC 95/22, paragraphs 10.13 and 19.25; MSC 96/25, paragraphs 7.10 and 7.12; MSC 97/22, paragraphs 6.22 to 6.25; and SDC 5/15, section 7

Sub-Committee on Ship Design and Construction (SDC)									
Reference to SD, if applicable	Output number	Description	Target completion year	Parent organ(s)	Associated organ(s)	Coordinating organ	Status of output for Year 1	Status of output for Year 2	References
SD 2 (Integrate new and advancing technologies in the regulatory framework)	2.6 (5.2.1.12)	Finalization of second generation intact stability criteria	[2020]	MSC	SDC		In progress		MSC 85/26, paragraphs 12.7 and 23.42; and SDC 5/15, section 6
Notes: Target completion year extended to 2020 (SDC 5/15, paragraph 6.16).									
SD 2 (Integrate new and advancing technologies in the regulatory framework)	2.8 (New)	Development of guidelines for cold ironing of ships and of amendments to SOLAS chapters II-1 and II-2, if necessary	2020	MSC	SDC/III	SSE	No work requested		MSC 98/23, paragraph 20.36
SD 6 (Ensure regulatory effectiveness)	6.1 (1.1.2.3)	Unified interpretation of provisions of IMO safety, security, and environment-related Conventions	Continuous	MSC/MEPC	III/PPR/CCC/ SDC/SSE/ NCSR		Ongoing		MSC 78/26, paragraph 22.12; and SDC 5/15, section 9
Notes: The Assembly, at its twenty-eighth session, had expanded the output to include all proposed unified interpretations to provisions of IMO safety, security, and environment-related Conventions.									



Sub-Committee on Ship Design and Construction (SDC)									
Reference to SD, if applicable	Output number	Description	Target completion year	Parent organ(s)	Associated organ(s)	Coordinating organ	Status of output for Year 1	Status of output for Year 2	References
Other work	OW 2 (2.0.1.1)	Amendments to the 2011 ESP Code	Continuous	MSC	SDC		Ongoing		MSC 91/22, paragraph 19.24; and SDC 5/15, section 8
Other work	OW 31 (5.2.1.1)	Revised SOLAS regulation II-1/3-8 and associated guidelines (MSC.1/Circ.1175) and new guidelines for safe mooring operations for all ships	2019	MSC	HTW/SSE	SDC	In progress		MSC 95/22, paragraph 19.22; and SDC 5/15, section 10
Other work	OW 32 (5.2.1.13)	Amendments to SOLAS regulation II-1/8-1 on the availability of passenger ships' electrical power supply in cases of flooding from side raking damage	2019	MSC	SDC		In progress		MSC 85/26, paragraph 23.35; MSC 97/22, paragraph 3.11; and SDC 5/15, section 3

Sub-Committee on Ship Design and Construction (SDC)									
Reference to SD, if applicable	Output number	Description	Target completion year	Parent organ(s)	Associated organ(s)	Coordinating organ	Status of output for Year 1	Status of output for Year 2	References
Other work	OW 36 (5.2.1.29)	Review SOLAS chapter II-2 and associated codes to minimize the incidence and consequences of fires on ro-ro spaces and special category spaces of new and existing ro-ro passenger ships	2019	MSC	HTW/SDC	SSE	No work requested		MSC 97/22, paragraph 19.19
Other work	OW 37 (5.2.1.5)	Revised SOLAS regulations II-1/13 and II-1/13-1 and other related regulations for new ships	2019	MSC	SDC	SSE	No work requested		MSC 95/22, paragraphs 19.20 and 19.32
Other work	OW 38 (5.2.1.23)	Guidelines for wing-in-ground craft	2018	MSC	SDC		Completed		MSC 88/26, paragraph 23.30; MSC 96/25; paragraph 23.25; and SDC 5/15, paragraph 11.11

