

MARITIME SAFETY COMMITTEE
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**REPORT OF THE MARITIME SAFETY COMMITTEE ON ITS
NINETY-SECOND SESSION**

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1 INTRODUCTION – ADOPTION OF THE AGENDA

1.1 The ninety-second session of the Maritime Safety Committee was held at IMO Headquarters from 12 to 21 June 2013 under the chairmanship of Mr. Christian Breinholt (Denmark). The Vice-Chairman of the Committee, Capt. M. Segar (Singapore), was also present.

1.2 The session was attended by delegations from Members and Associated Members; by representatives from the United Nations programmes, specialized agencies and other entities; by observers from the intergovernmental organizations with agreements of cooperation; and by observers from non-governmental organizations in consultative status; as listed in document MSC 92/INF.1.

1.3 The session was also attended by the Chairman of the Council, Mr. J.G. Lantz (United States) and the Chairman of the Facilitation Committee, Mr. Y. Melenas (Russian Federation).

Opening address of the Secretary-General

1.4 The Secretary-General welcomed participants and delivered his 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>.

Chairman's remarks

1.5 The Chairman thanked the Secretary-General for his opening address and stated that his advice and requests would be given every consideration in the deliberations of the Committee.

Adoption of the agenda and related matters

1.6 The Committee adopted the agenda (MSC 92/1) and agreed to be guided by the provisional timetable (MSC 92/1/1) on the understanding that it was subject to adjustments depending on the progress made each day. The agenda, as adopted, with a list of documents considered under each agenda item, is set out in document MSC 92/INF.15.

Credentials

1.7 The Committee noted that the credentials of the delegations attending the session were in due and proper form.

2 DECISIONS OF OTHER IMO BODIES

Outcome of FAL 38, LEG 100 and MEPC 65

2.1 The Committee noted the decisions of FAL 38 (MSC 92/2), LEG 100 (MSC 92/2/1) and MEPC 65 (MSC 92/2/2) and took appropriate action under the relevant agenda items.

3 CONSIDERATION AND ADOPTION OF AMENDMENTS TO MANDATORY INSTRUMENTS

GENERAL

3.1 Contracting Governments to the 1974 SOLAS Convention were invited to consider and adopt proposed amendments to:

- .1 chapters III, V and XI-1 of the 1974 SOLAS Convention, as amended, in accordance with the provisions of article VIII of the Convention;
- .2 the International Code of Safety for High-Speed Craft, 1994 (1994 HSC Code), in accordance with the provisions of article VIII and regulation X/1.1 of the Convention;
- .3 the International Code of Safety for High-Speed Craft, 2000 (2000 HSC Code), in accordance with the provisions of article VIII and regulation X/1.2 of the Convention;
- .4 the International Management Code for the Safe Operation of Ships and for Pollution Prevention (International Safety Management (ISM) Code), in accordance with the provisions of article VIII and regulation IX/1.1 of the Convention; and
- .5 the International Maritime Solid Bulk Cargoes (IMSBC) Code, in accordance with the provisions of article VIII and regulation VI/1-1.1 of the Convention.

3.2 Contracting Governments constituting more than one third of the total of Contracting Governments to the 1974 SOLAS Convention were present during the consideration and adoption of the said amendments by the expanded Maritime Safety Committee, in accordance with article VIII(b)(iii) and VIII(b)(iv) of the Convention.

3.3 The proposed amendments to the 1974 SOLAS Convention and to codes mandatory under the Convention had been circulated, in accordance with SOLAS article VIII(b)(i), to all IMO Members and Contracting Governments to the Convention by Circular letters No.3317 of 23 October 2012, No.3333 of 10 December 2012 and No.3334 of 11 December 2012.

3.4 Contracting Parties to the International Convention for Safe Containers, 1972 (1972 CSC), were invited to consider and adopt proposed amendments to the annexes to the Convention. Contracting Parties constituting more than one third of the total of Contracting Parties to the 1972 CSC were present during the consideration and adoption of the said amendments by the expanded Maritime Safety Committee, in accordance with the provisions of paragraphs 1 and 2 of article X of the 1972 CSC. The proposed amendments to the 1972 CSC had been circulated, in accordance with article X of the Convention, to all IMO Members and Contracting Parties to the Convention by Circular letter No.3336 of 11 December 2012.

3.5 Parties to the Protocol of 1988 relating to the International Convention on Load Lines, 1966 (1988 Load Lines Protocol) were invited to consider and adopt proposed amendments to the Protocol. Parties constituting more than one third of the total of Parties to the Protocol were present during the consideration and adoption of the said amendments by the expanded Maritime Safety Committee, in accordance with the provisions of paragraph 2(f)(ii)(bb) of article VI of the 1988 Load Lines Protocol. The proposed

amendments to the 1988 Load Lines Protocol had been circulated, in accordance with article VI of the Protocol, to all IMO Members and Parties to the Protocol by Circular letter No.3335 of 11 December 2012.

3.6 The Committee was also invited to consider and:

- .1 adopt the Code for Recognized Organizations (RO Code), approved at MSC 91, in conjunction with the adoption of the associated amendments to SOLAS chapter XI-1 and the 1988 Load Lines Protocol, making the provisions of parts 1 and 2 of the Code mandatory under the Convention and the Protocol;
- .2 adopt draft MSC resolutions on *Amendments to the Code for the Construction and Equipment of Mobile Offshore Drilling Units (MODU Code)* (resolution A.414(XI)); *Amendments to the Code for the Construction and Equipment of Mobile Offshore Drilling Units, 1989 (1989 MODU Code)* (resolution A.649(16)) and *Amendments to the Code for the Construction and Equipment of Mobile Offshore Drilling Units, 2009 (2009 MODU Code)* (resolution A.1023(26)), respectively;
- .3 adopt a draft MSC resolution on *Amendments to the Code of Safety for Dynamically Supported Craft (DSC Code)* (resolution A.373(X));
- .4 approve a draft MSC circular on Early implementation of amendments (02-13) to the International Maritime Solid Bulk Cargoes (IMSBC) Code;
- .5 approve a draft MSC circular on *Guidelines for the submission of information and completion of the format for the properties of cargoes not listed in the IMSBC Code and their conditions of carriage*;
- .6 approve a draft MSC circular on *Guidelines for developing and approving procedures for sampling, testing and controlling the moisture content for solid bulk cargoes that may liquefy*; and
- .7 approve a draft revised version of MSC.1/Circ.1395 on Lists of solid bulk cargoes for which a fixed gas fire-extinguishing system may be exempted or for which a fixed gas fire-extinguishing system is ineffective.

3.7 The Committee was further invited to consider the report of the Ad Hoc Working Group on the Consideration of the Issue of the Scope of Application of Amendments to SOLAS and Related Codes and Guidelines in a Holistic Manner, which was established by MSC 91 (see MSC 91/22, paragraph 3.33) and met during the five working days of FSI 21.

3.8 The Committee noted that document MSC 92/3/9 (Argentina) was considered under agenda item 8 since it related to the outcome of FP 56 (see paragraphs 8.2 and 8.3).

PROPOSED NEW MANDATORY INSTRUMENT

Proposed Code for Recognized Organizations

3.9 The Committee recalled that the draft Code for Recognized Organizations (RO Code) was developed by FSI 20 and approved by MSC 91, with a view to adoption at this session, in conjunction with the adoption of the related amendments to

SOLAS chapter XI-1 and the 1988 Load Lines Protocol, making the provisions of parts 1 and 2 of the Code mandatory under the Convention and the Protocol.

3.10 The Committee also recalled that MSC 91 had:

- .1 noted that the RO Code should be made mandatory under the SOLAS, MARPOL and Load Lines Conventions by amending those mandatory provisions referring to resolutions A.739(18) on *Guidelines for the authorization of organizations acting on behalf of the Administration* and A.789(19) on *Specifications on the survey and certification functions of recognized organizations acting on behalf of the Administration*, under the tacit acceptance procedure; and
- .2 concurred with the decision of MEPC 64 relating to the adoption of separate MSC and MEPC resolutions for adopting and amending the RO Code.

3.11 The Committee noted that MEPC 65 had already considered the draft RO Code, taking into account proposals for modifications/clarifications contained in documents MEPC 65/6/3 (IACS) and MSC 92/3/12 (Democratic People's Republic of Korea), as well as other proposals made during MEPC 65, and had adopted the RO Code by resolution MEPC.237(65). MEPC 65 had also adopted resolution MEPC.238(65) on *Amendments to the annex of the Protocol of 1978 relating to the International Convention for the Prevention of Pollution from Ships, 1973*, making parts 1 and 2 of the Code mandatory under Annexes I and II of MARPOL.

3.12 The Committee also noted that the draft text of the RO Code, as adopted by MEPC 65, was contained in document MSC 92/WP.5, including track changes indicating changes made by MEPC 65 to the draft Code, as approved by MSC 91 (MSC 91/22/Add.1, annex 19).

3.13 The Committee further noted that MEPC 65 had invited the Committee to ensure that the text of the RO Code adopted by both Committees remains identical.

3.14 In order to ensure consistency, the Committee considered the draft text of the RO Code as adopted by MEPC 65 (MSC 92/WP.5) and instructed the drafting group to prepare the final text of the Code, subject to editorial improvements, if any.

Effective date of the Code

3.15 The Committee noted that the Code would take effect on 1 January 2015 upon entry into force of the related amendments to SOLAS chapter XI-1 and the 1988 Load Lines Protocol, and in line with resolution MEPC.237(65).

PROPOSED AMENDMENTS TO THE 1974 SOLAS CONVENTION

Proposed amendments to SOLAS chapter III

Regulation 19 – Emergency training and drills

3.16 The Committee recalled that the proposed amendments to SOLAS regulations III/19.2.2 and III/19.2.3 had been approved by MSC 91, following consideration of urgent issues raised by the Secretary-General related to the **Costa Concordia**, and that other proposed amendments to SOLAS regulation III/19 related to enclosed space entry and rescue drills had been developed by DSC 17 and approved by MSC 91.

3.17 The Committee noted that no comments had been submitted on the draft amendments to SOLAS regulations III/19.2.2 and III/19.2.3.

3.18 The Committee had for its consideration document MSC 92/3/10 (Democratic People's Republic of Korea), commenting on the proposed amendments related to enclosed space entry and rescue drills and proposing a new requirement for each enclosed space entry and rescue drill to be included, as follows: "checking and use of instruments for measuring the atmosphere in enclosed spaces".

3.19 The Committee recalled that, at MSC 91, it had considered a proposal by DSC 17 (DSC 17/17, annex 8), to introduce mandatory carriage requirements for appropriate atmosphere testing instruments on board ships, and agreed to include, in the 2012-2013 biennial agenda of the DSC Sub-Committee and in the provisional agenda for DSC 18, an unplanned output on "Development of amendments to SOLAS and the relevant codes concerning mandatory carriage of appropriate atmosphere testing instruments on board ships", taking into account document MSC 91/13/3, with a target completion year of 2013, in association with the FP, BLG and STW Sub-Committees as and when requested by the DSC Sub-Committee.

3.20 During the ensuing discussions, the following views were expressed on the proposal included in document MSC 92/3/10:

- .1 The majority of delegations which spoke expressed support for the proposal;
- .2 Some delegations, in supporting the proposal, indicated that this kind of equipment was already on board many ships and, for safety reasons, they should be checked before entering and using them in enclosed spaces;
- .3 Some delegations were of the view that it would be premature to consider the addition of this requirement at this stage and that the Committee should wait for the relevant outcome of the DSC Sub-Committee before taking a final decision in this respect; and
- .4 Other delegations were hesitant in supporting the proposal since the proposed new requirement could be interpreted as part of the provisions of the new subparagraph 3.6.2.1 (i.e. "checking and use of personal protective equipment required for entry").

3.21 After consideration, the Committee decided to include the additional requirement for each enclosed space entry and rescue drill related to the checking and use of instruments for measuring the atmosphere in enclosed spaces, as proposed in document MSC 92/3/10.

3.22 The Committee confirmed the contents of the proposed amendments to SOLAS regulation III/19, subject to editorial improvements, if any.

Proposed amendments to SOLAS chapter V

Regulation 19 – Carriage requirements for shipborne navigational systems and equipment

3.23 The Committee had for its consideration document MSC 92/3/7 (Bahamas and Denmark), proposing amendments to SOLAS regulation V/19.1 with the aim to clarify the application of the mandatory carriage of a Bridge Navigational Watch Alarm System (BNWAS), as adopted by resolution MSC.282(86), for ships constructed before 1 July 2002.

3.24 The Committee noted that the provisions of SOLAS regulation V/19.1 "Application and requirements" were not amended by resolution MSC.282(86) and that no comments had been received on the proposed amendments.

3.25 After consideration, the Committee agreed to allow a phase-in of implementation for ships constructed before 1 July 2002 and exemptions for ships that would be taken permanently out of service within a period of two years after implementation.

3.26 The Committee confirmed the contents of the proposed amendments to SOLAS regulation V/19.1, subject to the inclusion of the above clarifications and editorial improvements, if any.

Proposed amendments to SOLAS chapter XI-1

Regulation 1 – Authorization of recognized organizations

3.27 The Committee recalled that the proposed amendments to SOLAS regulation XI-1/1 had been developed by FSI 20 and approved by MSC 91 in order to make parts 1 and 2 of the RO Code mandatory under the provisions of the SOLAS Convention.

3.28 The Committee recalled also that similar amendments to MARPOL Annexes I and II had already been adopted by MEPC 65 by resolution MEPC.238(65) making parts 1 and 2 of the RO Code mandatory under the provisions of the MARPOL Convention.

3.29 The Committee considered the draft amendments to SOLAS regulation XI-1/1, including additional modifications proposed by the Secretariat in order to clarify some provisions contained in the version approved by MSC 91, with an editorial correction in subparagraph (b) to replace the word "amended" with the word "adopted" and the deletion of the text within square brackets in subparagraph (c).

3.30 The Committee noted that no comments had been submitted on the draft amendments to SOLAS regulation XI-1/1 and confirmed their contents, as modified by the Secretariat, subject to editorial improvements, if any.

Date of entry into force of the proposed amendments

3.31 The Committee agreed that the SOLAS amendments proposed for adoption at the current session should be deemed to have been accepted on 1 July 2014 and to enter into force on 1 January 2015.

PROPOSED AMENDMENTS TO MANDATORY CODES

Proposed amendments to the 1994 and 2000 HSC Codes

3.32 The Committee recalled that the proposed amendments to the 1994 and 2000 HSC Codes had been developed by DSC 17 and approved by MSC 91, as part of the consequential amendments related to the proposed amendments to SOLAS regulation III/19 relating to enclosed space entry and rescue drills and, having noted that no comments had been submitted on the draft amendments, confirmed their contents, subject to editorial improvements, if any.

Date of entry into force of the proposed amendments

3.33 The Committee agreed that the amendments to the 1994 and 2000 HSC Codes, proposed for adoption at the current session, should be deemed to have been accepted on 1 July 2014 and enter into force on 1 January 2015.

Proposed amendments to the ISM Code

3.34 The Committee recalled that the proposed amendments to the ISM Code had been developed by STW 43 and approved by MSC 91, and, having noted that no comments had been submitted on the draft amendments, confirmed their contents, subject to editorial improvements, if any.

3.35 The Committee also recalled that, at MSC 91, it had approved a new paragraph to be added to the foreword of the publication of the Code to clarify the intent of footnotes and that the Secretariat had been requested to amend the text of the publication accordingly (MSC 91/22, paragraph 11.8).

Date of entry into force of the proposed amendments

3.36 The Committee agreed that the amendments to the ISM Code, proposed for adoption at the current session, should be deemed to have been accepted on 1 July 2014 and to enter into force on 1 January 2015.

Proposed amendments to the IMSBC Code

3.37 The Committee recalled that the proposed amendments to the IMSBC Code had been developed by DSC 17 and finalized by E&T 18.

3.38 The Committee had for its consideration document MSC 92/3/8 (Norway) commenting on the proposed amendments and proposing an adjustment to the bulk density and the corresponding stowage factor for ilmenite (upgraded) to cover Norwegian ilmenite.

3.39 Having concurred with the above proposal, the Committee confirmed the contents of the draft amendments to the IMSBC Code, subject to editorial improvements, if any.

Date of entry into force of the proposed amendments

3.40 The Committee agreed that the amendments to the IMSBC Code, proposed for adoption at the current session, should be deemed to have been accepted on 1 July 2014 and to enter into force on 1 January 2015.

3.41 The Committee also agreed that, in accordance with normal practice, Contracting Governments to the SOLAS Convention might apply the above amendments to the IMSBC Code from 1 January 2014, on a voluntary basis.

PROPOSED AMENDMENTS TO THE 1972 CSC***Proposed amendments to annexes I, II, III and IV of the 1972 CSC***

Annex I – Regulations for the testing, inspection, approval and maintenance of containers

Annex II – Structural safety requirements and tests

Annex III – Control and verification

Annex IV – Definitions

3.42 The Committee recalled that the proposed amendments to the 1972 CSC had been developed by DSC 17 and approved by MSC 91 and noted that no comments had been received on the draft amendments.

3.43 After consideration, the Committee agreed to:

- .1 remove the square brackets around the date "1 July 2014" in the new proposed paragraph 5 of regulation I/1; and
- .2 move the contents of the draft annex IV (definitions) into annexes I and II and delete draft annex IV.

3.44 The Committee confirmed the contents of the proposed amendments to the annexes of the 1972 CSC, including the above modifications and subject to editorial improvements, if any.

Date of entry into force of the proposed amendments

3.45 The Committee agreed that the amendments to the 1972 CSC, proposed for adoption at the current session, should be deemed to have been accepted on 1 January 2014 and to enter into force on 1 July 2014.

PROPOSED AMENDMENTS TO THE 1988 LOAD LINES PROTOCOL

Proposed amendments to annex I – Regulations for determining Load Lines

Regulation 2-1 – Authorization of recognized organizations

3.46 The Committee recalled that the proposed amendments to the 1988 Load Lines Protocol had been developed by FSI 20 and approved by MSC 91 in order to make parts 1 and 2 of the RO Code mandatory under the provisions of the 1988 Load Lines Protocol.

3.47 The Committee considered the draft amendments to regulation I/2-1, including additional modifications proposed by the Secretariat in order to clarify some provisions contained in the version approved by MSC 91, with an editorial correction in subparagraph (b) to replace the word "amended" with the word "adopted" and the deletion of the text within square brackets in subparagraph (c).

3.48 The Committee noted that no comments had been submitted on the draft amendments to the 1988 Load Lines Protocol and confirmed their contents, as modified by the Secretariat, subject to editorial improvements, if any.

Date of entry into force of the proposed amendments

3.49 The Committee agreed that the amendments to the 1988 Load Lines Protocol proposed for adoption at the current session should be deemed to have been accepted on 1 July 2014 and enter into force on 1 January 2015.

NON-MANDATORY INSTRUMENTS

Proposed consequential amendments to the 1979, 1989 and 2009 MODU Codes and the DSC Code

3.50 The Committee recalled that the proposed amendments to the 1979, 1989 and 2009 MODU Codes and the DSC Code had been developed by DSC 17 in order to be adopted in conjunction with the relevant amendments to SOLAS regulation III/19 related to enclosed space entry and rescue drills.

3.51 The Committee noted that no comments had been submitted on the draft amendments to the 1979, 1989 and 2009 MODU Codes and the DSC Code and agreed to add recommendations in the requisite resolutions inviting all Governments concerned to take appropriate steps to give effect to the amendments to the codes on or after 1 January 2015, in conjunction with the related amendments to SOLAS regulation III/19.

3.52 With regard to the draft amendments to the DSC Code, the Committee agreed to delete the words "and in accordance with SOLAS regulation III/19.3.5", since these words were not used in the draft amendments to the 1979, 1989 and 2009 MODU Codes.

3.53 The Committee confirmed the contents of the proposed amendments to the 1979, 1989 and 2009 MODU Codes and the DSC Code, including the above modifications, and subject to editorial improvements, if any.

RELATED DRAFT MSC CIRCULARS

Draft MSC circular on Early implementation of amendments to the International Maritime Solid Bulk Cargoes (IMSBC) Code and other draft MSC circulars associated with the IMSBC Code

3.54 The Committee recalled that, at MSC 91, it had agreed to forward the draft MSC circular on Early implementation of amendments (02-13) to the International Maritime Solid Bulk Cargoes (IMSBC) Code for consideration at this session, with a view to approval, together with the associated amendments to the IMSBC Code.

3.55 The Committee considered the draft MSC circular on Early implementation of amendments (02-13) to the International Maritime Solid Bulk Cargoes (IMSBC) Code, including the following draft MSC circulars associated with the IMSBC Code, which had been prepared by E&T 18, as instructed by DSC 17: the draft *Guidelines for the submission of information and completion of the format for the properties of cargoes not listed in the IMSBC Code and their conditions of carriage*; the draft *Guidelines for developing and approving procedures for sampling, testing and controlling the moisture content for solid bulk cargoes that may liquefy*; and the draft revision to MSC.1/Circ.1395 on Lists of solid bulk cargoes for which a fixed gas fire-extinguishing system may be exempted or for which a fixed gas fire-extinguishing system is ineffective.

3.56 Having noted that no comments had been received on the proposed draft MSC circulars, the Committee agreed on the following additional modifications to the text of the draft MSC circulars contained in document MSC 92/3/5:

- .1 annex 1: deleting the square brackets around the words "as soon as practicable" in paragraph 1; and
- .2 annexes 2 and 3: deleting the square brackets in paragraphs 1 and 2.

3.57 The Committee noted that amendment (02-13) to the IMSBC Code was expected to enter into force on 1 January 2015 and that Contracting Governments might apply them from 1 January 2014, on a voluntary basis in accordance with usual practice. In this context, the Committee also noted that DSC 18 would consider further amendments to the Code with respect to iron ore fines, which might be included in the next package of amendments to the Code (03-15), based on the outcome of the correspondence group established by DSC 17 and taking into account relevant research outcomes.

3.58 The Committee confirmed the contents of the draft MSC circulars, including the above modifications, subject to editorial improvements, if any.

Report of the Ad Hoc Working Group on the Consideration of the issue of the scope of application of amendments to SOLAS and related codes and guidelines

3.59 The Committee recalled that, at MSC 91, having considered issues related to the drafting of amendments to the SOLAS Convention and related mandatory codes, it had established the Ad Hoc Working Group on the Consideration of the Issue of the Scope of Application of Amendments to SOLAS and Related Codes and Guidelines in a Holistic Manner (the group), which had met during FSI 21 under the chairmanship of Mr. Motonobu Tsuchiya (United Kingdom) and with the terms of reference set out in paragraph 3.33 of document MSC 91/22.

3.60 The Committee had for its consideration document MSC 92/3/6 (Secretariat) containing the report of the group and the following commenting documents:

- .1 MSC 92/3/11 (Democratic People's Republic of Korea) providing comments with respect to the three options considered by the group for the intervals of adoption and entry into force of amendments to the SOLAS Convention;
- .2 MSC 92/3/13 (Germany and Spain) commenting on the preliminary drafting procedure prepared by the Chairman of the group (MSC 92/3/6, annex 2), including an example of how SOLAS regulation II-2/1 would have evolved following this drafting procedure;
- .3 MSC 92/3/14 (Spain) commenting on the proposals made by the group and providing an example of how regulations contained in SOLAS chapter II-2 could be redrafted when performing a comprehensive revision of the chapter;
- .4 MSC 92/3/15 (Germany) providing comments on inconsistencies identified with regard to the terminology used in different chapters of the SOLAS Convention and recommending that, in order to guarantee uniform application of the provisions of the SOLAS Convention to the greatest possible extent, any systematic approach to be developed should address all aspects related to the drafting of amendments other than the application date, location and methodology of application provisions and exemptions; and
- .5 MSC 92/3/16 (Germany) commenting on annexes 2 and 3 relating to the drafting of amendments to the SOLAS Convention, in particular with respect to the use of date of contract.

3.61 The Committee considered the report of the group along with the commenting documents and took action as indicated in the ensuing paragraphs.

3.62 The Committee recalled that the four-year interval for the entry into force of amendments to its conventions and codes had been adopted in the past by MSC 59, allowing shorter periods under exceptional circumstances if, on the basis of experience, it was deemed necessary to do so in order to rectify a mistake or for any other compelling reason. The Committee noted that the above practice had been discontinued during recent years.

3.63 The Committee also noted:

- .1 the list of issues related to the scope of application of amendments to the SOLAS Convention and related mandatory instruments identified by the group;
- .2 the main drafting challenges and considerations related to the improvement of current drafting practices, including the issues related to the use of the expression "all ships" in different chapters of the SOLAS Convention, as pointed out by Germany in document MSC 92/3/15;
- .3 the issues and observations related to the publishing of the SOLAS Convention and the authentic text of adopted amendments;
- .4 the discussions of the group related to the methodology for amending the SOLAS Convention and related codes and mandatory instruments, including the drafting of amendments and, in particular, that the group could not reach consensus on the specific use of any of the methodologies discussed; and
- .5 the progress made with the preparation of draft interim guidance on drafting of amendments to SOLAS chapters II-2 and III.

3.64 With regard to making the "SOLAS on the web" product available to Member States and accredited observer organizations, at no cost, in order to be used as a reference to a continuous updated version of the SOLAS Convention, the Committee agreed to request the Secretariat to consider the proposal made by the group and report back to the Committee in due course.

3.65 With respect to the issues related to the authentic text of adopted amendments, the Committee noted that the Secretariat was implementing a system in IMODOCS in order to make copies of the authentic text of adopted amendments electronically available and that Member States would be advised accordingly by means of a circular letter, in due course.

3.66 In order to facilitate consideration of the group's report and the commenting documents and in the absence of a working group at this session to review in detail the work of the group and related documents, the Chairman invited the Committee to give general consideration to the issues in plenary, with a view to establishing a correspondence group to continue the work on the drafting of amendments intersessionally and finalization of the guidance, at its next session. In this respect, the Chairman indicated that the drafting group on amendments could be instructed to prepare draft terms of reference for the above correspondence group, taking into account any relevant decisions made in plenary. To provide clear directions, the Chairman put forward for consideration the following questions:

- .1 Should the four-year period for the entry into force of amendments to the SOLAS Convention and related mandatory codes be reinstated, allowing shorter intervals under exceptional circumstances? If yes, should amendments be adopted by a single resolution or by separate resolutions at each session of the Committee?;
- .2 Should the general application date of the chapter only be changed if a comprehensive revision of the chapter is made and, if so, should the application date of new requirements be indicated under each new or amended regulation?;

- .3 Should the guidance on drafting of amendments be applicable to the entire SOLAS Convention or only to certain chapters?; and
- .4 Should the *Guidelines on the organization and method of work of the Committees* be amended so as to include process control elements?

3.67 Having agreed with the proposed way forward, the Committee considered the above questions and agreed that:

- .1 the four-year period for the entry into force of amendments to the SOLAS Convention and related mandatory codes should be reinstated, allowing shorter intervals under clearly defined exceptional circumstances, with adoption of amendments at each session of the Committee by separate resolutions (with the same date of entry into force), as appropriate;
- .2 the general application date of a chapter should only be changed if a comprehensive revision of the chapter is made and, after that, the application date of new requirements should be indicated under each new or amended regulation;
- .3 the guidance on drafting of amendments should be applicable to the entire SOLAS Convention and related mandatory codes; and
- .4 the *Guidelines on the organization and method of work of the Committees* should not be amended at this stage, with the understanding that this should be reconsidered in the future once the guidance on the drafting of amendments had been finalized and tested, including the consideration of whether the application of the guidance could be expanded to other Conventions and instruments (e.g. MARPOL Convention).

ESTABLISHMENT OF THE DRAFTING GROUP

3.68 Following discussion, the Committee established an ad hoc drafting group and instructed it, taking into account the decisions taken in plenary, to prepare, for consideration by the Committee with a view to adoption or approval, as appropriate:

- .1 the final text of the draft amendments to the 1974 SOLAS Convention, as amended, including the 1994 and 2000 HSC Codes and the ISM and IMSBC Codes, together with the associated MSC resolutions;
- .2 the final text of the RO Code and the associated draft MSC resolution;
- .3 the final text of the draft amendments to the 1972 CSC and the associated draft MSC resolution;
- .4 the final text of the draft amendments to the 1988 Load Lines Protocol, as amended, and the associated draft MSC resolution;
- .5 the final text of the draft amendments to the 1979, 1989 and 2009 MODU Codes and the DSC Code, and the associated draft MSC resolutions;
- .6 the final text of the draft MSC circular on Early implementation of amendments (02-13) to the International Maritime Solid Bulk Cargoes (IMSBC) Code;

- .7 the final text of the draft MSC circular on *Guidelines for the submission of information and completion of the format for the properties of cargoes not listed in the IMSBC Code and their conditions of carriage*;
- .8 the final text of the draft MSC circular on *Guidelines for developing and approving procedures for sampling, testing and controlling the moisture content for solid bulk cargoes that may liquefy*;
- .9 the final text of the draft MSC circular on Lists of solid bulk cargoes for which a fixed gas fire-extinguishing system may be exempted or for which a fixed gas fire-extinguishing system is ineffective (to be issued as MSC.1/Circ.1395/Rev.1); and
- .10 draft terms of reference for the Correspondence Group on Development of Guidance on Drafting of Amendments to the SOLAS Convention and Related Mandatory Codes.

REPORT OF THE DRAFTING GROUP

3.69 Having considered the part of the report of the drafting group related to this agenda item (MSC 92/WP.7), the Committee approved it in general and took action as indicated below (see also paragraphs 8.3 and 8.4).

Adoption of a new mandatory instrument

Adoption of the Code for Recognized Organizations

3.70 The Committee considered the final text of the code prepared by the drafting group (MSC 92/WP.7, annex 1) and, having noted minor editorial modifications, adopted the Code for Recognized Organizations by resolution MSC.349(92), as set out in annex 1.

3.71 The delegation of Ireland made a statement in relation to the adoption of the RO Code, as set out in annex 46. The delegations of Belgium, Bulgaria, Cyprus, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovenia, Spain, Sweden and the United Kingdom aligned themselves with the statement provided by Ireland.

3.72 In response to the aforementioned statement, the delegation of Japan made a statement, which is also set out in annex 46. The delegations of Angola, Antigua and Barbuda, Australia, the Bahamas, Belize, Canada, China, the Cook Islands, Dominica, India, Indonesia, Kenya, Kiribati, Liberia, Malaysia, the Marshall Islands, Mexico, New Zealand, Nigeria, Panama, the Republic of Korea, the Russian Federation, Singapore, the United Republic of Tanzania, the United States and Vanuatu aligned themselves with the statement made by Japan.

Adoption of amendments to the 1974 SOLAS Convention and mandatory codes

Adoption of amendments to the 1974 SOLAS Convention

3.73 The expanded Committee, including the delegations of 111 Contracting Governments to the 1974 SOLAS Convention, considered the final text of the proposed amendments to the Convention, prepared by the drafting group (MSC 92/WP.7, annex 2), and adopted the amendments unanimously by resolution MSC.350(92), as set out in annex 2.

3.74 In adopting resolution MSC.350(92), the expanded Committee determined, in accordance with article VIII(b)(vi)(2)(bb) of the 1974 SOLAS Convention, that the adopted amendments to the Convention should be deemed to have been accepted on 1 July 2014 (unless, prior to that date, objections are communicated to the Secretary-General, as provided for in article VIII(b)(vi)(2) of the Convention) and should enter into force on 1 January 2015, in accordance with the provisions of article VIII thereof.

Adoption of amendments to the 1994 and 2000 HSC Codes

3.75 The expanded Committee, including delegations of 111 Contracting Governments to the 1974 SOLAS Convention, considered the final text of the proposed amendments to the 1994 and 2000 HSC Codes, prepared by the drafting group (MSC 92/WP.7, annexes 3 and 4) and, having agreed to remove the square brackets in the draft amendments to the codes, adopted the amendments unanimously by resolutions MSC.351(92) and MSC.352(92), as set out in annexes 3 and 4, respectively.

3.76 In adopting resolutions MSC.351(92) and MSC.352(92), the expanded Committee determined, in accordance with article VIII(b)(vi)(2)(bb) of the 1974 SOLAS Convention, that the adopted amendments to the 1994 and 2000 HSC Codes should be deemed to have been accepted on 1 July 2014 (unless, prior to that date, objections are communicated to the Secretary-General, as provided for in article VIII(b)(vi)(2) of the Convention) and should enter into force on 1 January 2015, in accordance with the provisions of SOLAS article VIII.

Adoption of amendments to the ISM Code

3.77 The expanded Committee, including delegations of 111 Contracting Governments to the 1974 SOLAS Convention, considered the final text of the proposed amendments to the ISM Code, prepared by the drafting group (MSC 92/WP.7, annex 5), and adopted the amendments unanimously by resolution MSC.353(92), as set out in annex 5.

3.78 In adopting resolution MSC.353(92), the expanded Committee determined, in accordance with article VIII(b)(vi)(2)(bb) of the 1974 SOLAS Convention, that the adopted amendments to the ISM Code should be deemed to have been accepted on 1 July 2014 (unless, prior to that date, objections are communicated to the Secretary-General, as provided for in article VIII(b)(vi)(2) of the Convention) and should enter into force on 1 January 2015, in accordance with the provisions of SOLAS article VIII.

Adoption of amendments to the IMSBC Code

3.79 The expanded Committee, including delegations of 111 Contracting Governments to the 1974 SOLAS Convention, having considered the final text of the proposed amendments to the IMSBC Code, prepared by the drafting group (MSC 92/WP.7, annex 6), adopted the amendments unanimously by resolution MSC.354(92), as set out in annex 6, and requested the Secretariat to update the table of contents of the code accordingly.

3.80 In adopting resolution MSC.354(92), the expanded Committee determined, in accordance with article VIII(b)(vi)(2)(bb) of the 1974 SOLAS Convention, that the adopted amendments to the IMSBC Code should be deemed to have been accepted on 1 July 2014 (unless, prior to that date, objections are communicated to the Secretary-General, as provided for in article VIII(b)(vi)(2) of the Convention) and should enter into force on 1 January 2015, in accordance with the provisions of SOLAS article VIII.

Adoption of amendments to the 1972 CSC

3.81 The Committee, including delegations of 64 Contracting Parties to the 1972 CSC, considered the final text of the proposed amendments to the Convention, prepared by the drafting group (MSC 92/WP.7, annex 7), and adopted the amendments unanimously by resolution MSC.355(92), as set out in annex 7.

3.82 In adopting resolution MSC.355(92), the Committee determined, in accordance with paragraph 2 of article X of the 1972 CSC, that the adopted amendments to the Convention should enter into force on 1 July 2014 unless, prior to 1 January 2014, five or more of the Contracting Parties notify the Secretary-General of their objection to the amendments, in accordance with paragraph 3 of article X thereof.

Adoption of amendments to the 1988 Load Lines Protocol

3.83 The expanded Committee, including the delegations of 77 Parties to the 1988 Load Lines Protocol, considered the final text of the proposed amendments to annex I to the Protocol, prepared by the drafting group (MSC 92/WP.7, annex 8), and adopted the amendments unanimously by resolution MSC.356(92), as set out in annex 8.

3.84 In adopting resolution MSC.356(92), the expanded Committee determined, in accordance with article VI of the 1988 Load Lines Protocol, that the adopted amendments to the Protocol should be deemed to have been accepted on 1 July 2014 (unless, prior to that date, objections are communicated to the Secretary-General, as provided for in article VI of the 1988 Load Lines Protocol) and should enter into force on 1 January 2015, in accordance with the provisions of article VI of the 1988 Load Lines Protocol.

Adoption/approval of amendments to non-mandatory instruments

3.85 The Committee considered the final text of amendments to non-mandatory instruments prepared by the drafting group (MSC 92/WP.7, annexes 9 to 12) and, having agreed to remove the square brackets in the draft amendments to the 1979, 1989 and 2009 MODU Codes:

- .1 adopted the amendments to:
 - .1 the 1979, 1989 and 2009 Codes for the Construction and Equipment of Mobile Offshore Drilling Units (1979, 1989 and 2009 MODU Codes), by resolutions MSC.357(92), MSC.358(92) and MSC.359(92), as set out in annexes 9, 10 and 11, respectively; and
 - .2 the Code of Safety for Dynamically Supported Craft (DSC Code), by resolution MSC.360(92), as set out in annex 12; and
- .2 approved the following MSC circulars:
 - .1 MSC/Circ.1452 on Early implementation of amendments (02-13) to the International Maritime Solid Bulk Cargoes (IMSBC) Code;
 - .2 MSC/Circ.1453 on *Guidelines for the submission of information and completion of the format for the properties of cargoes not listed in the IMSBC Code and their conditions of carriage*;

- .3 MSC/Circ.1454 on *Guidelines for developing and approving procedures for sampling, testing and controlling the moisture content for solid bulk cargoes which may liquefy*; and
- .4 MSC/Circ.1395/Rev.1 on Lists of solid bulk cargoes for which a fixed gas fire-extinguishing system may be exempted or for which a fixed gas fire-extinguishing system is ineffective.

Other matters

Establishment of a correspondence group

3.86 To progress the work intersessionally, the Committee established the Correspondence Group on the Development of Guidance on Drafting of Amendments to the SOLAS Convention and Related Mandatory Codes, under the coordination of the United Kingdom¹, and instructed it, taking into account relevant decisions made at this session (see paragraph 3.67), to:

- .1 review and finalize the draft guidance on drafting of amendments to the SOLAS Convention and related mandatory codes, taking into account comments and recommendations provided in documents MSC 92/3/13, MSC 92/3/14 and MSC 92/3/16 and issues contained in document MSC 92/3/6 that were not addressed at MSC 92;
- .2 review and finalize the draft "roadmap" for the implementation of the methodology for existing and future amendments (MSC 92/3/6, annex 4); and
- .3 submit a report to MSC 93, with the view to finalization of the above guidance and "roadmap" at that session.

3.87 The Committee agreed that, during the preparation of the above guidance, the correspondence group should, in particular:

- .1 address the consequences of the "four-year period entry-into-force" scheme with separate MSC resolutions and develop details of a workable solution, which might entail at least the following:
 - .1 further detailed criteria for allowing "exceptional circumstances" for the entry into force of amendments between the regular four-year period; and
 - .2 any other possible consequential changes in the work methods and drafting practices;

¹

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- .2 further develop the relevant part of the guidance to reflect decisions taken at this session; and
- .3 further review the following issues that were not addressed at this session:
 - .1 the main drafting challenges and considerations related to the improvement of current drafting practices;
 - .2 the MSC drafting group on amendments to be instructed to review texts of draft amendments at the approval stage;
 - .3 possible instruction to the Secretariat to produce, where applicable, track-change versions of proposed amendments, as follows:
 - .1 at the sub-committee level in relation to the process of the work; and
 - .2 at the MSC drafting group prior to the final adoption of the proposed amendments; and
- .4 keep the list of issues related to the scope of application under review (MSC 92/3/6, annex 1) and address them as part of the guidance, as appropriate.

3.88 The Committee also agreed that the correspondence group should also address, if time permits, the issue relating to "drafting terminology" (MSC 92/3/15 and relevant parts of document MSC 92/3/6).

3.89 The Committee endorsed the views of the group related to the need to establish a working group at MSC 93 to review the outcome of the correspondence group at its next session in order to finalize the guidance and the need for the assistance and participation of the Secretariat during the work of the correspondence group (see paragraph 23.31.3).

INSTRUCTIONS TO THE SECRETARIAT

3.90 In adopting the aforementioned amendments, new mandatory instrument and related instruments, the Committee authorized the Secretariat, when preparing the authentic texts of the amendments, as appropriate, to make any editorial corrections that may be identified, including updating references to renumbered paragraphs, and to bring to the attention of the Committee any errors or omissions which require action by the Contracting Governments to the 1974 SOLAS Convention or Contracting Parties to the 1972 CSC, or Parties to the 1988 Load Lines Protocol.

4 MEASURES TO ENHANCE MARITIME SECURITY

4.1 In considering the communication of security-related information to the Organization (MSC 92/4), the Committee noted the changes to the access to the GISIS Maritime Security Module and the responses received in relation to Circular letter No.3338 and that a number of Contracting Governments had yet to update their information and were, therefore, not fulfilling their obligations under SOLAS regulation XI-2/13 on "Communication of information". Noting that this is a mandatory requirement and that the information contained in the module is increasingly being used for operational purposes, the Committee urged Contracting Governments to nominate a national point of contact to interface with the Organization on maritime security matters by following the procedures outlined in Circular letter No.3338.

4.2 The Committee further urged Contracting Governments to provide detailed and complete information on:

- .1 the date of the latest review of the port facility security plan;
- .2 the contact details for PFSOs of ISPS-compliant port facilities; and
- .3 the contact details for designated recipients of maritime security-related communications, including:
 - .1 national authorities responsible for ship security;
 - .2 national authorities responsible for port facility security;
 - .3 recipients of SSAS alerts; of maritime security-related communications from other Contracting Governments; and of requests for assistance with security incidents; and
 - .4 names of recognized security organizations (RSOs), if any, approved by the State, and the terms of that approval.

4.3 The Committee noted the following outcomes of FAL 38 related to maritime security:

- .1 that the FAL Committee agreed it was desirable to harmonize the FAL Convention with the WCO SAFE Framework of Standards, but without making provisions within the Framework compulsory in the Convention, and agreed to refer the matter to the Working Group on General Review and Implementation of the Convention, for its consideration;
- .2 that the same working group had also been tasked with considering possible revisions to Standard 3.44 of the FAL Convention, in order to reduce discriminatory treatment of seafarers in respect of shore leave and access to shoreside medical facilities based on their nationality or religious belief; and
- .3 with respect to stowaway incidents, that in order to address under-reporting of the scale of problem of stowaways when compared to figures provided by the P&I Clubs, the FAL Committee had agreed to encourage Member States (particularly flag States) and non-governmental organizations to provide information on stowaway cases to IMO, making use of the GISIS module, and had also agreed that further technical co-operation actions were needed to reduce the number of stowaways through adequate security measures within the ports of these countries.

4.4 The Committee considered document MSC 92/4/1 (Republic of Korea) proposing to draft new guidelines for Companies performing security activities in accordance with the ISPS Code, and concluded that there was no need for new guidance on the matter at this time.

5 GOAL-BASED NEW SHIP CONSTRUCTION STANDARDS

Background

5.1 The Committee recalled that MSC 90 had agreed on a work plan for the development of *Interim Guidelines for the safety-level approach (SLA)* and had also established a correspondence group and instructed it to develop draft *Guidelines for the*

approval of alternatives and equivalents as provided for in various IMO instruments and to submit an interim report to MSC 91 and a final report to this session.

5.2 The Committee also recalled that MSC 91, having considered, inter alia, the interim report of the correspondence group (MSC 91/5) and the report of the GBS Working Group (MSC 91/WP.9), had noted that, with respect to the aforementioned work plan, no changes to the plan were required at that time, and had approved revised terms of reference for the correspondence group, as set out in paragraph 5.16 of document MSC 91/22.

Report of the GBS Correspondence Group

5.3 The Committee considered the report of the correspondence group (MSC 92/5 and MSC 92/INF.5) and noted the progress made in developing the contents of the *Guidelines for the approval of alternatives and equivalents as provided for in various IMO instruments*; that the group had further considered their applicability and had agreed to follow the draft text of paragraph 1.3 of the base documents (MSC 91/WP.9/Add.1 and MSC 86/5/3), which states that the draft Guidelines are intended for application to areas within IMO instruments that allow for alternative design and arrangements; and that it would be taken into account as the work on the draft Guidelines continued.

5.4 In the context of the above, the Committee considered document MSC 92/5/1 (Republic of Korea) commenting on the report of the correspondence group, emphasizing that the draft *Guidelines for the approval of alternatives and equivalents* will be an important reference in developing the detailed safety-level approach (SLA)-GBS in the future and introducing the need for further consideration of the strategy for defining evaluation criteria in the draft Guidelines.

5.5 The Committee considered the report of the GBS Correspondence Group together with the above-related document and, having approved it in general, took the following action:

- .1 noted the progress of the correspondence group, in particular the completed work on sections 1, 3, 4, 5, 6 and 7, as set out in the draft Guidelines (MSC 92/INF.5);
- .2 noted the substantive changes in the text of the draft Guidelines and instructed the GBS Working Group to consider the draft text, in particular those parts listed by the group in the annex to their report;
- .3 endorsed the proposal of the group to consolidate the existing IMO *Guidelines on alternative design and arrangements* in a single instrument;
- .4 endorsed the group's conclusion regarding the title of the draft guidelines, which had been agreed by the GBS Working Group established at MSC 91, i.e. *Guidelines for the approval of alternatives and equivalents as provided for in various IMO instruments*;
- .5 endorsed the group's conclusion regarding the associated MSC circular, i.e. to use option 1 as shown in annex 1 to document MSC 91/WP.9 (MSC 92/5, paragraph 15);

- .6 noted the discussion on the verification process and instructed the GBS Working Group to further consider the process, taking into account the issues raised by the group in paragraph 16 of their report and to advise the Committee accordingly; and
- .7 noted that no information had been received by the group on how Member States and international organizations may have used the *Guidelines on approval of risk-based ship design* (MSC 86/5/3, annex) for the approval of alternatives and equivalents and reiterated the request from MSC 91 for Member States and international organizations to submit relevant information.

5.6 With regard to applicability of the draft *Guidelines for the approval of alternatives and equivalents*, the Committee, having noted the correspondence group's deliberations (MSC 92/5, paragraphs 5 to 8), did not agree with the view expressed by the majority of the group to use option 2 (MSC 92/5, paragraph 5), i.e. application to areas within IMO instruments (statutory regulations) that allow for alternative design and arrangements. In this context, the Committee recalled that SOLAS regulation I/5 allows the approval of equivalents by Administrations and requires relevant information to be reported to the Organization for circulation as an SLS circular, which has been the practice for many years without any guidance being provided. The Committee also noted the views of delegations that expansion of the scope of application of the draft Guidelines to other IMO instruments could be problematic, since no experience on the use of the Guidelines had yet been gained.

