



SUB-COMMITTEE ON STABILITY AND
LOAD LINES AND ON FISHING VESSELS
SAFETY
52nd session
Agenda item 9

SLF 52/9/4
20 November 2009
Original: ENGLISH

GUIDELINES FOR VERIFICATION OF DAMAGE STABILITY REQUIREMENTS FOR TANKERS AND BULK CARRIERS

Relevant IMO mandatory and voluntary instruments

Submitted by the United Kingdom

SUMMARY

<i>Executive summary:</i>	This document reminds delegations of the obligations of masters and maritime administrations to undertake checks of stability for ships as per the requirements in SOLAS, the relevant associated Codes and MARPOL
<i>Strategic direction:</i>	2
<i>High-level action:</i>	2.1.1
<i>Planned output:</i>	2.1.1.2
<i>Action to be taken:</i>	Paragraph 5
<i>Related documents:</i>	MSC 83/25/14, MSC 83/22/2; MSC 82/18/3, MSC 82/18/4, MSC 82/18/5; SLF 51/13/1, SLF 51/13/2 and SLF 51/17

Background

1 During SLF 51, a number of delegations raised questions regarding the requirements and responsibilities of ships' masters to undertake checks of stability for their ships and the powers which exist for port State control to be satisfied that such checks are made and are sufficient.

2 This document is to inform the Sub-Committee of the specific requirements in SOLAS, the associated IBC Code and IGC Code, and MARPOL, including the obligations of masters and maritime administrations. It also highlights the responsibilities of companies, through the ISM Code, to ensure that safeguards are taken against all identified risks, the need to provide the appropriate safety management systems, including procedures and checklists to prevent human injury or loss of life, and avoidance of damage to the environment, in particular to the marine environment and to make sure the master and the ship's crew are familiar with their duties.

For reasons of economy, this document is printed in a limited number. Delegates are kindly asked to bring their copies to meetings and not to request additional copies.



3 The document also highlights those areas in SOLAS and the associated provisions regarding the powers and responsibilities of port States which “shall take such steps as will ensure that the ship shall not sail until the situation has been brought to order in accordance with the requirements of the present Convention”.

4 The relevant information is contained in the annex.

Action requested of the Sub-Committee

5 The Sub-Committee is invited to note the information provided and to take this into account, as appropriate, during discussions on this issue.

ANNEX

SOLAS

Chapter II-1 – Construction – Structure, subdivision and stability, machinery and electrical installations

Part B-1 – Stability

Regulation 5-1 – Stability information to be supplied to the master

1 The master shall be supplied with such information satisfactory to the Administration as is necessary to enable him by rapid and simple processes to obtain accurate guidance as to the stability of the ship under varying conditions of service. A copy of the stability information shall be furnished to the Administration.

2 The information should include:

- .1 curves or tables of minimum operational metacentric height (GM) versus draught which assures compliance with the relevant intact and damage stability requirements, alternatively corresponding curves or tables of the maximum allowable vertical centre of gravity (KG) versus draught, or with the equivalents of either of these curves;
- .2 instructions concerning the operation of cross-flooding arrangements; and
- .3 all other data and aids which might be necessary to maintain the required intact stability and stability after damage.

3 The stability information shall show the influence of various trims in cases where the operational trim range exceeds $\pm 0.5\%$ of L_s .

4 For ships which have to fulfil the stability requirements of part B-1, information referred to in paragraph 2 are determined from considerations related to the subdivision index, in the following manner: Minimum required GM (or maximum permissible vertical position of centre of gravity KG) for the three draughts d_s , d_p and d_l are equal to the GM (or KG values) of corresponding loading cases used for the calculation of survival factor s_i . For intermediate draughts, values to be used shall be obtained by linear interpolation applied to the GM value only between the deepest subdivision draught and the partial subdivision draught and between the partial load line and the light service draught respectively. Intact stability criteria will also be taken into account by retaining for each draught the maximum among minimum required GM values or the minimum of maximum permissible KG values for both criteria. If the subdivision index is calculated for different trims, several required GM curves will be established in the same way.