Sub-Committee on Ship Design and Construction (SDC)									
Reference to SD, if applicable	Output number	Description	Target completion year	Parent organ(s)	Associated organ(s)	Coordinating organ	Status of output for Year 1	Status of output for Year 2	References
Other work	OW 40 (New)	Safety measures for non-SOLAS ships operating in polar waters	2021	MSC	SDC		No work requested		MSC 98/23, paragraphs 10.29.1 and 20.31.1
Other work	OW 41 (New)	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	2020	MSC	SDC		In progress		MSC 96/25, paragraph 23.23; and SDC 5/15, section 5
Other work	OW 43 (5.2.1.15)	Consequential work related to the new Code for ships operating in polar waters	2019	MSC	NCSR/SSE	SDC	No work requested		MSC 93/22, paragraphs 10.44, 10.50 and 20.12; MSC 96/25, paragraph 3.77; MSC 97/22, paragraphs 8.32 and 19.25
Other work	OW 46 (5.2.1.7)	Computerized stability support for the master in case of flooding for existing passenger ships	2018	MSC	SDC		Completed		MSC 94/21, paragraph 18.20; and SDC 5/15, paragraph 4.12

**OUTPUTS ON THE COMMITTEE'S POST-BIENNIAL AGENDA THAT FALL UNDER THE PURVIEW OF THE SUB-COMMITTEE**

<b>SHIP DESIGN AND CONSTRUCTION (SDC)</b>								
<b>ACCEPTED POST-BIENNIAL OUTPUTS</b>				<b>Parent organ(s)</b>	<b>Associated organ(s)</b>	<b>Coordinating organ</b>	<b>Timescale (sessions)</b>	<b>Reference</b>
<b>Number</b>	<b>Biennium</b>	<b>Reference to strategic direction, if applicable</b>	<b>Description</b>					
152	2016-2017	SD 2 (Integrate new and advancing technologies in the regulatory framework)	Guidelines for use of Fibre Reinforced Plastics (FRP) within ship structures	MSC	SDC		2	MSC 98/23, paragraph 10.22
7	2012-2013	Other work	Mandatory application of the Performance standard for protective coatings for void spaces on bulk carriers and oil tankers	MSC	SDC		2	MSC 76/23, paragraphs 20.41.2 and 20.48; DE 50/27, section 4
8	2012-2013	Other work	Performance standard for protective coatings for void spaces on all types of ships	MSC	SDC		2	MSC 76/23, paragraphs 20.41.2 and 20.48
32	2012-2013	Other work	Recommendations related to navigational sonar on crude oil tankers	MSC/MEPC	SDC		1	MSC 91/22, paragraph 19.23

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## ANNEX 5

### PROPOSED PROVISIONAL AGENDA FOR SDC 6

- Opening of the session
- 1 Adoption of the agenda
  - 2 Decisions of other IMO bodies
  - 3 Amendments to SOLAS regulation II-1/8-1 on the availability of passenger ships' electrical power supply in cases of flooding from side raking damage (OW 32)
  - 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 (OW 41)
  - 5 Finalization of second generation intact stability criteria (2.6)
  - 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 (2.4)
  - 7 Amendments to the 2011 ESP Code (OW 2)
  - 8 Unified interpretation to provisions of IMO safety, security, and environment-related conventions (6.1)
  - 9 Revised SOLAS regulation II-1/3-8 and associated guidelines (MSC.1/Circ.1175) and new guidelines for safe mooring operations for all ships (OW 31)
  - 10 Biennial status report and provisional agenda for SDC 7
  - 11 Election of Chair and Vice-Chair for 2020
  - 12 Any other business
  - 13 Report to the Maritime Safety Committee

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## ANNEX 6

### DRAFT AMENDMENTS<sup>1</sup> TO PART A OF THE 2008 IS CODE, AS AMENDED BY RESOLUTIONS MSC.267(85), MSC.413(97) AND MSC.414(97)

#### INTRODUCTION

#### 2 Definitions

1 The existing paragraph 2.11 is amended to read as follows:

"2.11 *Freeboard* is the distance between the assigned load line and freeboard deck<sup>2</sup>. **For the purposes of application of chapters I and II of annex I of the International Convention on Load Lines, 1966 or the Protocol of 1988 as amended, as applicable to open top containerships, "freeboard deck" is the freeboard deck according to the International Convention on Load Lines, 1966 or the Protocol of 1988 as amended, as applicable as if hatch covers are fitted on top of the hatch cargo coamings.**"