5.7 Subsequently, albeit noting that the draft Guidelines provide a structured approach for the approval of alternative and equivalent designs, the Committee confirmed that it was the prerogative of Administrations to approve alternatives and equivalents, and that, therefore, the decision on the scope of application falls under their purview and should not be prescribed in the Guidelines.

Safety-level approach (SLA)

5.8 The Committee recalled that MSC 91 had noted the elements to be included in the draft *Interim Guidelines for the safety-level approach (SLA)*, developed by the GBS Working Group (MSC 91/WP.9, annex 2).

5.9 In this connection, the Committee agreed to concentrate at this session on finalizing the draft *Guidelines for the approval of alternatives and equivalents as provided for in various IMO instruments*, and instructed the GBS Working Group to further consider the development of interim guidelines for the safety-level approach only if time permits, taking into account annex 2 to document MSC 91/WP.9, and to advise the Committee accordingly.

Establishment of the GBS Working Group

5.10 Subsequently, the Committee established the GBS Working Group and instructed it, taking into account decisions, comments and proposals made in plenary, to:

- .1 finalize the draft *Guidelines for the approval of alternatives and equivalents as provided for in various IMO instruments*, based on documents MSC 92/5 and MSC 92/INF.5, and taking into account document MSC 92/5/1, giving special consideration to the substantive changes in the draft text, as listed in the annex to document MSC 92/5;

- .2 finalize the associated draft MSC circular cover note for the above draft Guidelines, based on option 1 of annex 1 to document MSC 91/WP.9;
- .3 further consider the verification process for approving alternatives and equivalents, taking into account paragraph 16 to document MSC 92/5 and advise the Committee accordingly; and
- .4 if time permits, further consider the development of interim guidelines for the safety-level approach, taking into account annex 2 to document MSC 91/WP.9, and advise the Committee accordingly.

Report of the GBS Working Group

5.11 Having considered the report of the working group (MSC 92/WP.9), the Committee approved it in general and took action as described in the following paragraphs.

Development of guidelines on the evaluation criteria determination

5.12 Having noted that the group proposed to develop guidelines on evaluation criteria determination, which would be a separate document from the draft *Guidelines for the approval of alternatives and equivalents as provided for in various IMO instruments*, the Committee noted that general evaluation criteria are already addressed in the aforementioned draft Guidelines and that therefore there is currently no need for the development of additional guidelines. Nevertheless, some delegations were of the view that there was a need to develop guidelines on evaluation criteria determination, which would be beneficial for the implementation of the draft Guidelines for the approval of alternatives and equivalents. Having considered the above views, the Committee endorsed the group's recommendation to consider the development of guidelines on evaluation criteria determination, at a later stage.

Existing IMO guidance concerning alternative designs and arrangements

5.13 The Committee, noting that these Guidelines are ship-specific, endorsed the group's recommendation to further consider developing consolidated guidelines for the approval of alternative and equivalent designs.

Guidelines for the approval of alternatives and equivalents as provided for in various IMO instruments

5.14 In considering the draft Guidelines for the approval of alternatives and equivalents, two views emerged:

- .1 that the draft Guidelines should be interim, since they leave many issues to the discretion of the Administrations, which could potentially be problematic in cases of change of flag and also for port State control purposes; additionally that, according to the draft Guidelines, the Organization and/or the Administration should define the evaluation criteria, but there is no detailed procedure on how to define such criteria; and
- .2 IMO mandatory instruments have allowed the approval of equivalents by Administrations for decades, and currently there is no structured documentation on guidance for such approvals. The draft Guidelines are recommendatory, and therefore their application is left to the discretion of Administrations. It is important that experience is gained by Administrations

in their use, so that any feedback can be reported to the Organization; if there is need, a revision of the Guidelines can be undertaken in the future.

5.15 Having considered the above views, the Committee approved MSC.1/Circ.1455 on *Guidelines for the approval of alternatives and equivalents as provided for in various IMO instruments* and encouraged Member Governments to apply the Guidelines when approving alternatives and equivalents and provide feedback to the Organization on experience gained with their application.

5.16 In the context of the above decision, the delegation of Greece, supported by other delegations, expressed the view that the aforementioned Guidelines require further work in order to be regarded as complete. The full text of their statement is set out in annex 46.

Development of Interim Guidelines for the safety-level approach (SLA)

5.17 Having noted the group's discussions on the development of *Interim Guidelines for the safety-level approach (SLA) to the IMO rule-making process*, the Committee invited Member Governments and international organizations to submit comments and proposals on elements for consideration in the development of such guidelines (MSC 92/WP.9, annex 2) to MSC 93.

6 PASSENGER SHIP SAFETY

BACKGROUND

6.1 The Committee recalled that MSC 90 had agreed that the fatal capsizing of the **Costa Concordia** had raised new challenges for the Organization that needed to be addressed expeditiously to ensure the safety of passengers at sea. In particular, it was agreed that a two-pronged approach should be taken, namely: consideration of short-term measures related to passenger ship operations and management; and development of a long-term action plan for the remaining work, which would be based on the **Costa Concordia** accident investigation report.

6.2 The Committee noted the information provided in document MSC 92/6 (Secretariat) relating to the discussions and action taken on passenger ship safety at MSC 91.

6.3 The Committee further recalled that MSC 91 had:

- .1 re-established its Working Group on Passenger Ship Safety and, having considered its report, approved draft amendments to SOLAS chapter III on emergency drills and updated the Recommended interim measures for passenger ship companies, which has been issued as MSC.1/Circ.1446/Rev.1; and
- .2 approved the Revised long-term action plan on passenger ship safety, as set out in annex 3 to document MSC 91/WP.8.

COSTA CONCORDIA CASUALTY INVESTIGATION REPORT AND RECOMMENDATIONS

6.4 The Committee considered document MSC 92/6/3 (Italy), providing the preliminary recommendations arising from the marine casualty investigation into the capsizing of the passenger ship **Costa Concordia**, together with documents MSC 92/INF.6 (Italy), informing that the casualty investigation report had been uploaded to GISIS, MSC 92/6/8 (IUMI) and MSC 92/6/10 (CLIA), both commenting on the preliminary recommendations.

6.5 In considering the above documents, the Committee noted the following views expressed during the discussion:

- .1 Due to the late availability of the official casualty report, Member States and international organizations had not had sufficient time to scrutinize the report in detail, and thus certain issues still needed to be clarified, which might require work to be conducted intersessionally before any comprehensive actions could be taken;
- .2 The background information supporting the preliminary recommendations in the casualty investigation report was difficult to find and the working group to be established should consider linking the various recommendations to the relevant parts of the report;
- .3 Any proposed measures recommended by the working group to be established should be linked to the outcome of the casualty investigation report; their scope of application should be clearly established; and preparation of requisite justifications for any proposed new or expanded outputs should be in SMART terms;
- .4 A formal safety assessment study may be needed to evaluate the effectiveness of any substantial recommended measures, particularly measures that could impact on all types of passenger ships;
- .5 Some delegations expressed the view that there may be a need to consider preparing definitions for different types and sizes of passenger ships, while others pointed out that this issue had already been thoroughly discussed during the passenger ship safety initiative; and
- .6 While some delegations felt that the principles of safe manning should be further reviewed, others pointed out that the principles had recently been revised with the adoption of resolution A.1047(27) together with the amendment of SOLAS regulation V/14, and that it was premature to conduct another review until experience is gained with the latest set of amendments, also noting that the ongoing revision to IMO model courses could be a better way to improve the situation than amending mandatory instruments.

6.6 Having considered the above comments, the Committee decided to refer documents MSC 92/6/3, MSC 92/6/8, MSC 92/6/10 and MSC 92/INF.6 to the working group for detailed consideration.

RECOMMENDATIONS EMANATING FROM THE CRUISE INDUSTRY OPERATIONAL SAFETY REVIEW

6.7 The Committee, having considered documents MSC 92/6/1 (CLIA) providing three new outputs from the Operational Safety Review and proposing to revise MSC.1/Circ.1446/Rev.1, and MSC 92/6/9 (CLIA) providing comments relating to the **Costa Concordia** incident, decided to refer the documents to the working group for consideration with a view to preparing revisions to MSC.1/Circ.1446/Rev.1, as appropriate.

OPERATIONAL SAFETY MEASURES TO ENHANCE THE SAFETY OF PASSENGER SHIPS

6.8 The Committee, having considered document MSC 92/6/5 (ICS) providing information on a review on operational safety measures carried out by ICS members' passenger ship operating companies, including ro-ro passenger ships and high-speed craft, decided to refer the document to the working group for detailed consideration and advice.

EVACUATION ANALYSIS

6.9 The Committee considered document MSC 92/6/2 (Germany and Spain) expressing the view that simulation of evacuation procedures, including basic rules on how to carry out such simulation, should be made mandatory under SOLAS or the FSS Code, together with document MSC 92/6/4 (ITF and NI) providing comments on document MSC 92/6/2 and, having noted the views expressed during the discussion that:

- .1 consideration should be given to make simulation of evacuation procedures mandatory;
- .2 the outcome of the ongoing revision of related recommendations by the FP Sub-Committee (MSC.1/Circ.1238) should be taken into account in making the final decision to make it mandatory; and
- .3 there would always be the need for a well-trained crew to provide professional assistance during evacuations,

agreed to refer the above documents to the working group for detailed consideration and advice.

SURVIVABILITY OF PASSENGER SHIPS

6.10 The Committee considered documents MSC 92/6/6 (Austria et al.) providing information on the results of the studies on damage stability of ro-ro passenger ships and a goal-based damage stability research and demonstration project proposing a two-phase approach to review and improve the survivability of passenger ships after damage, and MSC 92/6/7 (United States) commenting on document MSC 92/6/6.

6.11 During the ensuing discussion, the Committee noted the views of some delegations that a compelling need should be established before considering the expansion of ongoing work on damage stability, while others expressed the view that the FSA Experts Group should be instructed to consider the research project and advise the Committee. In this connection, the IFSMA observer made a statement, which is set out in annex 46.

6.12 After a brief discussion, the Committee decided to refer documents MSC 92/6/6 and MSC 92/6/7 to the working group for detailed consideration and advice.

RE-ESTABLISHMENT OF THE WORKING GROUP ON PASSENGER SHIP SAFETY

6.13 The Committee re-established the Working Group on Passenger Ship Safety and instructed it, taking into account comments and proposals made in plenary, to:

- .1 based on the preliminary recommendations (MSC 92/6/3) and the **Costa Concordia** casualty investigation report (MSC 92/INF.6) and taking into account documents MSC 92/6/8 and MSC 92/6/10, consider recommendation by recommendation:

- .1 whether a sufficient link for the proposed recommendation can be found in the casualty report or more information is needed;
 - .2 for recommendations having such a link, consider any actions to be taken and advise on the possible scope of application and the way forward; and
 - .3 prepare relevant draft text for any recommendations on operational, management or other issues where immediate action is needed;
- .2 consider the latest recommendations from the Cruise Industry Operational Safety Review (MSC 92/6/1 and MSC 92/6/9) and prepare revisions to MSC.1/Circ.1446/Rev.1, as appropriate, for approval by the Committee;
 - .3 consider the outcome of the ICS Review of Operational Safety Measures to Enhance the Safety of Passenger Ships (MSC 92/6/5) and advise the Committee accordingly;
 - .4 consider whether the voluntary guidance on evacuation analysis should be made mandatory, taking into account documents MSC 92/6/2, MSC 92/6/4, MSC 92/6/10 and MSC.1/Circ.1238, and advise the Committee accordingly;
 - .5 consider the proposal related to survivability of passenger ships, taking into account documents MSC 92/6/6, MSC 92/6/7 and MSC 92/6/10, and advise the Committee accordingly;
 - .6 update the Revised long-term action plan on passenger ship safety (MSC 91/WP.8, annex 3), including the prioritization of the work to be undertaken (i.e. target completion dates for each task), taking into account the preliminary recommendations (MSC 92/6/3) and the **Costa Concordia** casualty investigation report (MSC 92/INF.6) and other documents submitted to the session, as appropriate; and
 - .7 consider whether a correspondence group should be established and, if so, prepare draft terms of reference for consideration by the plenary.

REPORT OF THE WORKING GROUP

6.14 Having considered the report of the working group (MSC 92/WP.8), the Committee approved it in general and took action as indicated below.

Costa Concordia casualty investigation report and recommendations

6.15 The Committee, having noted that the group had considered at length the **Costa Concordia** casualty investigation report and the associated preliminary recommendations:

- .1 invited Italy to provide more technical information on penetration depth in support of the recommendation for a double-skin to protect watertight compartments (WTCs) containing equipment and the recommendation to consider relocation of the UHF radio switchboard above the bulkhead deck;

- .2 expanded the planned output, 5.2.1.15, on Revision of SOLAS chapter II-1 subdivision and damage stability regulations to include consideration to limit the down-flooding points on the bulkhead deck for passenger ships (see also paragraph 23.20);
- .3 instructed the Correspondence Group on Casualty Analysis and the FSI (III) Sub-Committee to consider the **Costa Concordia** accident investigation report and advise MSC 93 accordingly;
- .4 invited Member Governments and international organizations to submit detailed comments and proposals to MSC 93 on the **Costa Concordia** official casualty investigation report; and
- .5 invited Italy to assist both the FSI (III) Sub-Committee and the MSC Working Group by providing further clarification and information, as appropriate, with regard to the **Costa Concordia** casualty investigation report.

Recommendations emanating from the Cruise Industry Operational Safety Review

6.16 The Committee noted that the group had considered, in detail, the latest recommendations emanating from the Cruise Industry Operational Safety Review (MSC 92/6/1 and MSC 92/6/9) and had agreed to include three additional guidance notes in the Recommended interim measures (MSC.1/Circ.1446/Rev.1) (see paragraph 6.24). In this connection, the Committee endorsed the view of the group that the role of shoreside management was critical to the proper development and functioning of an effective Safety Management System.

Operational safety measures to enhance the safety of passenger ships

6.17 The Committee noted that the group, having considered in detail the review carried out by ICS passenger ship operating companies (MSC 92/6/5), had agreed to include four additional guidance notes in the Recommended interim measures (MSC.1/Circ.1446/Rev.1) (see paragraph 6.24).

Evacuation analysis

6.18 The Committee, having noted the group's consideration of documents MSC 92/6/2, MSC 92/6/4, MSC 92/6/10 and MSC.1/Circ.1238 related to evacuation analysis, agreed to instruct FP 57 (SDC 1)² to consider the mandatory application of evacuation analysis to non-ro-ro passenger ships and advise MSC 93 accordingly.

Survivability of passenger ships

6.19 In considering the group's recommendations related to the survivability of passenger ships, the Committee agreed to forward documents MSC 92/6/6 and MSC 92/6/7, together with the EMSA and GOALDS studies (SLF 55/INF.6, SLF 55/INF.7, SLF 55/INF.8 and SLF 55/INF.9), to SLF 56 (SDC 1) for consideration. In this regard, the Committee instructed SLF 56 (SDC 1) to examine the Phase 1 options that were technically justifiable for raising the Required Subdivision Index 'R' and to review other aspects deemed relevant to the issue, such as the length of the ship, number of persons on board and practical and operational aspects, taking into account actual economic factors, and advise MSC 93 accordingly.

² See paragraph 22.19.

Re-establishment of the Experts Group on Formal Safety Assessment (FSA)

6.20 In light of the above decision, the Committee re-established the experts Group on Formal Safety Assessment (FSA) and instructed it to review the EMSA and GOALDS studies, taking into account the risk models and calculated risk and the validity of the data and assumptions that were used and the revised FSA Guidelines (MSC-MEPC.2/Circ.12), and advise MSC 93 accordingly (see also paragraph 23.28.10). The Committee noted that the report of the FSA Experts Group would be submitted to MSC 93 for consideration under the agenda item on Passenger Ship Safety.

Revised long-term action plan on passenger ship safety

6.21 Noting that the group had updated the Revised long-term action plan on passenger ship safety (MSC 92/WP.8, annex 2), the Committee agreed to bring forward the output on "Review of conditions under which passenger ship watertight doors may be opened during navigation and prepare amendments to SOLAS regulation II-1/22 and MSC.1/Circ.1380", for inclusion in the provisional agenda for SLF 56 (SDC 1) (see paragraph 23.17).

6.22 In considering the updated revised long-term action plan on passenger ship safety, several views were expressed during the discussion, in particular that:

- .1 any action to be taken as a result of the **Costa Concordia** accident should be directly linked to the cause of the accident;
- .2 the **Costa Concordia** accident had provided the opportunity to review and take appropriate action on SOLAS regulations and guidance material related to passenger ship safety issues, and therefore should not be restricted to issues emanating solely from the accident;
- .3 the long-term action plan was not clear and should indicate the status of each action item; and
- .4 actions related to existing outputs should be separated from those which could lead to new unplanned outputs, which should require a full justification in accordance with the Committees' Guidelines.

6.23 Having considered the above views, the Committee instructed the Secretariat, in consultation with the Chairman of the working group, to revise the long-term action plan (MSC 92/WP.8, annex 2) with a view to clearly identifying whether any proposed actions are related to existing outputs or are new outputs arising from the loss of the **Costa Concordia**, and reissue it as document MSC 92/WP.8/Rev.1.

Recommended interim measures for passenger ship companies to enhance the safety of passenger ships

6.24 The Committee approved MSC.1/Circ.1446/Rev.2 on Recommended interim measures for passenger ship companies to enhance the safety of passenger ships. In this connection, the Committee noted the view of the group that, in the future, a decision will need to be taken regarding the final status of the above interim guidance.

7 DANGEROUS GOODS, SOLID CARGOES AND CONTAINERS

REPORT OF THE SEVENTEENTH SESSION OF THE SUB-COMMITTEE

General

7.1 The Committee recalled that MSC 91 had considered urgent matters emanating from the seventeenth session of the Sub-Committee on Dangerous Goods, Solid Cargoes and Containers (DSC) (MSC 91/22, section 13).

7.2 The Committee, having considered remaining issues emanating from DSC 17 (documents DSC 17/17 and MSC 92/7), approved the report of DSC 17 in general and took action as indicated hereunder.

Amendments to the 1979, 1989 and 2009 MODU Codes and the DSC Code

7.3 With regard to the draft amendments to the 1979, 1989 and 2009 MODU Codes and the DSC Code, the Committee recalled that this matter was considered under agenda item 3 (see paragraph 3.85).

Guidelines for development of an ACEP

7.4 The Committee approved CSC.1/Circ.143 on *Guidelines for development of an Approved Continuous Examination Programme (ACEP)*.

Amendments to CSC.1/Circ.138

7.5 The Committee approved CSC.1/Circ.138/Rev.1 on Revised Recommendations on harmonized interpretation and implementation of the International Convention for Safe Containers, 1972, as amended.

Training requirements for firefighting related to water-reactive materials

7.6 The Committee noted that document DSC 17/11/2 (Germany) had been forwarded to the STW Sub-Committee for consideration of matters related to training requirements for firefighting when water-reactive materials are involved (STW 44/19, paragraph 17.38).

Investigation report on the very serious casualty on board the bulk carrier *La Donna I*

7.7 With regard to the investigation report on the very serious casualty on board the bulk carrier **La Donna I**, the Committee noted that the Sub-Committee had invited Member Governments and international organizations to submit comments and proposals to DSC 18 on the matter and forwarded its outcome to FSI 21 accordingly.

8 FIRE PROTECTION

REPORT OF THE FIFTY-SIXTH SESSION OF THE SUB-COMMITTEE

General

8.1 The Committee approved in general the report of the fifty-sixth session of the Sub-Committee on Fire Protection (FP) (FP 56/23 and Corr.1; and MSC 92/8) and took action as indicated in the following paragraphs.

Draft amendments to SOLAS regulations II-2/4.5.5 and II-2/16.3.3

8.2 The Committee considered the draft amendments to SOLAS regulations II-2/4.5.5 and II-2/16.3.3 concerning inert gas systems for new tankers, together with document MSC 92/3/9 (Argentina) containing an analysis of the scope of application of the draft SOLAS regulation II-2/4.5.5 and the draft chapter 15 of the FSS Code. Having noted the concerns regarding the term "hydrocarbon" in the text of draft SOLAS regulation II-2/4.5.5.1.4 and matters related to application, the Committee approved the above regulations, in principle, and instructed the drafting group established under agenda item 3 (see paragraph 3.68) to carefully consider the proposals contained in document MSC 92/3/9 and ensure that no unintended consequences arise, particularly with respect to the proposal in paragraph 7 of that document, and prepare the final text of the draft amendments to SOLAS regulations II-2/4.5.5 and II-2/16.3.3 and chapter 15 of the FSS Code, for consideration by the Committee.

8.3 Having considered the relevant part of the report of the drafting group (MSC 92/WP.7, annex 17), the Committee, having agreed to keep draft SOLAS regulation II-2/4.5.5.3.2 in square brackets, approved the draft amendments to SOLAS regulations II-2/4.5.5 and II-2/16.3.3, as set out in annex 13, and requested the Secretary-General to circulate them in accordance with SOLAS article VIII, with a view to adoption at MSC 93.

Draft amendments to chapter 15 of the FSS Code

8.4 Having considered the relevant part of the report of the drafting group (MSC 92/WP.7), the Committee approved the draft amendments to chapter 15 of the International Code for Fire Safety Systems (FSS Code) concerning inert gas systems for new ships, as set out in annex 14, and requested the Secretary-General to circulate them in accordance with SOLAS article VIII, with a view to adoption at MSC 93.

Draft amendments to SOLAS regulations II-2/3 and II-2/9.7

8.5 In considering the draft amendments to SOLAS regulations II-2/3 and II-2/9.7 concerning fire resistance of ventilation ducts for new ships, the Committee noted the views of the observer from IACS that the draft text did not contain any reference to the date of application of the amendments, and that therefore the draft amendments would be applicable to ships constructed after 2012. Additionally, the observer pointed out that in the draft amendments the words "heat resisting" were introduced without a definition in the SOLAS Convention, which would need to be clarified. In this context, the Committee also noted the information from the Chairman of the Sub-Committee that in paragraph 4.10 of the report of the Sub-Committee (FP 56/23) it was stated clearly that the draft amendments applied to new ships only.

8.6 Consequently, the Committee requested the Secretariat to modify the draft amendments to introduce the date of application, approved the draft amendments to SOLAS regulations II-2/3 and II-2/9.7 concerning fire resistance of ventilation ducts for new ships, as set out in annex 13, and requested the Secretary-General to circulate them in accordance with SOLAS article VIII, with a view to adoption at MSC 93.

8.7 With regard to the term "heat resisting", the Committee invited the observer from IACS to submit comments and a proposal to MSC 93 for consideration in conjunction with the adoption of the aforementioned draft amendments.

Draft amendments to SOLAS regulation II-2/10

8.8 The Committee considered the draft amendments to SOLAS regulation II-2/10 concerning fire protection requirements for on-deck cargo areas for new ships, together with document MSC 92/8/2 (Denmark and Norway) proposing amendments to clarify the requirements of the aforementioned draft amendments, in particular to amend the draft text of SOLAS regulation II-2/7.3.2.4.2 to require a minimum capacity of 60 m³/h.

8.9 In this connection, the Committee noted the following views:

- .1 The draft amendments should be approved as prepared by FP 56;
- .2 The flow rates of water monitors cannot be easily measured at the location covered by the monitors. A flow rate verification at the top level of the top tier of containers, as suggested in paragraph 11 of document MSC 92/8/2, does not appear to be feasible; and
- .3 The proposal to include a pressure requirement is redundant.

8.10 Following discussion, the Committee approved the draft amendments to SOLAS regulation II-2/10, as set out in annex 13, and requested the Secretary-General to circulate the draft amendments in accordance with SOLAS article VIII, with a view to adoption at MSC 93.

8.11 In light of the above decision, the Committee noted the concern expressed by the delegation of the Bahamas, supported by other delegations, regarding the proposed new SOLAS regulation II-2/10.7.3.1, which requires ships to carry at least one water mist lance. The Bahamas delegation disagrees with the inclusion of this new requirement, as in its opinion the use of this equipment may expose seafarers to significant danger, if the seafarers approach a container stack in which there is a fire of unknown extent or progression. Problems of inaccurate information regarding the contents of containers are well known and the undeclared presence of explosive or water-reactive contents only adds to the danger. The Committee also noted that the delegation had already expressed concern during the discussion on the output of the working group at FP 56, although that was not reflected in the report of the Sub-Committee. The delegation of the Bahamas pointed out that fires in container stacks can be extremely dangerous, as the fatalities of seafarers on the MSC **Flaminia**, 11 months ago, attest. Therefore, the principle of fighting a fire from a safe location and distance should be maintained. In its view, it is unacceptable to give seafarers the impression that entering into risky situations is acceptable by mandating carriage of equipment which, by its very nature and mode of use, may require them to do so. The delegation noted the footnote proposed by the correspondence group (paragraph 34 of document FP 56/5), and would refer to this when implementing the aforementioned amendments.

Mobile water monitors used for the protection of on-deck cargo areas

8.12 The Committee considered the draft *Guidelines for the design, performance, testing and approval of mobile water monitors used for the protection of on-deck cargo areas of ships designed and constructed to carry five or more tiers of containers on or above the weather deck*, together with document MSC 92/8/2 (Denmark and Norway) proposing amendments to clarify the draft text of the Guidelines, in particular, to combine paragraphs 3.5 and 3.7 of the draft Guidelines to be read jointly in terms of the required flow rate and throw length of a water jet at a horizontal elevation of 30° to 35°.

8.13 Following discussion, and noting that there was no support for the proposal contained in document MSC 92/8/2, the Committee approved, in principle, the draft *Guidelines for the design, performance, testing and approval of mobile water monitors used for the protection of on-deck cargo areas of ships designed and constructed to carry five or more tiers of containers on or above the weather deck*, and the associated draft MSC circular, for final approval at MSC 93, in conjunction with the adoption of the amendments to SOLAS regulation II-2/10.

FSA study on sea transport of dangerous goods

8.14 The Committee noted that the proposed draft amendments to SOLAS regulation II-2/20 and the associated draft MSC circular on *Guidelines for the design, performance, testing and approval of mobile water monitors used for the protection of on-deck cargo areas of ships designed and constructed to carry five or more tiers of containers on or above the weather deck*, are consistent with Recommendation 2 of the FSA study on safe transport of dangerous goods (DSC 16/INF.2). Therefore, the intent of Recommendation 2 had been achieved and no further action was necessary in this regard.

Review of recommendations on evacuation analysis for new and existing passenger ships

8.15 The Committee noted the progress made on review of the recommendations on evacuation analysis for new and existing passenger ships, which is part of the Committee's long-term work plan on passenger ship safety.

Draft amendments to SOLAS regulation II-2/13.4

8.16 The Committee considered the draft amendments to SOLAS regulation II-2/13.4 concerning additional means of escape from machinery spaces for new passenger and cargo ships, together with document MSC 92/8/1 (IACS), seeking clarification on the terms "a continuous fire shelter" and "main workshop" and whether the dispensation for ships of less than 1,000 gross tonnage in SOLAS regulation II-2/13.4.2.2 should be extended to include these new draft SOLAS amendments.

8.17 Following discussion, the Committee noted the views expressed that the issues contained in document MSC 92/8/1 had been discussed during FP 56 and that the Sub-Committee could not agree with the proposals, and instead had agreed to a compromise solution. Consequently, the Committee approved the draft amendments to SOLAS regulation II-2/13.4, as set out in annex 13, and requested the Secretary-General to circulate them in accordance with SOLAS article VIII, with a view to adoption at MSC 93.

8.18 In this connection, the Committee noted that the delegation of Sweden could not agree with the aforementioned draft amendments, as, for example, electrical or even electronic workshops within machinery spaces and adjacent to a main workshop would not need to have two escape routes under the amendments proposed: in such a case the escape is supposed to be effected by means of the room-to-room escape principle, and that might not be possible if the electrical workshop is separated from the main workshop. Additionally, the Committee noted, therefore, that the delegation of Sweden favoured the deletion of the term "main workshop" appearing in paragraphs 4.1.5 and 4.2.3 of the draft amendments to SOLAS regulation II-2/13.

Proposed interpretations to SOLAS regulation II-2/13.4

8.19 In the context of the above, the Committee noted the agreement of the Sub-Committee to discuss any proposed interpretations to SOLAS regulation II-2/13.4, regarding the insulation of escape trunks for machinery spaces of category A, at FP 57, under "Any other business".

Draft amendments to SOLAS regulations II-2/1 and II-2/3 and the draft new SOLAS regulation II-2/20-1

8.20 The Committee approved the draft amendments to SOLAS regulations II-2/1 and II-2/3 and the draft new SOLAS regulation II-2/20-1 concerning requirements for ships carrying hydrogen and compressed natural gas vehicles for new ships, as set out in annex 13, and requested the Secretary-General to circulate them in accordance with SOLAS article VIII, with a view to adoption at MSC 93.

Fire protection requirements for waste stowage spaces (resolution MEPC.76(40))

8.21 Having noted the relevant decision of MEPC 65 (MEPC 65/22, paragraph 11.17), the Committee endorsed the view of the Sub-Committee that the survey and certification of fire protection in incinerator and waste stowage spaces should be covered by the SOLAS Convention.

8.22 Subsequently, the Committee agreed that, at this time, the issue should not be referred to the FSI (III) Sub-Committee. However, the Committee invited interested Member Governments and international organizations to further consider the matter with a view to submitting proposals on how the survey and certification of fire protection in incinerator and waste stowage spaces should be taken forward.

Unified interpretations of SOLAS chapter II-2 and the FSS and FTP Codes

8.23 The Committee approved MSC.1/Circ.1456 on Unified interpretations of SOLAS chapter II-2 and the FSS and FTP Codes.

Unified interpretations of the 2000 HSC Code, as amended by resolutions MSC.175(79) and MSC.222(82)

8.24 The Committee approved MSC.1/Circ.1457 on Unified interpretations of the 2000 HSC Code, as amended by resolutions MSC.175(79) and MSC.222(82).

Interpretation to the Revised Guidelines for the approval of equivalent water-based fire-extinguishing systems for machinery spaces and cargo pump-rooms (MSC/Circ.1165)

8.25 The Committee approved MSC.1/Circ.1458 on Interpretation of the Revised Guidelines for the approval of equivalent water-based fire-extinguishing systems for machinery spaces and cargo pump-rooms (MSC/Circ.1165).

Unified interpretation of the SOLAS Convention and the IBC and IGC Codes

8.26 The Committee approved MSC.1/Circ.1459 on Unified interpretation of the SOLAS Convention and the IBC and IGC Codes.

Use of fibre reinforced plastic (FRP) within ship structures

8.27 The Committee endorsed the agreement of the Sub-Committee to develop *Guidelines for the use of FRP within ship structures*, which would be based on an engineering and risk-based approach that can be followed under SOLAS regulation II-2/17 and the associated circular MSC/Circ.1002.

8.28 In light of the above, the Committee noted the statement by the delegation of the United States, as set out in annex 46, expressing concerns at the agreement of the Sub-Committee to develop guidelines for the use of combustible FRP construction within ship structures, as that delegation does not support the use of combustible FRP construction within the existing framework of SOLAS chapter II-2 at this time.

Development of amendments to SOLAS chapter II-2 on the location of EEBDs

8.29 The Committee endorsed the agreement of the Sub-Committee not to proceed with the development of amendments to SOLAS chapter II-2 on the location of emergency escape breathing devices (EEBDs).

Draft amendments to SOLAS regulation II-2/18

8.30 The Committee approved the draft amendments to SOLAS regulation II-2/18 concerning helicopter landing areas on new ro-ro passenger ships, as set out in annex 13, and requested the Secretary-General to circulate them in accordance with SOLAS article VIII, with a view to adoption at MSC 93.

TESTING OF AUTOMATIC SPRINKLER SYSTEMS ON PASSENGER SHIPS

8.31 The Committee noted with appreciation document MSC 92/INF.10 (Bahamas), drawing its attention to the fact that during annual testing of automatic sprinkler systems on several passenger ships, several sprinklers had failed to operate. Further testing had noted an elevated sprinkler failure rate which, in some instances had exceeded 50 per cent. The elevated failure rates suggest the scope of testing in the *Revised Guidelines for the maintenance and inspection of fire protection systems and appliances* (MSC.1/Circ.1432) may not adequately assess the actual condition of automatic sprinkler systems.

8.32 In this connection, the Committee noted the update on recent developments provided by the delegation of the Bahamas. Basic testing of automatic sprinkler systems had been completed on 15 ships, nine of which had suffered sprinkler head fail rates sufficient to require extended testing. Four ships had completed the extended testing and three of those had failed to meet the pass criterion. The highest fail rate experienced was 68 per cent of sprinklers. The manufacturer of the sprinkler heads in question had continued investigations and the conclusion was that the water used in the automatic sprinkler systems did not meet their standards over the range of required characteristics. This had led to hardening of nitrile sealing rings and deposition of corrosion and chemical products on internal components. The manufacturer in question had issued technical bulletins on these problems in 2012 but these had not been made widely available; however, the delegation would provide copies of the bulletins to interested parties.

8.33 Subsequently, the Committee agreed to refer document MSC 92/INF.10 and the above updated information to FP 57 for consideration under its agenda item "Any other business" for advice, as appropriate.

9 RADIOCOMMUNICATIONS AND SEARCH AND RESCUE

REPORT OF THE SEVENTEENTH SESSION OF THE SUB-COMMITTEE

General

9.1 The Committee approved, in general, the report of the seventeenth session of the Sub-Committee on Radiocommunications and Search and Rescue (COMSAR 17/17 and MSC 92/9) and took action as indicated below.

Review and Modernization of the GMDSS

9.2 The Committee endorsed the action taken by the Sub-Committee to re-establish the Correspondence Group on the Review of the GMDSS under the coordination of the United States.

Revision of annex 7 to MSC.1/Circ.1382/Rev.1

9.3 The Committee approved the review of annex 7 to MSC.1/Circ.1382/Rev.1 containing the revised questionnaire on shore-based facilities in the GMDSS, and instructed the Secretariat to disseminate it as MSC.1/Circ.1382/Rev.2, after including the revised annex 7.

Amendments to resolution A.705(17)

9.4 The Committee approved the revised MSC circular on amendments to resolution A.705(17), as amended, on *Promulgation of maritime safety information* and instructed the Secretariat to disseminate it as MSC.1/Circ.1287/Rev.1.

Amendments to resolution A.706(17)

9.5 The Committee approved the revised MSC circular on amendments to resolution A.706(17), as amended, on *World-Wide Navigational Warning Service* and instructed the Secretariat to disseminate it as MSC.1/Circ.1288/Rev.1.

Validity of radiocommunications equipment installed and used on ships

9.6 The Committee, having considered document MSC 92/9/4 (Japan) and agreed to the proposals therein, approved circular MSC.1/Circ.1460 on *Guidance on the validity of radiocommunications equipment installed and used on ships*.

Joint IMO/ITU Experts Group

9.7 The Committee authorized the convening of the ninth meeting of the Joint IMO/ITU Experts Group, to be held at IMO Headquarters in London, from 14 to 18 October 2013.

9.8 The Committee also authorized the holding of a meeting of the Joint IMO/ITU Experts Group in 2014 and instructed the Secretariat to take action, as appropriate.

Liaison statements to ITU and CIRM

9.9 The Committee endorsed the action taken by the Sub-Committee in instructing the Secretariat to convey liaison statements to ITU and CIRM.

Use of the graph in figure N.14 of the IAMSAR Manual relating to advice on survivor life expectancy

9.10 The Committee approved COMSAR.1/Circ.57 on *Guidance on the use of the graph in figure N.14, appendix N of IAMSAR Manual, Volume II*, which would finally be incorporated in the 2016 edition of the IAMSAR Manual.

IMO documents and publications which should be held by an MRCC

9.11 The Committee endorsed the action taken by the Sub-Committee in instructing the Secretariat to circulate SAR.7/Circ.11 providing the list of IMO documents and publications which should be held by an MRCC.

Information on the display of AIS-SART, AIS Man Overboard and EPIRB-AIS devices

9.12 The Committee approved SN.1/Circ.322 on Information to seafarers on the display of AIS-SART, AIS Man Overboard (MOB) and EPIRB-AIS devices.

ICAO/IMO Joint Working Group

9.13 The Committee authorized the holding of the twentieth session of the ICAO/IMO Joint Working Group, to be held in Amsterdam, the Netherlands, from 23 to 27 September 2013.

9.14 The Committee also authorized the holding of the twenty-first session of the ICAO/IMO Joint Working Group in 2014 and instructed the Secretariat to take action, as appropriate.

Audits of LRIT Data Centres and of the International LRIT Data Exchange

9.15 The Committee approved the revised COMSAR circular on Audits of LRIT Data Centres and of the International LRIT Data Exchange conducted by the LRIT Coordinator and instructed the Secretariat to disseminate it as COMSAR.1/Circ.54/Rev.1.

Partial read-only access to the web interface of the DDP for GISIS users from Member Governments

9.16 The Committee endorsed the action taken by the Sub-Committee in instructing the Secretariat to implement the necessary changes in the web interface of the DDP, to allow GISIS users from Member Governments to access information on Application Service Providers (ASPs) and on the contact details of National Points of Contact and Data Centres, and to discontinue the publishing of revised versions of MSC.1/Circ.1377.

Operation of the International LRIT Data Exchange after 2013

9.17 The Committee adopted resolution MSC.361(92) on *Operation of the International LRIT Data Exchange after 2013*, as set out in annex 15.

Draft Polar Code

9.18 The Committee endorsed the action taken by the Sub-Committee to forward the advice on the parts of the draft Polar Code under the purview of the Sub-Committee to DE 58 (SDC 1) for consideration.

INCLUSION OF "NEXT ENTITLED PORT" MESSAGE IN THE LRIT SYSTEM

9.19 Brazil (MSC 92/9/1) proposed the sharing of information about a ship's "next entitled port" between Data Centres (DCs), for inclusion in the LRIT system, by creating a new message which would allow data to be shared only between DCs, with the aim of informing a Contracting Government that a ship had declared its intention to enter a port, port facility or a place under its jurisdiction. In Brazil's view, it would improve the mechanisms for the use of a port State's entitlement to receive LRIT information under SOLAS regulation V/19-1.8.1.2 and would increase the use of the system by port States.

9.20 In the ensuing discussions, the views expressed were that:

- .1 implementation of the proposal would place an additional burden on Administrations;
- .2 flag States should not get involved in the provision of Notice of Arrival (NoA) information;
- .3 there were cost implications for flag States in the preparation and transmitting of these messages;
- .4 it should not lead to additional costs to shipowners;
- .5 there was merit in the proposal, since flag States already gathered information on the ships flying their flag in order to provide information only to port States which were entitled to receive LRIT information;
- .6 it would standardize the NOA procedure; and
- .7 it could increase the use of the LRIT system.

9.21 Having considered the above views, the Committee did not agree with the proposal.

Recognition of the Iridium mobile-satellite system

9.22 The Committee considered the notification by the United States (MSC 92/9/2) of the application of the "Iridium" mobile-satellite system for recognition and use in the GMDSS. The United States informed the Committee that it intended to provide the competent Sub-Committee with the necessary information to enable the Sub-Committee to verify that the "Iridium" mobile-satellite system meets the criteria of resolution A.1001(25), and to provide a recommendation to the Committee concerning the recognition of that system for use in the GMDSS.

9.23 In this context, the Committee also considered the information provided by IMSO (MSC 92/9/3) on actions undertaken by IMSO in preparation for the recognition of a new mobile satellite communication system for the GMDSS.

9.24 After some discussion, the Committee, having noted that, in principle, there were no objections, agreed to refer the matter to the NCSR Sub-Committee for evaluation of the detailed information, which would be provided to it in due course, under its agenda item on "Developments in maritime radiocommunication systems and technologies".

9.25 Furthermore, the Committee noted that IMSO was prepared to assist the Organization in undertaking the technical and operational assessment to ensure full compliance with all the criteria and procedures, as set out in resolution A.1001(25), as well as the guidance provided in MSC.1/Circ.1414.

10 BULK LIQUIDS AND GASES

REPORT OF THE SEVENTEENTH SESSION OF THE SUB-COMMITTEE

10.1 The Committee approved, in general, the report of the seventeenth session of the Sub-Committee on Bulk Liquids and Gases (BLG) (BLG 17/18 and Add.1 and MSC 92/10) and took action, taking into account the decisions made by MEPC 65 (MSC 92/2/2), as indicated below.

Outcome of ESPH 18

10.2 The Committee endorsed the decisions taken by the Sub-Committee regarding the outcome of ESPH 18, as endorsed by MEPC 65.

Draft amendments to the IBC Code

10.3 The Committee approved the draft amendments to the IBC Code prepared by BLG 17, together with further amendments to the Code relating to mandatory carriage requirements for stability instruments on board tankers prepared by SLF 55 (SLF 55/17, annex 5), which had been approved by MEPC 65, as set out in annex 16, and requested the Secretary-General to circulate them, in accordance with SOLAS article VIII, for consideration at MSC 93 with a view to adoption.

Guidance on the timing of replacement of existing certificates by revised certificates according to the IBC Code

10.4 The Committee approved MSC-MEPC.5/Circ.7 on *Guidance on the timing of replacement of existing certificates by revised certificates as a consequence of the entry into force of amendments to chapters 17 and 18 of the IBC Code*, as amended by MEPC 65.

Development of the IGF Code

10.5 The Committee noted the progress made on the development of the International Code for Ships using Gas as Fuel (IGF Code). With regard to document MSC 92/10/3 (United States) proposing that diesel fuel with a flashpoint between 52°C and 60°C should be excluded from the scope of the IGF Code and that further consideration should be given to the acceptability of diesel fuels with a flashpoint between 52°C and 60°C for propulsion, in the context of SOLAS regulations II-2/4.2.1 and 4.2.2.3.2, the Committee noted in particular that:

- .1 some delegations supported the exclusion of fuels with a flashpoint between 52°C and 60°C from the scope of the IGF Code;
- .2 some delegations supported further consideration of the acceptability of diesel fuels with a flashpoint between 52°C (or even lower) and 60°C for propulsion in the related SOLAS chapter II-2 regulations;
- .3 many delegations did not support the proposal to modify the scope of the IGF Code at this stage, taking into account that provisions for alternative

fuels other than LNG have been included in the draft and the need to finalize the Code as soon as practicable; and

- .4 many delegations expressed the view that, if SOLAS chapter II-2 was to be reviewed in relation to low-flashpoint fuels between 52°C and 60°C, it should be considered as a separate output in a holistic manner, since it may affect a wide range of other requirements, including MARPOL requirements for cargoes with similar flashpoints.

10.6 After a lengthy discussion, the Committee, bearing in mind that the draft IGF Code should be finalized as soon as possible, decided not to exclude fuel with a flashpoint between 52°C and 60°C from the scope of the Code and invited Member States and international organizations, if they so wish, to submit documents to the Committee proposing a new output, in accordance with the Committee's Guidelines, on a SOLAS chapter II-2 review in relation to low-flashpoint fuels between 52°C and 60°C.

Revision of the IGC Code

10.7 The Committee considered the draft amendments to the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (IGC Code), together with the following documents:

- .1 MSC 92/10/1 (Germany, Japan, Norway, United Kingdom and SIGTTO) providing a draft "standard for the use of limit state methodologies in the design of cargo containment systems of novel configuration" to be made mandatory via draft amendments to the Code;
- .2 MSC 92/10/2 (Secretariat) proposing further modifications to the draft amendments;
- .3 MSC 92/10/4 (Norway) proposing a number of modifications to the draft amendments to the IGC Code and that the draft revised IGC Code should not set precedents for the content of the IGF Code; and
- .4 SLF 55/17 (annexes 8 and 17) providing further modifications to the draft amendments to the IGC Code prepared by SLF 55, particularly those included in annex 17 since the contents of annex 8 are incorporated in annex 17.

10.8 The Committee agreed, in principle, to the modifications proposed in documents MSC 92/10/1, MSC 92/10/2 and SLF 55/17 and authorized the Secretariat to effect any editorial corrections to the draft amendments to the IGC Code.

10.9 With regard to proposals in document MSC 92/10/4 to further modify the draft amendments to the IGC Code, the Committee, while noting some support for them, did not agree to them, taking into account concerns expressed about making further substantial modifications at this stage, including concerns that some of the proposals may reduce the safety level of the Code. In addition, the Committee agreed that the draft revised IGC Code should not set precedents for the content of the IGF Code and that the relationship between the IGC Code and the IGF Code may be considered once the draft IGF Code is finalized.

10.10 Consequently, the Committee approved the draft amendments to the IGC Code, as set out in annex 17, and requested the Secretary-General to circulate the amendments in accordance with SOLAS article VIII, with a view to adoption at MSC 93.

ESPH Working Group intersessional meeting in 2014

10.11 The Committee approved the holding of an intersessional meeting of the ESPH Working Group in 2014 (see also paragraph 23.28).

11 STABILITY AND LOAD LINES AND ON FISHING VESSELS SAFETY**REPORT OF THE FIFTY-FIFTH SESSION OF THE SUB-COMMITTEE**

11.1 The Committee approved in general the report of the fifty-fifth session of the Sub-Committee on Stability and Load Lines and on Fishing Vessels Safety (SLF) (SLF 55/17 and MSC 92/11) and took action as indicated below.

