



IMO

SUB-COMMITTEE ON STABILITY AND
LOAD LINES AND ON FISHING
VESSELS SAFETY - 36th session
Agenda item 25

REPORT TO THE MARITIME SAFETY COMMITTEE

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11.7 Having received the report of the working group (SLF 36/WP.7) which met under the chairmanship of Mr. Y. Sasamura (Japan), the Sub-Committee noted with satisfaction the progress made on the preparation for the Conference.

11.8 The Sub-Committee approved amendments to the draft composite text of the Protocol recommended by the working group (SLF 36/WP.7, annex 1) for inclusion in the revised composite draft Protocol, which would be finalized at the intersessional meeting at Reykjavik (1-5 June 1992).

11.9 The Sub-Committee invited the Committee to authorize the Secretary-General to circulate the draft Protocol and other documents for the Conference as soon as they are approved by the Reykjavik meeting.

11.10 The Sub-Committee, noting that the draft Protocol and other documents for the Conference would be finalized at the Reykjavik meeting and further that there are a number of outstanding technical and legal issues as recorded in SLF 36/WP.7, urged Members to include technical and legal experts in their delegation to the Reykjavik meeting.

11.11 Bearing in mind the time limitations and the fact that the documentation for the intersessional group will only be issued in English, thus obviating the need for translation, the Sub-Committee requested the Secretariat to set the deadline for submission of documents for the Reykjavik meeting at 30 April 1992. Members are invited to submit comments and proposals on the draft Protocol, particularly on those outstanding matters identified in the report of the working group (SLF 36/WP.7). The Committee is invited to agree with this request.

12 OPEN-TOP CONTAINER SHIPS

12.1 The Sub-Committee had for its consideration the provisional requirements for open-top container ships set out in annex 7 to SLF 35/20 together with comments thereon submitted by Australia and China (SLF 36/12/1), Germany (SLF 36/12/2), the Netherlands (SLF 36/12), the United States (SLF 36/INF.10) and the CDG Sub-Committee at its forty-third session (SLF 36/WP.1).

12.2 With particular regard to the tonnage requirements of open-top container ships the delegate of Australia referred to the unified interpretations agreed by the Sub-Committee (TM.5/Circ.3) and expressed his concern that such interpretations may penalize the open-top container ships when compared with traditional container ships carrying containers on deck. In his view the open-top container ships offer a safer level of carriage and the agreed interpretation should be reconsidered. Some delegations supported this view.

12.3 After consideration the Sub-Committee agreed to reconsider this matter, subject to the approval by the Committee.

12.4 In order to collate contributions received and to complete the development of suitable guidelines, the Sub-Committee established a drafting group to deal with the matter.

12.5 The Sub-Committee recalled that it had been designated by the Committee to act as a lead body in developing requirements for open-top container ships and noted that the Sub-Committees on Carriage of Dangerous Goods and Fire Protection have completed their work on the matter.

12.6 The Sub-Committee referred the tonnage measurement aspects to the drafting group and their report was issued as SLF 36/WP.4. The outcome of the discussion on the matter is given in paragraph 12.22 below.

12.7 Having received the report of the drafting group (SLF 36/WP.6), the Sub-Committee took decisions as follows.

12.8 The Sub-Committee agreed that the requirements should include an upper limit to the maximum rate of green water ingress from the model tests which will ensure reasonable and safe levels of freeboard for hatch coamings of open cargo holds.

12.9 Guidance regarding ingress rates used for the design of cargo hold freeing ports, where provided, were indicated in annex 6. It is suggested that these freeing ports be sized based on the principles established in resolution A.266(VIII) "Recommendation on a standard method for establishing compliance with the requirements for cross-flooding arrangements in passenger ships".

12.10 The Sub-Committee recognized that there is quite possibly a difference in seakeeping behaviour between hull forms, particularly those ships designed especially for open-top operation, as opposed to conversions and other non-specific designs. The Sub-Committee invited views in regard to the treatment of such a diversity of ship configurations.

12.11 The DE Sub-Committee at its thirty-fourth session requested this Sub-Committee to determine the safety factor to be applied in converting model test results and rainfall values into the required bilge pumping system capacity. This was proposed to account for ingress of water through spray and more severe weather conditions than those upon which these requirements have been specified. Australia, Norway, the United Kingdom and the United States considered that this factor should be set at 1.5 as proposed in paragraph 1 of annex 2 to DE 34/2/2/Add.1. Norway, the United Kingdom and the United States further proposed this safety factor be reduced or eliminated if water ingress rates are based on model tests and calculations in sea states higher than 8.5 m (significant wave height). The Netherlands believed that existing margins in the model test conditions as well as redundancy in the bilge system are adequate and further safety factors are not required.