2 The existing paragraph 2.30 is amended to read as follows:

"2.30 *Ship engaged in lifting operation* means a ship engaged in an operation involving the raising or lowering of objects using vertical force by means of winches, cranes, a-frames or other lifting devices.<sup>3</sup> **Fishing vessels should shall not be included in the definition of lifting operations. Reference is made to paragraphs 2.1.2.2 and 2.1.2.8 of chapter 2 of part B. For anchor handling operations reference is made to section 2.7 of chapter 2 of part B.**"

## PART A

### MANDATORY CRITERIA

#### CHAPTER 1 – GENERAL

3 The existing paragraph 1.1.1 is amended to read as follows:

"1.1.1 The criteria stated under chapter 2 of this part present a set of minimum requirements that shall apply to cargo<sup>4</sup> and passenger ships of 24 m in length and over. **For containerships of 100 m in length and over, criteria alternative to chapter 2.2 of this part may be applied\* provisions of chapter 2.3 of part B may be applied as an alternative to the application of chaptersection 2.2 of this part may be applied.\* Offshore supply vessels and special purpose ships are not required to comply with provisions of chaptersection 2.3 of part A. For such vessels, compliance with an equivalent alternative criteria\*\* shall be demonstrated. For offshore supply vessels, provisions of chapter 2.4 of part B**

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<sup>1</sup> Use of tracked changes to identify the proposed draft amendments:

- .1 the text of the existing footnotes relocated to the main text of the 2008 IS Code, as amended, is italicized and in bold, with the consequential changes indicated using "strikeout" for deleted text and "grey shading" to highlight all modifications and new insertions, including deleted text; and
- .2 all other consequential amendments to part A of the 2008 IS Code, as amended, are indicated using "strikeout" for deleted text and "grey shading" to highlight all modifications and new insertions, including deleted text.

~~may be applied as an alternative to the application of chapter 2.2 of this part. For special purpose ships, provisions of chapter 2.5 of part B may be applied as an alternative to the application of chapter 2.2 of this part.~~

\* The provisions of section 2.3 of part B may be applied as an alternative.

\*\* For offshore supply vessels, the provisions of section 2.4 of part B may be applied as an alternative to the application of section 2.2 of this part. For special purpose ships, provisions of section 2.5 of part B may be applied as an alternative to the application of section 2.2 of this part."

## CHAPTER 2 – GENERAL CRITERIA

4 The footnote to the existing title of chapter 2 is deleted.<sup>2</sup>

5 The existing paragraphs 2.1.1 and 2.1.2 are amended to read as follows:

"2.1.1 All criteria contained in this part shall be applied for all applicable conditions of loading ~~as set out in part B, 3.3 and 3.4.~~\*

2.1.2 Free surface effects\*\* ~~(part B, 3.1)~~ shall be accounted for in all applicable conditions of loading ~~as set out in part B, 3.3 and 3.4.~~\*

\* Refer to sections 3.3 and 3.4 of part B, for the conditions of loading to be considered.

\*\* Refer to section 3.1 of part B."

6 The existing paragraphs 2.1.5 and 2.1.6 are amended to read as follows:

"2.1.5 Provisions shall be made for a safe margin of stability at all stages of the voyage, regard being given to additions of weight, such as those due to absorption of water and icing\* ~~(details regarding ice accretion are given in part B, chapter 6 – Icing considerations)~~ and to losses of weight such as those due to consumption of fuel and stores.

2.1.6 Each ship shall be provided with a stability booklet, approved by the Administration, which contains sufficient information\*\* ~~(see part B, 3.6)~~ to enable the master to operate the ship in compliance with the applicable requirements contained in the Code. If a stability instrument is used as a supplement to the stability booklet for the purpose of determining compliance with the relevant stability criteria such instrument shall be subject to the approval by the Administration ~~(see part B, chapter 4 – Stability calculations performed by stability instruments).~~\*\*\*

\* Details regarding ice accretion are given in chapter 6 (Icing considerations) of part B.

\*\* Refer to section 3.6 of part B.

\*\*\* Refer to chapter 4 (Stability calculations performed by stability instruments) of part B."

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<sup>2</sup> See draft MSC resolution on amendments to part A of the International Code on Intact Stability, 2008 (2008 IS Code), as set out in annexes 1 and 2 to document MSC 98/23/Add.1.