Revised Recommendation on a standard method for evaluating cross-flooding arrangements

11.2 The Committee considered the draft MSC resolution on *Revised Recommendation on a standard method for evaluating cross-flooding arrangements*, together with the following documents:

- .1 MSC 92/11/2 (Finland, Japan) proposing a modification of the revised regression formulae for cross-flooding through a series of structural ducts with 1 and 2 manholes; and
- .2 MSC 92/11/3 (United States) proposing several minor editing corrections and updates to the draft Revised Recommendation,

and noted that calculations to evaluate cross-flooding arrangements performed before the adoption of the Revised Recommendation remain valid, and that calculations for ships constructed on or after the date of the adoption of the Revised Recommendation should follow the latter.

11.3 Following discussion, the Committee, having noted that those who spoke did not support the proposals contained in document MSC 92/11/2 and having agreed to the modifications set out in document MSC 92/11/3, adopted resolution MSC.362(92) on *Revised Recommendation on a standard method for evaluating cross-flooding arrangements*, as set out in annex 18.

Draft Guidelines for verification of damage stability requirements for tankers

11.4 The Committee approved MSC.1/Circ.1461 on *Guidelines for verification of damage stability requirements for tankers*.

Draft amendments to the BCH Code

11.5 The Committee approved the draft amendments to the Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (BCH Code), concerning carriage requirements for stability instruments on board tankers, which were prepared in conjunction with the *Guidelines for verification of damage stability requirements for tankers* (see paragraph 11.4 above), as set out in annex 19, with a view to adoption at MSC 93, in conjunction with the adoption of the associated mandatory carriage requirements for stability instruments on board tankers under the IBC and IGC Codes.

Draft amendments to the IBC Code

11.6 The Committee recalled that the draft amendments to the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code), concerning carriage requirements for stability instruments on board tankers, had already been dealt with under agenda item 10 (see paragraph 10.3).

Draft amendments to the EGC Code

11.7 The Committee approved the draft amendments to the Code for Existing Ships Carrying Liquefied Gases in Bulk (EGC Code), concerning carriage requirements for stability instruments on board tankers, as set out in annex 20, with a view to adoption at MSC 93, in conjunction with the adoption of the associated mandatory carriage requirements for stability instruments on board tankers under the IBC and IGC Codes.

Draft amendments to the GC Code

11.8 The Committee approved the draft amendments to the Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (GC Code), concerning carriage requirements for stability instruments on board tankers, as set out in annex 21, with a view to adoption at MSC 93, in conjunction with the adoption of the associated mandatory carriage requirements for stability instruments on board tankers under the IBC and IGC Codes.

Draft amendments to the IGC Code

11.9 The Committee recalled that the draft amendments to the IGC Code, concerning carriage requirements for stability instruments on board tankers, had already been dealt with under agenda item 10 (see paragraphs 10.7 and 10.10).

Survey Guidelines under the Harmonized System of Survey and Certification (HSSC), 2011

11.10 The Committee approved the draft amendments to *Survey Guidelines under the Harmonized System of Survey and Certification (HSSC), 2011* (resolution A.1053(27)), concerning carriage requirements for stability instruments on board tankers, as set out in annex 9 of document SLF 55/17, with a view to subsequent adoption, and referred the draft amendments to FSI 22 (III 1) for inclusion in the appropriate revision of the HSSC Guidelines once the associated amendments to mandatory instruments have entered into force.

EMSA and GOALDS research related to survivability level of passenger ships after damage

11.11 The Committee considered the request for referral of the EMSA and GOALDS research related to survivability level of passenger ships after damage to the FSA Experts Group, and having noted views that this research was under consideration by the Working Group on Passenger Ship Safety (see paragraphs 6.10 to 6.12), decided to consider this matter under agenda item 6 (see paragraphs 6.19 and 6.20).

Use of national tonnage in applying international conventions

11.12 The Committee approved the draft Assembly resolution on *Recommendation on the use of national tonnage in applying international conventions*, as set out in annex 22, for submission to the Assembly, at its twenty-eighth session, for adoption.

Draft Polar Code

11.13 The Committee noted that matters related to the proposed text of chapters 3 and 4 of the draft Polar Code had been forwarded to the IS and SDS Correspondence Groups for further consideration and reporting to SLF 56 (SDC1).

Performance standards for electronic inclinometers

11.14 The Committee adopted resolution MSC.363(92) on *Performance standards for electronic inclinometers*, as set out in annex 23, which had been forwarded to SLF 55 by NAV 58 for advice on appropriate criteria for their alarming functionality.

Procedure for calculating the number of fishing vessels of each Contracting State to the 2012 Cape Town Agreement

11.15 The Committee adopted resolution MSC.364(92) on the *Procedure for calculating the number of fishing vessels of each Contracting State to the Cape Town Agreement of 2012 on the Implementation of the Provisions of the Torremolinos Protocol of 1993 relating to the Torremolinos International Convention for the Safety of Fishing Vessels, 1977, by the Depositary*, as set out in annex 24. In this context, the Committee urged all Contracting States of the Torremolinos Protocol to sign the Cape Town Agreement as soon as possible, using the simplified procedure under the Cape Town Agreement. Additionally, the Committee invited Member Governments to submit to the Depositary, when signing the Agreement, the number of fishing vessels of 24 m in length and over under their flag, authorized to operate on the high seas.

Damage stability standard for OSVs carrying limited amounts of hazardous and noxious liquid substances in bulk

11.16 The Committee endorsed the action taken by the Sub-Committee on matters related to a proposed damage stability standard for OSVs carrying limited amounts of hazardous and noxious liquid substances in bulk, and noted the text referred to BLG 18 for consideration (SLF 55/17, annex 16).

Risk-based distance criteria for gas-fuel tanks providing appropriate collision protection

11.17 The Committee noted that due to time constraints the SDS Working Group did not consider matters related to appropriate risk-based distance criteria for gas fuel tanks providing appropriate collision protection, which was referred to the Sub-Committee by BLG 16 and BLG 17; and also noted that the Sub-Committee invited Member Governments and international organizations to submit comments and proposal on this matter to SLF 56 (SDC 1).

Draft revised IGC Code

11.18 With regard to the proposed modifications to sections 2.2 to 2.7, chapter 2, of the draft IGC Code, the Committee agreed to consider the modifications in conjunction with the approval of the draft revised IGC Code under agenda item 10 (see paragraphs 10.7 to 10.10).

CAPE TOWN AGREEMENT OF 2012 ON THE IMPLEMENTATION OF THE PROVISIONS OF THE TORREMOLINOS PROTOCOL OF 1993 RELATING TO THE TORREMOLINOS INTERNATIONAL CONVENTION FOR THE SAFETY OF FISHING VESSELS, 1977

11.19 The Committee recalled that the International Conference on Safety of Fishing Vessels, 2012, having adopted the Cape Town Agreement of 2012 on the Implementation of the Provisions of the Torremolinos Protocol of 1993 relating to the Torremolinos International Convention for the Safety of Fishing Vessels, 1977 (the Agreement), had adopted Conference resolution 4 on *Preparation of a consolidated text*, whereby the Secretary-General of the Organization was requested to prepare a consolidated text of the newly established international regime for the safety of fishing vessels of 24 m in length and over.

11.20 In this connection, the Committee had for its consideration document MSC 92/11/1 (Secretariat) containing the consolidated text of the regulations annexed to the Torremolinos Protocol of 1993 relating to the Torremolinos International Convention for the Safety of Fishing Vessels, 1977, as modified by the 2012 Cape Town Agreement.

11.21 Having considered document MSC 92/11/1, and following discussion, the Committee:

- .1 approved the consolidated text of the regulations annexed to the Torremolinos Protocol of 1993 relating to the Torremolinos International Convention for the Safety of Fishing Vessels, 1977, as modified by the Cape Town Agreement of 2012, on the implementation of the provisions of the Torremolinos Protocol of 1993 relating to the Torremolinos International Convention for the Safety of Fishing Vessels, 1977 (Agreement), as set out in annex 25;
- .2 agreed that attachments 1 to 3 to the annex to document MSC 92/11/1 be attached to the approved consolidated text;
- .3 noted that, as requested by Conference resolution 4, the certified copies of the consolidated text, as approved by the Committee, will be sent to the Governments of the States that were invited to be represented at the aforementioned Conference; and
- .4 authorized the Secretariat, when preparing the certified copies of the consolidated text, to effect any editorial corrections that may be identified, and to bring to the attention of the Committee any errors or omissions which require action by the Governments of the States that were invited to be represented at the aforementioned Conference.

12 FLAG STATE IMPLEMENTATION

REPORT OF THE TWENTY-FIRST SESSION OF THE SUB-COMMITTEE

OUTCOME OF FSI 21

General

12.1 The Committee approved in general the report of the twenty-first session of the Sub-Committee on Flag State Implementation (FSI 21/18 and MSC 92/12) and, taking into account relevant decisions and comments made by MEPC 65 (MSC 92/2/2), took action as indicated below.

List of certificates and documents required to be carried on board ships

12.2 The Committee concurred with the decision of FAL 38 and MEPC 65 and approved FAL.2/Circ.127-MEPC.1/Circ.817-MSC.1/Circ.1462 on List of certificates and documents required to be carried on board ships, including the amendment to the "Note" in the title of the annex to previous versions of the list (e.g. FAL.2/Circ.87-MEPC/Circ.426-MSC/Circ.1151) in order to remove the wording "All certificates to be carried on board must be originals".

12.3 With regard to the Sub-Committee's recommendation to FAL 38 that certificates carried on board have to be valid and drawn up in the form corresponding to the model required by the relevant international convention and that a certificate may also be considered as "original" or "authentic" while containing an "authorized" electronically applied signature or stamp, the Committee concurred with the decision of MEPC 65 and endorsed the recommendation.

12.4 In the same context, the Committee, having noted that FAL 38 had requested it to consider FAL.5/Circ.39 on *Interim Guidelines for use of printed versions of electronic certificates* and to advise FAL 39 of any additions or amendments required, and had established the Correspondence Group on Electronic Access to Certificates and Documents which should, inter alia, collect lessons learned through the implementation of the above-mentioned Interim Guidelines, instructed the FSI (III) Sub-Committee to consider FAL.5/Circ.39 in detail at its next session and to report to the Committee, as appropriate. Furthermore, the Committee noted the initiative taken by MEPC 65 to establish a correspondence group on the use of electronic record books under MARPOL.

Notification and circulation through GISIS

12.5 Having concurred with MEPC 65, as well as with FAL 38 which had agreed that a reference to the FAL Committee should be added to the text of the draft resolution, the Committee approved the draft Assembly resolution on *Notification and circulation through the Global Integrated Shipping Information System (GISIS)*, as set out in annex 26, for submission to the Assembly, at its twenty-eighth session, for adoption.

Technical review of the set of GlobalReg standards

12.6 Having agreed, in principle, with the proposed method, process and principles for the technical review of the set of GlobalReg standards, as presented in document FSI 21/3/4 (France, Morocco and Vanuatu), for implementation after consideration of the full set of safety standards, the Committee considered the views expressed in document MSC 92/12/6 (Antigua and Barbuda et al.) that GlobalReg should not introduce lower levels of safety and manning compared to current national or regional standards. The co-sponsors also proposed that a full review of GlobalReg, including a gap analysis between GlobalReg and other existing codes and a clarification of the terminology "non-convention ships" should be undertaken.

12.7 Following the discussion, the Committee reached the common understanding that GlobalReg should be developed as a model set of regulations for Member States to use as they deem appropriate; that the future GlobalReg should not be subject to routine and normal amendments as is the case with other IMO standards; and that it is not intended to undermine existing regional, bilateral and national standards with respect to the safety levels achieved by them, as well as the relationships which form the basis for their implementation.

12.8 The Committee, having noted the potential magnitude of the work to be carried out, instructed the FSI (III) Sub-Committee to undertake the task as proposed, with the possible assistance of consultants, and to develop a strategy for completion of the review of the standards, including identifying any tasks that could involve other sub-committees, and to report to the Committee prior to involving other sub-committees. In response to the request by the Committee for the possible use of consultants, the Secretary-General indicated his readiness to explore the provision of resources, through the Organization's Integrated Technical Co-operation Programme (ITCP), for this purpose.

12.9 Having further instructed the FSI (III) Sub-Committee to consider an alternative to the terminology "non-convention" as used in GlobalReg, the Committee agreed that making the GlobalReg standards compatible with other safety standards should not be achieved through a full gap analysis, but that the review should take into account existing standards as referred to above.

Casualty-related matters

12.10 The Committee endorsed the Sub-Committee's decision to forward the reports on the incidents of the **Commodore Clipper** (GISIS incident C0008451) to the FP, DE and SLF (SDC and SSE) Sub-Committees; **Lisco Gloria** (GISIS incident C0008391) and **Pearl of Scandinavia** (GISIS incident C0008286) to the FP and DE (SDC and SSE) Sub-Committees; **CMA CGM Christophe Colomb** (GISIS incident C0008272-R01) to the DE (SDC) Sub-Committee; **Deepwater Horizon** to the DE, FP and STW (HTW, SDC and SSE) Sub-Committees, together with the analyses and comments made by the correspondence group (FSI 21/5), for their consideration under the agenda item on "Any other business" and for them to advise MSC 93 on how best to proceed.

12.11 Having concurred with MEPC 65, the Committee approved the draft Assembly resolution on *Guidelines to assist investigators in the implementation of the Casualty Investigation Code* (resolution MSC.255(84)), as set out in annex 27, to revoke resolutions A.849(20) and A.884(21), for submission to the Assembly, at its twenty-eighth session, for adoption.

12.12 The Committee further concurred with the decision of MEPC 65 and approved MSC-MEPC.3/Circ.4 on Revised harmonized reporting procedures – Reports required under SOLAS regulations I/21 and XI-1/6 and MARPOL, articles 8 and 12 to supersede MSC-MEPC.3/Circ.3.

Application of SOLAS regulations XII/3, XII/7 and XII/1

12.13 While considering the recommendation by the Sub-Committee based on a proposal to clarify the meaning of "periodical survey" which would have been used in SOLAS chapter XII with a meaning different from that in the Survey Guidelines under the Harmonized System of Survey and Certification (HSSC), 2011 or the International Code on the Enhanced Programme of Inspections during Surveys of Bulk Carriers and Oil Tankers, 2011 (2011 ESP Code), the Committee approved MSC.1/Circ.1463 on Application of SOLAS regulations XII/3, XII/7 and XII/11.

Survey Guidelines under the Harmonized System of Survey and Certification

12.14 The Committee concurred with the decision of MEPC 65 and approved the draft amendments to the *Survey Guidelines under the Harmonized System of Survey and Certification (HSSC), 2011* (resolution A.1053(27)), which were derived from the amendments to the relevant IMO instruments entering into force up to and including 31 December 2013,

together with the text of the draft Assembly resolution, as set out in annex 28, for submission to the Assembly, at its twenty-eighth session, for adoption.

III Code-related matter

12.15 Having recalled that MEPC 64 and MSC 91 had instructed FSI 21 to develop a new non-mandatory instrument in the form of a draft Assembly resolution, solely containing the annexes to the *Code for the implementation of mandatory IMO instruments, 2011* (resolution A.1054(27)), the Committee concurred with the decision of MEPC 65 and approved the draft Assembly resolution on *2013 Non-exhaustive list of obligations under instruments relevant to the IMO Instruments Implementation Code (III Code)*, as set out in annex 29, for submission to the Assembly, at its twenty-eighth session, for adoption.

Building contract date, keel laying date and delivery date

12.16 Based on the recommendation by the Sub-Committee, which had considered a proposal by IACS that, in order to determine the application of the mandatory requirements of SOLAS and MARPOL Conventions, it would be more appropriate and reasonable to use the completion date of the initial survey that is entered on the relevant certificates, rather than the date of the protocol of delivery and acceptance signed by both the builder and owner, the Committee, taking into account the concurrent decision of MEPC 65, approved MSC-MEPC.5/Circ.7 on Unified interpretation of the application of regulations governed by the building contract date, the keel laying date and the delivery date for the requirements of the SOLAS and MARPOL Conventions.

IMO Ship Identification Number Scheme

12.17 The Committee considered a draft Assembly resolution annexed to document MSC 92/12/1 (Australia et al.) intended to amend resolution A.600(15) and remove the exemption of fishing vessels in order to allow voluntary application of the *IMO Ship Identification Number Scheme*, on the basis of existing tonnage criteria, to fishing vessels of 100 gross tons and above, for approval prior to submission to the Assembly at its twenty-eighth session for adoption.

12.18 Although some concerns were expressed regarding the possible impact on existing fishing-vessels databases and the security of the information to be held, the Committee concluded that the proposed draft Assembly resolution would be of assistance to the implementation of IMO, FAO and ILO instruments, as well as the conduct of Search and Rescue missions and anti-criminal activities. In this context, the Committee approved the draft Assembly resolution on *IMO Ship Identification Number Scheme*, as set out in annex 30, which replaces and revokes resolution A.600(15), for submission to the Assembly, at its twenty-eighth session, for adoption,.

General cargo safety

12.19 Having considered the recommendations by the Sub-Committee regarding risk control option (RCO) 19 on Extended survey and RCO 20 on Port State control inspector training on general cargo ships, the Committee decided to consider this matter under agenda item 19 (see paragraph 19.2.2).

Reporting requirements in the context of the marine casualties and incidents

12.20 Recalling that each Administration undertakes to conduct an investigation into any casualty occurring to ships under its flag, in accordance with SOLAS regulations I/21 and XI-1/6, MARPOL articles 8 and 12 and Load Lines, article 23, the provisions of which are supported by article 94 of the United Nations Convention on the Law of the Sea (UNCLOS), the Committee decided to refer documents MSC 92/12/3 (ITF), MSC 92/12/4 (ICS and ITF) and MSC 92/12/5 (IFSMA) to the FSI (III) Sub-Committee for detailed consideration as to the need to encourage flag States and substantially interested States to meet their international obligation to investigate and report on very serious casualties, so as to bring about an increased level of safety, improve protection for the marine environment and to reduce the number of deaths at sea, together with document MSC 92/INF.8 (INTERCARGO) relating to casualties involving bulk carriers.

12.21 The Committee further instructed the FSI (III) Sub-Committee to review the listing of very serious casualties to be investigated and outstanding reports, and to consider, in consultation with the International Civil Aviation Organization (ICAO), whether any lessons might be learnt from the approach taken towards the submission and dissemination of accident reports within the aviation industry.

12.22 The Committee noted the interventions by the delegations of Panama, regarding the progress made in the finalization of the investigation report on the casualty of the livestock carrier **Danny F II** (IMO 7359462), and Indonesia, regarding the carriage of solid bulk cargoes, particularly Nickel Ore. Furthermore, the delegation of the Cook Islands referred to the casualty of the general cargo ship **Swanland** (IMO 7607431), in particular to the issue of the standardization of immersion suits and their compatibility with other buoyancy aids. The Committee was informed that the analysis of the full report of investigation into the latter casualty would be reviewed by the Correspondence Group on Casualty Analysis and the FSI (III) Sub-Committee at its next session. The statements of the three above-mentioned delegations are set out in annex 46.

Intermediate and renewal survey windows

12.23 The Committee considered the proposal to align the survey regime for ships not subject to the enhanced survey programme of inspections of bulk carriers and oil tankers (ESP ships) with that of ships subject to it, as contained in document MSC 92/12/2 (Liberia et al.), and noted that any changes to the existing arrangements might require the development of draft amendments to SOLAS chapter XI-1 regarding intermediate surveys and to the Survey Guidelines under the HSSC for renewal and intermediate surveys, taking into account the risk of potential conflict with provisions such as SOLAS regulation I/10(a)(iii).

12.24 Having taken a policy decision to align the two survey regimes, the Committee instructed the FSI (III) Sub-Committee to prepare all relevant material for expeditious implementation of the above-mentioned alignment on the basis of the proposal contained in document MSC 92/12/2, while addressing fully the concerns raised about the potentially adverse effect of the extended period of renewal surveys on annually-based survey items.

13 SHIP DESIGN AND EQUIPMENT

REPORT OF THE FIFTY-SEVENTH SESSION OF THE SUB-COMMITTEE

13.1 The Committee approved, in general, the report of the fifty-seventh session of the Sub-Committee on Ship Design and Equipment (DE) (DE 57/25, DE 57/25/Add.1 and MSC 92/13) and took action as outlined in paragraphs 13.2 to 13.37.

Unified interpretations

SOLAS chapters II-1 and XII, Technical provisions for means of access for inspections and Performance standards for water level detectors on bulk carriers

13.2 The Committee approved MSC.1/Circ.1464 on Unified interpretation of SOLAS chapters II-1 and XII, of the Technical provisions for means of access for inspections (resolution MSC.158(78)) and of the *Performance standards for water level detectors on bulk carriers* (resolution MSC.145(77)).

Performance standard for protective coatings for dedicated seawater ballast tanks in all types of ships and double-side skin spaces of bulk carriers

13.3 The Committee considered document MSC 92/13/4 (Greece, INTERTANKO, and INTERCARGO), suggesting modifications to the draft MSC circular on Unified interpretations 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)) (PSPC).

13.4 Having considered the suggested modifications, the Committee:

- .1 did not agree to the proposal (MSC 92/13/4, paragraph 4) to add additional text at the end of the interpretation concerning water-soluble salt limit;
- .2 did not agree to the proposal (MSC 92/13/4, paragraph 5) to add an additional sentence at the end of the interpretation concerning shop primer;
- .3 agreed to delete interpretation 1 to paragraph 3.4 of PSPC 4, table 1, section 3 (Secondary surface preparation) which DE 57 had left in square brackets for a decision by the Committee;
- .4 agreed to the proposal (MSC 92/13/4, paragraph 7) to modify paragraphs 4.1 and 4.3 of the interpretation concerning assistant coating inspectors to read as follows:

"4.1 If the coating inspectors require assistance from other persons to perform part of the inspections, those persons should perform the inspections under the coating inspector's supervision and should be trained to the coating inspector's satisfaction."

"4.3 Training records should be available for verification."; and
- .5 did not agree to the proposal (MSC 92/13/4, paragraph 8) to add an additional paragraph to the interpretation concerning verification of the application of the PSPC since it considered this to be an amendment rather than an interpretation. In this connection, having noted this decision, the observer from INTERTANKO, supported by the delegation of Greece, made the Committee aware that the activity and result of the verification process for compliance with the PSPC was currently not documented for Administrations and shipowners, while the basic principles of quality control required such documentation.

13.5 Consequently, the Committee approved MSC.1/Circ.1465 on Unified interpretations 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)).

13.6 The observer from IACS, referring to the decision of DE 57 not to include in the above-mentioned unified interpretation text referring to section 8 (Alternative systems) of the PSPC, pointed out that the alternative approval scheme was explicitly referred to in the mandatory provisions of the PSPC and that the deletion of the relevant interpretations, which aimed at facilitating consistent and global implementation of the scheme, would not stop its implementation. The interpretations would have clarified that any coating system not fully meeting the standard approval scheme of the PSPC was required to undergo the more rigorous alternative test procedure. Coating manufacturers had stated that their new products, some developed for health and environmental reasons, e.g. solvent free coating systems, and others of a novel or innovative nature, were equivalent to products approved under the standard approval. The IACS observer, stressing that such products must be proven and approved under the more rigorous assessment criteria for alternative systems, urged the Committee to task the DE (SDC) Sub-Committee to reconsider its decision not to include provisions relating to alternative systems in the unified interpretation.

13.7 Following consideration, and having noted differing views of delegations on whether relevant provisions should be included in the unified interpretations just approved, the Committee invited IACS to submit a relevant proposal to the next session of the DE (SDC) Sub-Committee, under its agenda item on "Consideration of IACS Unified interpretations".

Fall preventer devices

13.8 The Committee approved MSC.1/Circ.1466 on Unified Interpretations on fall preventer devices.

Redundancy of fuel oil pumps for the normal operation of propulsion systems

13.9 The Committee approved MSC.1/Circ.1467 on Unified Interpretations of SOLAS regulation II-1/26.3.

Greatest launching height for a free-fall lifeboat

13.10 The Committee approved MSC.1/Circ.1468 on Unified Interpretations of paragraph 1.1.4 of the LSA Code.

Measures to prevent accidents with lifeboats

Requirements for periodic servicing and maintenance of lifeboats and rescue boats

13.11 The Committee, having considered paragraph 6.2.3 of the draft MSC resolution on *Requirements for periodic servicing and maintenance of lifeboats and rescue boats*, concerning the possibility of an extension for the annual examination, which DE 57 had left in square brackets for a decision by the Committee, agreed to delete the paragraph.

13.12 Having considered document MSC 92/13/3 (Dominica) commenting on the requirements for operational testing of davit-launched lifeboat and rescue boat on-load and off-load release gear and proposing to add two new subparagraphs 6.2.6.5 and 6.2.7.5, the Committee agreed that more information was necessary to take a decision on the matter and invited relevant submissions to MSC 93, to be considered at that session in conjunction with the adoption of the requirements.

13.13 Consequently, the Committee approved the draft MSC resolution on *Requirements for periodic servicing and maintenance of lifeboats and rescue boats*, as set out in annex 31, with a view to adoption at MSC 93 in conjunction with the adoption of the associated draft SOLAS amendments (see paragraph 13.16).

Guidelines on safety during abandon ship drills using lifeboats

13.14 The Committee approved, in principle, the draft MSC circular on *Guidelines on safety during abandon ship drills using lifeboats*, for final approval at MSC 93 in conjunction with the adoption of the associated draft MSC resolution (see paragraph 13.13).

13.15 In this connection, the Committee considered document MSC 92/13/1 (ITF), suggesting that the draft Guidelines should be considered by the STW Sub-Committee, taking into account all other guidance and amendments relevant to measures to prevent accidents with lifeboats, the need to give advice on the standardization of drills and the possibility of making the Guidelines mandatory, and, having noted that the next session of the STW (HTW) Sub-Committee was scheduled to take place before MSC 93, instructed it to consider the draft Guidelines, taking into account document MSC 92/13/1, so that any comments may be taken into account for their final approval at MSC 93.

Associated draft amendments to SOLAS chapter III

13.16 Subsequently, the Committee approved draft amendments to SOLAS chapter III, as set out in annex 32, to make the aforementioned *Requirements for periodic servicing and maintenance of lifeboats and rescue boats* mandatory (see paragraph 13.13), and requested the Secretary-General to circulate the draft amendments in accordance with SOLAS article VIII, with a view to adoption at MSC 93.

Goal-based guidelines on the framework of requirements for ships' life-saving appliances

13.17 The Committee noted that the Sub-Committee had referred parts of the draft *Goal-based Guidelines on the framework of requirements for ships' life-saving appliances* (DE 57/WP.5, annex 1) to the STW (HTW), COMSAR (NCSR) and FP (SSE) Sub-Committees for consideration, as appropriate.

Acceptable arrangements for the positioning and operation of lights fitted to lifejackets

13.18 The Committee recalled that MSC 91, following consideration of document MSC 91/18 (IACS) regarding acceptable arrangements for the positioning and operation of lights fitted to lifejackets, had referred the document to DE 57 for consideration.

13.19 The Committee noted the comments of the Sub-Committee on the matter, as set out in the report of DE 57 (DE 57/25, paragraphs 8.6 to 8.9) and that DE 57 had invited IACS to prepare a relevant unified interpretation.

Development of a mandatory Polar Code

13.20 The Committee noted the progress made at DE 57 in the development of the mandatory Polar Code.

13.21 In this connection, the Committee noted the outcome of MEPC 65 in the matter, in particular that the MEPC had considered draft chapter 15 (Environmental protection) of the Polar Code, as requested by DE 57, and had taken the following decisions:

- .1 agreed that the DE (SDC) Sub-Committee should await the outcome of the BLG (PPR) Sub-Committee on the impact on the Arctic of emissions of Black Carbon from international shipping before considering the issue further;
- .2 agreed to exempt cargo ships having ice-breaking capability from the EEDI requirements and approved relevant draft amendments to regulations 2 and 19 of MARPOL Annex VI;
- .3 with regard to additional requirements to those of MARPOL Annex I, agreed that any discharge into the sea of oil or oily mixtures from any ship should be prohibited;
- .4 agreed that it was premature to regulate the use of heavy fuel oil (HFO) on ships operating in Arctic waters;
- .5 noted DE 57's agreement that proposals concerning the introduction of regulations on grey water discharge should first be considered by the MEPC as grey water is currently not regulated under MARPOL;
- .6 with regard to additional requirements to those of MARPOL Annex V, agreed that the discharge of food waste into the sea should be allowed under certain conditions;
- .7 did not support the proposal (MEPC 65/11/5) to include a provision in the draft Polar Code prohibiting shipboard incineration in polar regions within 12 nautical miles from the nearest land, ice shelf, land-fast ice, or area of ice concentration in excess of 10 per cent ice coverage;
- .8 instructed the DE (SDC) Sub-Committee to take into account the temperature testing requirements for ballast water management systems, as contained in the revised Methodology for information gathering and conduct of work of the GESAMP-BWWG (BWM.2/Circ.13/Rev.1), when considering relevant recommendations on ballast water management systems; and
- .9 approved, subject to the concurrent decision of MSC 92, the holding of an intersessional meeting of the Polar Code Working Group (refer to paragraph 23.28.5).

Status of nautical charting in polar waters

13.22 The Committee considered the unsatisfactory status of nautical charting in polar waters and the impact this has on navigation (DE 57/11/24), having noted that DE 57 had referred this matter to the NAV Sub-Committee for further consideration.

13.23 In this connection, the Committee noted a statement by IHO advising the Committee that the chart coverage for Arctic and Antarctic areas at an appropriate scale was generally inadequate for coastal navigation and that, where charts did exist, they had limited usefulness because of the lack of any reliable depth or hazard information. Consequently,

they urged Member States to meet their surveying and charting obligations as set out in SOLAS chapter V. The full text of the statement is set out in annex 46.

13.24 Having considered the information provided by IHO, the Committee stressed the utmost importance of adequate charting, not only for the polar regions, but also for all other areas and, recognizing that a collective effort was necessary to improve the situation, encouraged Member States to collect relevant information, especially for remote areas, in support of IHO activities in this regard. Having recalled that DE 57 had already requested the NAV Sub-Committee to consider the matter for polar regions (see paragraph 13.22), the Committee instructed the NAV Sub-Committee to also take the comments made at this session into account in their considerations.

13.25 The Committee noted a second statement by IHO drawing its attention to this year's theme of World Hydrography Day: "Hydrography – Underpinning the Blue Economy" which refers to the sum of all economic activity associated with oceans, seas, harbours, ports and coastal zones. The full text of their statement is set out in annex 46.

Guidelines addressing the carriage of more than 12 industrial personnel on board vessels engaged on international voyages

13.26 The Committee decided to consider this matter under agenda item 23 (Work programme (see paragraph 23.19)).

Lifejacket reference test devices (RTDs)

13.27 The Committee approved:

- .1 draft amendments to the LSA Code concerning lifejacket RTDs, as set out in annex 33, and requested the Secretary-General to circulate them in accordance with SOLAS article VIII, with a view to adoption at MSC 93;
- .2 draft amendments to the *Revised Recommendation on testing of life-saving appliances* (resolution MSC.81(70)), as set out in annex 34, with a view to adoption at MSC 93 in conjunction with the adoption of the aforementioned associated LSA Code amendments; and
- .3 in principle, a draft MSC circular on *Guidelines for validating the construction of a completed adult reference test device (RTD)*, for final approval at MSC 93 in conjunction with the adoption of the associated amendments to the LSA Code and the *Revised Recommendation on testing of life-saving appliances*, and requested the Secretariat to forward the above draft MSC circular to MSC 93 accordingly.

Requirements for lifting appliances and winches

13.28 The Committee noted that DE 57 had requested the Secretariat to liaise with ILO to inform it of the ongoing work with regard to the development of requirements for lifting appliances and winches and invite its participation. In this connection, the Committee also noted that the Secretariat, in the meantime, had contacted ILO and had received confirmation that it would welcome participating in the work.

Requirements for steering gear trials

13.29 The Committee approved draft amendments to SOLAS regulation II-1/29 concerning requirements for steering-gear trials, as set out in annex 35, and requested the Secretary-General to circulate the draft amendments in accordance with SOLAS article VIII, with a view to adoption at MSC 93.

Draft revised IGC Code

13.30 The Committee noted that DE 57 had considered the parts of the draft revised IGC Code referred to it by the BLG Sub-Committee and had concurred with the draft text as set out in documents BLG 17/9 and BLG 17/WP.6.

Amendments to the 2011 ESP Code

13.31 The Committee concurred with the procedure for regular updates to the 2011 ESP Code agreed by DE 57, as set out in the report of that session (DE 57/25, paragraph 24.5).

13.32 With regard to the consideration of amendments to the ESP Code prepared by DE 57, the Committee considered proposed new text in square brackets in paragraph 1.3.3 of annexes A and B of parts A and B of the 2011 ESP Code and agreed that the paragraph should read as follows:

"1.3.3 Where the damage found on the structure mentioned in paragraph 1.3.1 above is isolated and of a localized nature which does not affect the ship's structural integrity (as for example a minor hole in a cross-deck strip), consideration may be given by the surveyor to allow an appropriate temporary repair to restore watertight or weathertight integrity after evaluation of the surrounding structure and impose an associated condition of classification or recommendation with a specific time limit to complete the permanent repair and retain classification."

13.33 Consequently, the Committee approved the draft amendments to the 2011 ESP Code, as set out in annex 36, and requested the Secretary-General to circulate them in accordance with SOLAS article VIII, with a view to adoption at MSC 93.

Deferment of agenda items

13.34 The Committee noted that, due to lack of time, DE 57 had deferred consideration of agenda items 9 (Development of amendments to the LSA Code for thermal performance of immersion suits), 10 (Development of amendments to the LSA Code for free-fall lifeboats with float-free capabilities), 14 (Development of guidelines for wing-in-ground craft), 15 (Revision of the *Recommendation on conditions for the approval of servicing stations for inflatable liferafts* (resolution A.761(18)) and 19 (Review of general cargo ship safety) to DE 58 (SDC 1 and SSE 1), as appropriate.

SHIP SPECIFIC PLANS AND PROCEDURES FOR RECOVERY OF PERSONS FROM THE WATER

13.35 The Committee recalled that MSC 91 had adopted new SOLAS regulation III/17-1 concerning the recovery of persons from the water, which is expected to enter into force on 1 July 2014 and requires ship-specific plans and procedures for such recovery (MSC.1/Circ.1447 on *Guidelines for the development of plans and procedures for recovery of persons from the water* refers).

13.36 In this connection, the Committee noted with thanks document MSC 92/INF.7 (Japan), providing information on a sample form to facilitate the preparation of plans and procedures for the recovery of persons from the water, developed in consultation with stakeholders such as class societies, shipowners and the Japanese Administration. The sample form does not imply any minimum requirements for all ships to follow, for example, some rescue equipment listed in the form may not be needed on all ships.

14 TRAINING AND WATCHKEEPING

REPORT OF THE FORTY-FOURTH SESSION OF THE SUB-COMMITTEE (URGENT MATTERS EMANATING FROM THE FORTY-FOURTH SESSION OF THE SUB-COMMITTEE)

General

14.1 The Committee considered urgent issues emanating from the forty-fourth session of the Sub-Committee (MSC 92/14) and took action as indicated below.

Revision of Recommendations for the training, competency and fitness for duty of personnel on mobile offshore units (MOUs)

14.2 The Committee approved the draft Assembly resolution on *Recommendations for the training and certification of personnel on mobile offshore units (MOUs)*, as set out in annex 37, for submission to the Assembly, at its twenty-eighth session, for adoption.

Development of a mandatory Code for ships operating in Polar waters

14.3 The Committee concurred with the conclusion of the Sub-Committee that it was appropriate to include training and certification provisions for the Polar Code in chapter V of the STCW Convention and Code, and instructed the Secretariat to inform DE 58 (SDC 1) accordingly.

IMO instruments Implementation (III Code)

14.4 The Committee approved amendments to the International Convention on Standards of Training, Certification and Watchkeeping, 1978, as amended, and the Seafarers' Training, Certification and Watchkeeping (STCW) Code, to make the IMO Instruments Implementation Code (III Code) mandatory, as set out in annexes 38 and 39, respectively, and requested the Secretary-General to circulate them in accordance with article XII of the STCW Convention.

International Code of safety for ships using gas or other low flash-point fuels with properties similar to liquefied natural gas (IGF Code)

14.5 The Committee concurred with the view of the Sub-Committee that the appropriate instrument to include training and certification provisions for personnel on ships using gases or other low flash-point fuels was chapter V of the STCW Convention and Code, and accordingly, that reference should be made in chapter 18 of the IGF Code to the appropriate provisions of STCW Convention and Code, and instructed the Secretariat to inform DSC (CCC 1) accordingly.

Amendments to the STCW Code's vision requirements

14.6 The Committee approved STCW.7/Circ.20 on *Interim Guidance on colour vision testing*.

14.7 The Committee approved amendments to part A of the STCW Code related to Minimum in-service eyesight standards for seafarers, as set out in annex 39, and requested the Secretary-General to circulate them in accordance with article XII of the STCW Convention.

Secretary-General's report pursuant to STCW regulation I/7, paragraph 2

14.8 The Sub-Committee noted that no reports pursuant to STCW regulation I/7, paragraph 2, had been submitted to this session for consideration.

Secretary-General's report pursuant to STCW regulation I/8

14.9 In introducing his report (MSC 92/WP.3), the Director of the Maritime Safety Division, on behalf of the Secretary-General, advised the Committee that, in preparing the reports required by STCW regulation I/8, paragraph 2, the Secretary-General had solicited and taken into account the views of the competent persons selected from the list established pursuant to paragraph 5 of section A-I/7 of the STCW Code and circulated as MSC.1/Circ.797. The reports, as required by MSC.1/Circ.1449, comprised:

- .1 the Secretary-General's report to the Committee;
- .2 a description of the procedures followed; and
- .3 a summary of the conclusions reached in the form of a comparison table.

14.10 Having considered the Secretary-General's reports attached to document MSC 92/WP.3, the Committee confirmed that the procedures for the assessment of information provided had been correctly followed in respect of two STCW Parties, and requested the Secretariat to issue an updated circular as MSC.1/Circ.1164/Rev.12.

Approval of competent persons

14.11 The Committee approved additional competent persons nominated by Governments (MSC 92/14/1), and requested the Secretariat to issue an updated circular as MSC/Circ.797/Rev.24.

15 TECHNICAL CO-OPERATION ACTIVITIES RELATING TO MARITIME SAFETY AND SECURITY

Developments concerning technical co-operation activities and model courses

15.1 The Committee noted document MSC 92/15 (Secretariat) reporting on the 31 regional and 45 global safety- and security-related activities implemented for the period January to December 2012 and the 29 regional and 34 global activities planned for 2013 under the Integrated Technical Co-operation Programme (ITCP) for the biennium.

15.2 The Committee also noted document MSC 92/15/2 (Singapore) containing information on a four-day workshop held from 12 to 15 March 2013, for 31 maritime security personnel from the Asian Pacific region. The workshop was hosted by Singapore, in collaboration with IMO and the Maritime Security Experts Subgroup (MEG-SEC) of the Asia-Pacific Economic Cooperation (APEC), and was based on a manual developed in 2008 by the subgroup as part of technical assistance to aid APEC Member Economies' port facilities in complying with the ISPS Code requirements for maritime security drills and

exercises. The guidelines in the manual had proven to be a useful tool and could be adapted as a basis for future collaboration on maritime capacity-building initiatives.

15.3 The Committee noted document MSC 92/15/1 (Secretariat) containing the information that 66 model courses have been published in English, of which 32 have been translated into French and 35 into Spanish. Of the translated courses, 27 have been published in French and 25 in Spanish, while the translation of other courses is being undertaken in a phased manner within existing resources.

15.4 In appreciating the information provided on the implementation of technical co-operation activities and the development of model courses, the Committee urged Governments and industry to contribute to the Technical Co-operation Fund and requested the Secretariat to keep the Committee informed of future activities.

16 CAPACITY-BUILDING FOR THE IMPLEMENTATION OF NEW MEASURES

General

16.1 The Committee recalled that MSC 91 (MSC 91/22, paragraph 15.10) had requested the Vice-Chairman of the Committee, in consultation with the Chairman and assisted by the Secretariat, to submit to MSC 92 a preliminary assessment of the capacity-building implications and technical assistance needs related to the approved amendments to mandatory instruments and the new unplanned outputs related to mandatory instruments, which had been approved at that session.

Assessment of capacity-building implications for the implementation of new measures

16.2 The Committee considered document MSC 92/16 (Vice-Chairman) providing the outcome of the preliminary assessment referred to above. The Committee noted that new/updated legislation is required for most of the items considered under the draft amendments to mandatory instruments as reflected in annex 2 and recalled that technical and/or legal support that may be necessary could be addressed through the Organization's Integrated Technical Co-operation Programme (ITCP).

16.3 The Committee, having further noted that no validated training existed for enabling seafarers and port personnel to improve the safe transport and operation procedures involving solid bulk cargoes, agreed that the development of such a training course should be considered by the DSC (CCC) Sub-Committee. With respect to the assessment of the items in annex 3 of document MSC 92/16, the Committee agreed that the outputs may need to be monitored in due course.

16.4 The Committee, having agreed that it would not be necessary to establish the Ad Hoc Capacity-building Needs Analysis Group (ACAG), requested the Vice-Chairman, in consultation with the Chairman and with the assistance of the Secretariat, to submit to MSC 93 a preliminary assessment of the amendments to mandatory instruments and the new outputs related to proposed new measures approved at this session.

17 FORMAL SAFETY ASSESSMENT

General

17.1 The Committee recalled that MSC 91 had approved, subject to the concurrent approval of MEPC 65, the draft Revised FSA Guidelines and the draft HEAP Guidelines. In this regard, the Committee noted that MEPC 65 had approved them, and they would be

issued as MSC-MEPC.2/Circ.12 on *Revised Guidelines for Formal Safety Assessment (FSA) for use in the IMO rule-making process* and MSC-MEPC.2/Circ.13 on *Guidelines for the application of Human Element Analysing Process (HEAP) to the IMO rule-making process*.

17.2 The Committee also recalled that, with regard to the FSA study on the safe sea transport of dangerous goods and the FSA study on crude oil tankers, MSC 91, having considered the report of the FSA Experts Group, had forwarded the recommendations contained in those FSA studies to the relevant sub-committees.

FSA study on the safe sea transport of dangerous goods

17.3 The Committee noted the following outcomes of FP 56 and STW 44 on the safe sea transport of dangerous goods (MSC 92/17 and Add.1):

- .1 FP 56 noted that the draft SOLAS amendments to regulation II-2/10 and the associated draft MSC circular, prepared by the Sub-Committee, were consistent with Recommendation 2 of the FSA study, and that therefore the intent of the aforementioned recommendation had been achieved, offering a considerable improvement of safety; and
- .2 STW 44 agreed that the scope of the competence to fight and extinguish fires could be extended to address problems concerning water-reactive materials which, in most cases, could be extinguished with water, noting that the contents of model courses were based on the competences identified in the tables in the STCW Code, which would need to be amended; subsequently, STW 44 invited interested Member States and international organizations to submit proposals to MSC 93 for a new unplanned output to amend the STCW Code to extend the scope of the competence "fight and extinguish fires" to address fire-fighting involving water-reactive materials.

FSA study on crude oil tankers

17.4 The Committee noted the following outcomes of FP 56 and STW 44 on crude oil tankers (MSC 92/17 and Add.1):

- .1 FP 56 concluded that, with regard to RCO 8 (Hot work procedures training) in the FSA study, the work on that output had been completed for matters under the purview of the Sub-Committee, and that work related to RCO 9 (Double sheathed low-pressure fuel pipes for fuel injection systems in engines) had been included in the list of items on the Committee's post-biennial agenda; and
- .2 STW 44 noted that RCO 8 (Hot work procedures training) had already been included in the Committee's post-biennial agenda, as agreed by MSC 91.

Re-establishment of the Experts Group on Formal Safety Assessment (FSA)

17.5 The Committee recalled that it had re-established the FSA Experts Group under agenda item 6 and instructed it to report its outcome to MSC 93 under the agenda item on "Passenger ship safety" (see paragraphs 6.20 and 23.28.10).

18 PIRACY AND ARMED ROBBERY AGAINST SHIPS

Piracy and armed robbery against ships in the Gulf of Guinea

18.1 In welcoming the submissions of Greece and the Secretariat (documents MSC 92/18/1 and MSC 92/18, respectively), the Committee recognized the gravity of the issue of piracy and armed robbery against ships in the Gulf of Guinea and the extreme violence exhibited, and expressed its deep concern for, and condemnation of, such activities. In addition to the information provided in these documents, the Committee also noted that a study entitled "Human Cost of Piracy" had just been released and was available online at the following website address: www.oceansbeyondpiracy.org. In this connection, the delegation of Liberia made a statement, which is set out in annex 46.

18.2 The Committee noted that the maritime safety, security and law enforcement challenges in the region all have broadly similar solutions, including: comprehensive legal frameworks; maritime situational awareness; maritime law enforcement capability; and inter-agency cooperation on both the national and regional levels. The Committee further noted that the Secretariat had developed a series of national, subregional and regional workshops on the ISPS Code, maritime security and stowaways in the region, currently funded under the International Maritime Security Trust Fund.

18.3 Having noted the statements made by Angola, Côte d'Ivoire, Ghana and Nigeria, which are set out in annex 46, the Committee expressed its appreciation for the increased commitment and efforts of a number of coastal States in the region to address these issues through the implementation of a range of measures including better cooperation, coordination, communication and development of their capacity to enforce the law at sea. The Committee welcomed the regional initiative by ECCAS, ECOWAS and the Gulf of Guinea Commission, pursuant to United Nations Security Council resolutions 2018 (2011) and 2039 (2012), to develop a Code of Conduct on the repression of piracy, armed robbery against ships and other illicit activities at sea. This Code of Conduct, which complemented the integrated coastguard function network project, launched by IMO and MOWCA in 2006, and the African Union's Integrated Maritime Strategy 2050, was adopted at a ministerial meeting in Cotonou, Benin, in March 2013 and was expected to be opened for signature at the meeting of the Heads of State and Government of Central and West African States, in Yaoundé, Cameroon, on 24 and 25 June 2013.