5 When curves or tables of minimum operational metacentric height (GM) versus draught are not appropriate, the master should ensure that the operating condition does not deviate from a studied loading condition, or verify by calculation that the stability criteria are satisfied for this loading condition.

MARPOL

Annex I, regulation 28(5):

5 The master of every oil tanker to which this regulation applies and the person in charge of a non-self-propelled oil tanker to which this regulation applies shall be supplied in an approved form with:

- .1 information relative to loading and distribution of cargo necessary to ensure compliance with the provisions of this regulation; and
- .2 data on the ability of the ship to comply with damage stability criteria as determined by this regulation, including the effect of relaxations that may have been allowed under subparagraph 1.3 of this regulation.

Chemical and Gas Code

SOLAS regulation II/2.2.5:

The master of the ship should be supplied with a Loading and Stability Information booklet. This booklet should contain details of typical service and ballast conditions, provisions for evaluating other conditions of loading and a summary of the ship's survival capabilities. In addition, the booklet should contain sufficient information to enable the master to load and operate the ship in a safe and seaworthy manner.

SOLAS regulation II/2.4:

Damage survival capability should be investigated on the basis of loading information submitted to the Administration for all anticipated conditions of loading and variations in draught and trim. Ballast conditions where the chemical tanker is not carrying products covered by the Code, excluding any residues, need not be considered.

The Certificate of Fitness for both IBC (section 6) and IGC (section 5) states:

“5/6 That the ship must be loaded:

- .1 in accordance with the loading conditions provided in the approved loading manual, stamped and dated and signed by a responsible officer of the Administration, or of an organization recognized by the Administration; or
- .2 in accordance with the loading limitations appended to this Certificate.

Where it is required to load the ship other than in accordance with the above instruction, then the necessary calculations to justify the proposed loading conditions should be communicated to the certifying Administration who may authorize in writing the adoption of the proposed loading condition.”

ISM Code

1.2 Objectives

1.2.1 The objectives of the Code are to ensure safety at sea, prevention of human injury or loss of life, and avoidance of damage to the environment, in particular to the marine environment, and to property.

1.2.2 Safety-management objectives of the Company should, *inter alia*:

- .1 provide for safe practices in ship operation and a safe working environment;
- .2 establish safeguards against all identified risks; and
- .3 continuously improve safety-management skills of personnel ashore and aboard ships, including preparing for emergencies related both to safety and environmental protection.

1.2.3 The safety-management system should ensure:

- .1 compliance with mandatory rules and regulations; and
- .2 that applicable codes, guidelines and standards recommended by the Organization, Administrations, classification societies and maritime industry organizations are taken into account.

5 MASTER'S RESPONSIBILITY AND AUTHORITY

5.1 The Company should clearly define and document the master's responsibility with regard to:

- .1 implementing the safety and environmental-protection policy of the Company;
- .2 motivating the crew in the observation of that policy;
- .3 issuing appropriate orders and instructions in a clear and simple manner;
- .4 verifying that specified requirements are observed; and
- .5 reviewing the SMS and reporting its deficiencies to the shore-based management.

6 RESOURCES AND PERSONNEL

6.1 The Company should ensure that the master is:

- .1 properly qualified for command;
- .2 fully conversant with the Company's SMS; and
- .3 given the necessary support so that the master's duties can be safely performed.

6.2 The Company should ensure that each ship is manned with qualified, certificated and medically fit seafarers in accordance with national and international requirements.

6.3 The Company should establish procedures to ensure that new personnel and personnel transferred to new assignments related to safety and protection of the environment are given proper familiarization with their duties. Instructions which are essential to be provided prior to sailing should be identified, documented and given.