7 The existing paragraph 2.2.1 is amended to read as follows:

"2.2.1 The area under the righting lever curve (GZ curve) shall not be less than 0.055 metre-radians up to  $\varphi = 30^\circ$  angle of heel and not less than 0.09 metre-radians up to  $\varphi = 40^\circ$  or the angle of down-flooding  $\varphi_f^5$  if this angle is less than  $40^\circ$ . Additionally, the area under the righting lever curve (GZ curve) between the angles of heel of  $30^\circ$  and  $40^\circ$  or between  $30^\circ$  and  $\varphi_f$ , if this angle is less than  $40^\circ$ , shall not be less than 0.03 metre-radians. **The angle  $\varphi_f$  is an angle of heel at which openings in the hull, superstructures or deckhouses which cannot be closed weathertight immerse. In applying this criterion, small openings through which progressive flooding cannot take place need not be considered as open.**"

8 In paragraph 2.3.4, the reference to footnote 8 is deleted from the first line, the existing footnote 8 is deleted and the following sentence is added at the end of the paragraph:

**"The angle of roll for ships with anti-rolling devices ~~should~~ shall be determined without taking into account the operation of these devices unless the Administration is satisfied with the proof that the devices are effective even with sudden shutdown of their supplied power."**

9 In paragraph 2.3.5, the existing two last sentences are amended to read as follows:

"For ships with parameters outside of the above limits, the angle of roll ( $\varphi_1$ ) may be determined with model experiments of a subject ship ~~with the procedure described in MSC.1/Circ.1200 as the alternative.~~\* In addition, the Administration may accept such alternative determinations for any ship, if deemed appropriate.

\* Refer to the procedure described in the *Interim guidelines for alternative assessment of the weather criterion* (MSC.1/Circ.1200)."

### CHAPTER 3 – SPECIAL CRITERIA FOR CERTAIN TYPES OF SHIPS

10 The existing paragraph 3.3.2.3 is amended to read as follows:

"3.3.2.3 At all times during a voyage, the metacentric height  $GM_0$  shall not be less than 0.1 m, taking into account the absorption of water by the deck cargo and/or ice accretion on the exposed surfaces ~~(details regarding ice accretion are given in part B, chapter 6 (Icing considerations)).~~\*

\* Details regarding ice accretion are given in chapter 6 (Icing considerations) of part B."

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## ANNEX 7

### STATEMENTS BY DELEGATIONS\*

#### AGENDA ITEM 1

##### Statement by the delegation of Bangladesh

"We join with the Secretary-General to express our sincere condolence and sympathy with the bereaved families. No word of sympathy will be able to soothe their sorrows. The tragic collision between **MV Sanchi** and **CF Crystal** in the south China sea left us deeply saddened with the loss of 32 crew members among whom 30 was from Islamic Republic of Iran and two were from Bangladesh. May they be found at the earliest or their departed souls rest in peace.

We are grateful and thankful to China, Japan and the Republic of Korea for extending remarkable support after the accident. The environmental pollution and overall loss is still unfathomable. We welcome a full investigation to find out the cause of the accident and future remedial actions to prevent collision in the open seas. Our delegation will appreciate if the investigation report is made available to our government. The families deserve to know what happened to their beloved ones before they were lost. We are also trying to send the DNA samples to help identify the three recovered bodies from the scene. We shall also expect insurance and other compensations to be made to the families at the earliest. At least this much we can do to help the families who are deeply shattered and perplexed while enduring their eternal pain. Our government is ready to extend any cooperation if necessary."

##### Statement by the delegation of China

"First and for most, China expresses deepest condolences to all crew members on board Panama-flagged oil tanker **Sanchi** who lost their lives and to their families and loved ones.

At 20 h on 6 January of 2018, the Panama-flagged oil tanker **Sanchi** collided with Hong Kong, China-flagged bulk carrier **CF Crystal** at 160 nm east off China's Yangtze River estuary. **Sanchi** carried 111,300 tons of condensate oil with 30 Iranian and 2 Bangladeshi seafarers on board. **CF Crystal** carried 64,000 tons of Sorghum with 21 Chinese seafarers on board. The incident caused the fire in cargo holds of **Sanchi** and 32 crew members were missing. **CF Crystal** was also on fire and damaged. 21 crew members on board abandoned ship and were rescued later by a nearby fishing vessel.