18.4 The Committee called upon flag States to reiterate the need for proper and comprehensive reporting of incidents by ships operating in the area and to reinforce the need for the full implementation of IMO guidance (MSC.1/Circs.1333 and 1334) and other guidelines developed by industry. As this guidance included recently developed interim guidance specific to the region, the Committee requested the Secretariat to circulate relevant details by means of a circular letter.

18.5 The Committee noted the calls for some States, regional bodies and the United Nations to redouble their efforts to implement effective maritime law enforcement solutions.

18.6 The Secretary-General advised the Committee that he would write to the Secretary-General of the United Nations, Mr. Ban Ki-moon, keeping him informed of developments with respect to the situation in the Gulf of Guinea, including the preparation of guidance by the industry and the establishment of a multi-donor trust fund for the implementation of IMO projects on maritime security for West and Central Africa; and the need for continued close cooperation between members of the United Nations system.

18.7 The Secretary-General further advised the Committee that he had attended the Tokyo International Conference on African Development (TICAD V) in Yokohama in June 2013. The Secretary-General had participated in a session chaired by Mr. Ban on the Post-2015 Development Agenda for Africa and had stressed that maritime development should find a proper position on African development and that maritime infrastructure development and maritime security were fundamentally important to achieving this.

18.8 The Secretary-General reiterated his determination to eradicate piracy and armed robbery against ships, noting that the new Code of Conduct was an important factor within a regional mechanism for cooperation. The Secretariat had been active in promoting the implementation and coordination of coastguard functions nationally and regionally, and had contributed to developing the Code of Conduct. African countries needed to take action and all Member States were encouraged to support these activities.

18.9 The Committee concluded by urging Member States to contribute to the Maritime Security Trust Fund and the multi-donor trust fund for the implementation of IMO projects on maritime security for West and Central Africa.

Piracy and armed robbery against ships in waters off the coast of Somalia

18.10 The delegation of Japan stated that, although the numbers of piracy attacks in the Gulf of Aden and western Indian Ocean had significantly reduced, it remained a significant threat and there was no cause to relax. The Committee noted with gratitude reports from the Islamic Republic of Iran and Turkey on their activities to counter piracy. The full text of the statement by the Islamic Republic of Iran is set out in annex 46.

18.11 The Committee further noted the concerns expressed by the delegation of Bangladesh on the fate of 15 seafarers from Bangladesh, India and Sri Lanka on the M.V. **Albedo**, still being held captive since November 2010. The seafarers and their families were under tremendous pressure due to their enforced captivity. Bangladesh sought help from any quarter, in particular from the flag State and other IMO Member States, for the release of those 15 seafarers.

Activities of ReCAAP-ISC and Canada related to piracy

18.12 The Committee noted an update on the activities of the ReCAAP Information Sharing Centre (MSC 92/INF.12) and the information provided by Canada (MSC 92/INF.4) on the Dalhousie Marine Piracy Project's intersectoral working group workshop on global maritime piracy.

Private armed security and rules on the use of force

18.13 The Committee recalled its decision at MSC 90 that ISO would be best placed to develop standards on Private Maritime Security Companies (PMSC) with guidance from IMO, and that MSC.1/Circ.1443 on *Interim Guidance to private maritime security Companies providing privately contracted armed security personnel on board ships in the High Risk Area*, which included guidance on rules on the use of force, was accordingly provided to ISO to assist in development of the new ISO standard. Recalling also that, at MSC 91, ISO had reported on progress on the new ISO Publicly Available Specification (PAS) 28007, published in November 2012, the Committee noted that "Rules for the Use of Force" (MSC 92/INF.14) has been accepted as an input to ISO TC 8. The Committee thanked ISO for its continuing work and once again encouraged Member States to bring the PAS to the attention of their national standards bodies, and PMSCs, shipowners and other stakeholders to study and use this PAS

as appropriate, noting also that any delegation wishing to discuss either the process or content related to the ISO PAS is invited to contact ISO.

18.14 In considering document MSC 92/INF.14 (Marshall Islands), on the inclusion of rules for the use of force in ISO PAS 28007, a matter to be addressed by next annual general meeting of ISO/TC 8, the Committee noted an intervention by BIMCO, supported by ICS and others, calling for Governments to implement ISO PAS 28007 as the sole standard. BIMCO expressed concern that some Governments may be considering using the International Code of Conduct as a standard for the approval of PCASPs, as opposed to ISO PAS 28007. The full text of the statement by BIMCO is set out in annex 46.

Outcomes of FAL 38 on information related to the questionnaire on information on port and coastal State requirements related to PCASP

18.15 The Committee recalled that, following discussions during MSC 89 and FAL 37, an intersessional working group had developed MSC-FAL.1/Circ.2 on Questionnaire on information on port and coastal State requirements related to PCASP, and that responses to the questionnaire and any related national legislation, policies and procedures provided had been posted by the Secretariat, in the language received, on IMO's public website (www.imo.org).

18.16 The Committee noted that FAL 38, in order to address the low level of responses, had requested the Secretariat to write to Member States reminding them of the need to supply the information requested. This had been done by means of Circular letter No.3366 dated 14 May 2013. The Committee urged Contracting Governments which had not yet done so to complete the questionnaire annexed to MSC-FAL.1/Circ.2 and to submit the information to the Organization at their earliest convenience.

19 GENERAL CARGO SHIP SAFETY

19.1 The Committee recalled that MSC 90, having considered part of the report of the GBS/FSA Working Group (MSC 90/WP.7), had forwarded the final recommendations for risk control options (RCOs) included in the FSA study on General Cargo Ship Safety (MSC 88/19/2) to relevant sub-committees for advice.

19.2 The Committee noted the following outcomes of FP 56, FSI 21 and STW 44 on the matter (MSC 92/19 and Add.1):

- .1 FP 56, in considering RCO 28 (Measures to prevent fire and explosion accidents caused by inadequate repair and maintenance procedures and work during harbour stays), concluded that the regulatory basis was already in place and that relevant measures should be effected by Administrations through strict implementation of the requirements of the ISM Code, including further strengthening of SMS procedures, and invited the Committee to note this view; consequently, FP 56 agreed that no further action on RCO 28 was needed;
- .2 FSI 21, with regard to RCO 19 (Extended survey on general cargo ships) and RCO 20 (Port State control inspector training for general cargo ships), agreed that further consideration is required at FSI 22 (III 1); and

- .3 STW 44, having considered RCOs 8, 23 and 26 on operational/training matters, agreed that the STCW Convention and Code adequately covered training requirements relating to these RCOs and recommended to the Committee that no further action be taken.

19.3 In this regard, the delegation of IACS, noting that a full set of responses from the relevant sub-committees relating to the detailed technical evaluation of the RCOs from the IACS FSA study is not likely to be available until MSC 93, stated that, in order to facilitate a holistic overview of the work the sub-committees have done, IACS intended to submit to MSC 93 a status report and analysis of the RCOs as referred by the Committee.

20 IMPLEMENTATION OF INSTRUMENTS AND RELATED MATTERS

Clarification on the definition of "new ship" in LL 66/88

20.1 The Committee considered document MSC 92/20 (Democratic People's Republic of Korea), seeking clarification on the definition of "new ship" in article 2 of the International Convention on Load Lines, 1966, as modified by the 1988 Protocol relating thereto.

20.2 In considering the proposal, the Committee noted, among other things, the "no more favourable treatment" provision in the Protocol and the responsibilities of flag State Administrations accepting ships on their registers; and decided that an interpretation of the term "new ship" was not required.

Bridge Navigational Watch Alarm System (BNWAS) auto-function

20.3 The Committee considered document MSC 92/20/1 (Marshall Islands, et al.), seeking its view on the need for the automatic function as specified in resolution MSC.128(75) – *Performance Standards for a Bridge Navigational Watch Alarm System (BNWAS)*.

20.4 Having recalled the views of NAV 55 that the automatic mode of the performance standard was not usable on a ship compliant with the SOLAS Convention and, in particular, with the requirements of SOLAS regulation V/19.2.2.3, the Committee instructed NAV 59 to further consider document MSC 92/20/1 under its agenda item "Any other business" and develop necessary guidance on the issue and, in addition, advise MSC 93 on the way forward.

21 RELATIONS WITH OTHER ORGANIZATIONS

21.1 The Committee noted the decisions of C 109 (MSC 92/21) relating to the review of the Rules Governing the Relationship with Non-Governmental International Organizations, the Guidelines on the Grant of Consultative Status, and the questionnaire.

22 REVIEW AND REFORM OF THE ORGANIZATION, INCLUDING APPLICATION OF THE COMMITTEES' GUIDELINES

COMMITTEES' GUIDELINES

22.1 With regard to the Committees' Guidelines (MSC-MEPC.1/Circ.4./Rev.2), the Committee noted that FAL 38 had revised the *Guidelines on the organization and method of work of the Facilitation Committee* (FAL.3/Circ.209) and had invited the MSC to note the revision and to consider if the editorial improvements made by FAL 38 should be included in the relevant Guidelines of the MSC and MEPC in due course.

22.2 The Committee agreed to request the Secretariat to prepare a document for consideration at MSC 93, setting out the revised text prepared by FAL 38, so that the Committee may take a decision on the matter.

REVIEW AND REFORM OF THE ORGANIZATION

Background

22.3 The Committee recalled that C 109 had considered and endorsed in principle the Secretary-General's proposals on the review and reform of the Organization (C 109/D, section 3) and, in regard to matters relating to the proposed sub-committee restructuring, had invited the MSC and MEPC to consider the implications and practicability of the relevant proposals under their purview, including appropriate new names for the sub-committees in question, and to report to C 110 accordingly.

22.4 The Committee also recalled that MSC 91, following an extensive debate on the matter (MSC 91/22, paragraphs 19.38 to 19.51), had requested the Secretariat to prepare a detailed proposal containing proposed names, terms of reference, provisional agendas and biennial agendas, a cost-benefit analysis and meeting dates for each body, for consideration at MEPC 65 and MSC 92. MSC 91 had also agreed to establish a working group at this session to consider the matter further.

Documents submitted and information provided

22.5 The Committee had for its consideration the following two documents by the Secretary-General:

- .1 MSC 92/22, containing a detailed proposal on the proposed sub-committee restructuring, including draft terms of reference of each sub-committee, biennial and provisional agendas for each body and a provisional meeting programme for 2014, and proposing to rearrange the existing nine sub-committees as a new structure comprising seven sub-committees, as follows (in alphabetical order):
 - .1 **Sub-Committee on Implementation of IMO Instruments (III):**
Renaming the FSI Sub-Committee to better reflect its actual work.
 - .2 **Sub-Committee on Human Element, Training and Watchkeeping (HTW):**
Renaming the STW Sub-Committee to better reflect the increased importance placed on matters relating to the role of the human element.
 - .3 **Sub-Committee on Navigation, Communications and Search and Rescue (NCSR):**
Amalgamating the work of the COMSAR and NAV Sub-Committees to maximize the efficiency of the operational work undertaken by the Committee, taking into account that communication-related matters are essential for both navigation and SAR operations and that both navigation and communication equipment is virtually all computer software-based.

- .4 **Sub-Committee on Pollution Prevention and Response (PPR):**
Renaming the BLG Sub-Committee, expanding its terms of reference in order for it to deal with environment-related matters in addition to its traditional work on bulk liquid cargoes, including the ESPH Group, and reallocating it to the MEPC as the principal parent body.
 - .5 **Sub-Committee on Transport of Cargoes (TOC):**
As a consequence of the changed nature of the work of the BLG Sub-Committee and its renaming, broadening the responsibilities of the DSC Sub-Committee to concentrate on packaged dangerous goods, solid bulk cargoes, bulk gas cargoes and containers and reporting to the MSC and MEPC, as appropriate.
 - .6 **Sub-Committee on Ship Design and Construction (SDC):**
Amalgamating the work of the DE and SLF Sub-Committees, except for all matters related to life-saving appliances, which are to be transferred to the new SSE Sub-Committee (see below).
 - .7 **Sub-Committee on Ship Systems and Equipment (SSE):**
Amalgamating the work of the FP Sub-Committee and all matters related to life-saving appliances, currently under the DE Sub-Committee; and
- .2 MSC 92/INF.2, providing information on anticipated costs and benefits resulting from the proposed restructuring of the sub-committees, as requested by MSC 91; reporting on possible savings due to the reduction in meeting-weeks, engagement of translators, and professional staff, as well as the cost reduction for Member States due to the reduced number of meetings; and pointing out opportunities for a reorganization of the Secretariat, leading to enhanced flexibility of staff, and for a reduction of the need to refer specific items between sub-committees, which in the past resulted in delays.

22.6 In respect of the two aforementioned documents, the Committee noted further information provided by the Secretary-General, who recalled that C 109, in endorsing, in principle, his proposals for modifications to the sub-committees' structure, had requested the MSC and MEPC to consider the implications and practicability of the proposals.

He advised the Committee that, taking into account the comments expressed at MSC 91 and having consulted with the MSC and MEPC Chairmen and the Chairmen of the subsidiary bodies and specialist groups established by them, and having sought the views of the expert bodies themselves at the beginning of this year at various sub-committee meetings, he had prepared the detailed proposals set out in document MSC 92/22 for consideration, reflecting the comments expressed at the sub-committee meetings, including the related cost-benefit analysis contained in document MSC 92/INF.2.

A synopsis of the purpose, implications and practicability of the various proposals was provided in paragraphs 5 to 17 of document MSC 92/22 and the proposed terms of reference, provisional agendas for 2014, arrangements for the respective sessions and biennial agendas of the sub-committees for 2014-2015 were set out in the annexes to the same document. He noted that the proposed names of the new sub-committees reflected

the draft terms of reference for each body, as set out in the document, and that they may change, based on the final terms of reference and the preferences of the Committees.

He emphasized that he had maintained in his proposals a very important principle agreed in 2005, namely that each sub-committee should also cover respective marine environmental issues, and that both Committees may give instructions to any of the sub-committees, as and when necessary, since all sub-committees were equally subsidiary bodies of the MSC and MEPC, such that the Committees may, as set out in their Rules of Procedure, establish such subsidiary bodies as they consider necessary.

Referring to document MSC 92/INF.2, he explained that it had been prepared in response to the discussions at C 109 and MSC 91 on the anticipated cost reduction and benefits of the sub-committee restructuring on the assumption that, under the new structure, seven sub-committee meetings would be held per year. The document covered potential opportunities for cost reduction in the Secretariat and possible other benefits contemplated, as information for the Committee.

Referring to the outcome of MEPC 65, which had discussed all these issues, he noted that there had been wide support and agreement in principle to his proposals for restructuring the sub-committees as part of the wider programme of review and reform of the Organization and that suggestions for minor changes to the terms of reference and titles of the sub-committees would be introduced in more detail when the Committee considered the outcome of MEPC 65 on the matter (see paragraph 22.9).

He emphasized the importance of restructuring the sub-committees within the total work of the review and reform initiative, covering issues such as long-term financial sustainability; review of the work methods of the Organization; review of the reporting procedure (a proposal for trial of the new reporting procedure would be presented to the Council in 2014); review of meeting support arrangements in the Secretariat; creation of a priority-setting mechanism; staff motivation initiatives; staff succession and evolution plan; and continuous review and reform activities beyond 2014.

The Secretary-General expressed his appreciation to Member Governments for their understanding on the need for review and reform, as reflected at the last Council session, and to the Secretariat staff for its support and cooperation. He stressed that the views of the Committee on the practicability and implications of the proposals for restructuring the sub-committees were important and that the dedicated working group, to be established at this session, would provide the Committee and the Council with a workable solution, so that a final decision, taking into account the budgetary implications of the proposed restructuring, could be made by the Council in July of this year, for subsequent endorsement by the Assembly.

22.7 The Committee thanked the Secretary-General for the extensive work undertaken on this important initiative.

22.8 The delegation of the Cook Islands referring to its statement at MSC 91 (MSC 91/22, annex 40, item 19), supported by other delegations, expressed concern at the proposed reduction in the number of sub-committees and suggested that significant budgetary savings could be better achieved by reducing the frequency of relevant sub-committee meetings.

22.9 In this connection, the Committee also considered document MSC 92/22/1 (Republic of Korea) which, while agreeing with the proposed restructuring of the sub-committees, stressed the need to ensure that it neither impaired the quality of the sub-committees' work nor led to the omission or inadequacy of relevant discussions,

also pointing out that the amalgamation of sub-committees with already heavy agendas may cause problems in dealing with the workload inherited and that these could be addressed by either temporarily increasing the number of working, drafting, correspondence and intersessional working groups or increasing the number of intersessional correspondence groups while keeping the current number of working groups. Having considered the proposal, the Committee did not agree to an increase in the number of any of the groups (see also paragraph 22.12).

22.10 The Committee further noted information by the Secretariat on the outcome of MEPC 65 on this matter (MSC 92/WP.6), in particular that there had been wide support and agreement in principle for the Secretary-General's proposals for restructuring the sub-committees as part of the wider programme of review and reform of the Organization, and that MEPC 65 had:

- .1 regarding the restructuring and renaming of the BLG and DSC Sub-Committees, agreed to the inclusion of the words "technical and operational matters" in the draft terms of reference for all the sub-committees; that the reference to "air pollution" in paragraph 1.1 of the terms of reference for the proposed PPR Sub-Committee should be put in square brackets; and that the new name for the BLG Sub-Committee should be decided based on its final terms of reference;
- .2 agreed, in principle, to the restructuring and renaming of the BLG and DSC Sub-Committees, together with the proposed names, terms of reference, provisional agendas and working arrangements for 2014 and biennial agendas for 2014-2015, subject to the concurrent decision of MSC 92, and had invited MSC 92 to take into account comments and decisions made at MEPC 65;
- .3 agreed, in principle, to the renaming of the FSI Sub-Committee to Sub-Committee on Implementation of IMO Instruments (III) and its terms of reference, provisional agenda and working arrangements for 2014 and biennial agenda for 2014-2015, subject to concurrent decision of MSC 92, and had confirmed that there would be no intersessional working group on Casualty Analysis and Statistics;
- .4 agreed, in principle, to the amalgamation of the FP, DE and SLF Sub-Committees into two sub-committees; the amalgamation of the NAV and COMSAR Sub-Committees into one sub-committee and the renaming of the STW Sub-Committee; and to the proposed names, terms of reference, provisional agendas and working arrangements for 2014 and biennial agendas for 2014-2015, subject to the concurrent decision of MSC 92.

22.11 Following an extensive discussion, the Committee endorsed the Chairman's summary as follows:

- .1 There was general acceptance of the need to adapt the work methods of the Committees and embrace new possibilities;
- .2 There was also general appreciation for the extensive work done by the Secretariat in preparing the documents submitted by the Secretary-General;

- .3 There was further general support in principle for the proposals of the Secretary-General, which would be subject to detailed consideration in the working group;
- .4 A holistic approach should be taken, not only considering the costs to the Organization but also those of the Member States;
- .5 The proposals for restructuring and reform were aimed at the introduction of a more effective way of conducting the work, leading to savings in costs;
- .6 The sound technical work of the Organization should not suffer;
- .7 A proper transition to the new structure should be facilitated by stricter prioritization and not by increasing the number of working, drafting, correspondence and intersessional groups since that would adversely affect, in particular, small delegations and raise the costs of Member States;
- .8 Consideration should be given to adapting the sequence and duration of meetings to accommodate the workload of all bodies of the Organization and not just the sub-committees;
- .9 The newly merged NCSR, SDC and SSE Sub-Committees had heavy agendas;
- .10 It was essential to have proper reports of meetings and working/drafting groups and to have them approved before the end of the respective session; and
- .11 Early advice by the Secretariat on planned working and drafting group arrangements would be helpful in order to plan for the attendance of meetings.

22.12 Having established that there was in principle agreement to proceed with the restructuring as proposed in document MSC 92/22, the Committee agreed that a working group should consider the matter in detail and finalize the arrangements for its consideration, taking into account that there should be no increase in the number of working, drafting, correspondence or intersessional groups and that issues of reporting should not be addressed by the group. In view of the above decisions, the Committee agreed that the group should not consider the proposals made in document MSC 92/22/1 (see paragraph 22.9).

Establishment of a working group

22.13 Consequently, the Committee established the Working Group on Review and Reform of the Organization and instructed it, taking into account documents MSC 92/22 and MSC 92/INF.2, the outcome of MEPC 65 (MSC 92/WP.6) and decisions and comments made in plenary, to consider the proposals for the restructured sub-committees based on the annexes to document MSC 92/22 and finalize:

- .1 their proposed names and terms of reference;
- .2 their provisional agendas for 2014, including their working, drafting and correspondence group arrangements;

- .3 their biennial agendas for the 2014-2015 biennium; and
- .4 their proposed working arrangements for 2014, in particular the proposed intersessional working groups and the timetable of meetings for 2014.

Report of the working group

22.14 Having considered the report of the Working Group (MSC 92/WP.10), the Committee approved it in general and took action as outlined in the following paragraphs.

Names and terms of reference of the restructured sub-committees

22.15 In considering the proposed names and terms of reference of the restructured sub-committees, the Committee noted the following statements with regard to the PPR Sub-Committee.

22.16 The delegation of China stated that it appreciated the hard work of the working group, especially the efforts made by the Chairman and the Secretariat. The delegation was of the view that paragraph 16 of the working group report conflicted with Article 38(a) of the IMO Convention, and caused misinterpretation of the term "pollution of the marine environment" contained in UNCLOS, and thus requested the deletion of paragraph 16. China was also of the view that the explanation included in the paragraph touched legal and policy issues and was beyond the mandate of the working group. The IMO Convention provided that the MEPC should perform functions for the prevention and control of marine pollution from ships and the Rules of Procedure of the MEPC allowed for the establishment of subsidiary bodies. Therefore, from a legal point of view, the terms of reference of subsidiary bodies of the MEPC shall strictly follow the functions specified by the IMO Convention, but the text contained in paragraph 16 of the working group report went beyond the IMO Convention. The existing terms of reference of the BLG Sub-Committee clearly defined that the Sub-Committee considered issues for the prevention and control of marine pollution. The objective of the review and reform of the sub-committees was to reorganize the existing functions and responsibilities of sub-committees, not to expand the existing functions and responsibilities. Therefore, the task of the working group was to develop the terms of reference for each new sub-committee within the current framework of IMO sub-committees' responsibilities specified in their existing terms of reference, and the working group was not tasked and entitled to define what marine pollution or the marine environment was. It was the view of the delegation of China that the terms of reference of sub-committees originated from and should strictly follow the IMO Convention. Therefore, the delegation of China, supported by the delegations of Brazil, India and Peru opposed the text contained in paragraph 16 of the working group report.

22.17 The delegation of Norway, supported by the delegations of Canada, Denmark, France and the United States, stated that they were not satisfied with the outcome of the discussions in the working group on the terms of reference for the new PPR Sub-Committee, in particular with the inclusion of the word "marine" in paragraph 1.1. They recalled that the Organization had adopted Annex VI to MARPOL and had changed the full name of MARPOL to cater for air emissions and that the Assembly had adopted resolution A.1011(26) which, inter alia, stated that IMO should contribute to international efforts to reduce atmospheric pollution and address climate change and global warming. Norway agreed that policy decisions must be taken by the parent bodies; however, the parent bodies might need assistance from sub-committees to develop tools and mechanisms to address policy decisions, and hence the terms of reference developed should not create obstacles in fulfilling the objectives of the Organization. Nevertheless, acknowledging the long and in-depth discussions that had taken place in the working group, the delegation was willing to

accept the outcome, provided that paragraphs 15, 16 and 18 were lifted from the working group's report into the main report of the Committee, since it saw these paragraphs as part of a package together with paragraph 1.1 of the terms of reference and, should anything in that package be changed, it reserved its right to revert to its original position, i.e. to delete the word "marine" in paragraph 1.1 of the terms of reference.

22.18 In this connection, the Committee also noted the view of the group that only the MEPC could discuss, develop and adopt policy issues concerning GHG emissions, which might then lead to the PPR Sub-Committee being instructed to consider related technical and operational matters.

22.19 Following consideration, the Committee approved the names and terms of reference, as set out in annex 40, for the following subsidiary bodies of the MSC and MEPC, as appropriate, which will replace the existing subsidiary bodies starting from the 2014-2015 biennium:

- .1 Sub-Committee on Carriage of Cargoes and Containers (CCC);
- .2 Sub-Committee on Human Element, Training and Watchkeeping (HTW);
- .3 Sub-Committee on Implementation of IMO Instruments (III);
- .4 Sub-Committee on Navigation, Communications and Search and Rescue (NCSR);
- .5 Sub-Committee on Pollution Prevention and Response (PPR);
- .6 Sub-Committee on Ship Design and Construction (SDC); and
- .7 Sub-Committee on Ship Systems and Equipment (SSE).

22.20 The delegation of the Cook Islands, supported by the delegation of Vanuatu, stated that in its view the Committee could not take a final decision on this issue since it was subject to the agreement of the Council and the Assembly.

22.21 In response, the Chairman referred to the Rules of Procedure of the Committees which state that "The Committee may establish such subsidiary bodies as it considers necessary." and clarified that endorsement by the Council and Assembly was related to any budgetary implications of the restructuring.

Provisional agendas, biennial agendas and working arrangements of the restructured sub-committees

22.22 The Committee approved the biennial agendas for 2014-2015 and the provisional agendas for the respective first sessions of the restructured sub-committees, as set out in annexes 41 and 42, respectively, and as further described in section 23 (Work programme).

22.23 The Committee also approved the tentative arrangements for correspondence, working, drafting and intersessional groups (see also paragraph 23.28) relating to the restructured sub-committees, as set out in the respective annexes to document MSC 92/WP.10, noting that they may be subject to modifications, depending on documentation submitted to the respective meetings and the advice of the outgoing Chairmen of the existing sub-committees.

22.24 With regard to the work methods of the restructured sub-committees, the Committee endorsed the views of the group that:

- .1 matters already under consideration in the existing sub-committees should be considered with priority by the restructured sub-committees, in order that ongoing work could be completed before work on new outputs commences; and
- .2 new outputs should only be included in the provisional agendas of sub-committees if a corresponding number of existing outputs had been completed.

22.25 In this connection, the Committee invited Member Governments to carefully consider the necessity of proposing new unplanned outputs and, in any case, provide full justifications for any urgent matters during the transition period (considered to be the 2014-2015 biennium) from the old sub-committee structure to the new one.

22.26 The Committee also endorsed the proposal for full five-day sessions with interpretation for the first sessions only of the NCSR and SDC Sub-Committees, to enable those sub-committees to cope with their heavy agendas.

22.27 The Committee, having noted the views of the delegation of Cyprus regarding necessary changes to the IMODOCS website, requested the Secretariat to ensure that the new sub-committee structure was properly reflected on the website while also maintaining access to documents under the previous structure.

Consideration of casualty reports by sub-committees

22.28 In the context of discussion of the sub-committees' working arrangements, the Committee considered the current practice of the casualty review process, whereby the FSI Sub-Committee, following the advice of its Casualty Analysis Working Group, refers casualty reports to other IMO bodies for consideration under the continuous output on "Casualty analysis", noting that this no longer meets the SMART output structure introduced by the Council in recent years.

22.29 Following discussion, the Committee agreed to change the procedure for the review of casualty reports by sub-committees as follows:

- .1 The III Sub-Committee will only refer casualty reports directly to other sub-committees for consideration if an identifiable current output addressing the matter in question is on the agenda of such sub-committees;
- .2 In cases where sub-committees have no related outputs on their agendas, casualty reports will only be referred to them after consideration by the Committee and establishment of a relevant dedicated output; and
- .3 As a consequence, the output on "Casualty analysis" will be deleted from the biennial agendas of the (HTW, NCSR, PPR, SDC and SSE) Sub-Committees, but not the III.

Provisional timetable of meetings for 2014

22.30 The Committee noted the views of the group regarding the provisional timetable of meetings for 2014, as set out in paragraph 28 of document MSC 92/WP.10, and forwarded them to the Secretariat for consideration and action, as appropriate, when preparing the draft programme of meetings for 2014 for consideration by the Council.

23 WORK PROGRAMME**BIENNIAL AGENDAS OF THE NAV AND DSC SUB-COMMITTEES AND PROVISIONAL AGENDAS FOR THEIR FORTHCOMING SESSIONS**

23.1 The Committee, taking into account that NAV 59 and DSC 18 will meet after this session, before the restructuring of the sub-committees (see section 22) takes effect, considered the biennial and provisional agendas for the two sub-committees.

Biennial agenda of the Sub-Committee and provisional agenda for NAV 59

23.2 The Committee confirmed the Sub-Committee's biennial agenda and the provisional agenda for NAV 59, as set out in annexes 41 and 42, respectively.

Biennial agenda of the Sub-Committee and provisional agenda for DSC 18

23.3 The Committee confirmed the Sub-Committee's biennial agenda and the provisional agenda for DSC 18, as set out in annexes 41 and 42, respectively.

BIENNIAL AGENDAS OF THE RESTRUCTURED SUB-COMMITTEES AND PROVISIONAL AGENDAS FOR THEIR FORTHCOMING SESSIONS, INCLUDING CONSIDERATION OF NEW OUTPUTS PROPOSED BY MEMBER GOVERNMENTS AND INTERNATIONAL ORGANIZATIONS AND SUB-COMMITTEES CONCERNED

23.4 Taking into account the recommendations made by the sub-committees which had met since MSC 91 (MSC 92/23 and MSC 92/23/Add.1); the *Guidelines on the application of the Strategic Plan and the High-level Action Plan of the Organization* (resolution A.1013(26)); various proposals for new outputs submitted to the session by Member Governments, international organizations and sub-committees; a preliminary assessment of such proposals (MSC 92/WP.2), undertaken by the Chairman with the assistance of the Secretariat, in accordance with the relevant provisions of the Committees' Guidelines (MSC-MEPC.1/Circ.4/Rev.2); and decisions taken during the session, especially with regard to the restructuring of the sub-committees (see section 22), the Committee reviewed the biennial agendas of the restructured/renamed sub-committees and the provisional agendas for their forthcoming sessions and took action as indicated hereunder.

23.5 In this connection, the Committee recalled that MEPC 65 had agreed in principle to the provisional agendas for 2014 and biennial agendas for 2014-2015 of the restructured/renamed sub-committees (see paragraph 22.7).

23.6 The Committee also recalled that, with regard to the Committee's methods of work relating to the consideration of proposals for new outputs, MSC 78 had agreed that the objective when discussing these proposals was to decide, based upon justification provided by Member States in accordance with the Committees' Guidelines, whether an output should or should not be included in a sub-committee's biennial agenda. A decision to include an output in a sub-committee's biennial agenda does not mean that the Committee agreed with the technical aspects of the proposal, and detailed consideration of those aspects and the

development of appropriate requirements and recommendations should be left to the sub-committee concerned.

SUB-COMMITTEE ON CARRIAGE OF CARGOES AND CONTAINERS (CCC)

Training on transportation of dangerous goods by sea

23.7 The Committee recalled that it had agreed to include in the 2014-2015 biennial agenda of the HTW Sub-Committee and the provisional agenda for HTW 1, an output on "Development of guidelines for shipowners and seafarers for proper implementation of relevant IMO instruments in relation to the carriage of dangerous goods in packaged form by sea", with a target completion year of 2015, assigning the HTW Sub-Committee as the coordinating organ, in association with the CCC Sub-Committee as and when requested by the HTW Sub-Committee (see paragraph 23.9).

Biennial agenda of the Sub-Committee and provisional agenda for CCC 1

23.8 The Committee approved the Sub-Committee's biennial agenda and the provisional agenda for CCC 1, as set out in annexes 41 and 42, respectively, and requested the Secretariat to inform the MEPC accordingly.

SUB-COMMITTEE ON HUMAN ELEMENT, TRAINING AND WATCHKEEPING (HTW)

Training on transportation of dangerous goods by sea

23.9 The Committee considered document MSC 92/23/3/Rev.1 (Australia, et al.) proposing to develop guidelines for shipowners and seafarers for proper implementation of relevant IMO instruments in relation to carriage of dangerous goods in packaged form by sea, and decided to include in the 2014-2015 biennial agenda of the HTW Sub-Committee and the provisional agenda for HTW 1, an output on "Development of guidelines for shipowners and seafarers for proper implementation of relevant IMO instruments in relation to the carriage of dangerous goods in packaged form by sea" with a target completion year of 2015, assigning the HTW Sub-Committee as the coordinating organ, in association with the CCC Sub-Committee as and when requested by the HTW Sub-Committee.

Format of training certificates

23.10 The Committee considered document MSC 92/23/4 (Republic of Korea) proposing to develop a requirement to ensure global consistency in the format of training certificates, including names and lists of training to be stated on the certificate as a minimum requirement, and decided to include in the 2014-2015 biennial agenda of the HTW Sub-Committee and the provisional agenda for HTW 1, an output on "Development of a globally consistent format for the certificate of training and education issued under the STCW Convention", with a target completion year of 2015.

Biennial agenda of the Sub-Committee and provisional agenda for HTW 1

23.11 The Committee approved the Sub-Committee's biennial agenda and the provisional agenda for HTW 1, as set out in annexes 41 and 42, respectively.

SUB-COMMITTEE ON IMPLEMENTATION OF IMO INSTRUMENTS (III)

Biennial agenda of the Sub-Committee and provisional agenda for III 1

23.12 The Committee approved the Sub-Committee's biennial agenda and the provisional agenda for III 1, as set out in annexes 41 and 42, respectively, and requested the Secretariat to inform the MEPC accordingly.

SUB-COMMITTEE ON NAVIGATION, COMMUNICATIONS AND SEARCH AND RESCUE (NCSR)

Interconnection of NAVTEX and Inmarsat SafetyNET receivers and their display on Integrated Navigation Display Systems

23.13 The Committee considered document MSC 92/23/5 (United States), proposing to amend performance standards as necessary to allow Inmarsat C SafetyNET Maritime Safety Information messages to be presented on an integrated navigation display system, and agreed to include, in the post-biennial agenda of the Committee, an output on "Interconnection of NAVTEX and Inmarsat SafetyNET receivers and their display on Integrated Navigation Display Systems" with one session needed to complete the item, assigning the NCSR Sub-Committee as the coordinating organ.

23.14 The delegation of Ireland informed the Committee on the developments within the European Union concerning the European radio navigation satellite system Galileo, the performance of which had been successfully demonstrated last April and which would provide first services at the end of 2014. The delegation stressed the great potential of Galileo in maritime navigation, for both regulated and unregulated ships, that it would provide accuracy and availability to the maritime community in multi-constellation solutions promoted within the e-Navigation concept, that the European Union would be seeking recognition of the Galileo service by IMO as a component of the World Wide Radio Navigation System (WWRNS), similarly to the GPS and Glonass, and that it was intended to present to MSC 93 a proposal for a new output to be included in the biennial agenda of the NCSR Sub-Committee.

Biennial agenda of the Sub-Committee and provisional agenda for NCSR 1

23.15 The Committee approved the Sub-Committee's biennial agenda and the provisional agenda for NCSR 1, as set out in annexes 41 and 42, respectively.

SUB-COMMITTEE ON POLLUTION PREVENTION AND RESPONSE (PPR)

Biennial agenda of the Sub-Committee and provisional agenda for PPR 1

23.16 The Committee approved the Sub-Committee's biennial agenda and the provisional agenda for PPR 1, as set out in annexes 41 and 42, respectively, and requested the Secretariat to inform the MEPC accordingly.

SUB-COMMITTEE ON SHIP DESIGN AND CONSTRUCTION (SDC)

Conditions under which watertight doors on passenger ships may be opened during navigation

23.17 The Committee considered document MSC 92/23/2 (Norway, Spain, United Kingdom and United States), proposing to review the conditions under which watertight doors of passenger ships may be opened during navigation and to prepare amendments to

MSC.1/Circ.1380 and SOLAS regulation II-1/22, as appropriate. Having noted the view of several delegations that the compelling need had not been established, the Committee decided to include, in the 2014-2015 biennial agenda of the SDC Sub-Committee and provisional agenda for SDC 1, an output on "Review of conditions under which passenger ship watertight doors may be opened during navigation and prepare amendments to SOLAS regulation II-1/22 and MSC.1/Circ.1380", with a target completion date of 2015.

23.18 The Chairman of the DE Sub-Committee highlighted the difficulties of some overloaded sub-committees, such as the DE Sub-Committee, which were struggling to complete their agendas, especially taking into account the decisions taken by the Committee at this session, which effectively reduce the resources of the DE, FP and SLF Sub-Committees by a third, as a consequence of the restructuring of the Sub-Committees.

Guidelines addressing the carriage of more than 12 industrial personnel on board vessels engaged on international voyages

23.19 The Committee considered a proposal by DE 57 (DE 57/25/Add.1, annex 10), to develop guidance/clarification on appropriate methods for addressing the carriage of more than 12 industrial personnel, taking into account comments provided in document MSC 92/13/2 (United Kingdom). The Committee agreed to include, in the 2012-2013 biennial agenda of the DE Sub-Committee, the 2014-2015 biennial agenda of the SDC Sub-Committee and in the provisional agenda for SDC 1, an unplanned output on *Guidelines addressing the carriage of more than 12 industrial personnel on board vessels engaged on international voyages*, with a target completion year of 2015. The Committee further agreed to instruct the correspondence group established at DE 57 to consider guidelines for offshore wind farm vessels, coordinated by the United Kingdom³, to include the new output in the scope of its work (as agreed at DE 57, pending the decisions of MSC 92).

Biennial agenda of the Sub-Committee and the provisional agenda for SDC 1

23.20 The Committee, having recalled its decision under agenda item 6 (Passenger ship safety) to expand output 5.2.1.15 (see paragraph 6.15.2), approved the Sub-Committee's biennial agenda and the provisional agenda for SDC 1, as set out in annexes 41 and 42, respectively.

SUB-COMMITTEE ON SHIP SYSTEMS AND EQUIPMENT (SSE)

Biennial agenda of the Sub-Committee and provisional agenda for SSE 1

23.21 The Committee approved the Sub-Committee's biennial agenda and the provisional agenda for SSE 1, as set out in annexes 41 and 42, respectively.

³

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ENDORSEMENT OF OUTPUTS

23.22 In accordance with the relevant provisions of the *Guidelines on the application of the Strategic Plan and the High-level Action Plan of the Organization* (resolution A.1013(26)), the Committee, having agreed to the sub-committees' biennial agendas and the provisional agendas for their forthcoming sessions, invited the Council to endorse, for inclusion in the current High-level Action Plan, the unplanned output on *Guidelines addressing the carriage of more than 12 industrial personnel on board vessels engaged on international voyages* (see paragraph 23.19).

STATUS OF PLANNED OUTPUTS FOR THE 2012-2013 BIENNIUM

23.23 Having recalled that the status of planned outputs will only be produced after the session as an annex to the Committee's report, to avoid any unnecessary duplication of work, the Committee invited the Council to note the Report on the status of planned outputs for the 2012-2013 biennium, as set out in annex 43, instructed the Secretariat to undertake a holistic review of the outputs to ensure consistency across the Organization, and requested the Secretariat to submit any changes to the aforementioned report emanating from NAV 59 and DSC 18 to CWGSP 13 or C/ES.27, as appropriate.

PROPOSALS FOR THE HIGH-LEVEL ACTION PLAN AND PRIORITIES FOR THE 2014-2015 BIENNIUM

23.24 The Committee recalled that for the preparation of the High-level Action Plan for the 2014-2015 biennium, MSC 91 had instructed the sub-committees to prepare their respective biennial agendas for the coming biennium at their forthcoming sessions, for consideration at this session, and requested the Secretariat to assist them in the usual manner, taking into account that:

- .1 outputs selected for the biennial agenda should be phrased in SMART terms;
- .2 where the target completion year for a specific output goes beyond the 2014-2015 biennium, an interim output should be placed on the biennial agenda with a target completion year of 2014 or 2015, as appropriate, and a related output should be placed in the Committee's post-biennial agenda with the anticipated completion year; and
- .3 biennial and provisional agendas should not contain sub-items and items placed on the provisional agendas should correspond with the outputs in the Sub-Committee's biennial agenda.

23.25 The Committee further recalled that MSC 91 had requested the Secretariat, in consultation with the Chairman, to prepare the Committee's proposals for the High-level Action Plan for the coming biennium, for consideration at this session and submission to C 110.

23.26 The Committee, having considered document MSC 92/23/1 (Secretariat) proposing modifications to the planned outputs assigned to the Committee for the 2012-2013 biennium, taking into account the progress made by the sub-committees during the current biennium, and document MSC 92/23/6 (United Kingdom) proposing to simplify the COMSAR agenda and planned outputs in the High-level Action Plan in line with the request of C 109, approved the proposals for the High-level Action Plan of the Organization and priorities for the 2014-2015 biennium for matters under the purview of the Maritime Safety Committee, as set out in annex 44, for submission to C 110; instructed the Secretariat to undertake

a holistic review of the outputs to ensure consistency across the work of the Organization, taking into account document MSC 92/23/6; and requested the Secretariat to submit any changes to the annexed proposals emanating from NAV 59 and DSC 18 to CWGSP 13 or C/ES.27, as appropriate.

POST-BIENNIAL AGENDA OF THE COMMITTEE

23.27 The Committee, having noted that the updated post-biennial agenda will only be produced after the session as an annex to the Committee's report to avoid any unnecessary duplication of work, invited the Council to note the updated post-biennial agenda of the Maritime Safety Committee, as set out in annex 45.

INTERSESSIONAL MEETINGS

23.28 The Committee, taking into account the decisions made under various agenda items at MSC 91 and at this session, approved/confirmed, as appropriate, the following intersessional meetings:

- .1 a meeting of the ESPH Working Group, to be held from 21 to 25 October 2013, as approved by MSC 91 and MEPC 64;
- .2 a meeting of the ESPH Working Group, to take place in 2014, as approved by MEPC 65;
- .3 the second meeting of the E&T Group for the IMDG Code, to be held from 23 to 27 September 2013, directly after DSC 18, as approved by MSC 91;
- .4 the first meeting of the E&T Group for the IMBSC Code, to take place in the first half of 2014;
- .5 a meeting of the Polar Code Working Group, to be held from 30 September to 4 October 2013, as concurrently approved by MEPC 65;
- .6 the twentieth session of the ICAO/IMO Joint Working Group on Search and Rescue, to be held in Amsterdam, the Netherlands, from 23 to 27 September 2013;
- .7 a meeting of the ICAO/IMO Joint Working Group on Search and Rescue, to take place in 2014;
- .8 the ninth meeting of the Joint IMO/ITU Experts Group on Maritime Radiocommunication Matters, to be held at IMO Headquarters from 14 to 18 October 2013;
- .9 a meeting of the Joint IMO/ITU Experts Group on Maritime Radiocommunication Matters, to take place in 2014; and
- .10 a meeting of the Experts Group on Formal Safety Assessment, to be held on 11 to 13 November 2013,

and invited the Council to endorse the above decisions.

SUBSTANTIVE ITEMS FOR INCLUSION IN THE COMMITTEE'S AGENDAS FOR THE NEXT TWO SESSIONS AND PROPOSED ARRANGEMENTS FOR MSC 93**Substantive items for inclusion in the agendas for MSC 93 and MSC 94**

23.29 The Committee agreed to substantive items to be included in the agendas of its ninety-third and ninety-fourth sessions, as set out in document MSC 92/WP.11.

23.30 The Committee further agreed to consider during MSC 94, under the agenda item on Application of the Committee's Guidelines, the impact of the review and reform of the Organization, taking into account the experience gained during the year throughout the meetings of the bodies held in the Organization.

Establishment of working and drafting groups during MSC 93

23.31 The Committee, taking into account the decisions made under various agenda items, agreed that working and drafting groups on the following subjects should be established at the Committee's ninety-third session:

- .1 passenger ship safety;
- .2 goal-based standards;
- .3 application of amendments; and
- .4 consideration and adoption of amendments to mandatory instruments.

23.32 The Committee agreed that the Capacity-building Needs Analysis Group (ACAG) may also need to be established.

Meeting weeks of the Committee for the 2014–2015 biennium

23.33 The Committee recalled that MSC 91 had approved the proposed plan of 21 meeting weeks for the MSC and the MEPC and their subsidiary bodies for the 2014-2015 biennium, as a basis for the preparation of the Secretary-General's relevant budget proposals.

23.34 The Committee further recalled that MSC 91 had approved eight days for MSC 93 (May 2014), five days for MSC 94 (November 2014) and, provisionally, eight days for MSC 95 (May 2015).

Duration and dates of the next two sessions

23.35 The Committee noted that its ninety-third session has been tentatively scheduled to take place from 14 to 23 May 2014 and its ninety-fourth session has been tentatively scheduled to be held in November 2014.

24 ELECTION OF CHAIRMAN AND VICE-CHAIRMAN FOR 2014

24.1 The Committee unanimously re-elected Mr. Christian Breinholt (Denmark) as Chairman, and Capt. M. Segar (Singapore) as Vice-Chairman, for 2014.

25 ANY OTHER BUSINESS**Further National Contact Points to be made available on GISIS**

25.1 The Committee considered document MSC 92/25 (Saint Kitts and Nevis) proposing to maintain, in GISIS, lists of contact point details of Administrations with regard to matters related to continuous synopsis records (CSRs) and the Maritime Labour Convention (MLC).

25.2 With regard to CSRs, the Committee requested the Secretariat to develop relevant direct reporting facilities for Member States in the module on contact points. Regarding contact point details for the MLC, the Committee, having recalled that the matter had already been considered by the FSI Sub-Committee, instructed it to address the matter in detail following consultation between the Secretariats of the Organization and ILO, and to take action, as appropriate.