12.12 Views were divided concerning tests at higher sea states. One opinion was that the model test procedure itself results in an overestimate of ingress (long crested seas and maximum sustained speed at 8.5 m (significant wave height)). So inherently the model test procedure includes some safety factors taking into account normal operating procedures and realistic wave patterns. The other opinion was that tests in 8.5 m (significant wave height) are insufficient and did not establish ingress characteristics at higher sea states which could be significantly different than that measured at 8.5 m (significant wave height).

12.13 The Sub-Committee was of the opinion that the intact stability of the vessel with open holds flooded should be evaluated. There was no general consensus regarding which criteria should be applied and three proposals were indicated in annex 6. Several delegations have indicated that either the dry cargo ship damage stability criteria or a positive GM criteria are sufficient criteria for such a low probability event. The United States delegation stated that intact hold flooding is most likely to occur in a storm when hold de-watering systems have failed, or are unable to keep up with water ingress. Consequently, there must be sufficient righting energy to prevent capsize in

a dynamic environment. Utilizing the righting energy component from resolution A.167(ES.IV) will provide a basis to ensure survival in this condition. Most delegations reserved their position regarding the United States proposal, having not had sufficient time to evaluate it.

12.14 The delegations of Norway, the United Kingdom and the United States disagreed with the use of 8.5 m (significant wave height) seas as the sole environmental criteria for determining water ingress on open-top container ships. The use of this sea state as a size criteria for establishing safe performance is inadequate since it represents an environment that statistically occurs yearly. Model tests have shown the green water ingress rates can diverge significantly from the amounts measured at 8.5 m (significant wave height).

12.15 The delegation of the United States stated that data available in technical literature, which demonstrate that significant wave heights well above 8.5 m are likely in a 10-year interval. As reported in "Wave Statistics for Design of Ships and Ocean Structures" (Ochi, 1978), SNAME, the probable extreme significant wave heights expected to occur at 10-year intervals are 18.7 m and 19.2 m. "Standardized Wind and Wave Environments for North Pacific Ocean Areas" (Lee, Bales, Sauby, 1985), DTRC, demonstrates comparable results.

12.16 The delegation of the United States believed that the survival after damage of an open-top container ship may be highly dependent on the onset of downflooding into open cargo holds. Downflooding into open cargo holds may occur after damage equilibrium due to water ingress from seaway conditions. Such an event could have catastrophic consequences and may not leave the crew sufficient time to react. Model tests or calculations should be conducted to demonstrate that hold downflooding is not likely to occur.

12.17 The delegation from the Netherlands noted that many Administrations do not have operational experience with open-top ships and urged greater study of the subject in order to establish more realistic procedures.

12.18 The Sub-Committee agreed in general with the revised draft guidelines developed by the group, as set out in annex 6. Members are invited to submit comments to the next session when the matter is expected to be finalized.

12.19 In addition to this, the Sub-Committee agreed with the view by the group that additional survey and inspection procedures may be necessary for this type of ship and invited views to the next session.

12.20 The Sub-Committee also agreed to include provisions regarding the stowage position of dangerous goods in open-top container ships prepared by the CDG Sub-Committee, as shown in annex 1 of SLF 36/WP.1.

12.21 The Sub-Committee noted that the FP Sub-Committee has not yet finalized its consideration of fire protection provisions (SLF 36/2/6, paragraph 18) and requested it to give further consideration to the matter.

Tonnage measurement implications

12.22 The Sub-Committee recognized that difference in gross tonnage between a container vessel with hatchcovers and an open-top container ship with a carrying capacity of the same number of containers could have economic consequences. As there is not enough information available in this respect for the matter to be dealt with in the drafting group the Sub-Committee invited comments for the next session.

12.23 The Secretariat was instructed to advise the FP and DE Sub-Committees of the outcome of discussions at this session, as set out in the above paragraphs.