The Chinese government took great importance to emergency responses to the incident. All efforts were taken to mobilize the search and rescue forces. China organized maritime law-enforcement vessels, professional salvage vessels, coastguard patrol vessels and passing merchant ships to conduct the search and rescue operation. Meanwhile, after coordination with relevant countries, one vessel from the Republic of Korea and three vessels from Japan joined the operation. For the whole salvage operation, there were at least 10 vessels on site every day.

During the process, we organized experts from SAR, ships structure, hazard material treatment, firefighting areas to make the scientific analysis and judgments. The prime task of the mission was to save human lives. This salvage operation faced great difficulties and huge

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\* Statements have been included in this annex as provided by delegations/observers, in the order in which they were given, sorted by agenda item, and in the language of submission (including translation into any other language if such translation was provided). Statements are accessible in all official languages on audio file at: <http://docs.imo.org/Meetings/Media.aspx>

challenges. The reasons are: firstly, this is the first condensate oil collision and explosion incident recorded in shipping history, no precedent experiences to refer; blasts and explosions happened frequently. Dangers were ubiquitous. The distressed vessel was hard to approach by Salvage forces. Secondly, the sea state was very severe, starting from 8 January, it was 7-8 gale force wind with 9-10 gusty wind and 3-4 meters wave height. Ships were rolling to 28 degrees. Some rescue boats were even battered into pieces. Thirdly, the incident happened far away from shore and delivery the salvage supplies and forces to the scene took time. Fourthly, the blasts and explosions sent out toxic gases, salvage team members developed symptoms of nose bleeding and dizziness.

Although facing such huge difficulties and risks, we never gave up. All-out efforts were taken to conduct the salvage operation. On 8 January, a body was found and retrieved from 2 nm east of the scene. From 10 to 14 January, multiple fire-fighting attempts were rendered, however, due to the constant blasts and explosions and emanating toxic gases, the results were not satisfactory. On 13 January, at a very limited time window, the fire was under control, a salvage team of four persons was sent on board. The team risked their lives to inspect the accommodation space, anti-piracy citadel, and wheelhouse. Two bodies were found on the lifeboat deck. The temperature in accommodation space was up to 89°C, and the emergency route to the anti-piracy citadel was engulfed by heavy smoke and heat waves which made it impossible for the team to enter. The team then returned with two bodies and the Voyage Data Recorder.

At 1230 h on 14 January, the distressed ship had a sudden roar of flames and started sinking. At 1645 h, **Sanchi** oil tanker sank into the sea at latitude 28.22 north, longitude 125.55 east.

China thanks Japan and the Republic of Korea for their joining the salvage operation. We also appreciate the cooperation from Islamic Republic Iran, Panama, Bangladesh and Hong Kong, China following this incident. We will follow the international conventions and national laws to conduct the incident investigation and report to IMO at the appropriate time."

#### **Statement by the delegation of Islamic Republic of Iran**

"In the first week of the year 2018, the global maritime community was shaken by the unfortunate collision of **MT Sanchi** and **MV CF Crystal** off the Chinese coast on 6 January. The tanker suffered extensive fire on board, as a result of its cargo of condensate gas, which further hindered the access of assisting teams to the crew trapped inside it. China, Japan, the Republic of Korea, and even Australia and the US Navy concentrated their full-fledged efforts on fire-fighting, as well as search and rescue, yet the severity of the situation was beyond any assistance, and only three bodies were recovered. Finally, after 8 days of burning and several further explosions, **MT Sanchi** sank with 29 people still on board, and leaving the world in frenzy and grief. We hereby offer our deep cordial sympathies and condolences to the bereaved families in Bangladesh and Iran. We also wish to express our sincere gratitude to the assisting Member States for all their humanitarian actions.

This was an unprecedented and unique maritime tragedy, in terms of the severity of fire, loss of 32 valuable and prominent seafarers, and involvement of different countries as interested States. The global community is shrewdly pursuing the issue, and waiting restlessly to hear acceptable answers. In order to fulfill our humanitarian responsibility toward our departed colleagues in this tragedy, the Islamic Republic of Iran, China and Panama have already nominated their teams responsible for following the issue, and this delegation would like to call for the casualty investigation process to be commenced with the highest speed and precision, and based on original, verifiable information, as advised by IMO's MSC/Circ.1024 and the International Code on Marine Casualty Investigation. This has been identified as a "very serious" maritime casualty, and we would like to urge the highest ranking officials of the

interested States to assume responsibility for properly conducting the investigation. As a competent supervisory organization, IMO can serve to oversee the process, facilitate its conclusion, identify and communicate the lessons to be learned, and thus prevent similar cases from occurring in the future.