IMO/IACS Cooperation on the IACS Quality System Certification Scheme (QSCS)

25.3 Having recalled that MSC 90 had requested the Secretariat to continue the arrangement for the IMO observer participation in IACS QSCS during the current biennium (2012-2013), with financial contributions provided by IACS, the Committee considered document MSC 92/25/1 containing the report of the IMO consultant/observer. The report provided information on the developments in the scheme, following the transition to the assumption by Accredited Certification Bodies (ACBs) of sole and independent responsibility for audit and for assessment of compliance with the scheme.

25.4 In noting that the current arrangement between IACS and IMO regarding IMO observer participation in the scheme was due to come to an end in June 2013, the Committee requested the Secretariat to continue IMO's participation for the next two years, with financial contributions provided by IACS, and to provide a report to MSC 94.

Difficulties encountered in the implementation of IMO instruments

25.5 In the absence of comments after the introduction of document MSC 92/25/2 (Islamic Republic of Iran), the Committee noted the information contained therein on difficulties encountered in implementing IMO instruments and the issues they have faced in using classification societies which are members of IACS to provide technical services since 1 July 2012; in that document, all Member States, IGOs and NGOs were requested to continue their cooperation with the Islamic Republic of Iran in order to enhance maritime safety and security. Furthermore, the delegation of the Islamic Republic of Iran referred to paragraph (b) of article 1 of the IMO Convention and, adding that it considered restrictive measures by some Governments against its commercial shipping as a discriminatory action that is completely against the goals and objectives of IMO and other instruments, such as SOLAS and MARPOL, and therefore, have to be avoided. The full statement of the delegation of the Islamic Republic of Iran is set out in annex 46.

Global Integrated Shipping Information System (GISIS)

25.6 The Committee noted the information contained in document MSC 92/INF.3 (Secretariat) which indicated that GISIS presently consists of 28 modules that are already developed or in the process of development.

Bulk Carrier Casualty Report

25.7 The Committee noted the information on bulk carrier casualties as provided in document MSC 92/INF.8 (INTERCARGO) under item 12 on "Flag State implementation" (see paragraph 12.20).

Sustainable Maritime Transportation System

25.8 The Committee considered document MSC 92/INF.9 (Secretary-General) related to the theme for this year's World Maritime Day – "**Sustainable Development: IMO's Contribution Beyond Rio+20**" and the follow-up to the United Nations Conference on Sustainable Development (Rio+20) work for the development of Sustainable Development Goals. In this regard, the Committee noted that the Secretary-General had initiated an internal process, with input from the shipping industry and other stakeholders, to establish his vision for a sustainable maritime transportation system serving the needs of society, as maritime transportation is vital for global growth and prosperity. The outcome of this internal process would be the Secretary-General's own contribution to the celebration of this year's World Maritime Day.

25.9 The delegation of Argentina highlighted the role that the United Nations plays in sustainable development and the need to consider whether the Organization should or should not address the objectives of sustainable development and, if so, the need to fully examine both the objectives put forward by the Secretary-General and others that may be put forward. The full text of their statement is set out in annex 46.

Safe Mooring – A guide to prevent accidents while mooring

25.10 The Committee noted the information contained in document MSC 92/INF.11 (Denmark) providing information on current challenges while preparing and executing safe mooring, and providing guidance on how to prevent unsafe situations within the current layouts of mooring systems.

Meeting of Experts to Adopt Guidelines on the Training of Ships' Cooks

25.11 The Committee noted the information contained in document MSC 92/INF.13 (ILO) providing information on a Meeting of Experts to adopt Guidelines on the Training of Ships' Cooks that will be held at the ILO in Geneva from 23 to 27 September 2013.

Threshold values for asbestos

25.12 The Committee was advised that MEPC 65, in the context of its review of the *2011 Guidelines for the development of the inventory of hazardous materials* (resolution MEPC.197(62)), invited it to give consideration to a threshold value for asbestos in view of its expertise on the matter.

25.13 In this context, the Committee recalled various initiatives taken on matters related to asbestos, namely the approval by MSC 75 of MSC/Circ.1045 on *Guidelines for maintenance and monitoring of onboard materials containing asbestos*, the coverage of new installation of materials containing asbestos by SOLAS regulation II-1/3-5, the approval by MSC 88 of MSC.1/Circ.1374 on Information on prohibiting the use of asbestos on board ships and MSC.1/Circ.1379 on Unified interpretation of SOLAS regulation II-1/3-5, the letter from the Secretary-General to interested parties reiterating the advice on prohibiting the use of asbestos contained in the former circular and the approval by MSC 90 of MSC.1/Circ.1426 on Unified interpretation of SOLAS regulation II-1/3-5, concerning new installation of

materials containing asbestos and referring to appendix 8 of the above-mentioned MEPC *Guidelines for the development of the inventory of hazardous materials*.

25.14 Due to the short period of time that had elapsed since MEPC 65 and in the absence of any submission to be considered, the Committee referred the detailed technical review of the issue referred by MEPC 65 to the DE (SDC) Sub-Committee under its agenda item on "Any other business" for reporting to MSC 93.

Outcome of the IMO Symposium on the Future of Ship Safety

25.15 The Committee noted with appreciation the information provided by the Secretariat (MSC 92/25/3) regarding the outcome of the IMO Symposium on the Future of Ship Safety, was held at IMO Headquarters on 10 and 11 June 2013. In particular, the Committee noted that the symposium was attended by some 500 participants and comprised six panels of internationally recognized experts in maritime affairs and included speakers and moderators from Member States, United Nations agencies, IGOs, NGOs, academic institutions, consultants, researchers and the maritime industry, who gathered to discuss the trends impacting ship design and operation and questioned where this will lead from the perspectives of the shipping industry, society and others. Risk assessment, data collection, new technology, the human element and the man/machine interface were identified as important issues to be addressed when reviewing the existing safety regulatory framework in order to effectively respond to future challenges.

25.16 Due to the close proximity of the symposium to MSC 92, the Committee decided to note only the outcome of the symposium at this session and consider, at a future session, the recommendations contained in the "Statement of the Participants to the IMO Symposium on the Future of Ship Safety" (attached to document MSC 92/25/3).

Casualty involving the containership MOL Comfort

25.17 The Committee noted the information provided by the delegation of the Bahamas regarding the casualty involving the **Mol Comfort** (IMO 9358761) 200 nm south of the coast of Yemen on 17 June 2013. The full text of their statement is set out in annex 46.

Expression of appreciation

25.18 The 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, 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. Jose Accioly (Brazil) (on transfer);
- Dr. Rosalie Balkin (Secretariat) (on retirement);
- Mr. Manuel Carrasco E. (Peru) (on transfer);
- Mr. Dachang Du (Secretariat) (on retirement);
- Mr. Shin Imai (Japan) (on transfer);
- Mr. Martin Pablo Ruiz (Argentina) (on transfer);
- Mr. Adonis Pavlides (Cyprus) (on transfer);
- Mr. Michael Rambaut (CIRM) (on retirement);
- Ms Rouba Ruthnum (Secretariat) (on retirement);
- Mr. Vladimir Semenov (Secretariat) (on retirement);
- Captain Gurpreet Singhota (Secretariat) (on retirement);
- Mrs Marie-Hélène Williams (Secretariat) (on retirement); and
- Mr. Jianxin Zhu (Secretariat) (on retirement).

26.19 The Committee also expressed appreciation to the Chairmen and Vice-Chairmen of the BLG, COMSAR, DE, DSC, FP, FSI, NAV, SLF and STW Sub-Committees, in light of the restructuring of the aforementioned bodies, and thanked them for their invaluable contribution to the work of the Organization.

Expression of condolence

25.20 The Committee noted, with great sadness, the terrorist attack on the United Nations Common Compound in Mogadishu, Somali, in which a number of United Nations staff, contractors and Somalis lost their lives in the service of the United Nations. The Committee expressed its condolences to the families and friends of those that lost their lives.

25.21 The Committee also noted, with great sadness, the passing away of Captain Tore Fossum, an IMO staff member until his retirement in 2004, who had served as Senior Deputy Director, Sub-Division for Navigation and Cargoes, of the Maritime Safety Division. Captain Fossum had been greatly respected by both his superiors and subordinates alike for his vast knowledge and deep commitment to the shipping industry. The Committee appreciated his contribution to the work of the Organization and requested the Secretary-General to convey the Committee's sincere sympathy to his family.

26 ACTION REQUESTED OF OTHER IMO ORGANS

26.1 The Assembly, at its twenty-eighth session, is invited to:

- .1 consider and adopt the draft Assembly resolution on *Use of national tonnage in applying international conventions* (paragraph 11.12 and annex 22);
- .2 consider and adopt the draft Assembly resolution on *Notification and circulation through Global Integrated Shipping Information System (GISIS)* (paragraph 12.5 and annex 26);
- .3 consider and adopt the draft Assembly resolution on *Guidelines to assist investigators in the implementation of the Casualty Investigation Code* (resolution MSC.255(84)) (paragraph 12.11 and annex 27);
- .4 consider and adopt the draft Assembly resolution on *Amendments to the Survey Guidelines under the Harmonized System of Survey and Certification (HSSC), 2011* (paragraph 12.14 and annex 28);
- .5 consider and adopt the draft Assembly resolution on *2013 Non-exhaustive list of obligations under instruments relevant to the IMO Instruments Implementation Code (III Code)* (paragraph 12.15 and annex 29);
- .6 consider and adopt the draft Assembly resolution on *IMO Ship Identification Number Scheme* to revoke resolution A.600(15) (paragraph 12.18 and annex 30);
- .7 consider and adopt the draft Assembly resolution on *Recommendations for the training, competency and fitness for duty of personnel on mobile offshore units (MOUs)* (paragraph 14.2 and annex 37); and

- .8 note the approved restructuring of the sub-committees for the 2014-2015 biennium, which has resulted in the reduction of their numbers from 9 to 7, taking into account the outcome of C 110 on the matter (paragraphs 22.19, 22.21, 22.22 and 23.33 and annex 40).

26.2 The Council, at its 110th session, is invited to:

- .1 note the adoption, by the Committee, of amendments to the 1974 SOLAS Convention and mandatory codes and resolutions related thereto; amendments to the 1972 CSC and the 1988 Load Lines Protocol, as well as approval/adoption of non-mandatory instruments (paragraphs 3.70 to 3.85);
- .2 note the action taken by the Committee on issues related to passenger ship safety (paragraphs 6.15 to 6.24);
- .3 note for budgetary planning purposes the approved restructuring of the sub-committees for the 2014-2015 biennium, which has resulted in the reduction of their number from 9 to 7 (paragraphs 22.19, 22.21, 22.22 and 23.33 and annex 40);
- .4 endorse the unplanned output agreed at the session for inclusion in the current High-level Action Plan and priorities for the 2012-2013 biennium (paragraph 23.22 and annexes 41 and 42);
- .5 note the report on the status of planned outputs for the 2012-2013 biennium (paragraph 23.23 and annex 43);
- .6 endorse the proposed High-level Action Plan of the Organization and priorities for the 2014-2015 biennium for matters under the purview of the Maritime Safety Committee (paragraph 23.26 and annex 44);
- .7 note the updated post-biennial agenda of the Maritime Safety Committee (paragraph 23.27 and annex 45);
- .8 endorse the intersessional meetings approved for 2013 and 2014 (paragraph 23.28);
- .9 note that, for budgetary planning purposes, the proposed number of meeting weeks for the coming biennium will be reduced from 25 to 21 planned meeting-weeks, for inclusion in the Secretary-General's relevant budget proposals for the biennium 2014-2015 (paragraph 23.33); and
- .10 note that the Committee approved eight days for MSC 93 (May 2014), five days for MSC 94 (December 2014) and eight days for MSC 95 (May 2015), for inclusion in the Secretary-General's relevant budget proposals for the biennium 2014-2015 (paragraph 23.34).

26.3 The Marine Environment Protection Committee, at its sixty-sixth session, is invited to:

- .1 note the concurrent adoption, by resolution MSC.349(92), of the *Code for Recognized Organizations* (paragraphs 3.9 to 3.15, 3.70 and annex 1);

- .2 note the concurrent decision that survey and certification of fire protection of incinerator and waste stowage spaces should be covered by the SOLAS Convention (paragraphs 8.21 and 8.22);
- .3 note the concurrent endorsement of the decisions taken by BLG 17 regarding the outcome of ESPH 18 (paragraph 10.2);
- .4 note the concurrent approval of the draft amendments to the IBC Code (paragraph 10.3 and annex 16);
- .5 note the concurrent approval of MSC-MEPC.5/Circ.7 on the *Guidance on the timing of replacement of existing certificates by revised certificates as a consequence of the entry into force of amendments to chapters 17 and 18 of the IBC Code* (paragraph 10.4);
- .6 note the concurrent approval of FAL.2/Circ.127-MEPC.1/Circ.817-MSC.1/Circ.1462 on "List of certificates and documents required to be carried on board ships" (paragraph 12.2);
- .7 note the concurrent decision that certificates carried on board have to be valid and drawn up in the form corresponding to the model where required by the relevant international convention and that a certificate may also be considered as "original" or "authentic" while containing an "authorized" electronically applied signature or stamp (paragraph 12.3);
- .8 note the concurrent approval of the draft Assembly resolution on *Notification and circulation through Global Integrated Shipping Information System (GISIS)* (paragraph 12.5 and annex 26);
- .9 note the concurrent approval of the draft Assembly resolution on *Guidelines to assist investigators in the implementation of the Casualty Investigation Code* (resolution MSC.255(84)) (paragraph 12.11 and annex 27);
- .10 note the concurrent approval of MSC-MEPC.3/Circ.4 on "Revised harmonized reporting procedures – Reports required under SOLAS regulations I/21 and XI-1/6, and MARPOL, articles 8 and 12", to supersede MSC-MEPC.3/Circ.3 (paragraph 12.12);
- .11 note the concurrent approval of the draft Assembly resolution on *2013 Non-exhaustive list of obligations under instruments relevant to the IMO Instruments Implementation Code (III Code)* (paragraph 12.15 and annex 29);
- .12 note the concurrent approval of MSC-MEPC.5/Circ.7 on Unified interpretation of the application of regulations governed by the building contract date, the keel laying date and the delivery date for the requirements of the SOLAS and MARPOL Conventions (paragraph 12.16);
- .13 note the decision to request the Secretariat to prepare a document for consideration at MSC 93, setting out any proposed revisions to the Committee's Guidelines (MSC-MEPC.1/Circ.4/Rev.2) as a consequence of the revision of the *Guidelines on the organization and method of work of the Facilitation Committee* (FAL.3/Circ.209), as approved by FAL 38, so that the Committee may take a decision on the matter (paragraph 22.1);

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- .14 note the concurrent approval of the names and terms of reference of restructured sub-committees (paragraphs 22.19 and annex 40);
 - .15 note the concurrent approval of the biennial agendas for 2014-2015 and the provisional agendas for the respective first sessions of the restructured sub-committees (paragraphs 22.22 and annexes 41 and 42);
 - .16 note the action taken regarding changes to the procedures for the review of casualty reports by sub-committees (paragraphs 22.28 and 22.29);
 - .17 note the concurrent approval for the intersessional meetings of the ESPH and Polar Code Working Groups (paragraph 23.28); and
 - .18 note that, due to the short time period between MEPC 65 to MSC 92, the detailed technical consideration of matters related to the threshold value for asbestos was referred to SDC 1, for consideration under its agenda item on "Any other business", with a view to it advising MSC 93 accordingly (paragraph 25.14).
- 26.4 The Technical Co-operation Committee, at its sixty-third session, is invited to:
- .1 note the discussion on developments concerning technical co-operation activities and model courses (paragraphs 15.1 to 15.4); and
 - .2 note the outcome on matters related to capacity-building for the implementation of new measures (paragraphs 16.1 to 16.4).
- 26.5 The Facilitation Committee, at its thirty-ninth session, is invited to:
- .1 note the concurrent approval of FAL.2/Circ.127-MEPC.1/Circ.817-MSC.1/Circ.1462 on "List of certificates and documents required to be carried on board ships" (paragraph 12.2);
 - .2 note that concurrent decision that certificates carried on board have to be valid and drawn up in the form corresponding to the model where required by the relevant international convention and that a certificate may also be considered as "original" or "authentic" while containing an "authorized" electronically applied signature or stamp (paragraph 12.3);
 - .3 note the decision to instruct the III Sub-Committee to consider FAL.5/Circ.39 in detail at its first session and advise MSC 93 accordingly (paragraph 12.4);
 - .4 note the approval of the draft Assembly resolution on *Notification and circulation through Global Integrated Shipping Information System (GISIS)* (paragraph 12.5 and annex 26);
 - .5 note that Contracting Governments which had not yet completed the questionnaire annexed to MSC-FAL.1/Circ.2 were urged to submit the information to the Organization at their earliest convenience (paragraph 18.16); and

- .6 note the decision to request the Secretariat to prepare a document for consideration at MSC 93 setting out any proposed revisions to the Committee's Guidelines (MSC-MEPC.1/Circ.4/Rev.2) as a consequence of the revision of the *Guidelines on the organization and method of work of the Facilitation Committee* (FAL.3/Circ.209), as approved by FAL 38, so that the Committee may take a decision on the matter (paragraph 22.1).

(The annexes will be issued as addenda to this document)

MARITIME SAFETY COMMITTEE
92nd session
Agenda item 26

MSC 92/26/Add.1
28 June 2013
Original: ENGLISH

**REPORT OF THE MARITIME SAFETY COMMITTEE ON
ITS NINETY-SECOND SESSION**

Attached are annexes 1 to 16, 18 to 24 and 26 to 30 to the report of the Maritime Safety Committee on its ninety-second session (MSC 92/26).



LIST OF ANNEXES

ANNEX 1	RESOLUTION MSC.349(92) – CODE FOR RECOGNIZED ORGANIZATIONS (RO CODE)
ANNEX 2	RESOLUTION MSC.350(92) – AMENDMENTS TO THE INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE AT SEA, 1974, AS AMENDED
ANNEX 3	RESOLUTION MSC.351(92) – AMENDMENTS TO THE INTERNATIONAL CODE OF SAFETY FOR HIGH-SPEED CRAFT, 1994 (1994 HSC CODE)
ANNEX 4	RESOLUTION MSC.352(92) – AMENDMENTS TO THE INTERNATIONAL CODE OF SAFETY FOR HIGH-SPEED CRAFT, 2000 (2000 HSC CODE)
ANNEX 5	RESOLUTION MSC.353(92) – AMENDMENTS TO THE INTERNATIONAL MANAGEMENT CODE FOR THE SAFE OPERATION OF SHIPS AND FOR POLLUTION PREVENTION (INTERNATIONAL SAFETY MANAGEMENT (ISM) CODE)
ANNEX 6	RESOLUTION MSC.354(92) – AMENDMENTS TO THE INTERNATIONAL MARITIME SOLID BULK CARGOES (IMSBC) CODE
ANNEX 7	RESOLUTION MSC.355(92) – AMENDMENTS TO THE INTERNATIONAL CONVENTION FOR SAFE CONTAINERS (CSC), 1972
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(See document MSC 92/26/Add.2 for annexes 25 and 31 to 39; and document MSC 92/26/Add.3 for annexes 17 and 40 to 46)

MSC 92/26/Add.1 and MSC 92/26/Add.2 have been incorporated in the present PDF. MSC 92/26/Add.3 is not incorporated in the present PDF.

ANNEX 1

RESOLUTION MSC.349(92) (Adopted on 21 June 2013)

CODE FOR RECOGNIZED ORGANIZATIONS (RO CODE)

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO resolution A.739(18) entitled *Guidelines for the authorization of organizations acting on behalf of the Administration*, as amended by resolution MSC.208(81), and resolution A.789(19) entitled *Specifications on the survey and certification functions of recognized organizations acting on behalf of the Administration*, which have become mandatory under chapter XI-1 of the International Convention for the Safety of Life at Sea (SOLAS), 1974 (hereinafter referred to as "the 1974 SOLAS Convention"), under chapter I of annex I to annex B of the Protocol of 1988 relating to the International Convention on Load Lines, 1966 (hereinafter referred to as "the 1988 Load Lines Protocol"), and under Annex I and Annex II of the MARPOL Convention,

RECOGNIZING the need to update the aforementioned resolutions, gather all the applicable requirements for recognized organizations in a single IMO mandatory instrument and assist in achieving harmonized and consistent global implementation of requirements established by IMO instruments for the assessment and authorization of recognized organizations,

RECOGNIZING ALSO the need for a code to provide, as far as national laws allow, a standard approach to assist the Administrations in meeting their responsibilities in recognizing, authorizing and monitoring their recognized organizations,

NOTING resolutions MSC.350(92) and MSC.356(92), by which it adopted, inter alia, amendments to the 1974 SOLAS Convention and to the 1988 Load Lines Protocol, respectively, to make the provisions of part 1 and part 2 of the Code for recognized organizations mandatory under the 1974 SOLAS Convention and the 1988 Load Lines Protocol,

NOTING ALSO resolution MEPC.237(65) by which the Marine Environment Protection Committee adopted the Code for recognized organizations to be made mandatory under annex I and annex II of the Protocol of 1978 relating to the International Convention for the Prevention of Pollution from Ships, 1973,

HAVING CONSIDERED, at its ninety-second session, the text of the proposed Code for recognized organizations,

CONSIDERING that it is highly desirable for the Code for recognized organizations made mandatory under the MARPOL Convention, the 1974 SOLAS Convention and the 1988 Load Lines Protocol to remain identical,

1. ADOPTS the Code for recognized organizations (RO Code), the text of which is set out in the annex to the present resolution;

2. INVITES Contracting Governments to the 1974 SOLAS Convention and Parties to the 1988 Load Lines Protocol to note that the RO Code will take effect on 1 January 2015 upon the entry into force of the respective amendments to the 1974 SOLAS Convention and 1988 Load Lines Protocol;
3. REQUESTS the Secretary-General to transmit certified copies of the present resolution and the text of the RO Code contained in the annex to all Contracting Governments to the 1974 SOLAS Convention and Parties to the 1988 Load Lines Protocol;
4. ALSO REQUESTS the Secretary-General to transmit copies of this resolution and the annex to all Members of the Organization which are not Contracting Governments to the 1974 SOLAS Convention or Parties to the 1988 Load Lines Protocol;
5. RECOMMENDS Governments concerned to use the recommendatory provisions contained in part 3 of the RO Code as a basis for relevant standards, unless their national requirements provide at least an equivalent degree of safety.

* * *

ANNEX

CODE FOR RECOGNIZED ORGANIZATIONS (RO CODE)

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PREAMBLE

The *Code for Recognized Organizations (RO Code)* was adopted by the Organization by resolutions MSC.349(92) and MEPC.237(65).

This Code:

- .1 provides flag States with a standard that will assist in achieving harmonized and consistent global implementation of requirements established by the instrument of the International Maritime Organization (IMO) for the assessment and authorization of recognized organizations (ROs);
- .2 provides flag States with harmonized, transparent and independent mechanisms, which can assist in the consistent oversight of ROs in an efficient and effective manner; and
- .3 clarifies the responsibilities of organizations authorized as ROs for a flag State and overall scope of authorization.

PART 1

GENERAL

1 PURPOSE

The Code serves as the international standard and consolidated instrument containing minimum criteria against which organizations are assessed towards recognition and authorization and the guidelines for the oversight by flag States.

2 SCOPE

2.1 The Code applies to:

- .1 all organizations being considered for recognition or that are recognized by a flag State to perform, on its behalf, statutory certification and services under mandatory IMO instruments and national legislation; and
- .2 all flag States that intend to recognize an organization to perform, on their behalf, statutory certification and services under mandatory IMO instruments.

2.2 The Code establishes:

- .1 the mandatory requirements that an organization shall fulfil to be recognized by a flag State (part 1);
- .2 the mandatory requirements that an RO shall fulfil when performing statutory certification and services on behalf of its authorizing flag States (part 2);
- .3 the mandatory requirements that flag States shall adhere to when authorizing an RO (part 2); and
- .4 guidelines for flag State oversight of ROs (part 3).

2.3 The Code defines the functional, organizational and control requirements that apply to ROs conducting statutory certification and services performed under mandatory IMO instruments, such as, but not limited to, SOLAS, MARPOL and the Load Lines Conventions.

2.4 All requirements of the Code are generic and applicable to all ROs, regardless of their type and size and the statutory certification and services provided.

2.5 ROs subject to this Code need not offer all types of statutory certification and services and may have a limited scope of recognition, provided that the requirements of this Code are applied in a manner that is compatible with the limited scope of recognition. Where any requirement of this Code cannot be applied due to the scope of services delivered by an RO, this shall be clearly identified by the flag State and recorded in the RO's quality management system.

3 CONTENTS

The Code consists of three parts. Part 1 contains general provisions. Part 2 contains mandatory provisions for the flag State and RO as already contained in relevant IMO instruments and applicable international standards. Part 3 contains guidelines for the oversight of ROs by flag States.

4 DELEGATION OF AUTHORITY

4.1 A flag State may delegate authority to an organization recognized as complying with the provisions of this Code to perform, on its behalf, statutory certification and services under mandatory IMO instruments and its national legislation.

4.2 The flag State shall not authorize functions beyond RO's capabilities. In this respect, the flag State shall take into consideration appendix 2 of this Code for authorization.

4.3 Flag States should cooperate with each other with the objective of ensuring that ROs to whom they delegate authority adhere to the provisions of this Code.

5 COMMUNICATION OF INFORMATION

The flag State shall communicate to, and deposit with, the Secretary-General of IMO a list of ROs for circulation to the interested parties for information of their officers, and a notification of the specific responsibilities and conditions of the authority delegated to ROs.

6 REFERENCES

The Code is based on the following referenced documents:

- .1 mandatory IMO instruments and IMO Guidelines and recommendations (i.e. Codes, guidelines and standards recommended by the Organization);
- .2 ISO 9000:2005, Quality Management Systems – Fundamentals and vocabulary;
- .3 ISO 9001:2008, Quality Management Systems – Requirements;
- .4 ISO/IEC 17020:1998, General criteria for the operation of various types of bodies performing inspection;

- .5 ISO 19011:2002, Guidelines for quality and/or environmental management systems auditing;
- .6 International Association of Classification Societies (IACS) Quality Management System Requirements (QMSR); and
- .7 national legislation.

PART 2

RECOGNITION AND AUTHORIZATION REQUIREMENTS FOR ORGANIZATIONS

1 TERMS AND DEFINITIONS

1.1 *Recognized organization (RO)* means an organization that has been assessed by a flag State, and found to comply with this part of the RO Code.

1.2 *Authorization* means the delegation of authority to an RO to perform statutory certification and services on behalf of a flag State as detailed in an agreement or equivalent legal arrangement taking into account the "Elements to be included in an Agreement" as set out in appendix 3 of this Code.

1.3 *Statutory certification and services* means certificates issued, and services provided, on the authority of laws, rules and regulations set down by the Government of a sovereign State. This includes plan review, survey, and/or audit leading to the issuance of, or in support of the issuance of, a certificate by or on behalf of a flag State as evidence of compliance with requirements contained in an international convention or national legislation. This includes certificates issued by an organization recognized by the flag State in accordance with the provisions of SOLAS regulation XI-1/1, and which may incorporate demonstrated compliance with the structural, mechanical and electrical requirements of the RO under the terms of its agreement of recognition with the flag State.

1.4 *Assessment* means any activity to determine that the assessed entity fulfils the requirements of the relevant rules and regulations.

1.5 *Interested parties* means any person or legal entity who can demonstrate a justified interest in the survey and certification process and includes, inter alia, clients of the RO, shipowners, ship operators, shipbuilders, equipment manufacturers, shipping industry interests or associations, marine insurance interests or associations, trade associations, governmental regulatory bodies or other governmental services and non-governmental organizations.

1.6 *Location* is a place from which surveys are carried out and managed, or where plan approval is carried out, or from which processes are managed.

1.7 *Site* is the place at which a surveyor is based to cover a specific contract or a series of contracts including; but not limited to, a port, shipyard, firm, and company. All statutory certification and services at sites are to be controlled by a location.

1.8 *A Vertical Contract Audit (VCA)* is a contract/order specific audit of production processes, including witnessing work during attendance at a survey, audit or plan approval in progress and, as applicable, including relevant sub-processes. A VCA is carried out at a location or a site (Survey Station/Approval Office/Site) to verify the correct application of

relevant requirements in service realization for the specific work in that contract/order, and their interactions (relevant sub-processes include e.g. previous part surveys or UTM processes connected to the survey). Plan approval VCA may be carried out for completed tasks.

2 GENERAL REQUIREMENTS FOR RECOGNIZED ORGANIZATIONS

2.1 General

Delegation of authority by a flag State to an organization shall be subject to the confirmation of the capability of that organization to demonstrate that it has the capacity to deliver high standards of service and its compliance with the requirements of this Code and applicable national legislation.

2.2 Rules and regulations

The RO shall establish, publish and systematically maintain its rules or regulations, a version of which shall be provided in the English language, for the design, construction and certification of ships and their associated essential engineering systems as well as provide for adequate research capability to ensure appropriate updating of the published criteria.

2.3 Independence

The RO and its staff shall not engage in any activities that may conflict with their independence of judgement and integrity in relation to their statutory certification and services. The RO and its staff responsible for carrying out the statutory certification and services shall not be the designer, manufacturer, supplier, installer, purchaser, owner, user or maintainer of the item subject to the statutory certification and services, nor the authorized representative of any of these parties. The RO shall not be substantially dependent on a single commercial enterprise for its revenue.

2.4 Impartiality

2.4.1 The personnel of ROs shall be free from any pressures, which might affect their judgement in performing statutory certification and services. Procedures shall be implemented to prevent persons or organizations external to the organization from influencing the results of services carried out.

2.4.2 All potential customers shall have access to statutory certification and services provided by the RO without undue financial or other conditions. The procedures under which the RO operates shall be administered in a non-discriminatory manner.

2.5 Integrity

The RO shall be governed by the principles of ethical behaviour, which shall be contained in a Code of Ethics. The Code of Ethics shall recognize the inherent responsibility associated with a delegation of authority to include assurance of adequate performance of services.

2.6 Competence

The RO shall perform statutory certification and services by the use of competent surveyors and auditors who are duly qualified, trained and authorized to execute all duties and activities incumbent upon their employer, within their level of work responsibility.

2.7 Responsibility

The RO shall define and document the responsibilities, authorities, qualifications and interrelation of personnel whose work affects the quality of its services.

2.8 Transparency

2.8.1 Transparency reflects the principle of access to, or disclosure of, all information related to the statutory certification and services carried out by the RO on behalf of a flag State.

2.8.2 The ROs shall communicate information to the flag State as described in the section on communication/cooperation with the flag State.

2.8.3 Information concerning the status of ships certified by ROs shall be made available to the public.

3 MANAGEMENT AND ORGANIZATION

3.1 General

The RO shall, based on the provisions of this Code, develop and implement a quality management system and shall continually improve its effectiveness.

3.2 Quality, safety and pollution prevention policy

The RO shall define and document its policy and objectives for, and commitment to, quality, safety and pollution prevention. In particular, the RO's management shall:

- .1 ensure that the policy and objectives are established;
- .2 ensure the policy and objectives are appropriate for the purpose of the organization;
- .3 communicate the policy and objectives; including provisions applicable to the statutory certification and services, to the organization and ensure that it is understood within the organization;
- .4 ensure sufficient availability of resources;
- .5 include a commitment to comply with all applicable requirements and continually improve the effectiveness of the quality management system;
- .6 conduct management reviews; which includes a framework for reviewing quality objectives; and
- .7 review the quality policy, objectives and the quality management system for continuing suitability.

3.3 Documentation requirements

3.3.1 The quality management system shall include the following documentation:

- .1 quality policy and quality objectives;
- .2 quality manual (refer to section 3.4);
- .3 procedures and records required by this Code and the national legislation of the recognizing flag State;
- .4 procedures to ensure the effective planning, operation, and control of the RO's processes;
- .5 rules and regulations as applicable to the RO's areas of authorization;
- .6 list of ships for which statutory certification and services are provided;
- .7 other documented process procedures that are considered necessary (these include any circulars or letters, which provide the surveyors and administrative staff with up-to-date information on classification, statutory and related matters);
- .8 specifications and diagrams defining or amplifying service processes; and
- .9 pro-forma reports, checklists and certificates appropriate to the activities covered by this certification.

3.3.2 The quality management system shall also include external documents, such as:

- .1 national and international standards necessary for the activities governed by this instrument;
- .2 IMO Conventions and resolutions;
- .3 national shipping regulations and standards appropriate to the authorization of the RO;
- .4 documents and data submitted to the RO for verification and/or approval; and
- .5 specified correspondence defined by the RO to be of an important nature.

3.4 Quality manual

The RO shall establish and maintain a quality manual that includes:

- .1 scope of the quality management system, including details of, and justification for any exclusions;
- .2 management statement on its policy and objectives for, and commitment to, quality;

- .3 description of the RO's areas of activity and competence;
- .4 general information about the organization and its head office (name, address, phone number, etc., and legal status);
- .5 information on the RO's relationship to its parent or associated organizations (where applicable);
- .6 charts describing the organization's structure;
- .7 management statement assigning a person designated who is responsible for the organization's quality management system;
- .8 relevant job descriptions;
- .9 policy statement on qualification and training of personnel;
- .10 documented procedures established for the quality management system, or reference to them;
- .11 description of the interaction between processes of the quality management system; and
- .12 description of all other documents required by the quality management system.

3.5 Control of documents

3.5.1 Documents required by the quality management system shall be controlled. The provision of document control shall apply to any type of document, including but not limited to; electronic media and IT applications where said electronic media may affect the reliability of the service or of the recorded data.

3.5.2 A documented procedure shall be established to define the controls needed to:

- .1 approve documents for adequacy prior to issue;
- .2 review and update as necessary and re-approve documents;
- .3 ensure that changes and the current revision status of documents are identified;
- .4 ensure that relevant versions of applicable documents are available at points of use;
- .5 ensure that documents remain legible and readily identifiable;
- .6 ensure that documents of external origin determined by the RO to be necessary for the planning and operation of the quality management system are identified and their distribution is controlled; and
- .7 prevent the unintended use of obsolete documents, and to apply suitable identification if they are retained for any purpose.

3.6 Control of records

3.6.1 Records shall be established to provide evidence of conformity to requirements of this Code and of the effective operation of the quality management system. The records shall be controlled.

3.6.2 The RO shall establish a documented procedure to define the controls needed for the identification, storage, protection, retrieval, retention, and disposition of records. Records shall remain legible, readily identifiable and retrievable.

3.6.3 The RO shall ensure that records are maintained, demonstrating achievement of the required standards in the terms covered by the statutory certification and services performed as well as the effective operation of the quality management system. Records, other than those set out in 3.6.4.2, shall be retained at least for the period for which statutory certification and services are provided by the RO. Records specified in 3.6.4.2 for a ship shall be retained for a minimum period of three years beyond the period for which statutory certification and services are provided by the RO to that ship, or a longer period if specified in the agreement between the flag State and the RO.

3.6.4 Records shall include at least those relevant to:

- .1 rules and regulations development and associated research;
- .2 the application of the rules and regulations and statutory requirements through:
 - .1 verification and/or approval of documents and/or drawings relevant to the design;
 - .2 approval and survey of materials and equipment;
 - .3 survey during construction and installation;
 - .4 survey during service; and
 - .5 issuance of certificates;
- .3 the list of ships; and
- .4 all other records required by this quality management system and any additional requirements established by the recognizing flag State.

3.7 Planning

3.7.1 The RO shall ensure that quality objectives, including those needed to meet the requirements for statutory certification and services are established at relevant functions and levels within the organization.

3.7.2 The quality objectives shall be measurable and consistent with the quality policy.

3.7.3 The RO shall in its planning consider the elements identified below, and use the result to evaluate the effectiveness of its standards and procedures and their impact on safety of life and property and the marine environment:

- .1 that the planning of the quality management system is carried out in order to meet the requirements of the mandatory IMO Instruments, including but not limited to this Code, its quality management system and the authorizing flag State's national legislation;
- .2 that the integrity of the quality management system is maintained when changes to the quality management system are planned and implemented;
- .3 that the needs and expectations of the customers and other interested parties are taken into account, e.g. feedback from IMO, flag States and industry associations;
- .4 the effectiveness of services based on statistics from port State control, casualties, loss trends and feedback obtained from internal and external users;
- .5 the performance of the quality management system processes based on feedback from internal audits, non-conformities and internal comments;
- .6 lessons learned from previous experience and deriving from an examination of survey reports, casualty investigations or external sources; and
- .7 other sources of information which identifies opportunities for improvement.

3.7.4 The RO shall identify and plan the processes required for the quality management system, and determine the sequence and interaction of these processes.

3.7.5 The RO shall determine the requirements to be complied with and the criteria to ensure both the operation and control of these processes, including the criteria for acceptance, and evaluate the resources needed.

3.7.6 The RO shall plan and develop the processes required for statutory certification and services. Planning of the delivery of statutory certification and services shall be consistent with the requirements of other processes of the quality management system.

3.7.7 In planning the delivery of statutory certification and services, the RO shall determine the following as appropriate:

- .1 quality objectives and requirements for statutory certification and services;
- .2 the need to establish processes and documents, and to provide resources specific to the activity;
- .3 required verification, validation, monitoring, measurement, inspection and test activities and the criteria for acceptance; and
- .4 records needed to provide evidence that statutory certification and services meet the quality management system requirements; the requirements set out in the Code and the national legislation of the recognizing flag State.

3.7.8 The output of this planning shall be in a form suitable for the RO's structure and method of operations. The output of the planning should consider:

- .1 responsibility and authority for developing improvement plans;
- .2 skills and knowledge needed;
- .3 improvement approaches, methodology and tools;
- .4 resource requirements;
- .5 alternative planning needs;
- .6 indicators for performance achievements; and
- .7 the need for documentation and records.

3.8 Organization

3.8.1 The relative size, structure, experience, and capability of the RO shall be commensurate with the type and degree of the statutory certification and services authorized by the flag State.

3.8.2 The RO shall demonstrate that it has the technical, administrative, and managerial competence and capacity to ensure the provision of quality services in a timely manner.

3.8.3 The RO shall appoint a member of its management who, irrespective of other responsibilities, shall have responsibility and authority that includes:

- .1 ensuring that processes needed for the quality management system are established, implemented, and maintained;
- .2 ensuring that processes required for the effective delivery of statutory certification and services are established, implemented and maintained;
- .3 reporting to top management on the performance of the quality management system; the delivery of statutory certification and services and any need for improvement; and
- .4 ensuring the promotion of awareness of all requirements throughout the RO.

3.8.4 The RO shall ensure that the responsibilities and authorities are defined and communicated within the RO.

3.9 Communication

3.9.1 *Internal communication*

The RO shall ensure that appropriate communication processes are established within the RO and that communication takes place regarding the effectiveness of the quality management system and statutory certification and services provided.

3.9.2 *Communication/cooperation with flag State*

3.9.2.1 The RO shall establish appropriate communication processes with the authorizing flag State that, inter alia, address the following:

- .1 information specified by the flag State in terms of authorization;
- .2 classification of ships (assignments of class, changes and withdrawals), as applicable;
- .3 cases where a ship did not in all respects remain fit to proceed to sea without danger to the ship or persons on board or presenting unreasonable threat of harm to the marine environment;
- .4 information on all overdue surveys, overdue recommendations or overdue conditions of class, operating conditions or operating restrictions issued against their classed ships that shall be made available upon request by the authorizing flag State; and
- .5 other information as so specified by the authorizing flag State.

3.9.2.2 The RO shall allow participation in the development of its rules and/or regulations by the flag State.

3.9.2.3 The RO shall determine, propose and, if agreed by the flag State, implement effective arrangements for communicating with a flag State in relation to:

- .1 enquiries, contracts or other handling, including amendments; and
- .2 flag State feedback, including conformity issues pertaining to statutory certification and services.

3.9.3 *Cooperation between ROs*

3.9.3.1 Under the framework established by the flag State, the ROs shall cooperate and share relevant experience with other ROs with the view to standardizing processes concerning statutory certification and services for the flag State, as appropriate.

3.9.3.2 Under the framework established by a flag State or a group of flag States, the organizations recognized by this State or these States shall establish and maintain appropriate technical and safety-related cooperation processes regarding statutory certification and services of ships, which may affect the validity of certificates issued by other ROs either in whole or in part on behalf of the said flag State(s). Flag States shall seek to mutually cooperate in order to ensure, as far as practicable, the compatibility of their respective frameworks.

3.9.3.3 No flag State shall mandate its ROs to apply to ships, other than those entitled to fly its flag, any requirement pertaining to their classification rules, requirements, procedures or performance of other statutory certification processes, beyond convention requirements and the mandatory instruments of the IMO.

3.9.3.4 In cases of transfer of the certification of the ship from one RO to another, the losing organization shall, without undue delay, provide the gaining organization access to the history file of the ship including:

- .1 any overdue surveys;
- .2 any overdue recommendations and overdue conditions of class;
- .3 operating conditions issued against the ship;
- .4 operating restrictions issued against the ship; and
- .5 technical information, drawings, plans and documents taking into account the relevant guidelines developed by the Organization¹.

3.9.3.5 New certificates for the ship can be issued by the gaining organization only after all overdue surveys have been satisfactorily completed and all overdue recommendations or overdue conditions of class previously issued in respect of the ship have been completed as specified by the losing organization.

3.9.3.6 Within one month from the issuance of the certificates, the gaining organization shall advise the losing organization of the date of issue of the certificates and confirm the date, place and action taken to satisfy each overdue survey, overdue recommendation and overdue condition of class.

3.9.3.7 ROs shall establish and implement appropriate common requirements concerning cases of transfer of the certification of a ship where special precautions are necessary. Those cases shall, as a minimum, include the certification of ships of 15 years of age or over and the transfer of a ship from an organization not recognized by the flag State of the ship.

3.10 Management review

3.10.1 General

The management of an RO shall review its quality management system; including a review of the RO's performance of statutory certification and services, at planned intervals, which shall not exceed 13 months, to ensure its continuing suitability, adequacy, and effectiveness. This review shall include assessing opportunities for improvement and the need for changes to the quality management system, including the quality policy and quality objectives.

3.10.2 Review input

The input to management review shall include the following information:

- .1 results of audits;
- .2 feedback from interested parties;
- .3 process performance and consistency of compliance with statutory requirements;

¹ MSC-MEPC.5/Circ.2 – *Guidelines for Administrations to ensure the adequacy of transfer of class-related matters between recognized organizations (ROs).*

- .4 status of preventive and corrective actions;
- .5 follow-up actions from previous management reviews;
- .6 changes that could affect the quality management system; and
- .7 recommendations for improvement.

Any output of management reviews containing information relevant to quality objectives, customer complaints and activity monitoring, throughout the RO, shall be used as input to the top management review.

3.10.3 Review output

3.10.3.1 The output from management review shall include any decisions and actions related to:

- .1 improvement of the effectiveness of the quality management system and its processes;
- .2 improvement of services related to the requirements established in the authorization agreement; and
- .3 resource requirements.

3.10.3.2 Top management shall ensure that the results of the top management review of the quality management system, including the derived quality objectives, are documented and communicated throughout the organization, as appropriate.

3.10.3.3 Records from management reviews shall be maintained.

4 RESOURCES

4.1 General

4.1.1 The RO shall determine and provide the adequate resources in terms of technical, managerial and survey capabilities to accomplish the tasks being assigned and resources needed to implement the quality management system and to continually improve its effectiveness; and to enhance its performance in the delivery of statutory certification and services.

4.1.2 The RO shall be able to document extensive experience in assessing the design, construction and equipment of ships and the capability to effectively perform statutory certification and services on behalf of a flag State.

4.1.3 The RO shall have the capacity to:

- .1 provide for the publication and systematic maintenance of rules and/or regulations for the design, construction and certification of ships and their associated essential engineering systems as well as the provision of an adequate research capability to ensure appropriate updating of the published criteria. The RO is required to maintain an up-to-date version of this publication in the English language; and

- .2 allow participation in the development of its rules and/or regulations by representatives of the flag State and other interested parties.

4.2 Personnel

4.2.1 The RO shall be equipped, at all times, with significant managerial, technical, support and research staff commensurate with the size of the fleet in its class, its composition and the organization's involvement in the construction, repair and conversion of ships. The RO shall be capable of assigning to every place of work, when and as needed, the means and staff commensurate with the tasks to be carried out in accordance with the requirements of this Code and those of the flag State.

4.2.2 The management of an RO shall have the competence, capability and capacity to organize, manage and control the performance of statutory certification and services in order to verify compliance with requirements relevant to the tasks delegated and shall, inter alia:

- .1 possess an adequate number of competent supervisory, technical appraisal and survey personnel;
- .2 develop and maintain appropriate procedures and instructions;
- .3 maintain up-to-date documentation on interpretation of the relevant instruments;
- .4 give technical and administrative support to field staff; and
- .5 review survey reports and plan approval letters for accuracy, compliance with requirements and to provide experience feedback for continual improvement.

4.2.3 The RO shall be established with a qualified staff to provide the required service representing an adequate geographical coverage and local representation as required.

4.2.4 The RO shall perform statutory certification and services by the use of only exclusive surveyors and auditors, being persons solely employed by the RO, duly qualified, trained and authorized to execute all duties and activities incumbent upon their employer, within their level of work responsibility. While still remaining responsible for the certification on behalf of the flag State, the RO may subcontract radio surveys to non-exclusive surveyors in accordance with section 5.9 of part 2 of this Code.

4.2.5 The RO's personnel performing and responsible for statutory certification and services shall have, as a minimum, the following formal education:

- .1 qualifications from a tertiary institution within a relevant field of engineering or physical science (minimum two-year programme); or
- .2 qualifications from a marine or nautical institution and relevant seagoing experience as a certificated ship officer, and
- .3 proficiency in the English language commensurate with the scope of statutory certification and services.