7 DEVELOPMENT OF PLANS FOR SHIPBOARD OPERATIONS

The Company should establish procedures for the preparation of plans and instructions, including checklist as appropriate, for key shipboard operations concerning the safety of the ship and the prevention of pollution. The various tasks involved should be defined and assigned to qualified personnel.

Port State Control

SOLAS chapter XI-1 – Special measures to enhance maritime safety

Regulation 4 – Port State control on operational requirements

1 A ship when in a port of another Contracting Government is subject to control by officers duly authorized by such Government concerning operational requirements in respect of the safety of ships, when there are clear grounds for believing that the master or crew are not familiar with essential shipboard procedures relating to the safety of ships.

2 In the circumstances defined in paragraph 1 of this regulation, the Contracting Government carrying out the control shall take such steps as will ensure that the ship shall not sail until the situation has been brought to order in accordance with the requirements of the present Convention.

3 Procedures relating to the port State control prescribed in regulation I/19 shall apply to this regulation.

4 Nothing in the present regulation shall be construed to limit the rights and obligations of a Contracting Government carrying out control over operational requirements specifically provided for in the regulations.

MARPOL Annex I, regulation 11 – Port State control on operational requirements

(Referring to the Procedures for port State control, adopted by the Organization by resolution A.787(19), as amended by resolution A.882(21))

1 A ship when in a port or an offshore terminal of another Party is subject to inspection by officers duly authorized by such Party concerning operational requirements under this annex, where there are clear grounds for believing that the master or crew are not familiar with essential shipboard procedures relating to the prevention of pollution by oil.

2 In the circumstances given in paragraph 1 of this regulation, the Party shall take such steps as will ensure that the ship shall not sail until the situation has been brought to order in accordance with the requirements of this annex.

3 Procedures relating to the port State control prescribed in article 5 of the present Convention shall apply to this regulation.

4 Nothing in this regulation shall be construed to limit the rights and obligations of a Party carrying out control over operational requirements specifically provided for in the present Convention.

IMO resolution A.787(19) – Procedures for Port State Control

3.5 Guidelines for control of operational requirements

3.5.1 When, during a port State control inspection, the PSCO has clear grounds according to 2.3, the following onboard operational procedures may be checked in accordance with this resolution.

...

3.5.3 Having assessed the extent to which operational requirements are complied with, the PSCO then has to exercise professional judgement to determine whether the operational proficiency of the crew as a whole is of a sufficient level to allow the ship to sail without danger to the ship or persons on board, or presenting an unreasonable threat of harm to the marine environment.

Manuals, instructions, etc.

3.5.51 The PSCO may determine if the appropriate crew members are able to understand the information given in manuals, instructions, etc., relevant to the safe condition and operation of the ship and its equipment and that they are aware of the requirements for maintenance, periodical testing, training, drills and recording of log-book entries.

3.5.52 The following information should, *inter alia*, be provided on board and PSCOs may determine whether it is in a language or languages understood by the crew and whether crew members concerned are aware of the contents and are able to respond accordingly:

.1

.....

.8 stability booklet, associated stability plans and stability information.

CHAPTER 4 – CONTRAVENTION AND DETENTION

4.1 Identification of a substandard ship

4.1.1 In general, a ship is regarded as substandard if the hull, machinery, equipment, or operational safety is substantially below the standards required by the relevant conventions or whose crew is not in conformance with the safe manning document, owing to, *inter alia*:

.1 the absence of principal equipment or arrangement required by the conventions;

.2 non-compliance of equipment or arrangement with relevant specifications of the conventions;

- .3 substantial deterioration of the ship or its equipment because of, for example, poor maintenance;
- .4 insufficiency of operational proficiency, or unfamiliarity of essential operational procedures by the crew; and
- .5 insufficiency of manning or insufficiency of certification of seafarers.

4.1.2 If these evident factors as a whole or individually make the ship unseaworthy and put at risk the ship or the life of persons on board or present an unreasonable threat of harm to the marine environment if it were allowed to proceed to sea, it should be regarded as a substandard ship.