May God bless the souls of departed seafarers!"

#### **Statement by the delegation of Japan**

"Japan would also like to express its deepest condolences on the tragic accident caused by the collision between **Sanchi** and **CF Crystal** and would like to offer its heartfelt sympathy for the family and loved ones of those who have lost their lives.

We hope all the missing persons will be found as soon as possible.

With regard to this tragic accident, Japan has been engaged in searching missing persons by using aircrafts and patrol vessels of the Japan Coast Guard in cooperation with China and the Republic of Korea.

In addition, vessels of the Japan Coast Guard and a vessel of a Japanese private salvage company have been taking measures to diminish marine pollution caused by cargo oil spilled from **Sanchi**.

Japan will continue its efforts in search and rescue operations and prevention of marine pollution.

We hope any necessary consideration will be made based on the report of the accident which will be submitted to IMO in due course."

#### **Statement by the delegation of Panama**

"Como representante Permanente de Panamá no es fácil ofrecer estas palabras luego de este trágico accidente. Ante todo quisiéramos expresar nuestras condolencias a la República Islámica de Irán, a Bangladesh y a las familias de los tripulantes que perdieron la vida en este siniestro. Tomamos la palabra también para agradecer al gobierno de China, Japón, la República de Corea y todas las partes que colaboraron en las operaciones de lucha contra incendios y búsqueda y rescate. La República de Panamá, a través de la Autoridad Marítima de Panamá reitera su compromiso para con las partes interesadas en virtud de continuar cooperando y compartiendo información que nos permita conocer más acerca de las causas del accidente con miras a examinar, una vez concluida la investigación, recomendaciones que eviten sucesos similares en el futuro."

#### **Statement by the delegation of the Republic of Korea**

"First of all, the Republic of Korea would also like to express our deepest condolences to the victims of the sunken oil tanker **Sanchi**, to their families and to those who have been affected by this unfortunate accident that happened in the East China Sea this January.

The Republic of Korea has also participated in SAR (Search and Rescue) operations and oil clean up with a close cooperation with China, Japan and other relevant Governments and Organizations, right after the accident.

We will continue to endeavor to support relevant Governments for minimizing further damages and loss caused by this tragic accident."

### **Statement by the delegation of Hong Kong, China**

"This delegation would like to join the Secretary-General and those delegations who spoke before us in expressing our deepest condolences and sympathy to the families in Iran and Bangladesh who lost their loved ones in this tragic collision. We are grateful to China, Japan, the Republic of Korea and others who provided search and rescue, fire-fighting and oil pollution combating efforts. Hong Kong, China would give its best efforts and resources and stands ready to cooperate with other investigating parties in taking part in the investigation in order to submit the investigation report to the Organization."

### **AGENDA ITEM 14**

#### **Statement by the delegation of the Russian Federation**

"25 января 2018 г. Около пяти утра по местному времени на рыболовном траулере "Восток", под флагом Российской Федерации, следовавшем из порта Донхэ (Республика Корея) в порт Холмск (Российская Федерация), сработал аварийный радиобуй, и судно перестало отвечать на запросы.

Экипаж судна составляет двадцать человек.

В настоящее время в предполагаемом районе исчезновения корабля проводится спасательная операция. К поисково-спасательным работам привлечено более 100 человек, несколько судов и летательных аппаратов.

Поиски усложняет неблагоприятная погода.

Власти прикладывают все усилия для поиска судна и экипажа и выражают надежду на успешное завершение спасательной операции."

"On 25 January about 5 am local time on the trawler **Vostok** flying the Russian flag sailing from the port of Donghae (Republic of Korea) to the port of Kholmok (Russian Federation) the emergency radio beacon was triggered and the vessel failed to respond to calls.

The crew comprises of 20 persons.

At present time rescue operation is underway in the area where the vessel was lost. More than 100 people are involved in the search and rescue operation, several vessels and aircrafts.

Unfavorable weather conditions complicate the rescue mission.

The authorities are applying every effort and express the hope that the rescue operation will be successful."