4.2.6 Other personnel assisting in the performance of statutory work shall have education, training and supervision commensurate with the tasks they are authorized to perform.

4.2.7 The RO shall have a documented system to track the qualifications of personnel; including continuous updating of their knowledge as appropriate to the tasks they are authorized to undertake. This system shall comprise appropriate training courses, including, inter alia, international instruments and appropriate procedures related to the delivery of statutory certification and services, as well as practical tutored training; it shall provide documented evidence of satisfactory completion of the training. As a minimum, the provisions in appendices 1 and 2 shall be met.

4.3 Infrastructure

4.3.1 The RO shall determine, provide, and maintain the infrastructure required to perform statutory certification and services in accordance with the requirements of the mandatory IMO instruments. Infrastructure includes, as applicable:

- .1 building, workspaces and associated utilities;
- .2 process equipment (both hardware and software); and
- .3 supporting services, including but not limited to transport, communication, training and information systems.

4.3.2 Systems (hardware and software) provided to the surveyor shall be identified and relevant training on their use shall be carried out and documented. Special consideration should be given to the situation where a surveyor is working out of a home-based office.

4.4 Work environment

4.4.1 The RO shall be satisfied that the work environment is safe and effective to perform statutory certification and services. While it is understood that such environmental conditions are not provided by the RO, the environmental conditions under which the survey will be permitted to take place shall be made clear to the customer prior to survey commencing.

4.4.2 The RO shall determine the necessary working procedures required to perform statutory certification and services safely and effectively. Training of staff on personal safety shall be carried out and documented.

4.4.3 Requirements for personal protective equipment to be used while performing statutory certification and services and procedures for personal safety of surveyors at work shall be established and documented.

5 STATUTORY CERTIFICATION AND SERVICES PROCESSES

5.1 General

It should be recognized that statutory certification and services are service delivery development processes for flag State and RO compliance verification activities rather than the design process for a ship or its equipment.

5.2 Design and development

5.2.1 The RO shall plan and control the design and development of statutory certification and services processes. During the design and development planning, the organization shall determine:

- .1 the design and development stages;
- .2 the review, verification and validation that are appropriate to each service design and development stage; and
- .3 the responsibilities and authorities for design and development.

5.2.2 The RO shall allow participation in the development and review of its rules, procedures and/or regulations, specifically in the review process prior to finalization, by representatives of the flag State and interested parties.

5.2.3 The RO shall include in its rules and/or procedures:

- .1 requirements specified and communicated to ROs by the flag State, specifically for statutory certification and services²;
- .2 requirements not stated by the flag State but necessary for specified or intended use, as determined by the RO.

5.2.4 Implementation of requirements may be in the form of adoption into the RO's internal requirements or by use of the original documents from IMO or the flag State.

5.2.5 The RO shall not issue statutory certificates to a ship, irrespective of its flag, which has been declassified or is changing class for safety reasons, before giving the opportunity to the competent Administration of the flag State to give its opinion within a reasonable time as to whether a full inspection is necessary.

5.3 Design and development inputs

5.3.1 Inputs relating to service requirements shall be determined and records maintained.

These inputs shall include:

- .1 applicable statutory and regulatory requirements;
- .2 where applicable, information derived from previous similar designs;
- .3 other requirements essential for design and development, such as functional and performance requirements; and
- .4 in-service experience with ships and mobile offshore drilling units obtained from within the RO itself and external sources.

² Refer to the *Code for the implementation of mandatory IMO instruments, 2011*, adopted by resolution A.1054(27), as may be amended.

5.3.2 The inputs shall be reviewed for adequacy. Requirements shall be complete, unambiguous and not in conflict with each other.

5.4 Design and development outputs

At suitable stages, systematic reviews of design and development of rules and standards shall be performed in accordance with planned arrangements to evaluate the ability of the results to meet requirements; and to identify any problems and propose necessary actions.

5.5 Design and development verification

Verification shall be performed in accordance with planned arrangements to ensure that the design and development outputs have met the design and development input requirements. Records of the results of the verification and any necessary actions shall be maintained.

5.6 Control of design and development changes

Design and development changes shall be identified and records maintained. The changes shall be reviewed, verified and validated, as appropriate, and approved before implementation. The review of the design and development changes shall include evaluation of the effect of the changes on the constituent parts and product already delivered. Records of the results of the review of changes and any necessary actions shall be maintained.

5.7 Control of production and service provisions

5.7.1 The RO shall ensure that all statutory certification and services are carried out under controlled conditions.

5.7.2 Controlled conditions shall include, as applicable:

- .1 the availability of information that describes the status and condition of ships surveyed and certified;
- .2 the availability of rules, regulations, work instructions, and other applicable standards, as necessary;
- .3 the use of suitable equipment;
- .4 the availability and use of monitoring and measuring equipment;
- .5 the implementation of monitoring and measurement;
- .6 the implementation of controls to ensure the accuracy of survey reports and certificates both before and after issuance; and
- .7 a safe work environment.

5.7.3 An RO shall conduct the statutory certification and services of the ship in conformity with all relevant international requirements and the requirements of this Code. When accepting a ship on behalf of the flag State that was constructed originally without a known flag State the RO shall verify that the ship complies with national requirements of that flag State prior to certification.

5.8 Property of clients

The RO shall identify, verify, protect and safeguard property provided by the clients for performance of statutory certification and services. If property is lost, damaged or otherwise found to be unsuitable for use, the RO shall report this to the property owner and maintain relevant records.

5.9 Subcontracting and service suppliers

5.9.1 Where an RO chooses to outsource any service that affects conformity to requirements or accepts work of a third party approved by the RO, the RO shall ensure that it fully controls the performance of such services. The flag State may increase the scope of control to be applied to these outsourced services. The process for outsourcing shall be defined within the RO's quality management system. For the purpose of accountability to the flag State, the work performed by the sub-contracted organization or service supplier constitutes the work of the RO and shall be subject to the requirements incumbent upon the RO under this Code.

5.9.2 Firms providing services on behalf of the owner of a ship or a mobile offshore drilling unit, the results of which are used by the RO in making decisions affecting the statutory certification and services shall be subject to approval and control by either the flag State or the RO in accordance with the procedures under their respective quality management system or the flag State requirements.

5.10 Control of monitoring and measuring devices

5.10.1 The RO shall determine the monitoring and measurement to be undertaken and the monitoring and measurement equipment needed to provide evidence of conformity to the applicable requirements.

5.10.2 The RO shall establish processes to ensure that monitoring and measurement can be carried out in a manner that is consistent with the monitoring and measurement requirements.

5.10.3 Where necessary to ensure valid results, measuring equipment shall:

- .1 be calibrated or verified, or both, at specified intervals, or prior to use, against measurement standards traceable to international or national measurement standards; where no such standards exist, the basis used for calibration or verification shall be recorded;
- .2 be adjusted or re-adjusted as necessary;
- .3 have identification in order to determine its calibration status;
- .4 be safeguarded from adjustments that would invalidate the measurement result; and
- .5 be protected from damage and deterioration during handling, maintenance, and storage.

5.10.4 The RO shall assess and record the validity of previous measuring results when the equipment is found not to conform to requirements. The RO shall take appropriate action on the equipment affected. Records of results of calibration and verification shall be maintained.

5.10.5 When used in monitoring and measurement of specific requirements, the ability of computer software to satisfy the intended application shall be confirmed. This shall be undertaken prior to initial use and reconfirmed as necessary.

5.10.6 Where an RO is verifying testing at manufacturers, builders, repairers or owners premises and reporting the same, the RO shall ensure that the measuring devices used in the process are identified and that evidence of calibration is obtained. Where an RO is witnessing testing of service equipment installed or available on board a ship, a means shall be established so that the RO is satisfied as to the appropriate accuracy of the measuring equipment.

5.11 Complaints

The RO shall have a documented process to address complaints related to statutory certification and services.

5.12 Appeals

The RO shall have a documented process to address appeals related to statutory certification and services in accordance with the requirements of the flag State.

6 PERFORMANCE MEASUREMENT, ANALYSIS AND IMPROVEMENT

6.1 General

6.1.1 The RO shall plan and implement the monitoring, measurement, analysis and improvement processes needed to demonstrate conformity to statutory certification and services requirements, to ensure conformity of the quality management system, and to continually improve the effectiveness of the quality management system. This shall include the determination of applicable methods, including statistical techniques, and the extent of their use. The measurements employed by the RO shall be reviewed periodically, and data shall be verified on a continual basis for accuracy and completeness.

6.1.2 The RO shall develop key performance indicators with respect to the performance of statutory certification and services.

6.2 Internal audit

6.2.1 The RO shall implement an audit programme; including the completion of internal audits at planned intervals to determine whether the authorized activity conforms to the planned arrangements and that the quality management system is effectively implemented and maintained, and that a supervisory system is in place, which monitors statutory certification and services.

6.2.2 The audit programme shall take into consideration the status and importance of the processes and areas to be audited, as well as the results of previous audits, flag State feedback, complaints and appeals including port State and flag State inspections. When planning the internal audits, consideration shall be given to complaints received in the past (either related to the location or in general) and to the results of previous internal audits and to the operation of the locations.

6.2.3 The RO shall define the audit criteria, scope, frequency, and methods. Auditors shall be suitably qualified and selected in order to ensure objectivity and impartiality of the audit process. Auditors shall not audit their own work. The audit scope shall cover the processes for the statutory certification and services at various locations with a focus on verification of the efficient and effective implementation of the quality management system and applicable work processes at the individual location. The audit periods, which may be established according to the findings, shall ensure that each location is audited at least once per three years. Audits at locations shall also include visits to selected sites, which operate under the control of the location.

6.2.4 A documented procedure shall be established to define the responsibilities and requirements for planning and conducting audits, establishing records and reporting results. Records of audits and their results shall be maintained.

6.2.5 The management responsible for the area being audited shall ensure that any necessary corrections and corrective actions are taken without undue delay to eliminate detected nonconformities, observations (potential non-conformities) and their root causes.

6.3 Vertical Contract Audit

6.3.1 The RO shall carry out Vertical Contract Audits annually for each of the following processes:

- .1 plan approval;
- .2 new construction survey;
- .3 in-service periodical survey/audit; and
- .4 type approval (where applicable) or survey of other materials and equipment.

6.3.2 Evidence of completion of VCAs and findings thereof, shall be formally recorded.

6.4 Monitoring and measurement of processes

6.4.1 The RO shall apply suitable methods for monitoring, including a supervisory system that monitors the work activities carried out, and where applicable, measurement of the quality management system processes. These methods shall demonstrate the ability of the processes to achieve sustained compliance with the requirements of this Code and the agreement with the flag State, in particular that:

- .1 the RO's rules and/or regulations are complied with; and
- .2 the requirements of the statutory certification and services are satisfied.

6.4.2 When planned results are not achieved, correction and corrective action shall be taken, as appropriate.

6.4.3 The implemented methods should consider issues such as, but not limited to:

- .1 port State control detentions;
- .2 casualties; and
- .3 rework of plan approval letters and survey reports.

6.5 Control, monitoring and measurement of non-conformities, including statutory deficiencies

6.5.1 The RO shall monitor and measure the service delivery with statutory requirements and the RO's rules to verify that all requirements have been met. This shall be carried out at appropriate stages of the statutory certification and services process in accordance with the planned arrangements. Evidence of conformity with the statutory requirements and RO rules shall be maintained. Records shall indicate the person(s) approving or verifying compliance with the statutory requirements and the RO's rules.

6.5.2 The RO shall make provisions to ensure that non-conformities are identified and controlled. The controls and related responsibilities and authorities for dealing with non-conformities shall be defined in a documented procedure.

6.5.3 Where applicable, the RO shall deal with a non-conformity by one or more of the following ways:

- .1 by taking action to eliminate the detected non-conformity;
- .2 by authorizing its use, release or acceptance under the terms determined by the flag State;
- .3 when accepting with or without correction by exemption or equivalence, consideration should be given to the non-conformities with rules and regulations or statutory requirements during:
 - .1 drawing approval,
 - .2 survey of materials and equipment,
 - .3 survey during construction and installation,
 - .4 survey during service;
- .4 by taking action to preclude its original intended use or application; and
- .5 by taking action appropriate to the effects, or potential effects, of the non-conformity when a non-conformity is detected.

6.5.4 When a non-conformity is corrected, it shall be subject to reverification to demonstrate conformity to the requirements.

6.5.5 Records of the nature of non-conformities and any subsequent actions taken, including exemption or equivalences obtained, shall be maintained.

6.5.6 The RO shall comply with the instructions of the flag State detailing actions to be followed in the event that a ship is found not fit to proceed to sea without danger to the ship or persons on board, or presenting unreasonable threat of harm to the marine environment.

6.5.7 The ROs shall cooperate with port State control Administrations where a ship to which the RO issued the certificates is concerned, in particular, in order to facilitate the rectification of reported deficiencies or other discrepancies.

6.5.8 The RO responsible for issuing the relevant certificate shall, upon receiving a report of an accident or discovering a defect to a ship which affects the safety of the ship or the efficiency or completeness of its life saving appliances or other equipment, cause investigations to be initiated to determine whether a survey is necessary.

6.6 Improvement

6.6.1 General

The RO shall continually improve the effectiveness of its quality management system through the use of the quality policy, quality objectives, audit results, analysis of data, corrective and preventive actions and management review.

6.6.2 Data analysis

6.6.2.1 The objective of data analysis is to determine the cause of problems to guide effective corrective and preventive action. The RO shall:

- .1 analyse data from various sources to assess performance against plans and goals and to identify areas for improvement;
- .2 make use of statistical methodologies for data analysis, which can help in assessing, controlling, and improving performance of processes; and
- .3 analyse the product requirements, as well as analysis of relevant processes, operations and quality records.

6.6.2.2 Information and data from all parts of the RO shall be integrated and analysed to evaluate the overall performance of the quality management system.

6.6.2.3 The results of analysis shall be documented and used to determine:

- .1 trends;
- .2 operational performance;
- .3 customer satisfaction and/or dissatisfaction through complaints or other quality indicators (PSC detentions, flag State non-conformities, etc.);
- .4 effectiveness and/or efficiency of processes; and
- .5 performance of suppliers.

6.6.3 Sources of information

The RO shall identify sources of information and establish processes for collection of information for planning continual improvement, corrective and preventive actions. Such information shall include, inter alia:

- .1 customer complaints;
- .2 non-conformance reports;

- .3 outputs from management reviews;
- .4 internal audit reports;
- .5 outputs from data analysis;
- .6 relevant records;
- .7 outputs from customer feedback and satisfaction measurements;
- .8 process measurements;
- .9 results of self-assessment; and
- .10 in-service experience.

6.6.4 Corrective action

6.6.4.1 The RO shall without undue delay take action to eliminate the causes of non-conformities in order to prevent recurrence. Corrective actions shall be appropriate to the effects of the non-conformities encountered and address all actual or potential effects of these.

6.6.4.2 A documented procedure shall be established to define requirements for:

- .1 reviewing non-conformities (including complaints);
- .2 determining the cause of non-conformities;
- .3 evaluating the need for action to ensure that non-conformities do not recur;
- .4 determining and implementing action needed;
- .5 records of the results of action taken; and
- .6 reviewing the effectiveness of the corrective action taken.

6.6.5 Preventive action

6.6.5.1 The RO shall take action to identify and eliminate the causes of potential non-conformities in order to prevent their occurrence. Preventive actions shall be appropriate to the nature and effects of the potential problems.

6.6.5.2 A documented procedure shall be established to define requirements for:

- .1 determining potential non-conformities and their causes;
- .2 evaluating the need for action to prevent occurrence of non-conformities;
- .3 determining and implementing action needed;
- .4 records of results of action taken; and
- .5 reviewing the effectiveness of the preventive action taken.

6.6.5.3 Examples of such methodologies may include risk analyses, trend analyses, statistical process control, fault-tree analyses, failure modes and effects and criticality analyses.

7 QUALITY MANAGEMENT SYSTEM CERTIFICATION

7.1 The RO shall develop, implement and maintain an effective internal quality management system that complies with the requirements of this Code and is based on appropriate parts of internationally recognized quality standards no less effective than the ISO 9000 series.

7.2 The RO's quality management system shall be periodically assessed and certified in accordance with the applicable international quality standards by a qualified body, accredited to comply with ISO/IEC 17021:2006 standard by an accreditation body that is signatory to the International Accreditation Forum (IAF) Multinational Recognition Agreement (MRA), recognized by the flag State as having the necessary governance and competences to act independently of the ROs or their associations and having the necessary means to carry out its duties effectively and to the highest professional standards, safeguarding the independence of the persons performing them.

7.3 In pursuance of continually improving RO and flag State services, IMO endeavours to closely monitor the certification and audit process of the RO and its implementation to ensure its continued relevance and validity to the maritime industry in general and to the ROs, in particular. IMO will establish the working methods and rules of procedure for such monitoring.

8 AUTHORIZATION OF RECOGNIZED ORGANIZATIONS

8.1 General

Under the provisions of regulation I/6 of SOLAS 1974, article 13 of LL 66, regulation 6 of MARPOL Annex I and regulation 8 of MARPOL Annex II and article 6 of TONNAGE 69, a flag State may authorize an RO to act on its behalf in statutory certification and services and determination of tonnages only to ships entitled to fly its flag as required by these conventions. Such authorizations shall not require ROs to perform actions that impinge on the rights of another flag State.

8.2 Legal basis of the functions under authorization

The flag State shall establish the legal basis under which the authorization of statutory certification and services is administered. The following items shall be considered:

- .1 the formal written agreement with the RO;
- .2 acts, regulations and supplementary information;
- .3 interpretations; and
- .4 deviations and equivalent solutions.

8.3 Specification of authorization

The flag State shall specify the scope of authorization granted to an RO. The following specifications shall be considered:

- .1 ship types and sizes;
- .2 conventions and other instruments, including relevant national legislation;
- .3 approval of drawings;
- .4 approval of materials and equipment;
- .5 surveys, audits, inspections;
- .6 issuance, endorsement and/or renewal of certificates;
- .7 corrective actions;
- .8 withdrawal or cancellation of certificates; and
- .9 reporting requirements.

8.4 Resources

The flag State shall ensure that an RO has adequate resources in terms of technical, managerial and research capabilities to accomplish the tasks being assigned, in accordance with the minimum standards for ROs acting on behalf of the flag State set out in part 2 of this Code.

8.5 Instruments

The flag State shall provide the RO with access to all appropriate instruments of national law giving effect to the provisions of the conventions, notify the RO of any additions, deletions or revisions thereto in advance of their effective date and specify whether the flag State's standards go beyond convention requirements in any respect.

8.6 Instructions

8.6.1 The flag State shall issue specific instructions detailing the procedures to be followed in carrying out statutory certification and services, and actions to be followed in the event that a ship is found not fit to proceed to sea without danger to the ship or persons on board, or presenting unreasonable threat of harm to the marine environment.

8.6.2 Flag States shall ensure by appropriate means that ROs cooperate with each other in accordance with the provisions of this Code.

8.7 Records

The flag State shall specify that the RO maintain records, which can provide the flag State with data to assist in interpretation of convention regulations.

PART 3

OVERSIGHT OF RECOGNIZED ORGANIZATIONS

1 PURPOSE

Part 3 of the RO Code provides guidance on flag State's oversight of ROs authorized to perform statutory certification and services on its behalf. Part 3 also provides guidance on the principles of oversight that may include ship inspection, auditing, and monitoring activities.

2 SCOPE

Part 3 of the RO code is applicable to all flag States that have authorized ROs to perform statutory certification and services. Part 3 includes flag State oversight provisions and provides guidance, which is non-mandatory, to assist flag States in the development and implementation of an effective oversight programme of ROs.

3 REFERENCES

The following documents are referenced:

- .1 mandatory IMO instruments;
- .2 ISO 9000:2005, Quality Management Systems – Fundamentals and vocabulary;
- .3 ISO 9001:2008, Quality Management Systems – Requirements;
- .4 ISO/IEC 17020:1998, General Criteria for the operation of various types of bodies performing inspection;
- .5 ISO 19011:2002, Guidelines for quality and/or environmental management systems auditing; and
- .6 national legislation.

4 TERMS AND DEFINITIONS

4.1 *Audit* means a systematic, independent, and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which the audit criteria are fulfilled. Auditing is characterized by reliance on a number of principles. These make the audit an effective and reliable tool in support of management policies and controls, providing information on which an RO can act to improve its performance. Adherence to these principles is a prerequisite for providing audit conclusions that are relevant and sufficient and for enabling auditors working independently from one another to reach similar conclusions in similar circumstances.

4.2 *Audit criteria* means a set of policies, procedures or requirements.

4.3 *Audit evidence* means records, statements of fact, or other information, which are relevant to the audit criteria and verifiable. Audit evidence may be qualitative or quantitative.

4.4 *Audit findings* means results of the evaluation of the collected audit evidence against audit criteria. Audit findings can indicate conformity, observation (potential non-conformity) or non-conformity with audit criteria or opportunities for improvement.

4.5 *Audit conclusion* means an outcome of an audit, provided by the audit team, after consideration of the audit objectives and all audit findings.

4.6 *Audit client* means an organization or person requesting an audit.

4.7 *Auditee* is an organization recognized by a flag State that may be subject to an audit by the authorizing flag State.

4.8 *Auditor* means a person with the competence to conduct an audit.

4.9 *Audit team* means one or more auditors conducting an audit, supported if required by technical experts.

4.10 *Technical expert* means a person who provides specific knowledge or expertise to the audit team.

4.11 *Audit programme* means a set of one or more audits planned for a specific period and directed towards a specific purpose. An audit programme includes all activities necessary for planning, organizing, and conducting the audits.

4.12 *Audit plan* means a description of the activities and arrangements for an audit.

4.13 *Audit scope* means extent and boundaries of an audit. The audit scope generally includes a description of the physical locations, organizational units, activities and processes, as well as the time period covered.

4.14 *Competence* means demonstrated personal attributes and demonstrated ability to apply knowledge and skills.

4.15 *Oversight* means any activity by a flag State carried out to assure an RO's service complies with IMO and national requirements of the recognizing flag State.

4.16 *Monitoring* means any activity by a flag State where a flag State witnesses services by an RO or reviews documentation used by the RO and which is carried out to assure that RO services are in compliance with IMO and national requirements. Monitoring may be considered as a component of oversight.

5 ESTABLISHING AN OVERSIGHT PROGRAMME

5.1 Oversight

The flag State should establish or participate in an oversight programme with adequate resources for monitoring of, and communication with, its RO(s) in order to ensure that its international obligations are fully met, by:

- .1 exercising its authority to conduct supplementary surveys to ensure that ships entitled to fly its flag in fact comply with the requirements of the applicable international instruments;

- .2 conducting supplementary surveys as it deems necessary to ensure that ships entitled to fly its flag comply with national requirements, which supplement the international mandatory requirements; and
- .3 providing staff who have a good knowledge of the rules and regulations of the flag State and the ROs and who are available to carry out effective oversight of the ROs.

5.2 Flag State's supervision of duties delegated to an RO

The flag State's supervision of duties delegated to an RO should consider, inter alia, the following:

- .1 documentation of the RO's quality management system;
- .2 access to internal instructions, circulars and guidelines;
- .3 access to the RO's documentation relevant to the flag State's fleet;
- .4 cooperation with the flag State's inspection and verification work; and
- .5 provision of information and statistics; such as, but not limited to, damage and casualties relevant to the flag State's fleet.

5.3 Verification and monitoring

The flag State should establish a system to ensure the adequacy of statutory certification and services provided. Such a system should, inter alia, include the following items:

- .1 procedures for communication with the RO;
- .2 procedures for reporting to the flag State by the RO and the processing of such reports by the flag State. The following reporting requirements should be considered:
 - .1 the RO should notify the flag State immediately upon becoming aware of a situation involving a major deficiency, or serious safety-related issue, that would normally be considered sufficient to detain a ship from proceeding to sea pending correction;
 - .2 the RO should notify the flag State(s) immediately upon becoming aware of a situation aboard ship or within a company involving a major non-conformity, as defined in the *Guidelines on the Implementation of the International Safety Management (ISM) Code by Administrations* (resolution A.1022(26), as amended);
 - .3 the notification above should contain the name of the company or ship, the IMO number, the official number, if applicable, and a description of the major non-conformity, deficiency or issue;
 - .4 the RO should inform the flag State, as soon as possible, of any dangerous occurrences, accidents, machinery or structural breakdowns, or failures that they are aware of on a ship; and

- .5 the RO should report to the flag State in writing the names and official numbers, if applicable, of any ships removed from the RO's list of classed/certified ships for which the RO has performed statutory certification and services. The report should contain a description of the reason(s) for removal from class, and this should be made within thirty (30) days of the removal becoming effective;
- .3 additional ship's inspections by the flag State;
- .4 appropriate technical and/or safety related consultations between ROs regarding statutory certification and services, which may affect the validity of certificates issued either in whole or in part on behalf of the flag State(s);
- .5 the flag State's evaluation/acceptance of the certification of the RO's quality management system by an independent body of auditors accepted by the flag State;
- .6 monitoring and verification of statutory certification and services, which contribute either in whole or in part to compliance with a mandatory IMO instrument. The flag State should consider the implementation of the following:
 - .1 flag State's oversight of RO quality management systems;
 - .2 observation of or systematic review of reports of the quality management system audits conducted by other qualified persons or organizations external to and independent of the RO;
 - .3 verification and inspection of ships that are subject to statutory certification and services; and
 - .4 complaint and feedback system and corrective action follow-up;
- .7 a flag State accepting ships constructed without its involvement should establish that an RO conducting statutory certification and services of the ship conforms to this Code; and
- .8 for ships constructed without an identified flag State, the flag State specific requirements should be verified prior to certification.

6 PRINCIPLES OF AUDITING

6.1 The flag State should be satisfied that the RO has an effective quality management system in place. The flag State may rely upon the audits carried out by an accredited certification body or equivalent organizations. Intergovernmental cooperation in establishing common auditing practices is encouraged.

6.2 A flag State auditor should advance the following principles:

- .1 ethical conduct: the foundation of professionalism. Trust, integrity, confidentiality and discretion are essential to auditing;
- .2 fair presentation: the obligation to report truthfully and accurately. Audit findings, audit conclusions, and audit reports reflect truthfully and accurately the audit activities. Significant obstacles encountered during the

audit and unresolved diverging opinions between the audit team and the auditee are reported; and

- .3 due professional care: the application of diligence and judgment in auditing. Auditors exercise care in accordance with the importance of the task they perform and the confidence placed in them by audit clients and other interested parties. Having the necessary competence is an important factor.

6.3 Further principles relate to the audit, which is by definition independent and systematic.

- .1 independence: the basis for the impartiality of the audit and objectivity of the audit conclusions. Auditors are independent of the activity being audited and are free from bias and conflict of interest. Auditors maintain an objective state of mind throughout the audit process to ensure that the audit findings and conclusions will be based only on the audit evidence;
- .2 evidence-based approach: the rational method for reaching reliable and reproducible audit conclusions in a systematic audit process. Audit evidence is verifiable. It is based on samples of the information available, since an audit is conducted during a finite period of time and with finite resources. The appropriate use of sampling is closely related to the confidence that can be placed in the audit conclusions.

6.4 The guidance given in this Code is based on the principles set out above.

7 MANAGING AN OVERSIGHT PROGRAMME

7.1 General

7.1.1 The flag States are required to verify that the organizations recognized to perform statutory certification and services on their behalf fulfil the requirements of this Code. The purpose of this verification is to ensure that the RO is performing its statutory certification and service in compliance with this Code and its agreement with the flag State.

7.1.2 The flag State should develop, implement, and manage an effective oversight programme of the ROs that act on its behalf.

7.1.3 An oversight programme should include various monitoring activities, which may inter alia consist of audits, inspections and audit observations (potential non-conformities). The flag States' oversight programme of their ROs should be developed after carefully assessing the factors associated with the RO as well as the extent of access to the RO's records of statutory certification and services that are made available to the flag State. The programme should also consider the delivery of statutory certification and services with respect to the provisions of the Conventions and with respect to the national requirements and instructions published by the flag State. Factors should include:

- .1 the scope and frequency of high level audits of the RO carried out by flag States and independent accredited bodies, and of internal audits carried out by the RO;
- .2 the extent to which audit findings, observations (potential non-conformities) and corrective actions are made available to the flag State;

- .3 the extent to which remote monitoring of the RO can be undertaken by the flag State which can manifest itself in several different ways depending on the scope of information that is electronically available to the flag State. Remote monitoring can include:
 - .1 review of the contents of survey reports associated with statutory certificates issued by the RO;
 - .2 review of the effectiveness of the control and rectification of deficiencies and outstanding requirements within the deadlines established by the flag State through the RO; and
 - .3 review of the RO's country-specific instructions to determine that the flag State's national requirements are properly and completely addressed by the RO;
- .4 flag State inspections carried out on board ships to check the end-result of the certification process, with a specific interest in their national requirements and/or implementation of instructions issued to the RO; and
- .5 port State control detentions and deficiencies allocated to the responsibility of the RO.

7.1.4 An oversight programme should also include all activities necessary for planning and organizing the types and number of monitoring activities, and for providing resources to conduct them effectively and efficiently within the specified periods.

7.1.5 Those assigned the responsibility for managing the oversight programme should:

- .1 establish, implement, monitor, review and improve the oversight programme; and
- .2 identify the necessary resources and ensure they are available and provided, as required.

7.1.6 An oversight programme should also include planning, the provision of resources and the establishment of procedures to conduct monitoring activities within the programme.

7.2 Oversight programme objectives and extent

7.2.1 Objectives of an oversight programme

7.2.1.1 The flag State should establish objectives for an oversight programme, to direct the planning and conduct of monitoring activities.

7.2.1.2 The following objectives should be considered:

- .1 management priorities;
- .2 flag State intentions;
- .3 flag State system requirements;

- .4 statutory, regulatory and contractual requirements;
- .5 need for ROs to be evaluated;
- .6 flag State, ROs, and other requirements;
- .7 needs of other interested parties; and
- .8 risks to the flag State.

7.2.2 Extent of an oversight programme

7.2.2.1 The flag State's oversight programme should reflect the size, nature and complexity of the flag State's authorization programme, as well as the following factors:

- .1 the scope, objective and duration of monitoring activities to be conducted;
- .2 the frequency of monitoring activities to be conducted;
- .3 the number, importance, complexity, similarity, and locations of the ROs;
- .4 standards, statutory, regulatory, and contractual requirements and other monitoring criteria;
- .5 the need for accreditation or registration/certification of ROs;
- .6 conclusions of previous monitoring activities;
- .7 the concerns of interested parties; and
- .8 significant changes to an RO or its operations.

7.2.2.2 A flag State may enter into a written agreement to participate in combined monitoring/oversight activities with another flag State or States that have authorizations with the same RO provided that the level of detail regarding individual flag State requirements and individual flag State performance are addressed at a level equivalent to an oversight programme conducted by each of the individual flag State. Conversely no flag State may be compelled by another flag State or organization to accept oversight of an RO by others in lieu of conducting its own individual flag State oversight unless it so elects by written agreement or is so provided in the law of that State. A copy of all such agreements should be submitted to IMO for the information of the Member States.

7.3 Oversight programme responsibilities, resources and procedures

7.3.1 Oversight programme responsibilities

7.3.1.1 The flag State is responsible for managing its oversight programme. The flag State should utilize competent individuals that have an understanding of the oversight requirements, audit principles, and the application of audit techniques. They should have management skills as well as technical and business understanding relevant to the activities to be monitored.

7.3.1.2 Those assigned the responsibility for managing the oversight programme should:

- .1 establish the objectives and extent of the oversight programme;
- .2 establish the responsibilities and procedures, and ensure resources are provided;
- .3 ensure the implementation of the oversight programme;
- .4 ensure that appropriate oversight programme records are maintained; and
- .5 monitor, review and improve the oversight programme.

7.3.2 Oversight programme resources

When identifying resources for the oversight programme, the flag State should consider the following:

- .1 financial resources necessary to develop, implement, manage, and improve oversight activities;
- .2 auditing techniques;
- .3 processes to achieve and maintain the competence of staff, and to improve oversight performance;
- .4 the availability of staff and technical experts having competence appropriate to the particular oversight programme objectives;
- .5 the extent of the oversight programme; and
- .6 travelling time, accommodation and other oversight needs.

7.3.3 Oversight programme procedures

7.3.3.1 The flag State's oversight programme procedures should address the following:

- .1 planning and scheduling of oversight activities;
- .2 assuring the competence of assigned personnel;
- .3 selecting appropriate personnel and assigning their roles and responsibilities;
- .4 conducting monitoring activities;
- .5 conducting follow-up, if applicable;
- .6 maintaining oversight programme records;
- .7 monitoring the performance and effectiveness of the oversight programme; and
- .8 reporting on the overall achievements of the oversight programme.

7.3.3.2 For flag States with a limited authorization programme, the activities above may be addressed in a single procedure.

7.3.4 Oversight programme implementation

The implementation of a flag State oversight programme should include the following factors:

- .1 communicating the objectives of the oversight programme to relevant parties;
- .2 coordinating and scheduling monitoring activities relevant to the oversight programme;
- .3 establishing and maintaining a process for the evaluation of assigned personnel and their continual professional development;
- .4 selecting and appointing assigned personnel;
- .5 providing necessary resources to the oversight programme, specifically the corresponding monitoring activities;
- .6 robust execution of monitoring activities according to the oversight programme;
- .7 ensuring the control of records of the monitoring activities;
- .8 ensuring review and approval of monitoring activity reports, and ensuring their distribution to interested parties; and
- .9 ensuring follow-up, if applicable.

7.3.5 Oversight programme records

7.3.5.1 The flag State's monitoring records should be maintained to demonstrate the implementation of the oversight programme and should include the following:

- .1 all records related to monitoring activities, such as:
 - .1 plans;
 - .2 reports;
 - .3 non-conformity reports;
 - .4 corrective and preventive action reports, and
 - .5 follow-up reports, if applicable;
- .2 results of oversight programme review; and
- .3 records related to personnel covering subjects, such as:
 - .1 assigned personnel competence and performance evaluation;

- .2 monitoring and/or audit team selection; and
- .3 maintenance and improvement of competence.

7.3.5.2 Records should be retained and suitably safeguarded.

7.4 Oversight programme monitoring and reviewing

7.4.1 The implementation of a flag State oversight programme should be monitored and, at appropriate intervals, reviewed to assess whether its objectives have been met and to identify opportunities for improvement.

7.4.2 The flag State should develop and use performance indicators to monitor the effectiveness of its oversight programme for ROs. The following factors should be considered:

- .1 the ability of assigned personnel to implement the oversight plan;
- .2 conformity with the requirements of the RO Code, monitoring activities, and schedules; and
- .3 feedback from clients, ROs and assigned personnel.

7.4.3 The flag State should consider the following performance indicators when evaluating the performance of the ROs:

- .1 port State performance of ROs;
- .2 results of RO's internal audits;
- .3 results of quality management system audits performed by third-party organizations (ACBs);
- .4 the results of previous performance monitoring; and
- .5 condition/compliance of ships that receive survey and certification from the ROs.

7.4.4 The flag State should, on a periodic basis, evaluate its overall performance with respect to the implementation of administrative processes, procedures and resources necessary to meet its obligations as required by the conventions to which it is party.

7.4.5 Other measures to evaluate the performance of the flag States may include, inter alia, the following:

- .1 port State control detention rates;
- .2 flag State inspection results;
- .3 casualty statistics;
- .4 communication and information processes;
- .5 annual loss statistics (excluding constructive total losses (CTLs)); and

- .6 other performance indicators as may be appropriate, to determine whether staffing, resources and administrative procedures are adequate to meet their flag State obligations. Other performance measurement indicators may consist of the following:
 - .1 fleet loss and accident ratios to identify trends over selected time periods;
 - .2 the number of verified cases of detained ships in relation to the size of the fleet;
 - .3 the number of verified cases of incompetence or wrongdoing by individuals holding certificates or endorsements issued under its authority;
 - .4 responses to port State deficiency reports or interventions;
 - .5 investigations into very serious and serious casualties and lessons learned from them;
 - .6 technical and other resources committed;
 - .7 results of inspections, surveys and controls of the ships in the fleet;
 - .8 investigation of occupational accidents;
 - .9 the number of incidents and violations under MARPOL, as amended; and
 - .10 the number of suspensions or withdrawals of certificates, endorsements and approvals.

7.4.6 The oversight programme review should also consider:

- .1 results and trends from monitoring;
- .2 conformity with procedures;
- .3 evolving needs and expectations of interested parties;
- .4 oversight programme records;
- .5 alternative or new auditing practices or monitoring activities; and
- .6 consistency in performance between audit teams in similar situations.

7.4.7 Results of oversight programme reviews can lead to corrective and preventive actions and the improvement of the oversight programme.

* * *

Appendix 1

REQUIREMENTS FOR TRAINING AND QUALIFICATION OF RECOGNIZED ORGANIZATION'S TECHNICAL STAFF

A1.1 Definitions

A1.1.1 *Survey staff* are the personnel authorized to carry out surveys and to conclude whether or not compliance has been achieved.

A1.1.2 *Plan approval staff* are the personnel authorized to carry out design assessment and to conclude whether or not compliance has been achieved.

A1.1.3 *Audit staff* are the personnel authorized to carry out audits and to conclude whether compliance has been achieved.

A1.1.4 *Trainee* is a person receiving theoretical and practical training under the supervision of a trainer/tutor.

A1.1.5 *Trainer* is a designated person having experience within a relevant area or a proficient expert in a special field recognized by the RO to give theoretical training through classroom teaching, special seminars or individual training.

A1.1.6 *Tutor* is a qualified and designated person from among the RO's staff having appropriate experience and capability in the relevant areas of activities in which they assist, consult and supervise the practical training of a trainee until the latter is qualified.

A1.1.7 *Technical staff* are the personnel qualified to carry out technical activity as survey staff or plan approval staff or, Marine Management Systems audit staff.

A1.1.8 *Support staff* are the personnel assisting survey and/or plan approval staff in connection with classification and statutory work.

A1.2 Trainee entry requirements

RO personnel performing, and responsible for, statutory work shall have as a minimum the formal education requirements defined in part 2, section 4.2.5.

A1.3 Modules

A1.3.1 The RO shall define the required competence criteria for each relevant type of survey, and type of plan approval activity and audit to be performed.

A1.3.2 The RO shall define the necessary theoretical and practical training modules required to meet the competence criteria defined for survey, plan approval and marine management systems audit staff. The training modules shall cover as a minimum:

- .1 learning and competence objectives;
- .2 scope of training; and
- .3 evaluation criteria and pass requirements.

A1.3.3 Through studying the training modules, trainees shall acquire and develop general knowledge and understanding applicable to different types of ships and types of work according to the flag State requirements, RO's rules and regulations and international conventions and codes.

A1.4 Theoretical training for survey and plan approval staff

A1.4.1 The objective of theoretical training is to ensure that familiarization with rules, technical standards or statutory regulations and any additional requirement specific to the type of survey or ships is sufficient for the areas of activity.

A1.4.2 Theoretical training shall include:

- .1 general modules for theoretical training; and
- .2 special modules for theoretical training in the particular specialty.

A1.4.3 General modules for theoretical training shall include general subjects with respect to:

- .1 activity and functions of IMO and maritime Administrations;
- .2 activity and functions of classification societies;
- .3 classification of ships and mobile offshore drilling units;
- .4 types of certificates and reports issued on completion of class and statutory surveys;
- .5 quality management system;
- .6 personal safety regulations; and
- .7 legal and ethical issues.

A1.4.4 The programmes of theoretical training for survey and plan approval staff shall be documented in a training plan and developed according to the areas of activity (types or categories of surveys, types of ships, subjects such as hull, machinery, electrical engineering, etc.).

A1.4.5 In case of an existing gap in the formal educational background in some particular field of activity, theoretical training shall be extended.

A1.4.6 In case survey or plan approval staff have obtained particular qualifications through their previous work experience prior to their joining the RO, the training plan may be reduced.

A1.4.7 Additions or reductions in the individual training plans shall be documented.

A1.4.8 In case of extension of areas of activity the training plan shall be developed and documented accordingly.

A1.4.9 Theoretical training may be received through classroom teaching, special seminars, individual training, self-study or computer-assisted training.

A1.5 Practical training for survey and plan approval staff (see appendix 2 for specific criteria for each certificate)

A1.5.1 General

Practical training shall ensure the trainee is sufficiently proficient to carry out survey or design assessment work independently.

A1.5.2 Plan approval staff

A1.5.2.1 Practical training shall be commensurate with the complexity of design assessment (review of technical design of ships, review of technical documentation on materials and equipment) and shall be carried out under the supervision of a tutor.

A1.5.2.2 Practical training carried out shall be recorded.

A1.5.3 Survey staff

A1.5.3.1 Practical training shall be commensurate with the complexity of the survey (types or categories of surveys, types of ships, specific subjects (hull, machinery, and electrical engineering)) and shall be carried out under the supervision of a tutor.

A1.5.3.2 Selection of particular surveys depends on the specialty/qualification to be granted and shall include classification and statutory types of surveys of the following, as appropriate:

- .1 new construction;
- .2 ships and mobile offshore drilling units in operation; and
- .3 materials and equipment.

A1.5.3.3 Practical training carried out shall be recorded.

A1.5.4 Examinations and tests for survey and plan approval staff

A1.5.4.1 Competence gained through the theoretical training shall be demonstrated through written or oral examination or through suitable computer tests.

A1.5.4.2 Examinations and tests shall cover the sets of modules attended by the trainee, as applicable.

A1.5.4.3 With respect to competence gained through practical training being demonstrated by:

- .1 a surveyor, this shall be accomplished by the surveyor satisfactorily completing the surveys associated with the competence whilst under the supervision of the tutor. The surveyor would be expected to be able to answer associated technical questions raised as thought necessary by the tutor to confirm levels of understanding. The results of the tutor's review shall be annotated on the respective training record; and

- .2 a plan approval staff member, this shall be accomplished by the staff member satisfactorily completing the appraisal of drawings against the relevant classification rules and statutory regulations as verified through a review by the tutor of the staff member's work. The results of the tutor's review shall be annotated on the respective training record.

A1.5.4.4 A competent person shall perform examinations of theoretical training or witnessing practical competence.

A1.5.4.5 During examinations and tests, use of the relevant working documents (rules, conventions, checklists, etc.) by the trainee shall be considered allowable.

A1.5.5 Audit staff

A1.5.5.1 Theoretical training

A1.5.5.1.1 Theoretical training should address the following:

- .1 principles and practice of management systems auditing;
- .2 the requirements of the International Safety Management (ISM) Code and its interpretation and application;
- .3 mandatory rules and regulations and applicable codes, guidelines and standards recommended by the IMO, flag States, classification societies and maritime industry organization; and
- .4 basic shipboard operations including emergency preparedness and response. The time spent on each topic and the level of detail that it is necessary to include will depend on the qualifications and experience of the trainees, their existing competence in each subject, and the number of training audits to be carried out.

A1.5.5.1.2 The training may be modular in structure, in which case the period over which the theoretical training is delivered shall not exceed 12 months.

A1.5.5.1.3 Where appropriate, some elements may be delivered by means such as distance learning and e-learning. However, at least fifty per cent of the total theoretical training days shall be classroom-based in order to allow for discussion and debate and to allow candidates to benefit from the experience of the trainer.

A1.5.5.2 Examination

A1.5.5.2.1 Confirmation that the learning objectives have been met shall be demonstrated by written examination at the end of the theoretical training, or at the end of each module if the training is not delivered in a single training course.

A1.5.5.2.2 If the trainee fails the written examination, or any part thereof; a single resist will be permitted. A candidate who fails the resist will be required to undergo the corresponding theoretical training again before being allowed to make another attempt at the examination.

A1.5.5.2.3 A candidate who passes a written examination shall receive a certificate, statement or other record indicating which of the competences have been addressed, and the dates on which the corresponding training took place.

A1.5.5.3 Practical training

A1.5.5.3.1 A person authorized to carry out ISM audits shall have completed at least the minimum number of training audits under supervision as specified by the RO.

A1.5.5.3.2 The RO shall establish procedures for ensuring and demonstrating that the required competence has been achieved.

A1.6 Qualification

A1.6.1 After completion of the theoretical and practical training, with positive results, the trainee is granted the appropriate authorizations to work independently. The activities they are qualified to perform (types of surveys, types of ships, types of design approval, etc.) are identified.

A1.6.2 The criteria adopted by the RO for granting qualifications shall be documented in the appropriate quality management system documents.

A1.7 Assessment of training effectiveness

A1.7.1 The methods of training effectiveness assessment may include monitoring, testing, etc., on the regular basis according to the RO's system.

A1.7.2 The criteria adopted by the RO for training effectiveness assessment shall be documented in the appropriate RO quality management system documents.

A1.7.3 Evidence of training effectiveness assessment shall be provided.

A1.8 Maintenance of qualification

A1.8.1 The criteria adopted by the RO for maintenance or updating of qualifications shall be in accordance with and documented in the appropriate RO quality management system documents.

A1.8.2 Updating of qualifications may be done through the following methods:

- .1 self-study (unassisted study);
- .2 different courses and seminars organized in local offices and/or in the main offices of the RO;
- .3 extraordinary technical seminars in case of significant changes in the RO's rules or international conventions, codes, etc. (with examination if required); and
- .4 special training on specific works or type of survey in some areas of the activity, which are determined by activity monitoring or by a long time absence of practical experience.

A1.8.3 Maintenance of qualifications in accordance with these criteria shall be verified at annual performance review.

A1.9 Activity monitoring

A1.9.1 Purpose

Activity monitoring has the purpose:

- .1 to assess whether the individuals are competent and capable of carrying out their authorized and assigned work independently, consistent with the RO's policies and practices;
- .2 to identify needs for continual improvement in aligning the technical services across the organization; and
- .3 to identify need for improvements in the guidance processes and/or tools provided for the staff.