13 LIVESTOCK CARRIERS

13.1 The Sub-Committee recalled that during the fifty-eighth session of the Maritime Safety Committee an ad hoc working group was instructed to consider, among others, the application of the 1969 Tonnage Measurement Convention (TM-69 Convention) to livestock carriers based on the information provided by Italy. The Committee instructed the SLF Sub-Committee to deal with this matter after more information was submitted (MSC 58/25, paragraph 4.29).

13.2 As a follow up to this request, the Italian delegation submitted a paper (SLF 35/13) concerning this subject to the thirty-fifth session of the SLF Sub-Committee. The SLF Sub-Committee could not arrive at a conclusion at that session and decided to establish an intersessional correspondence group, co-ordinated by the Netherlands, to investigate this matter further.

13.3 The Sub-Committee had for its consideration documents submitted to this session by the Netherlands, the co-ordinator of the correspondence group on the matter (SLF 36/13), Germany (SLF 36/13/1) and the United States (SLF 36/13/2).

13.4 After a general discussion the Sub-Committee referred the above documents, together with others dealing with tonnage measurement referred to in items 12 and 23, to the drafting group composed of tonnage measurement experts. Having considered the relevant part of the report by the drafting group (SLF 36/WP.4), the Sub-Committee took the following decisions.

13.5 The Sub-Committee recognized that livestock carriers are most often converted tankers or converted cargo ships. Above the existing upper deck, one or more decks are constructed and between these decks the livestock corrals and their associated spaces are arranged, separated by, for example, railings, fences or gangways. The corrals are open to the air. The corrals and associated spaces between these decks are treated as excluded spaces according to regulation 2(5)(b) of the 1969 TM Convention only if there are no means for securing the cargo. Stanchions, fences and railings to keep livestock in the corrals are "other means for securing cargo" according to regulation 2(5). The livestock is considered as cargo.

13.6 The Sub-Committee therefore agreed that these livestock structures are to be included in the gross tonnage.

13.7 It further recognized the economic impact caused by the transition from the existing systems of tonnage measurement to the new system for some livestock carriers as well as other types of ship, for example ro-ro vessels and shelter-deck ships. Reference is made in this respect to Recommendation 2 of the 1969 Tonnage Conference.

13.8 After discussing this matter the Sub-Committee agreed that, in order to expedite finalization of its work on the subject, a correspondence group should be established. The delegation of Germany kindly offered to co-ordinate its work. Comments, with a copy to the Secretariat, should be

forwarded to the German Federal Maritime and Hydrographic agency*, by the end of November 1992.

14 HULL CRACKING IN LARGE SHIPS

14.1 Under this item of its agenda the Sub-Committee had for its consideration document MSC 59/INF.22 by IACS referred to it by the MSC (SLF 36/2, paragraph 32.13) together with comments provided by the Committee (idem, paragraph 21.19) and the Sub-Committee on Ship Design and Equipment (SLF 36/2/2, paragraphs 31 to 43).

14.2 The Sub-Committee recalled that the instruction given by the Committee at its fifty-eighth session called for investigation of the following issues:

- .1 causes of cracking;
- .2 survey requirements; and
- .3 analysis of information on the occurrence of hull cracking incidents in tankers, bulk carriers and combination carriers.

14.3 The Sub-Committee considered that, because of the close interrelation of the item in question and agenda item 17 "Investigations into the loss of bulk carriers" those two items should be considered together. As a consequence, the recommendation entitled "Safety of ships carrying solid bulk cargoes" adopted at the seventeenth Assembly of the Organization by resolution A.713(17) (SLF 36/2/7, annex) was also taken into account in considering the matter.

14.4 The delegation of the United States informed the Sub-Committee of their studies in developing critical area inspection plans and voyage data recorders intended to improve safety levels of bulk carriers. The Sub-Committee took note of the intention of the United States to submit corresponding documents to the thirty-fifth session of the Sub-Committee on Ship Design and Equipment.

14.5 In a more general statement, the United States noted the key role that regulation 1 "Hull strength" of the 1966 LL Convention assigns to classification societies in assuring ships' structural adequacy. Consequently, IMO and its Members have a compelling interest in the role of IACS and classification societies.

14.6 The Australian delegation drew the Sub-Committee's attention to its concern with regard to both bulk carrier safety and hull cracking in large ships in view of its recent experience, particularly with recent casualties in the Australian region. Accordingly, port State control activities have been intensified, particularly in the more remote Australian ports. A parliamentary enquiry into the safety standards of ships using Australian ports, particularly tankers and bulk carriers, is due to be conducted over

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