A1.9.2 Monitoring

A1.9.2.1 Headquarters, regional or local offices, may initiate activity monitoring. It shall be carried out by persons who are qualified in the survey or audit being monitored.

A1.9.2.2 It shall be carried out to the extent that the work of each surveyor or auditor engaged in survey or audit work will be monitored at least once every other calendar year. Where a person carries out both survey and audit work, they shall be monitored in both work activities at least once every other calendar year. Only one type of survey for a qualified surveyor and one type of audit for a qualified auditor need be monitored within the two-year cycle. Persons doing plan approval shall be monitored at least once every other calendar year.

A1.9.2.3 Subsequent to the monitoring, the monitoring surveyor or auditor shall report the activity.

A1.9.2.4 Should any comments be necessary, or findings made, these will be included in the report, for review and corrective action.

A1.9.3 Method

A1.9.3.1 Activity monitoring shall be performed by personnel authorized to undertake activity monitoring.

A1.9.3.2 Preparation shall include familiarization with the processes, requirements and tools (e.g. software) associated with the activity to be witnessed during the activity monitoring.

A1.9.3.3 The monitoring process shall include a review of relevant performance information related to the individual's work. This may include: report and certificate accuracy, meeting objectives, received complaints, PSC detention feedback.

A1.9.3.4 Survey, audit or plan approval activity selected for monitoring shall have an extent such as to cover a maximum possible range of activity and qualifications that can be monitored during the attendance.

A1.9.3.5 Monitoring shall include, but not be limited to, evaluation of the individual's:

- .1 personal safety awareness;
- .2 understanding and application of the relevant requirements;
- .3 technical capabilities;
- .4 understanding of the related requirements; and
- .5 standards of reporting and communication.

A1.9.4 Reporting

Subsequent to the monitoring, a report shall be made with conclusions with respect to:

- .1 whether the individuals assessed are capable of carrying out their authorized and assigned work (including particularly positive aspects);
- .2 any areas of improvement; and
- .3 any recommended training requirements.

A1.9.5 Evaluation

The monitoring report shall be evaluated by management who will determine the individual's continued authorization or possible training requirements to obtain further authorization. The report shall be completed and reviewed annually.

A1.9.6 Implementation

The RO shall:

- .1 document the activity monitoring methodology, including how it is reported;
- .2 document how the authorization to undertake activity monitoring is achieved;
- .3 document consequence and actions to undertake if activity-monitoring timing is exceeded;
- .4 maintain records to demonstrate that all relevant staff has been monitored in the prescribed period; and
- .5 maintain records to demonstrate level of technical performance and the effect of possible improvement activities across the organization through the analysis of activity monitoring.

A1.10 Training of support staff

Support staff shall have training and/or supervision commensurate with the tasks they are authorized to perform.

A1.11 Records

Records shall be maintained for each surveyor/plan approval staff member, indicating:

- .1 formal education background;
- .2 professional experience prior to joining the RO;
- .3 evidence of theoretical training completed;
- .4 evidence of practical training completed;
- .5 evidence of examinations and tests;
- .6 professional experience during employment at the RO; and
- .7 periodical updating of knowledge.

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Appendix 2

SPECIFICATIONS ON THE SURVEY AND CERTIFICATION FUNCTIONS OF RECOGNIZED ORGANIZATIONS ACTING ON BEHALF OF THE FLAG STATE

A2.1 SCOPE

A2.1.1 This document contains minimum specifications for organizations recognized as capable of performing statutory work on behalf of a flag State in terms of certification and survey functions connected with the issuance of international certificates.

A2.1.2 The principle of the system described below is to divide the specifications required into different elementary modules with a view to selecting the relevant modules for each function of certification and survey.

A2.2 AREAS OF INTEREST COVERED BY ELEMENTARY MODULES

- .1 Management
- .2 Technical appraisal
- .3 Surveys
- .4 Qualifications and training.

A2.2.1 Management

Module 1A: Management functions

The management of the RO shall have the competence, capability and capacity to organize, manage and control the performance of survey and certification functions in order to verify compliance with requirements relevant to the tasks delegated and shall, inter alia:

- .1 possess an adequate number of competent supervisory, technical appraisal and survey personnel;
- .2 provide for the development and maintenance of appropriate procedures and instructions;
- .3 provide for the maintenance of up-to-date documentation on interpretation of the relevant instruments;
- .4 give technical and administrative support to field staff; and
- .5 provide for the review of survey reports and provision of experience feedback.

A2.2.2 Technical appraisal

Module 2A: Hull structure

The RO shall have the appropriate competence, capability and capacity to perform the following technical evaluations and/or calculations pertaining to:

- .1 longitudinal strength;
- .2 local scantlings such as plates and stiffeners;
- .3 structural stress, fatigue and buckling analyses; and
- .4 materials, welding and other pertinent methods of material-joining, for compliance with relevant rules and convention requirements pertaining to design, construction and safety.

Module 2B: Machinery systems

The RO shall have the appropriate competence, capability and capacity to perform technical evaluations and/or calculations pertaining to:

- .1 propulsion, auxiliary machinery and steering gear;
- .2 piping; and
- .3 electrical and automation systems,

for compliance with relevant rules and convention requirements pertaining to design, construction and safety.

Module 2C: Subdivision and stability

The RO shall have the appropriate competence, capability and capacity to perform technical evaluations and/or calculations pertaining to:

- .1 intact and damage stability;
- .2 inclining test assessment;
- .3 grain loading stability; and
- .4 watertight and weathertight integrity.

Module 2D: Load line

The RO shall have the appropriate competence, capability and capacity to perform the following technical evaluations and/or calculations pertaining to:

- .1 freeboard calculation; and
- .2 conditions of assignment of freeboard.

Module 2E: Tonnage

The RO shall have the appropriate competence, capability and capacity to perform technical evaluations and/or calculations pertaining to tonnage computation.

Module 2F: Structural fire protection

The RO shall have the appropriate competence, capability, and capacity to perform technical evaluations and/or calculations pertaining to:

- .1 structural fire protection and fire isolation;
- .2 use of combustible materials;
- .3 means of escape; and
- .4 ventilation systems.

Module 2G: Safety equipment

The RO shall have the appropriate competence, capability and capacity to perform technical evaluations and/or calculations pertaining to:

- .1 life-saving appliances and arrangements;
- .2 navigation equipment;
- .3 fire detection and fire alarm systems and equipment;
- .4 fire-extinguishing system and equipment;
- .5 fire control plans;
- .6 pilot ladders and pilot hoists;
- .7 lights, shapes and sound signals; and
- .8 inert gas systems.

Module 2H: Oil pollution prevention

The RO shall have the appropriate competence, capability and capacity to perform technical evaluations and/or calculations pertaining to:

- .1 monitoring and control of oil discharge;
- .2 segregation of oil and ballast water;
- .3 crude oil washing;
- .4 protective location of segregated ballast spaces;
- .5 pumping, piping and discharge arrangements; and
- .6 shipboard oil pollution emergency plans (SOPEPs).

Module 2I: NLS pollution prevention

The RO shall have the appropriate competence, capability and capacity to perform technical evaluations and/or calculations pertaining to:

- .1 list of substances the ship may carry;
- .2 pumping system;
- .3 stripping system;
- .4 tank-washing system and equipment; and
- .5 underwater discharge arrangements.

Module 2J: Radio

The RO shall have the appropriate competence, capability and capacity to perform technical evaluations pertaining to:

- .1 radiotelephony;
- .2 radiotelegraphy; and
- .3 GMDSS.

Alternatively, a professional radio installation inspection service company approved and monitored by the RO according to an established and documented programme may perform these services. This programme is to include the definition of the specific requirements the company and its radio technicians shall satisfy.

Module 2K: Carriage of dangerous chemicals in bulk

The RO shall have the appropriate competence, capability and capacity to perform technical evaluations and/or calculations pertaining to:

- .1 ship arrangement and ship survival capacity;
- .2 cargo containment and material of construction;
- .3 cargo temperature control and cargo transfer;
- .4 cargo tank vent systems and environmental control;
- .5 personnel protection; operational requirements; and
- .6 list of chemicals the ship may carry.

Module 2L: Carriage of liquefied gases in bulk

The RO shall have the appropriate competence, capability and capacity to perform technical evaluations and/or calculations pertaining to:

- .1 ship arrangement and ship survival capacity;
- .2 cargo containment and material of construction;
- .3 process pressure vessels and liquid, vapour and pressure piping systems;
- .4 cargo tank vent systems and environmental control;
- .5 personnel protection;
- .6 use of cargo as fuel; and
- .7 operational requirements.

A2.2.3 Surveys

Module 3A: Survey functions

The RO shall have the appropriate competence, capability and capacity to perform the required surveys under controlled conditions as per the RO's internal quality management system and, representing an adequate geographical coverage and local representation as required. The work to be covered by the staff is described in the relevant sections of the appropriate survey guidelines developed by the Organization.

A2.2.4 Qualifications and training

Module 4A: General qualifications

RO personnel performing, and responsible for, statutory work shall meet, as a minimum, the requirements defined in part 2, section 4.2.5.

Module 4B: Radio survey qualifications

A professional radio installation inspection service company, approved and monitored by the RO according to an established and documented programme, may do surveys. This programme is to include the definition of the specific requirements the company and its radio technicians shall satisfy, including, inter alia, requirements for internal tutored training covering at least:

- .1 radiotelephony;
- .2 radiotelegraphy;
- .3 GMDSS; and
- .4 initial and renewal surveys.

Radio technicians carrying out surveys shall have successfully completed, as a minimum, at least one year of relevant technical school training, the internal tutored training programme of his/her employer and at least one year of experience as an assistant radio technician. For exclusive radio surveyors to the RO, equivalent requirements as above apply.

A2.3 SPECIFICATIONS PERTAINING TO THE VARIOUS CERTIFICATES

A2.3.1 Passenger ship safety certificate

Initial certification, renewal survey

A2.3.1.1 Module Nos. 1A, 2A, 2B, 2C, 2D, 2F, 2G, 2J, 3A, 4A and 4B apply.

A2.3.1.2 For this certification, the system shall cover practical tutored training on the following issues as appropriate for Technical Appraisal and Support staff (TS) and Field Surveyors (FS), respectively:

- .1 TS: SOLAS 74, as amended.
- .2 FS: SOLAS 74, as amended:
 - .1 initial survey, report, and issuance of certificate; and
 - .2 renewal survey, report- and issuance of certificate.

A2.3.2 Cargo ship safety construction certificate

Initial certification, annual/intermediate, renewal surveys

A2.3.2.1 Module Nos. 1A, 2A, 2B, 2C, 2F, 3A and 4A apply.

A2.3.2.2 For this certification the system shall cover practical tutored training on the following issues as appropriate for Technical Appraisal and Support staff (TS) and Field Surveyors (FS), respectively:

- .1 TS: SOLAS 74 chapters II-1, II-2 and XII with any amendments and appropriate classification rules.
- .2 FS: Pertinent technical surveys (class surveys or similar), newbuilding:
 - .1 hull structure and equipment; and
 - .2 machinery and systems installation and testing.
- .3 FS: Pertinent technical surveys (class surveys or similar), ships in operation:
 - .1 annual/intermediate survey;
 - .2 renewal survey; and
 - .3 bottom survey.
- .4 FS: SOLAS 74 chapters II-1, II-2 and XII, as amended:
 - .1 initial survey, report, issuance of certificate;
 - .2 annual/intermediate survey and report; and
 - .3 renewal survey, report and issuance of certificate.

A2.3.3 Cargo ship safety equipment certificate

Initial certification, annual, periodical, renewal surveys

A2.3.3.1 Module Nos. 1A, 2G, 3A and 4A apply.

A2.3.3.2 For this certification the system shall cover practical tutored training on the following issues as appropriate for Technical Appraisal and Support staff (TS) and Field Surveyors (FS), respectively:

- .1 TS: SOLAS 74 chapters II-1, II-2, III and V, as amended, and applicable aspects of COLREG 72, as amended.
- .2 FS: SOLAS 74 chapters II-1, II-2, III and V, as amended, and applicable aspects of COLREG 72, as amended:
 - .1 initial survey, report and issuance of certificate;
 - .2 annual/periodical survey and report; and
 - .3 renewal survey, report and issuance of certificate.

A2.3.4 Cargo ship safety radio certificate

Initial certification, periodical, renewal surveys

A2.3.4.1 Module Nos. 1A, 2J, 3A and 4B apply.

A2.3.4.2 For this certification the system shall cover practical tutored training on the following issues for Technical Appraisal and Support staff (TS) and Field Surveyors (FS) respectively:

- .1 TS: SOLAS 74 chapter IV, as amended.
- .2 FS: Reference Module 4B.

A2.3.5 International Safety Management Code certification

Initial certification, annual/intermediate verifications, renewal certification

A2.3.5.1 All of the modules, with the exception of 2E (tonnage), apply to the extent that they relate to an RO's ability to identify and evaluate the mandatory rules and regulations with which a company's safety management system and ships shall comply.

A2.3.5.2 For this certification, the system shall comply with the qualification and training requirements for ISM Code assessors contained in the *Guidelines on Implementation of the International Safety Management (ISM) Code by Administrations*.

A2.3.6 International load line certificate

Initial certification, annual, renewal surveys

A2.3.6.1 Module Nos. 1A, 2A, 2C, 2D, 3A and 4A apply.

A2.3.6.2 For this certification, the system shall cover practical tutored training on the following issues as appropriate for Technical Appraisal and Support staff (TS) and Field Surveyors (FS), respectively:

- .1 TS: Calculation of freeboard and approval of drawings for conditions of assignment according to ILLC 1966.
- .2 FS: Pertinent technical surveys (class surveys or similar), newbuilding:
 - .1 hull structural survey;
 - .2 hull penetrations and closing appliances; and
 - .3 stability/inclining test.
- .3 FS: Pertinent technical surveys (class surveys or similar), ships in operation:
 - .1 annual survey;
 - .2 renewal survey; and
 - .3 bottom survey.
- .4 FS: Measurement for load line/initial survey report.
- .5 FS: Conditions for assignment/initial survey report.
- .6 FS: Load line marking verification/initial survey report.
- .7 FS: Load line annual survey.
- .8 FS: Load line renewal survey, report and issuance of certificate.

A2.3.7 International oil pollution prevention certificate

Initial certification, annual, intermediate, renewal surveys

A2.3.7.1 Module Nos. 1A, 2A, 2B, 2C, 2H, 3A and 4A apply.

A2.3.7.2 For this certification, the system shall cover practical tutored training on the following issues as appropriate for Technical Appraisal and Support staff (TS) and Field Surveyors (FS), respectively:

- .1 TS: Approval of drawings and manuals according to MARPOL, Annex I.
- .2 FS: MARPOL, Annex I, as amended:
 - .1 initial survey, report and issuance of certificate;
 - .2 annual/intermediate survey and report; and
 - .3 renewal survey, report and issuance of certificate.

A2.3.8 International pollution prevention certificate for the carriage of noxious liquid substances in bulk

Initial certification, annual, intermediate, renewal surveys

A2.3.8.1 Module Nos. 1A, 2A, 2B, 2C, 2I, 3A and 4A apply.

A2.3.8.2 For this certification the system shall cover practical tutored training on the following issues as appropriate for Technical Appraisal and Support staff (TS) and Field Surveyors (FS), respectively:

- .1 TS: Approval of drawings and manuals according to MARPOL, Annex II and appropriate codes.
- .2 FS: MARPOL, Annex II and appropriate codes:
 - .1 initial survey, report and issuance of certificate;
 - .2 annual/intermediate survey and report; and
 - .3 renewal survey, report and issuance of certificate.

A2.3.9 International certificate of fitness for the carriage of dangerous chemicals in bulk

Initial certification, annual, intermediate, renewal surveys

A2.3.9.1 Module Nos. 1A, 2A, 2B, 2C, 2K, 3A and 4A apply.

A2.3.9.2 For this certification the system shall cover practical tutored training on the following issues as appropriate for Technical Appraisal and Support staff (TS) and Field Surveyors (FS), respectively:

- .1 TS: Approval of drawings and manuals according to International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code).
- .2 FS: IBC Code:
 - .1 initial survey, report and issuance of certificate;
 - .2 annual/intermediate survey and report; and
 - .3 renewal survey, report and issuance of certificate.

A2.3.10 International certificate of fitness for the carriage of liquefied gases in bulk

Initial certification, annual, intermediate, renewal surveys

A2.3.10.1 Module Nos. 1A, 2A, 2B, 2C, 2L, 3A and 4A apply.

A2.3.10.2 For this certification the system shall cover practical tutored training on the following issues as appropriate for Technical Appraisal and Support staff (TS) and Field Surveyors (FS), respectively:

- .1 TS: Approval of drawings and manuals according to International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (IGC Code).
- .2 FS: IGC Code:
 - .1 initial survey, report and issuance of certificate;
 - .2 annual/intermediate survey and report; and
 - .3 renewal survey, report and issuance of certificate.

A2.3.11 International tonnage certificate (1969)

Initial certification

A2.3.11.1 Module Nos. 1A, 2E and 4A apply.

A2.3.11.2 For this certification the system shall cover practical tutored training on the following issues as appropriate for Technical Appraisal and Support staff (TS) and Field Surveyors (FS), respectively:

- .1 TS: Measurement and computation of tonnage according to:
 - .1 1969 Tonnage Measurement Convention; and
 - .2 Pertinent IMO resolutions.
- .2 FS: Marking survey and report.

* * *

Appendix 3

ELEMENTS TO BE INCLUDED IN AN AGREEMENT

A formal written agreement or equivalent between the flag State and the RO should, as a minimum, cover the following items:

- 1 Application
- 2 Purpose
- 3 General conditions
- 4 The execution of functions under authorization:
 - .1 Functions in accordance with the general authorization
 - .2 Functions in accordance with special (additional) authorization
 - .3 Relationship between the organization's statutory and other related activities
 - .4 Functions to cooperate with port States to facilitate the rectification of reported port State control deficiencies or the discrepancies within the organization's purview
- 5 Legal basis of the functions under authorization:
 - .1 Acts, regulations and supplementary provisions
 - .2 Interpretations
 - .3 Deviations and equivalent solutions
- 6 Reporting to the flag State:
 - .1 Procedures for reporting in the case of general authorization
 - .2 Procedures for reporting in the case of special authorization
 - .3 Reporting on classification of ships (assignment of class, alterations and cancellations), as applicable
 - .4 Reporting of cases where a ship did not in all respects remain fit to proceed to sea without danger to the ship or persons on board or presenting unreasonable threat of harm to the environment
 - .5 Other reporting

- 7 Development of rules and/or regulations – Information:
 - .1 Cooperation in connection with development of rules and/or regulations – liaison meetings
 - .2 Exchange of rules and/or regulations and information
 - .3 Language and form
- 8 Other conditions:
 - .1 Remuneration
 - .2 Rules for administrative proceedings
 - .3 Confidentiality
 - .4 Liability³
 - .5 Financial responsibility
 - .6 Entry into force
 - .7 Termination
 - .8 Breach of agreement
 - .9 Settlement of disputes
 - .10 Use of subcontractors
 - .11 Issue of the agreement
 - .12 Amendments
- 9 Specification of the authorization from the flag State to the organization:
 - .1 Ship types and sizes
 - .2 Conventions and other instruments, including relevant national legislation
 - .3 Approval of drawings
 - .4 Approval of material and equipment
 - .5 Surveys

³ ROs and its employees who are involved in or responsible for delivery of statutory certification and services may be required by the law of the flag State to be covered by professional indemnity or professional liability insurance in the event that liability is finally and definitively imposed on the flag State for loss or damage which is proved in a court of law to have been caused by any negligent act or omission by its RO. In this connection, the flag State may also consider placing a limitation on the level of liability and indemnification to be covered under that insurance or other compensation arrangements.

- .6 Issuance of certificates
 - .7 Corrective actions
 - .8 Withdrawal of certificates
 - .9 Reporting
- 10 The flag State's supervision of duties delegated to the organization:
- .1 Documentation of quality assurance system
 - .2 Access to internal instructions, circulars and guidelines
 - .3 Access by the flag State to the organization's documentation relevant to the flag State's fleet
 - .4 Cooperation with the flag State's inspection and verification work
 - .5 Provision of information and statistics on, e.g. damage and casualties relevant to the flag State's fleet.

ANNEX 2

**RESOLUTION MSC.350(92)
(Adopted on 21 June 2013)**

**AMENDMENTS TO THE INTERNATIONAL CONVENTION
FOR THE SAFETY OF LIFE AT SEA, 1974, AS AMENDED**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO article VIII(b) of the International Convention for the Safety of Life at Sea (SOLAS), 1974 (hereinafter referred to as "the Convention"), concerning the amendment procedure applicable to the annex to the Convention, other than to the provisions of chapter I thereof,

HAVING CONSIDERED, at its ninety-second session, amendments to the Convention, proposed and circulated in accordance with article VIII(b)(i) thereof,

1. ADOPTS, in accordance with article VIII(b)(iv) of the Convention, amendments to the Convention, the text of which is set out in the annex to the present resolution;
2. DETERMINES, in accordance with article VIII(b)(vi)(2)(bb) of the Convention, that the said amendments shall be deemed to have been accepted on 1 July 2014, unless, prior to that date, more than one third of the Contracting Governments to the Convention or Contracting Governments the combined merchant fleets of which constitute not less than 50 per cent of the gross tonnage of the world's merchant fleet, have notified their objections to the amendments;
3. INVITES SOLAS Contracting Governments to note that, in accordance with article VIII(b)(vii)(2) of the Convention, the amendments shall enter into force on 1 January 2015 upon their acceptance in accordance with paragraph 2 above;
4. REQUESTS the Secretary-General, in conformity with article VIII(b)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the annex to all Contracting Governments to the Convention;
5. ALSO REQUESTS the Secretary-General to transmit copies of this resolution and its annex to Members of the Organization which are not Contracting Governments to the Convention.

* * *

ANNEX

**AMENDMENTS TO THE INTERNATIONAL CONVENTION FOR
THE SAFETY OF LIFE AT SEA, 1974, AS AMENDED**

**CHAPTER III
LIFE-SAVING APPLIANCES AND ARRANGEMENTS**

**Part B
Requirements for ships and life-saving appliances**

Regulation 19 – Emergency training and drills

- 1 The existing text of paragraphs 2.2 and 2.3 is replaced with the following:

"2.2 On a ship engaged on a voyage where passengers are scheduled to be on board for more than 24 h, musters of newly-embarked passengers shall take place prior to or immediately upon departure. Passengers shall be instructed in the use of the lifejackets and the action to take in an emergency.

2.3 Whenever new passengers embark, a passenger safety briefing shall be given immediately before departure, or immediately after departure. The briefing shall include the instructions required by regulations 8.2 and 8.4, and shall be made by means of an announcement, in one or more languages likely to be understood by the passengers. The announcement shall be made on the ship's public address system, or by other equivalent means likely to be heard at least by the passengers who have not yet heard it during the voyage. The briefing may be included in the muster required by paragraph 2.2. Information cards or posters or video programmes displayed on ships video displays may be used to supplement the briefing, but may not be used to replace the announcement."

- 2 After existing paragraph 3.2, a new paragraph 3.3 is inserted as follows:

"3.3 Crew members with enclosed space entry or rescue responsibilities shall participate in an enclosed space entry and rescue drill to be held on board the ship at least once every two months."

- 3 Existing sections 3.3 and 3.4 are renumbered as 3.4 and 3.5, respectively. In the renumbered paragraph 3.4.2, the reference "paragraph 3.3.1.5" is replaced by the reference "paragraph 3.4.1.5"; and in the renumbered paragraph 3.4.3, the reference "paragraphs 3.3.4 and 3.3.5" is replaced by the reference "paragraphs 3.4.4 and 3.4.5"

- 4 After the renumbered section 3.5, the following new section is added:

"3.6 Enclosed space entry and rescue drills

3.6.1 Enclosed space entry and rescue drills should be planned and conducted in a safe manner, taking into account, as appropriate, the guidance provided in the recommendations developed by the Organization*.

* Refer to the *Revised Recommendations for entering enclosed spaces aboard ships*, adopted by the Organization by resolution A.1050(27).

3.6.2 Each enclosed space entry and rescue drill shall include:

- .1 checking and use of personal protective equipment required for entry;
- .2 checking and use of communication equipment and procedures;
- .3 checking and use of instruments for measuring the atmosphere in enclosed spaces;
- .4 checking and use of rescue equipment and procedures; and
- .5 instructions in first aid and resuscitation techniques."

5 In paragraph 4.2, at the end of subparagraph .3, the word "and" is deleted; at the end of subparagraph .4, the period "." is replaced by the word "; and"; and after subparagraph .4, the following new subparagraph is added:

- "5 risks associated with enclosed spaces and onboard procedures for safe entry into such spaces which should take into account, as appropriate, the guidance provided in recommendations developed by the Organization*.

* Refer to the *Revised Recommendations for entering enclosed spaces aboard ships*, adopted by the Organization by resolution A.1050(27)."

6 In paragraph 5, after the words "fire drills,", the words "enclosed space entry and rescue drills," are inserted.

CHAPTER V SAFETY OF NAVIGATION

Regulation 19 – Carriage requirements for shipborne navigational systems and equipment

7 In subparagraph 1.2.1, the words "1.2.2 and 1.2.3" are replaced with the words "1.2.2, 1.2.3 and 1.2.4".

8 In subparagraph 1.2.2, the word "and" at the end of the subparagraph is deleted and in subparagraph 1.2.3, the full stop "." is replaced with the word "; and".

9 After the existing subparagraph 1.2.3, the following new subparagraph is added:

- "4 be fitted with the system required in paragraph 2.2.3, as follows:
- .1 passenger ships irrespective of size, not later than the first survey* after 1 January 2016;
 - .2 cargo ships of 3,000 gross tonnage and upwards, not later than the first survey* after 1 January 2016;
 - .3 cargo ships of 500 gross tonnage and upwards but less than 3,000 gross tonnage, not later than the first survey* after 1 January 2017; and

- .4 cargo ships of 150 gross tonnage and upwards but less than 500 gross tonnage, not later than the first survey^{*} after 1 January 2018.

The bridge navigational watch alarm system shall be in operation whenever the ship is underway at sea.

The provisions of paragraph 2.2.4 shall also apply to ships constructed before 1 July 2002.

* Refer to the Unified interpretation of the term first survey referred to in SOLAS regulations (MSC.1/Circ.1290)."

- 10 After the new subparagraph 1.2.4, the following new paragraph is added:

"1.3 Administrations may exempt ships from the application of the requirement of paragraph 1.2.4 when such ships will be taken permanently out of service within two years after the implementation date specified in subparagraphs 1.2.4.1 to 1.2.4.4."

CHAPTER XI-1 SPECIAL MEASURES TO ENHANCE MARITIME SAFETY

Regulation 1 – Authorization of recognized organizations

- 11 The existing text of regulation 1 is replaced with the following:

"The Administration shall authorize organizations, referred to in regulation I/6, including classification societies, in accordance with the provisions of the present Convention and with the Code for Recognized Organizations (RO Code), consisting of part 1 and part 2 (the provisions of which shall be treated as mandatory) and part 3 (the provisions of which shall be treated as recommendatory), as adopted by the Organization by resolution MSC.349(92), as may be amended by the Organization, provided that:

- (a) amendments to part 1 and part 2 of the RO Code are adopted, brought into force and take effect in accordance with the provisions of article VIII of the present Convention;
- (b) amendments to part 3 of the RO Code are adopted by the Maritime Safety Committee in accordance with its Rules of Procedure; and
- (c) any amendments adopted by the Maritime Safety Committee and the Marine Environment Protection Committee are identical and come into force or take effect at the same time, as appropriate."

ANNEX 3

**RESOLUTION MSC.351(92)
(Adopted on 21 June 2013)**

**AMENDMENTS TO THE INTERNATIONAL CODE OF SAFETY
FOR HIGH-SPEED CRAFT, 1994 (1994 HSC CODE)**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

NOTING resolution MSC.36(63), by which it adopted the *International Code of Safety for High-Speed Craft* (hereinafter referred to as "the 1994 HSC Code"), which has become mandatory under chapter X of the International Convention for the Safety of Life at Sea (SOLAS), 1974 (hereinafter referred to as "the Convention"),

NOTING ALSO article VIII(b) and regulation X/1.1 of the Convention concerning the procedure for amending the 1994 HSC Code,

HAVING CONSIDERED, at its ninety-second session, amendments to the 1994 HSC Code proposed and circulated in accordance with article VIII(b)(i) of the Convention,

1. ADOPTS, in accordance with article VIII(b)(iv) of the Convention, amendments to the International Code of Safety for High-Speed Craft (1994 HSC Code), the text of which is set out in the annex to the present resolution;
2. DETERMINES, in accordance with article VIII(b)(vi)(2)(bb) of the Convention, that the amendments shall be deemed to have been accepted on 1 July 2014 unless, prior to that date, more than one third of the Contracting Governments to the Convention or Contracting Governments the combined merchant fleets of which constitute not less than 50 per cent of the gross tonnage of the world's merchant fleet, have notified their objections to the amendments;
3. INVITES Contracting Governments to note that, in accordance with article VIII(b)(vii)(2) of the Convention, the amendments shall enter into force on 1 January 2015 upon their acceptance in accordance with paragraph 2 above;
4. REQUESTS the Secretary-General, in conformity with article VIII(b)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the annex to all Contracting Governments to the Convention;
5. ALSO REQUESTS the Secretary-General to transmit copies of this resolution and its annex to Members of the Organization, which are not Contracting Governments to the Convention.

* * *

ANNEX

**AMENDMENTS TO THE THE INTERNATIONAL CODE OF SAFETY
FOR HIGH-SPEED CRAFT, 1994 (1994 HSC CODE)**

**CHAPTER 18
OPERATIONAL REQUIREMENTS**

- 1 After existing paragraph 18.5.3, a new paragraph is inserted as follows:
"18.5.4 Crew members with enclosed space entry or rescue responsibilities should participate in an enclosed space entry and rescue drill, to be held on board the craft, at least once every two months."
- 2 The existing paragraphs 18.5.4 to 18.5.10 are renumbered as 18.5.5 to 18.5.11, respectively.
- 3 The first sentence of the renumbered paragraph 18.5.8 is amended to read:
"18.5.8 Records
The date when musters are held, details of abandon craft drills and fire drills, drills of other life-saving appliances, enclosed space entry and rescue drills, and onboard training should be recorded in such logbook as may be prescribed by the Administration."
- 4 After renumbered paragraph 18.5.11, a new subsection is inserted as follows:
"18.5.12 Enclosed space entry and rescue drills
18.5.12.1 Enclosed space entry and rescue drills should be planned and conducted in a safe manner, taking into account, as appropriate, the guidance provided in the recommendations developed by the Organization*."

* Refer to the *Revised Recommendations for entering enclosed spaces aboard ships*, adopted by the Organization by resolution A.1050(27).

18.5.12.2 Each enclosed space entry and rescue drill should include:

 - .1 checking and use of personal protective equipment required for entry;
 - .2 checking and use of communication equipment and procedures;
 - .3 checking and use of instruments for measuring the atmosphere in enclosed spaces;
 - .4 checking and use of rescue equipment and procedures; and
 - .5 instructions in first aid and resuscitation techniques.

18.5.12.3 The risks associated with enclosed spaces and onboard procedures for safe entry into such spaces which should take into account, as appropriate, the guidance provided in recommendations developed by the Organization*."

* Refer to the *Revised Recommendations for entering enclosed spaces aboard ships*, adopted by the Organization by resolution A.1050(27)."

ANNEX 4

**RESOLUTION MSC.352(92)
(adopted on 21 June 2013)**

**AMENDMENTS TO THE INTERNATIONAL CODE OF SAFETY
FOR HIGH-SPEED CRAFT, 2000 (2000 HSC CODE)**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

NOTING resolution MSC.97(73), by which it adopted the *International Code of Safety for High-Speed Craft, 2000* (hereinafter referred to as "the 2000 HSC Code"), which has become mandatory under chapter X of the International Convention for the Safety of Life at Sea (SOLAS), 1974 (hereinafter referred to as "the Convention"),

NOTING ALSO article VIII(b) and regulation X/1.2 of the Convention concerning the procedure for amending the 2000 HSC Code,

HAVING CONSIDERED, at its ninety-second session, amendments to the 2000 HSC Code proposed and circulated in accordance with article VIII(b)(i) of the Convention,

1. ADOPTS, in accordance with article VIII(b)(iv) of the Convention, amendments to the 2000 HSC Code, the text of which is set out in the annex to the present resolution;
2. DETERMINES, in accordance with article VIII(b)(vi)(2)(bb) of the Convention, that the amendments shall be deemed to have been accepted on 1 July 2014 unless, prior to that date, more than one third of the Contracting Governments to the Convention or Contracting Governments the combined merchant fleets of which constitute not less than 50 per cent of the gross tonnage of the world's merchant fleet, have notified their objections to the amendments;
3. INVITES Contracting Governments to the Convention to note that, in accordance with article VIII(b)(vii)(2) of the Convention, the amendments shall enter into force on 1 January 2015 upon their acceptance in accordance with paragraph 2 above;
4. REQUESTS the Secretary-General, in conformity with article VIII(b)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the annex to all Contracting Governments to the Convention;
5. ALSO REQUESTS the Secretary-General to transmit copies of this resolution and its annex to Members of the Organization, which are not Contracting Governments to the Convention.

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ANNEX

**AMENDMENTS TO THE INTERNATIONAL CODE OF SAFETY
FOR HIGH-SPEED CRAFT, 2000 (2000 HSC CODE)**

**CHAPTER 18
OPERATIONAL REQUIREMENTS**

- 1 After existing paragraph 18.5.3, a new paragraph is inserted as follows:

"18.5.4 Crew members with enclosed space entry or rescue responsibilities shall participate in an enclosed space entry and rescue drill, to be held on board the craft, at least once every two months."
- 2 The existing paragraphs 18.5.4 to 18.5.10 are renumbered as 18.5.5 to 18.5.11, respectively.
- 3 The first sentence of the renumbered paragraph 18.5.8.1 is amended to read:

"18.5.8.1 The date when musters are held, details of abandon craft drills and fire drills, drills of other life-saving appliances, enclosed space entry and rescue drills, and onboard training shall be recorded in such log-book as may be prescribed by the Administration."
- 4 After renumbered paragraph 18.5.11, a new subsection is inserted as follows:

"18.5.12 Enclosed space entry and rescue drills

18.5.12.1 Enclosed space entry and rescue drills should be planned and conducted in a safe manner, taking into account, as appropriate, the guidance provided in the recommendations developed by the Organization*."

* Refer to the *Revised Recommendations for entering enclosed spaces aboard ships*, adopted by the Organization by resolution A.1050(27).

18.5.12.2 Each enclosed space entry and rescue drill shall include:

- .1 checking and use of personal protective equipment required for entry;
- .2 checking and use of communication equipment and procedures;
- .3 checking and use of instruments for measuring the atmosphere in enclosed spaces;
- .4 checking and use of rescue equipment and procedures; and
- .5 instructions in first aid and resuscitation techniques.

18.5.12.3 The risks associated with enclosed spaces and onboard procedures for safe entry into such spaces which should take into account, as appropriate, the guidance provided in recommendations developed by the Organization*.

* Refer to the *Revised Recommendations for entering enclosed spaces aboard ships*, adopted by the Organization by resolution A.1050(27)."

ANNEX 5

**RESOLUTION MSC.353(92)
(Adopted on 21 June 2013)**

**AMENDMENTS TO THE INTERNATIONAL MANAGEMENT CODE FOR THE
SAFE OPERATION OF SHIPS AND FOR POLLUTION PREVENTION
(INTERNATIONAL SAFETY MANAGEMENT (ISM) CODE)**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

NOTING resolution A.741(18), by which the Assembly adopted the *International Management Code for the Safe Operation of Ships and for Pollution Prevention (International Safety Management (ISM) Code)* (hereinafter referred to as "the ISM Code"), which has become mandatory under chapter IX of the International Convention for the Safety of Life at Sea (SOLAS), 1974 (hereinafter referred to as "the Convention"),

NOTING ALSO article VIII(b) and regulation IX/1.1 of the Convention concerning the procedure for amending the ISM Code,

HAVING CONSIDERED, at its ninety-second session, amendments to the ISM Code proposed and circulated in accordance with article VIII(b)(i) of the Convention,

1. ADOPTS, in accordance with article VIII(b)(iv) of the Convention, amendments to the ISM Code, the text of which is set out in the annex to the present resolution;
2. DETERMINES, in accordance with article VIII(b)(vi)(2)(bb) of the Convention, that the amendments shall be deemed to have been accepted on 1 July 2014 unless, prior to that date, more than one third of the Contracting Governments to the Convention or Contracting Governments the combined merchant fleets of which constitute not less than 50 per cent of the gross tonnage of the world's merchant fleet, have notified their objections to the amendments;
3. INVITES Contracting Governments to note that, in accordance with article VIII(b)(vii)(2) of the Convention, the amendments shall enter into force on 1 January 2015 upon their acceptance in accordance with paragraph 2 above;
4. REQUESTS the Secretary-General, in conformity with article VIII(b)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the annex to all Contracting Governments to the Convention;
5. ALSO REQUESTS the Secretary-General to transmit copies of this resolution and its annex to Members of the Organization, which are not Contracting Governments to the Convention.

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ANNEX

**AMENDMENTS TO THE INTERNATIONAL MANAGEMENT CODE
FOR THE SAFE OPERATION OF SHIPS AND FOR POLLUTION PREVENTION
(INTERNATIONAL SAFETY MANAGEMENT (ISM) CODE)**

PART A – IMPLEMENTATION

6 RESOURCES AND PERSONNEL

1 The existing text of paragraph 6.2 is replaced with the following:

"6.2 The Company should ensure that each ship is:

- .1 manned with qualified, certificated and medically fit seafarers in accordance with national and international requirements; and
- .2 appropriately manned in order to encompass all aspects of maintaining safe operations on board*.

* Refer to the *Principles of minimum safe manning*, adopted by the Organization by resolution A.1047(27)."

12 COMPANY VERIFICATION, REVIEW AND EVALUATION

2 The following new paragraph 12.2 is inserted after existing paragraph 12.1 and the existing paragraphs 12.2 to 12.6 are renumbered as 12.3 to 12.7:

"12.2 The Company should periodically verify whether all those undertaking delegated ISM-related tasks are acting in conformity with the Company's responsibilities under the Code."

Footnotes and paragraph for foreword of the publication of the Code

1 In paragraph 1.1.10, the following footnote is added after the words "Major non-conformity":

"Refer to the *Procedures concerning observed ISM Code major non-conformities* (MSC/Circ.1059-MEPC/Circ.401)."

2 In paragraph 1.2.3.2, the following footnote is added after the word "account":

"Refer to the *List of codes, recommendations, guidelines and other safety and security-related non-mandatory instruments* (MSC.1/Circ.1371)."

3 The following footnote is added at the end of the title of section 3:

"Refer to the *Guidelines for the operational implementation of the International Safety Management (ISM) Code by Companies* (MSC-MEPC.7/Circ.5)."

4 The following footnote is added at the end of the title of section 4:

"Refer to the *Guidance on the qualifications, training and experience necessary for undertaking the role of the Designated Person under the provisions of the International Safety Management (ISM) Code* (MSC-MEPC.7/Circ.6)."

- 5 The following footnote is added at the end of the title of section 8:

"Refer to the *Guidelines for a structure of an integrated system of contingency planning for shipboard emergencies*, adopted by the Organization by resolution A.852(20), as amended."

- 6 The following footnote is added at the end of the title of section 9:

"Refer to the *Guidance on near-miss reporting* (MSC-MEPC.7/Circ.7)."

- 7 The following footnote is added at the end of the title of section 11:

"Refer to the *Revised list of certificates and documents required to be carried on board ships* (FAL.2/Circ.127, MEPC.1/Circ.817 and MSC.1/Circ.1462)."

- 8 The following new paragraph is added to the foreword of the publication of the Code:

"The footnotes given in this Code are inserted for reference and guidance purposes and do not constitute requirements under the Code. However, in accordance with paragraph 1.2.3.2, all relevant guidelines, recommendations, etc. should be taken into account. In all cases the reader must make use of the latest versions of the referenced texts of the document specified in a footnote, bearing in mind that such texts may have been revised or superseded by updated material."

ANNEX 6

**RESOLUTION MSC.354(92)
(Adopted on 21 June 2013)**

**AMENDMENTS TO THE INTERNATIONAL MARITIME
SOLID BULK CARGOES (IMSBC) CODE**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

NOTING resolution MSC.268(85) by which it adopted the *International Maritime Solid Bulk Cargoes Code* (hereinafter referred to as "the IMSBC Code"), which has become mandatory under chapters VI and VII of the International Convention for the Safety of Life at Sea (SOLAS), 1974 (hereinafter referred to as "the Convention"),

NOTING ALSO article VIII(b) and regulation VI/1-1.1 of the Convention concerning the amendment procedure for amending the IMSBC Code,

HAVING CONSIDERED, at its ninety-second session, amendments to the IMSBC Code, proposed and circulated in accordance with article VIII(b)(i) of the Convention,

1. ADOPTS, in accordance with article VIII(b)(iv) of the Convention, amendments to the IMSBC Code, the text of which is set out in the annex to the present resolution;
2. DETERMINES, in accordance with article VIII(b)(vi)(2)(bb) of the Convention, that the said amendments shall be deemed to have been accepted on 1 July 2014, unless, prior to that date, more than one third of the Contracting Governments to the Convention or Contracting Governments the combined merchant fleets of which constitute not less than 50 per cent of the gross tonnage of the world's merchant fleet, have notified their objections to the amendments;
3. INVITES Contracting Governments to the Convention to note that, in accordance with article VIII(b)(vii)(2) of the Convention, the amendments shall enter into force on 1 January 2015 upon their acceptance in accordance with paragraph 2 above;
4. AGREES that Contracting Governments to the Convention may apply the aforementioned amendments in whole or in part on a voluntary basis as from 1 January 2014;
5. REQUESTS the Secretary-General, in conformity with article VIII(b)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the annex to all Contracting Governments to the Convention;
6. ALSO REQUESTS the Secretary-General to transmit copies of this resolution and its annex to Members of the Organization which are not Contracting Governments to the Convention.

* * *

ANNEX

**AMENDMENTS TO THE INTERNATIONAL MARITIME
SOLID BULK CARGOES (IMSBC) CODE**

Section 1 – General provisions

1.3 Cargoes not listed in this Code

1.3.3 Format for the properties of cargoes not listed in this Code and conditions of the carriage

1 At the end of the title, insert a footnote "*" with the following:

"* Refer to MSC.1/Circ.1453 on *Guidelines for the submission of information and completion of the format for the properties of cargoes not listed in the International Maritime Solid Bulk Cargoes (IMSBC) Code and their conditions of carriage*, according to subsection 1.3.3 of the IMSBC Code."

1.4 Application and implementation of this Code

2 Replace the last sentence of paragraph 1.4.2 with the following:

"The texts in the sections for "Description", "Characteristics (other than CLASS and GROUP)", "Hazard" and "Emergency procedures" of individual schedules of solid bulk cargoes in appendix 1."

1.7 Definitions

3 Insert the following new definitions in alphabetical order:

"GHS means the fourth revised edition of the Globally Harmonized System of Classification and Labelling of Chemicals, published by the United Nations as document ST/SG/AC.10/30/Rev.4."

"Manual of Tests and Criteria means the fifth revised edition of the United Nations publication entitled "Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria" (ST/SG/AC.10/11/Rev.5/Amendment 1)"

"Potential sources of ignition means, but is not limited to, open fires, machinery exhausts, galley uptakes, electrical outlets and electrical equipment unless they are of certified safe type*."

* For cargo spaces, refer to SOLAS II-2/19.3.2."

"Sources of heat means heated ship structures, where the surface temperature is liable to exceed 55°C. Examples of such heated structures are steam pipes, heating coils, top or side walls of heated fuel and cargo tanks, and bulkheads of machinery spaces."

and all numerical references to definitions are deleted, keeping them in alphabetical order only.

- 4 Insert a new sentence at end of definition of *Competent authority* as follows:

"The competent authority shall operate independently from the shipper."

Section 3 – Safety of personnel and ship

3.6 Cargo under in-transit fumigation

- 5 The existing text under 3.6 is renumbered as 3.6.1.

- 6 Insert new paragraphs 3.6.2 and 3.6.3 as follows:

"3.6.2 When a fumigant is used, such as phosphine gas, for fumigation-in-transit, due consideration shall be given to the severe toxicity of fumigants, taking into account that fumigants may enter into occupied spaces despite many precautions taken. In particular, in the case that fumigant leaks from a cargo hold under fumigation, the possibility should be kept in mind that it may enter the engine-room via pipe tunnels, ducts, and piping of any kind, including wiring ducts on or below deck, or dehumidifier systems that may be connected to parts of the cargo hold or compartments of the engine-room. Attention shall be given to potential problem areas such as bilge and cargo line systems and valves*. In all cases, ventilation procedures on board the ship during the voyage, should be scrutinized with regard to the possibility of drawing in the fumigant gas such as by incorrect ventilation procedures and settings, vacuum creation due to incorrect closing devices or flap settings, air conditioning and closed loop ventilation of the accommodation. Prior to commencement of fumigation procedures, it should be verified that ventilation flaps and closing devices are set correctly and that means of closing and sealing of all the bulkhead openings (such as doors and manholes) leading from the engine-room to piping tunnels/duct keels and other spaces that in case of leaks could become unsafe to enter during the fumigation are effective, confirmed closed and have warning signs posted.*

* Refer to subsection 3.3.2.10 of MSC.1/Circ.1264 as amended by MSC.1/Circ.1396.

3.6.3 Gas concentration safety checks shall also be made at all appropriate locations, which shall at least include: accommodation; engine-rooms; areas designated for use in navigation of the ship; and frequently visited working areas and stores, such as the forecabin head spaces, adjacent to cargo holds being subject to fumigation in transit, shall be continued throughout the voyage at least at eight-hour intervals or more frequently if so advised by the fumigator-in-charge. Special attention shall also be paid to potential problem areas such as bilge and cargo line systems. These readings shall be recorded in the ship's logbook."

Section 4 – Assessment of acceptability of consignments for safe shipment

4.3 Certificates of test

- 7 Replace the first sentence of paragraph 4.3.2 with the following:

"When a concentrate or other cargo which may liquefy is carried, the shipper shall provide the ship's master or his representative with a signed certificate of the TML, and a signed certificate or declaration of the moisture content, each issued by an entity recognized by the Competent Authority of the port of loading."

- 8 Insert new paragraph 4.3.3 with the accompanying footnote as follows:

"4.3.3 When a concentrate or other cargo which may liquefy is carried, procedures for sampling, testing and controlling moisture content to ensure the moisture content is less than the TML when it is on board the ship shall be established by the shipper, taking account of the provisions of this Code. Such procedures shall be approved and their implementation checked by the competent authority of the port of loading*. The document issued by the competent authority stating that the procedures have been approved shall be provided to the master or his representative.

* Refer to MSC.1/Circ1454 on *Guidelines for developing and approving procedures for sampling, testing and controlling the moisture content for solid bulk cargoes which may liquefy*."

- 9 Insert new paragraph 4.3.4 as follows:

"4.3.4 If the cargo is loaded on to the ship from barges, in developing the procedures under 4.3.3 the shipper shall include procedures to protect the cargo on the barges from any precipitation and water ingress."

and renumber the existing paragraphs 4.3.3 and 4.3.4 as 4.3.5 and 4.3.6, respectively.

- 10 A new sentence is inserted to the end of the new paragraph 4.3.6 as follows:

"However, it is important to ensure that the samples taken are representative of the whole depth of the stockpile."

4.4 Sampling procedures

- 11 Insert new paragraph 4.4.3 as follows:

"4.4.3 For a concentrate or other cargo which may liquefy, the shipper shall facilitate access to stockpiles for the purpose of inspection, sampling and subsequent testing by the ship's nominated representative."

- 12 Renumber the existing paragraphs 4.4.3, 4.4.4, 4.4.5 and 4.4.6 as 4.4.4, 4.4.5, 4.4.6 and 4.4.7, respectively.

- 13 In the renumbered paragraph 4.4.6, replace the sentence "Samples shall be immediately placed in suitable sealed containers which are properly marked" with the sentence "Samples for moisture testing shall be immediately placed in suitable airtight, non-absorbent containers with a minimum of free air space to minimize any change in moisture content, such containers being properly marked".

- 14 Insert a new paragraph 4.4.8 as follows:

"4.4.8 For unprocessed mineral ores the sampling of stationary stockpiles shall be carried out only when access to the full depth of the stockpile is available and samples from the full depth of the stockpile can be extracted."

- 15 In subsection 4.7, the existing reference "ISO 3082:1998" is replaced with the following:
"ISO 3082:2009 – Iron ores – Sampling and sample preparation procedures.
(Note: Under this Standard the in situ sampling of ships and stockpiles is not permitted)."
- 16 A new reference in subsection 4.7 is inserted after "ISO 3082:2009" as follows:
"IS1405:2010 – Iron Ores – Sampling & Sample Preparation – Manual Method.
(Note: This Indian Standard covers the in situ sampling of stockpiles up to a height of 3 m)."

Section 7 – Cargoes that may liquefy

7.2 Conditions for hazards

- 17 The existing paragraph 7.2.2 is replaced with the following:
"7.2.2 Liquefaction does not occur when the cargo consists of large particles or lumps and water passes through the spaces between the particles and there is no increase in the water pressure."

Section 8 – Test procedures for cargoes that may liquefy

8.4 Complementary test procedure for determining the possibility of liquefaction

- 18 The existing paragraph under subsection 8.4 is numbered as 8.4.1.
- 19 Insert a new paragraph 8.4.2 as follows:
"8.4.2 If samples remain dry following a can test, the moisture content of the material may still exceed the Transportable Moisture Limit (TML)."

Section 9 – Materials possessing chemical hazards

9.2 Hazard classification

9.2.3 *Materials hazardous only in bulk (MHB)*

- 20 In paragraph 9.2.3, replace the existing text under the heading with the following:
"9.2.3.1 General
9.2.3.1.1 These are materials which possess chemical hazards when transported in bulk other than materials classified as packaged dangerous goods in the IMDG Code. These materials present a significant risk when carried in bulk and require special precautions.
9.2.3.1.2 A material shall be classified as MHB if the material possesses one or more of the chemical hazards as defined below. When a test method is prescribed, representative samples of the cargo to be carried shall be used for testing. Samples shall be taken 200 to 360 mm inward from the surface at 3 m intervals over the length of a stockpile.

9.2.3.1.3 A material may also be classified as MHB by analogy with similar cargoes with known hazardous properties or by records of accidents.

9.2.3.2 Combustible solids

9.2.3.2.1 These are materials which are readily combustible or easily ignitable when transported in bulk and do not meet the established criteria for inclusion in class 4.1 (see 9.2.2.1 of the IMSBC Code).

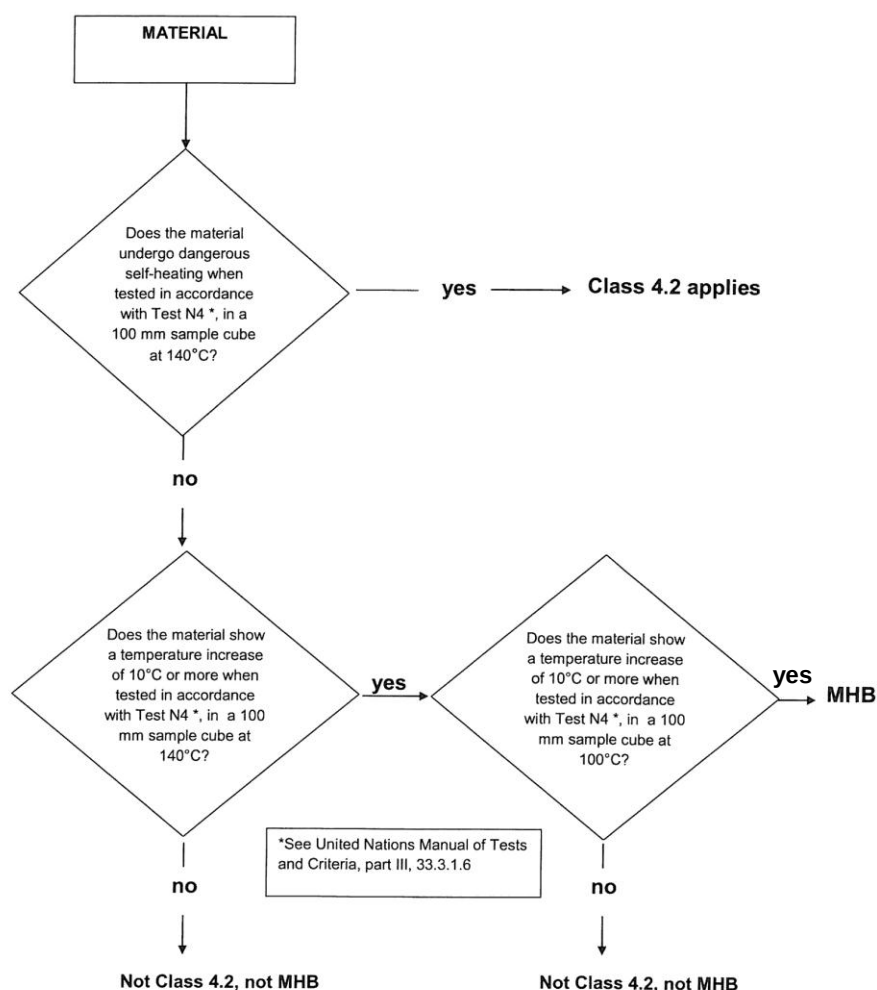
9.2.3.2.2 Powdered, granular or pasty materials shall be classified as MHB when the time of burning of one or more of the test runs, performed in accordance with the preliminary screening test method described in the United Nations Manual of Tests and Criteria, part III, 33.2.1.4.3.1, is less than 2 minutes. Powders of metals or metal alloys shall be classified as MHB when they can be ignited and the reaction spreads over the whole length of the sample in 20 minutes or less. The test sample in the preliminary screening test is 200 mm in length. A summary of this approach is presented in the table below:

Solid Cargo	Hazard Class 4.1, PG III Burn time, Burn distance	MHB Burn time, Burn distance
Powdered Metal	more than 5 minutes but not more than 10 minutes, 250 mm	≤20 minutes, 200 mm
Solid Material	<45 seconds, 100 mm	≤2 minutes, 200 mm

9.2.3.3 Self-heating solids

9.2.3.3.1 These are materials that self-heat when transported in bulk and do not meet the established criteria for inclusion in class 4.2 (see 9.2.2.2).

9.2.3.3.2 A material shall be classified as MHB if, in the tests performed in accordance with the test method given in the United Nations Manual of Tests and Criteria, part III, 33.3.1.6, the temperature of the test sample rises by more than 10°C when using a 100 mm cube sample at 140°C and at 100°C. The flow chart below illustrates the test procedure.



9.2.3.3.3 In addition, a material shall be classified as MHB if a temperature rise of 10°C or more over ambient temperature is observed during any portion of the test performed in accordance with the test method described in United Nations Manual of Tests and Criteria, part III, 33.4.1.4.3.5. When performing this test, the temperature of the sample should be measured continuously over 48 hours. If, at the end of the 48-hour period the temperature is increasing, the test period shall be extended in accordance with the test method.

9.2.3.4 Solids that evolve into flammable gas when wet

9.2.3.4.1 These are materials that emit flammable gases when in contact with water when transported in bulk and do not meet established criteria for inclusion in class 4.3 (see 9.2.2.3).

9.2.3.4.2 A material shall be classified as MHB if, in tests performed in accordance with the test method given in the United Nations Manual of Tests and Criteria, part III, 33.4.1, the flammable gas evolution rate is greater than zero. When performing this test, the rate of evolution of gas shall be calculated over 48 hours at one-hour intervals. If at the end of the 48-hour period the rate of evolution is increasing, the test period shall be extended in accordance with the test method.

9.2.3.5 Solids that evolve toxic gas when wet

9.2.3.5.1 These are materials that emit toxic gases when in contact with water when transported in bulk.

9.2.3.5.2 A material shall be classified as MHB if, in tests performed in accordance with the test method given in the United Nations Manual of Tests and Criteria, part III, 33.4.1, the toxic gas evolution rate is greater than zero. Toxic gas evolution shall be measured using the same test procedure for flammable gas evolution as prescribed in the test method. When performing this test, the rate of evolution of gas shall be calculated over 48 hours at 1-hour intervals. If at the end of the 48-hour period the rate of evolution is increasing, the test period shall be extended in accordance with the test method.

9.2.3.5.3 The gas shall be collected over the test period prescribed above. The gas shall be chemically analysed and tested for toxicity if the gas is unknown and no acute inhalation toxicity data is available. If the gas is known, inhalation toxicity shall be assessed based on all information available, using testing as a last resort option for concluding this hazard. Toxic gases in this respect are gases showing acute inhalation toxicity (LC₅₀) of or below 20,000 ppmV or 20 mg/l by 4 hours' testing (GHS Acute Toxicity Gases/Vapours Category 4).

9.2.3.6 Toxic solids

9.2.3.6.1 These are materials that have toxic hazards to humans if inhaled or with contact with skin when loaded, unloaded, or transported in bulk and do not meet the established criteria for inclusion in class 6.1 (see 9.2.2.5).

9.2.3.6.2 A material shall be classified as MHB in accordance with the criteria laid down within part 3 of the GHS:

- .1 cargoes developing cargo dust with an acute inhalation toxicity (LC₅₀) of 1-5 mg/l by 4 hours testing (GHS Acute Toxicity Dusts Category 4);
- .2 cargoes developing cargo dust exhibiting an inhalation toxicity of equal to or less than 1 mg/litre/4h (GHS Specific Target Organ Toxicity Single Exposure Inhalation Dust Category 1) or below 0.02 mg/litre/6h/d (GHS Specific Target Organ Toxicity Repeated Dose Inhalation Dust Category 1);
- .3 cargoes exhibiting an acute dermal toxicity (LD₅₀) of 1,000-2,000 mg/kg (GHS Acute Toxicity Dermal Category 4);
- .4 cargoes exhibiting a dermal toxicity of or below 1000 mg (GHS Specific Target Organ Toxicity Single Exposure Dermal Category 1) or below 20 mg/kg bw/d by 90 days testing (GHS Specific Target Organ Toxicity Repeated Dose Dermal Category 1);
- .5 cargoes exhibiting carcinogenicity (GHS Category 1A and 1B), mutagenicity (GHS Category 1A and 1B) or reprotoxicity (GHS Category 1A and 1B).

9.2.3.7 Corrosive solids

9.2.3.7.1 These are materials that are corrosive to skin, eye or to metal or are respiratory sensitizers and do not meet the established criteria for inclusion in class 8 (see 9.2.2.7).

9.2.3.7.2 A material shall be classified as MHB in accordance with the criteria laid down within part 3 of the GHS:

- .1 cargoes which are known to be a respiratory sensitizer (GHS Respiratory Sensitization Category 1);
- .2 cargoes exhibiting skin irritation with a mean value of or higher than 2.3 for erythema/eschar or oedema (GHS Skin Corrosion/Irritation Category 2);
- .3 cargoes exhibiting eye irritation with a mean value of or higher than 1 for corneal opacity/irititis or 2 for conjunctival redness/oedema (GHS Serious Eye Damage Category 1 or Eye Irritation Category 2A).

9.2.3.7.3 A material shall be classified as MHB when the corrosion rate on either steel or aluminium surfaces is between 4 mm and 6.25 mm a year at a test temperature of 55°C when tested on both materials. For the purposes of testing steel, type S235JR+CR (1.0037 resp. St 37-2), S275J2G3+CR (1.0144 resp. St 44-3), ISO 3574:199, Unified Numbering Systems (UNS) G10200 or SAE 1020, and for testing aluminium, non-clad, types 7075-T6 or AZ5GU T6 shall be used. An acceptable test is prescribed in the United Nations Manual of Tests and Criteria, part III, section 37. When this test is performed the sample shall contain at least 10% moisture by mass. If the representative sample of the cargo to be shipped does not contain more than 10% moisture by mass, water shall be added to the sample."

Appendix 1 – Individual schedules of solid bulk cargoes

AMMONIUM NITRATE UN 1942

with not more than 0.2% total combustible material, including any organic substance, calculated as carbon to the exclusion of any other added substance

21 In the section for Stowage and Segregation replace the sentence "There shall be no sources of heat or ignition in the cargo space." with the sentence "Separated from" sources of heat or ignition (see *also* **Loading**)."

22 In the section for Loading, insert as the first sentence the following:

"This cargo shall not be loaded in cargo spaces adjacent to fuel oil tank(s), unless heating arrangements for the tank(s) are disconnected and remain disconnected during the entire voyage."

AMMONIUM NITRATE-BASED FERTILIZER UN 2067

23 The following text contained in the section for Description, is moved under the Bulk Cargo Shipping Name:

"Ammonium nitrate-based fertilizers classified as UN 2067 are uniform mixtures containing ammonium nitrate as the main ingredient within the following composition limits:

- .1 not less than 90% ammonium nitrate with not more than 0.2% total combustible/organic material calculated as carbon and with added matter, if any, which is inorganic and inert towards ammonium nitrate; or
- .2 less than 90% but more than 70% ammonium nitrate with other inorganic materials or more than 80% but less than 90% ammonium nitrate mixed with calcium carbonate and/or dolomite and/or mineral calcium sulphate and not more than 0.4% total combustible/organic material calculated as carbon; or
- .3 ammonium nitrate-based fertilizers containing mixtures of ammonium nitrate and ammonium sulphate with more than 45% but less than 70% ammonium nitrate and not more than 0.4% total combustible organic material calculated as carbon such that the sum of the percentage compositions of ammonium nitrate and ammonium sulphate exceeds 70%."

24 In the section for Stowage and Segregation, the text "Not to be stowed immediately adjacent to any tank, double bottom or pipe containing fuel oil heated to more than 50°C" is replaced with the following:

"Not to be stowed immediately adjacent to any tank, double bottom or pipe containing heated fuel oil unless there are means to monitor and control the temperature so that it does not exceed 50°C."

AMMONIUM NITRATE-BASED FERTILIZER UN 2071

25 The following text contained in the section for Description, is moved under the Bulk Cargo Shipping Name:

"Ammonium nitrate-based fertilizers classified as UN 2071 are uniform ammonium nitrate based fertilizer mixtures of the nitrogen, phosphate or potash, containing not more than 70% ammonium nitrate and not more than 0.4% total combustible organic material calculated as carbon or with not more than 45% ammonium nitrate and unrestricted combustible material. Fertilizers within these composition limits are not subject to the provisions of this schedule when shown by a trough test* that they are not liable to self-sustaining decomposition.

* See UN Manual of Tests and Criteria, part III, subsection 38.2."

26 In the section for Stowage and Segregation, the text "Not to be stowed immediately adjacent to any tank or double bottom containing fuel oil heated to more than 50°C" is replaced with the following:

"Not to be stowed immediately adjacent to any tank, double bottom or pipe containing heated fuel oil unless there are means to monitor and control the temperature so that it does not exceed 50°C."

AMMONIUM NITRATE-BASED FERTILIZER (non-hazardous)

27 The following text contained in the section for Description, is moved under the Bulk Cargo Shipping Name:

"Ammonium nitrate based fertilizers transported in conditions mentioned in this schedule are uniform mixtures containing ammonium nitrate as the main ingredient within the following composition limits:

- .1 not more than 70% ammonium nitrate with other inorganic materials;
- .2 not more than 80% ammonium nitrate mixed with calcium carbonate and/or dolomite and/or mineral calcium sulphate and not more than 0.4% total combustible organic material calculated as carbon;
- .3 nitrogen type ammonium nitrate based fertilizers containing mixtures of ammonium nitrate and ammonium sulphate with not more than 45% ammonium nitrate and not more than 0.4% total combustible organic material calculated as carbon; and
- .4 uniform ammonium nitrate based fertilizer mixtures of nitrogen, phosphate or potash, containing not more than 70 % ammonium nitrate and not more than 0.4% total combustible organic material calculated as carbon or with not more than 45% ammonium nitrate and unrestricted combustible material. Fertilizers within these composition limits are not subject to the provisions of this schedule when shown by a trough test* that they are liable to self-sustaining decomposition or if they contain an excess of nitrate greater than 10% by mass."

and its corresponding footnote is amended as follows:

* See UN Manual of Tests and Criteria, part III, subsection 38.2."

28 In the section Stowage and Segregation the text "Not to be stowed immediately adjacent to any tank, double bottom or pipe containing fuel oil heated to more than 50°C" is replaced with the following:

"Not to be stowed immediately adjacent to any tank, double bottom or pipe containing heated fuel oil unless there are means to monitor and control the temperature so that it does not exceed 50°C."

CALCIUM NITRATE UN 1454

29 The following text contained in the section for Description, is moved under the Bulk Cargo Shipping Name:

"The provisions of this Code shall not apply to the commercial grades of calcium nitrate fertilizers consisting mainly of a double salt (calcium nitrate and ammonium nitrate) and containing not more than 10% ammonium nitrate and at least 12% water of crystallization."

CALCIUM NITRATE FERTILIZER

30 The following text is inserted under the Bulk Cargo Shipping Name:

"The provisions of this schedule shall apply only for cargoes containing not more than 15.5% total nitrogen and at least 12% water."

31 The following text is deleted from the section for Description:

"and containing not more than 15.5% total nitrogen and at least 12% water".

CHARCOAL

32 The following text contained in the section for Hazard, is moved at the end in the section for Loading:

"Hot charcoal screenings in excess of 55°C shall not be loaded."

FERROUS METAL BORINGS, SHAVINGS, TURNINGS or CUTTINGS UN 2793

33 The following text contained in the section for Description is moved under the Bulk Cargo Shipping Name:

"This schedule shall not apply to consignments of materials which are accompanied by a declaration submitted prior to loading by the shipper and stating that they have no self-heating properties when transported in bulk."

METAL SULPHIDE CONCENTRATES

34 The following text contained in the section for Hazard, is moved at the end in the section for Precautions:

"When a Metal Sulphide Concentrate is considered as presenting a low fire-risk, the carriage of such cargo on a ship not fitted with a fixed gas fire extinguishing system shall be subject to the Administration's authorization as provided by SOLAS regulation II-2/10.7.1.4."

PEAT MOSS

35 The following text contained in the section for Hazard, is moved at the end in the section for Loading:

"Peat Moss having a moisture content of more than 80% by weight shall only be carried on specially fitted or constructed ships (see paragraph 7.3.2 of this Code)."

SAND

36 The following text is inserted under the Bulk Cargo Shipping Name:

"Sands included in this schedule are:

Foundry sand

Silica sand

Potassium felspar sand

Soda felspar sand"

Quartz sand

37 The following text in the section for Description is deleted:

"Sands included in this schedule are:

FOUNDRY SAND

SILICA SAND

POTASSIUM FELSPAR SAND

SODA FELSPAR SAND"

QUARTZ SAND

SEED CAKE

containing vegetable oil UN 1386(b) solvent extractions and expelled seeds, containing not more than 10% of oil and when the amount of moisture is higher than 10%, not more than 20% of oil and moisture combined.

38 The following text is inserted under the Bulk Cargo Shipping Name:

"The provisions of this schedule shall not apply to:

- .1 solvent extracted rape seed meal, soya bean meal, cotton seed meal and sunflower seed meal, containing not more than 4% oil and 15% oil and moisture combined and being substantially free from flammable solvents;
- .2 mechanically expelled citrus pulp pellets containing not more than 2.5% oil and 14% oil and moisture combined;
- .3 mechanically expelled corn gluten meal containing not more than 11.0% oil and 23.6% oil and moisture combined;
- .4 mechanically expelled corn gluten feed pellets containing not more than 5.2% oil and 17.8% oil and moisture combined; and
- .5 mechanically expelled beet pulp pellets containing not more than 2.8% oil and 15.0% oil and moisture combined.

A certificate from a person recognized by the competent authority of the country of shipment shall be provided by the shipper, prior to loading, stating that the provisions of the exemption are met."

39 In the section for Description, the following paragraph is deleted:

"The provisions of this schedule should not apply to solvent extracted rape seed meal, pellets, soya bean meal, cotton seed meal and sunflower seed meal, containing not more than 4% oil and 15% oil and moisture combined and being substantially free from flammable solvents. The provisions of this schedule also apply to mechanically expelled citrus pulp pellets containing not more than 2.5% oil and 14% oil and moisture combined. A certificate from a person recognized by the competent authority of the country of shipment should be provided by the shipper, prior to loading, stating that the provisions of the exemption are met."

SEED CAKE (non-hazardous)

40 The following text is inserted under the Bulk Cargo Shipping Name:

"The provisions of this schedule shall only apply to:

- .1 solvent extracted rape seed meal, soya bean meal, cotton seed meal and sunflower seed meal, containing not more than 4% oil and 15% oil and moisture combined and being substantially free from flammable solvents;
- .2 mechanically expelled citrus pulp pellets containing not more than 2.5% oil and 14% oil and moisture combined;
- .3 mechanically expelled corn gluten meal containing not more than 11.0% oil and 23.6% oil and moisture combined;
- .4 mechanically expelled corn gluten feed pellets containing not more than 5.2% oil and 17.8% oil and moisture combined; and
- .5 mechanically expelled beet pulp pellets containing not more than 2.8% oil and 15.0% oil and moisture combined."

41 In the section for Description, the following text is deleted:

"The provisions of this schedule apply to solvent extracted rape seed meal, pellets, soya bean meal, cotton seed meal and sunflower seed meal, containing not more than 4% oil and 15% oil and moisture combined and being substantially free from flammable solvents. The provisions of this schedule also apply to mechanically expelled citrus pulp pellets containing not more than 2.5% oil and 14% oil and moisture combined."

and the following text contained in the section for Description, is moved at the end of the section for Loading:

"A certificate from a person recognized by the competent authority of the country of shipment shall be provided by the shipper, prior to loading, stating that the requirements for exemption as set out either in the schedule for seed cake UN 1386 (b) or UN 2217, whichever is applicable, are met."

SILICOMANGANESE (low carbon)

with known hazard profile or known to evolve gases with silicon content of 25% or more

42 In the Bulk Cargo Shipping Name, delete the words "**with known hazard profile or known to evolve gases with silicon content of 25% or more**".

43 Replace the existing text under the section for Description, with the following:

"A ferroalloy comprising principally manganese and silicon, mainly used as a deoxidizer and alloying element in the steel-making process. Particle or lump of blackish brown, silver white metal."

44 The existing table of Characteristics is replaced with the following:

Angle of repose	Bulk density (kg/m ³)	Stowage factor (m ³ /t)
Not applicable	3,000 to 3,300	0.30 to 0.33
Size	Class	Group
10 mm to 150 mm	MHB	B

45 Replace the existing text under the section for Hazard, with the following:

"This cargo is non-combustible and has a low fire-risk. However, in contact with water this cargo may evolve hydrogen, a flammable gas that may form explosive mixtures with air and may, under similar conditions, produce phosphine and arsine, which are highly-toxic gases. This cargo is liable to reduce oxygen content in a cargo space. May cause long-term health effect."

46 In the section for Precautions, the following text is deleted:

"Prohibition of smoking in dangerous areas shall be enforced, and clearly legible "NO SMOKING" signs shall be displayed. Electrical fittings and cables shall be in good condition and properly safeguarded against short circuits and sparking. Where a bulkhead is required to be suitable for segregation purposes, cable and conduit penetrations of the decks and bulkheads shall be sealed against the passage of gas and vapour. Ventilation systems shall be shut down or screened and air condition systems, if any, placed on recirculation during loading or discharge, in order to minimize the entry of dust into living quarters or other interior spaces of the ship. Precautions shall be taken to minimize the extent to which dust may come in contact with moving parts of deck machinery and external navigation aids (e.g. navigation lights)."

SULPHUR (formed, solid)

47 The following text contained in the section for Description, is moved under the Bulk Cargo Shipping Name:

"This schedule shall not apply to crushed, lump and coarse-grained sulphur (see SULPHUR UN 1350), or to co-products from sour gas processing or oil refinery operations NOT subjected to the above-described forming process."

48 Insert the following new individual schedules accordingly in alphabetical order:

"ALUMINA HYDRATE

Description

Alumina hydrate is a fine, moist, white (light coloured), odourless powder. Insoluble in water and organic liquids.

Characteristics

Angle of repose	Bulk density (kg/m ³)	Stowage factor (m ³ /t)
Not applicable	500 to 1,500	0.67 to 2.0
Size	Class	Group
Fine powder	MHB	A and B

Hazard

This cargo may liquefy if shipped at moisture content in excess of its Transportable Moisture Limit (TML). See sections 7 and 8 of the Code. Alumina Hydrate dust is very abrasive and penetrating. Irritating to eyes, skin and mucous membranes. This cargo is non-combustible or has low fire-risks.

Stowage and segregation

Separated from oxidizing materials.

Hold cleanliness

Clean and dry as relevant to the hazards of the cargo.

Weather precautions

When a cargo is carried in a ship other than a specially constructed or fitted cargo ship complying with the requirements in subsection 7.3.2 of this Code, the following provisions shall be complied with:

- .1 the moisture content of the cargo shall be kept less than its TML during loading operations and the voyage;
- .2 unless expressly provided otherwise in this individual schedule, the cargo shall not be handled during precipitation;
- .3 unless expressly provided otherwise in this individual schedule, during handling of the cargo, all non-working hatches of the cargo spaces into which the cargo is loaded or to be loaded shall be closed;
- .4 the cargo may be handled during precipitation under the conditions stated in the procedures required in subsection 4.3.3 of this Code; and
- .5 the cargo in a cargo space may be discharged during precipitation provided that the total amount of the cargo in the cargo space is to be discharged in the port.

Loading

Trim in accordance with the relevant provisions required under sections 4 and 5 of the Code.

Precautions

Bilge wells shall be clean, dry and covered as appropriate, to prevent ingress of the cargo. Bilge system of a cargo space to which this cargo is to be loaded shall be tested to ensure it is working. Appropriate precautions shall be taken to protect machinery and accommodation spaces from the dust of the cargo. Due consideration shall be paid to protect equipment from the dust of the cargo. Persons who may be exposed to the dust of the cargo shall wear goggles or other equivalent dust eye-protection and dust filter masks. Those persons shall wear protective clothing, as necessary.

Ventilation

No special requirements.

Carriage

The appearance of the surface of this cargo shall be checked regularly during voyage. If free water above the cargo or fluid state of the cargo is observed during voyage, the master shall take appropriate actions to prevent cargo shifting and potential capsizing of the ship, and give consideration to seeking emergency entry into a place of refuge.

Discharge

No special requirements.

Clean-up

The water used for the cleaning of the cargo spaces, after discharge of this cargo, shall not be pumped by the fixed bilge pumps. A portable pump shall be used, as necessary, to clear the cargo spaces of the water.

Emergency procedures

Special emergency equipment to be carried Protective clothing (gloves, boots, coveralls, headgear). Self-contained breathing apparatus.
Emergency procedures Wear protective clothing and self-contained breathing apparatus Emergency action in the event of fire Nil (non-combustible) Medical First Aid Refer to the Medical First Aid Guide (MFAG), as amended.

11

"ALUMINIUM SMELTING / REMELTING BY-PRODUCTS, PROCESSED

The provisions of this schedule shall not apply to ALUMINIUM SMELTING BY-PRODUCTS or ALUMINIUM REMELTING BY-PRODUCTS UN 3170.

Description

Product obtained by treating the by-products of merging/recasting of aluminium with water and/or alkalis solutions to render the material less reactive with water. A damp powder with a slight smell of ammonia.

Characteristics

Angle of repose	Bulk density (kg/ m ³)	Stowage factor (m ³ /t)
Not applicable	1,080 to 1,750	0.57 to 0.93
Size	Class	Group
Less than 1 mm	MHB	A and B

Hazard

This cargo may develop small amount of hydrogen, a flammable gas which may form explosive mixtures with air, and of ammonia, which is a highly toxic gas. This cargo may liquefy if shipped at moisture content in excess of its transportable moisture limit (TML). See sections 7 and 8 of the Code. Corrosive to eyes.

Stowage and segregation

"Separated from" foodstuffs and all Class 8 liquids. Segregation as for Class 4.3 materials.

Hold cleanliness

Clean and dry as relevant to the hazards of the cargo.

Weather precautions

This cargo shall be kept as dry as practicable and the moisture content shall be kept less than its TML during loading operations and the voyage. This cargo shall not be handled during precipitation. During handling of this cargo, all non-working hatches of the cargo spaces into which this cargo is loaded or to be loaded shall be closed.

Loading

Trim in accordance with the relevant provisions of sections 4 and 5 of this Code.

Precautions

Persons who may be exposed to the cargo shall wear personal protective equipment, including goggles and/or skin protection as necessary. Prior to loading this cargo, a weathering certificate shall be provided by the manufacturer or shipper stating that, after manufacture, the material was stored under cover, but exposed to the weather in the particle size to be shipped, for not less than four weeks prior to shipment. Whilst the ship is alongside and the hatches of the cargo spaces containing this cargo are closed, the mechanical ventilation shall be operated continuously as weather permits. During handling of this cargo, "NO SMOKING" signs shall be posted on decks and in areas adjacent to cargo spaces and no naked lights shall be permitted in these areas. Bulkheads between the cargo spaces and the engine-room shall be gastight. Inadvertent pumping through machinery spaces shall be avoided. Bilge wells shall be clean, dry and covered as appropriate, to prevent ingress of the cargo.

Ventilation

Continuous mechanical ventilation shall be conducted during the voyage for the cargo spaces carrying this cargo. If maintaining ventilation endangers the ship or the cargo, it may be interrupted unless there is a risk of explosion or other danger due to interruption of the ventilation. In any case, mechanical ventilation shall be maintained for a reasonable period prior to discharge. Ventilation shall be arranged such that any escaping gases are minimized from reaching living quarters on or under the deck.

Carriage

For quantitative measurements of hydrogen, ammonia and acetylene, suitable detectors for each gas or combination of gases shall be on board while this cargo is carried. The detectors shall be of certified safe type for use in explosive atmosphere. The concentrations of these gases in the cargo spaces carrying this cargo shall be measured regularly, during voyage, and the results of the measurements shall be recorded and kept on board. The appearance of the surface of this cargo shall be checked regularly during voyage. If free water above the cargo or fluid state of the cargo is observed during voyage, the master shall take appropriate actions to prevent cargo shifting and potential capsize of the ship, and give consideration to seeking emergency entry into a place of refuge. Hatches of the cargo spaces carrying this cargo shall be weathertight to prevent the ingress of water.

Discharge

No special requirements.

Clean-up

Persons who may be exposed to the cargo shall wear personal protective equipment including goggles and/or skin protection as necessary. After discharge of this cargo, the bilge wells and scuppers of the cargo spaces shall be checked and any blockage shall be removed.

Prior to using water for hold cleaning, holds should be swept to remove as much cargo residues as practicable.

Emergency procedures

Special emergency equipment to be carried
Nil
Emergency procedures
Nil
Emergency action in the event of fire
Batten down and use CO ₂ if fitted
Medical first aid
Refer to the Medical First Aid Guide (MFAG), as amended

11

"CLINKER ASH, WET

Description

Coal ash discharged from coal-fired power stations. Grey-coloured, possibly ranging from near-white to near-black, and odourless substance collected from the bottom of boilers, and resembles sand. Moisture content is about 15% to 23%. Insoluble in water.

Characteristics

Angle of repose	Bulk density (kg/m ³)	Stowage factor (m ³ /t)
Not applicable	600 to 1,700	0.6 to 1.7
Size	Class	Group
Up to 90 mm	MHB	A and B

Hazard

The material may liquefy if shipped at a moisture content in excess of its Transportable Moisture Limit (TML). See sections 7 and 8 of the Code. May cause long-term health effects. This cargo is non-combustible or has a low fire-risk.

Stowage and Segregation

No special requirements.

Hold cleanliness

No special requirements.

Weather precautions

This cargo shall be kept as dry as practicable before loading, during loading and while on the voyage. When a cargo is carried in a ship other than a specially constructed or fitted cargo ship complying with the requirements in subsection 7.3.2 of this Code, the following provisions shall be complied with:

- .1 the moisture content of the cargo shall be kept less than its TML during loading operations and the voyage;
- .2 unless expressly provided otherwise in this individual schedule, the cargo shall not be handled during precipitation;
- .3 unless expressly provided otherwise in this individual schedule, during handling of the cargo, all non-working hatches of the cargo spaces into which the cargo is loaded or to be loaded shall be closed;
- .4 the cargo may be handled during precipitation under the conditions stated in the procedures required in subsection 4.3.3 of this Code; and
- .5 the cargo in a cargo space may be discharged during precipitation provided that the total amount of the cargo in the cargo space is to be discharged in the port.

Loading

Trim in accordance with the relevant provisions required under sections 4 and 5 of the Code.

Precautions

Persons who may be exposed to the dust of the cargo shall wear gloves, goggles or other equivalent dust eye-protection and dust filter masks.

Ventilation

No special requirements.

Carriage

No special requirements.

Discharge

No special requirements.

Clean-Up

No special requirements.

Emergency procedures

Special emergency equipment to be carried Protective clothing (goggles, dust filter masks, gloves, coveralls).
Emergency procedures Wear protective clothing. Emergency action in the event of fire Nil (non-combustible) Medical First Aid Refer to the Medical First Aid Guide (MFAG), as amended.

..

"COAL TAR PITCH

Description

A coarse distilled residue of Coal Tar, a by-product of Cokes production. Mostly comprises many kinds of polycyclic aromatic hydrocarbon. A black solid at ambient temperature. It is insoluble in water. A raw material in use for electrodes and materials covering pitch bound on metallurgy coke. The moisture content is up to 6%.

Characteristics

Angle of repose	Bulk density (kg/m ³)	Stowage factor (m ³ /t)
Not applicable	600 to 1,100	0.9 to 1.7
Size	Class	Group
Up to 100mm 0 to 10% of fine particles: less than 1 mm	MHB	B

Hazard

This cargo is non-combustible or has a low fire-risk. When heated, it melts and turns into inflammable liquid. It softens between 70°C and 120°C. Corrosive to eyes. May cause long-term health effects.

Stowage and segregation

No special requirements.

Hold cleanliness

No special requirements.

Weather precautions

No special requirements.

Loading

Trim in accordance with the relevant provisions required under sections 4 and 5 of the Code.

Precautions

Persons who may be in contact with this cargo shall be supplied with protective gloves, dust masks, protective clothing and goggles.

Ventilation

No special requirements.

Carriage

No special requirements.

Discharge

No special requirements.

Clean-up

No special requirements.

Emergency procedures

<u>Special emergency equipment to be carried</u> Protective clothing (gloves, boots, overalls, headgear, dust masks and goggles).
<u>Emergency procedures</u> Wear protective clothing, protective gloves, dust masks and goggles. <u>Emergency action in the event of fire</u> Batten down: use ship's fixed fire-fighting installation if fitted. Exclusion of air may be sufficient to control fire. <u>Medical first aid</u> Refer to the Medical First Aid Guide (MFAG), as amended.

..

"COARSE IRON AND STEEL SLAG AND ITS MIXTURE

Description

A coarse slag arising from iron and steel manufacture, and a coarse slag mixed with one of the following substances or a combination thereof: concrete debris, fly-ash, firebricks, dust collected from iron/steel-making processes, refractory material debris and fine raw materials of iron making.

This cargo includes shaped blocks made of iron and steel slag with one of the additives or a combination of additives: cement, ground granulated blast furnace slag and fly-ash, and its debris, and their mixture with iron and steel slag.

The colour is in the range from greyish-white to dark grey, and the appearance is in the range from granulated, pebble to block shaped.

Characteristics

Angle of repose	Bulk density (kg/m ³)	Stowage factor (m ³ /t)
Not applicable	1,200 to 3,000	0.33 to 0.83
Size	Class	Group
90 to 100% of lumps: up to 300 mm 0 to 10% fine particles: less than 1 mm	Not applicable	C

Hazard

No special requirements.

This cargo is non-combustible or has a low fire-risk.

Stowage and segregation

No special requirements.

Hold cleanliness

No special requirements.

Weather precautions

No special requirements.

Loading

Trim in accordance with the relevant provisions required under sections 4 and 5 of the Code.

When the stowage factor of this cargo is equal or less than 0.56 m³/t, the tank top may be overstressed unless the cargo is evenly spread across the tank top to equalize the weight distribution. Due consideration shall be given to ensure that the tank top is not overstressed during the voyage and during loading by a pile of the cargo.

Precautions

Persons who may be exposed to the dust of the cargo shall wear goggles or other equivalent dust eye-protection and dust filter masks, as necessary.

Ventilation

No special requirements.

Carriage

No special requirements.

Discharge

No special requirements.

Clean-up

No special requirements."

"CRUSHED CARBON ANODES**Description**

Crushed Carbon Anodes are spent carbon anodes that are crushed into smaller pieces to permit their shipment for recycling. Carbon anodes are used to introduce electricity into the aluminium smelter pots. This cargo is mainly composed of black crushed lumps and pieces principally containing carbon and other impurities. The material is odourless.

Angle of repose	Bulk density (kg/m ³)	Stowage factor (m ³ /t)
Not applicable	800 to 1,000	1.00 to 1.25
Size	Class	Group
Mainly coarse pieces up to 60 cm +	Not applicable	C

Hazard

This cargo may generate dust. This cargo is non-combustible or has a low fire-risk.

Stowage and segregation

No special requirements.

Hold cleanliness

No special requirements.

Weather precautions

No special requirements.

Loading

Trim in accordance with the relevant provisions required under sections 4 and 5 of the Code.

Precautions

Persons who may be exposed to the dust of the cargo shall wear protective clothing, goggles or other equivalent dust eye-protection, dust filter mask and barrier creams as necessary.

Ventilation

No special requirements.

Carriage

No special requirements.

Discharge

No special requirements.

Clean-up

No special requirements."

"GRAIN SCREENING PELLETS

The provision of this schedule shall apply only to Grain Screening Pellets material containing not more than 6.2% oil content and not more than 17.5% oil and moisture content combined.

Description

Grain Screening Pellets are animal feed products, pelletized animal feed derived from dockage removed from grains. Screenings means dockage that has been removed from grain that does not qualify for any other grain grades. Depending

upon their quality, screenings vary in level of parent and volunteer grain material, broken or shrunken kernels, hulls, weed seeds, chaff, dust and other plant material. The colour ranges from brown to yellow.

Characteristics

Angle of repose	Bulk density (kg/m³)	Stowage factor (m³/t)
less than 30°	478 to 719	1.39 to 2.09
Size	Class	Group
Length: 12 to 38 mm Diameter: 4 to 7 mm	Not applicable	C

Hazard

This cargo flows freely like grain. This cargo is non-combustible or has a low fire-risk.

Stowage and segregation

No special requirements.

Hold cleanliness

No special requirements.

Weather precautions

This cargo shall be kept as dry as practicable. This cargo shall not be handled during precipitation. During handling of this cargo, all non-working hatches of the cargo spaces into which the cargo is loaded or to be loaded shall be closed.

Loading

Trim in accordance with the relevant provisions required under sections 4, 5 and 6 of the Code in accordance with the shipper's declaration of the angle of repose.

A certificate from a person recognized by the competent authority of the country of shipment shall be provided by the shipper to the master, prior to loading, confirming that the oil and the moisture contents as described in the schedule have been met.

Precautions

Persons who may be exposed to the dust of the cargo shall wear a dust filter mask, protective eyewear, and protective clothing as necessary.

Carriage

Hatches of the cargo spaces shall be weather tight to prevent water ingress.

Discharge

No special requirements.

Ventilation

No special requirements.

Clean-up

No special requirements.

Emergency Procedures

No special requirements."

"GRANULATED NICKEL MATTE (LESS THAN 2% MOISTURE CONTENT)

Description

Crude dark grey nickel product composed of about 55% nickel, 20% copper and 25% other mineral impurities. The material is odourless.

Characteristics

Angle of repose	Bulk density (kg/m ³)	Stowage factor (m ³ /t)
Not applicable	2,800 to 4,000	0.25 to 0.36
Size	Class	Group
Up to 3 mm	MHB	B

Hazard

Contact with the skin may give rise to irritation.

This cargo is non-combustible or has a low fire-risk.

This cargo is moderately toxic by inhalation.

Stowage and segregation

Separated from foodstuffs.

Hold cleanliness

No special requirements.

Weather precautions

No special requirements.

Loading

Trim in accordance with the relevant provisions required under sections 4 and 5 of the Code. As the density of the cargo is extremely high, the tank top may be overstressed unless the cargo is evenly spread across the tank top to equalize the weight distribution. Due consideration shall be paid to ensure that the tank top is not overstressed during voyage and during loading process by a pile of the cargo.

Precautions

Persons who may be exposed to the dust component of the cargo shall wear personal protective equipment including goggles or other equivalent dust eye-protection, respiratory protection, and/or skin protection as necessary. Due consideration shall be paid to prevent dust entering living quarters and enclosed working area. Eating and drinking is prohibited in the cargo work areas. Appropriate precautions shall be taken to protect machinery and accommodation spaces from the dust of the cargo.

Carriage

No special requirements.

Discharge

No special requirements.

Ventilation

No special requirements.

Clean-up

No special requirements.

Emergency procedures

Special emergency equipment to be carried Protective clothing (gloves, boots, coveralls) Self-contained breathing apparatus
Emergency procedures Wear protective clothing and self-contained breathing apparatus. Emergency action in the event of fire Nil (non-combustible) Medical First Aid Refer to the <i>Medical First Aid Guide (MFAG)</i> , as amended.

..

"GYPSUM GRANULATED**Description**

Gypsum Granulated made from calcium sulphate hydrate which is produced artificially or industrial by-product. It is produced by granulating and processing such calcium sulphate hydrate until its grain size becomes 10 mm diameter or more. Insoluble in water.

Characteristics

Angle of repose	Bulk density (kg/m³)	Stowage factor (m³/t)
Not applicable	310 to 1,200	0.83 to 3.23
Size	Class	Group
Greater than 10 mm	Not applicable	C

Hazard

No special hazards.

This cargo is non-combustible or has a low fire-risk.

Stowage and segregation

No special requirements.

Hold cleanliness

No special requirements.

Weather precautions

No special requirements.

Loading

Trim in accordance with the relevant provisions required under sections 4 and 5 of the Code.

Precautions

No special requirements.

Ventilation

No special requirements.

Carriage

No special requirements.

Discharge

No special requirements.

Clean-up

No special requirements."

"ILMENITE (ROCK)

Description

Ilmenite (Rock) is obtained from mine blasting followed by crushing. It has a black colour. It may be smelted in electric arc furnaces or can be used in blast furnaces.

Characteristics

Angle of repose	Bulk density (kg/m ³)	Stowage factor (m ³ /t)
Not applicable	2,400 to 3,200	0.31 to 0.42
Size	Class	Group
Up to 100 mm	Not applicable	C

Hazard

This cargo has no special hazards.

This cargo is non-combustible or has a low fire-risk.

Stowage and segregation

No special requirements.

Hold cleanliness

No special requirements.

Weather precautions

No special requirements.

Loading

Trim in accordance with the relevant provisions required under sections 4 and 5 of the Code. As the density of the cargo is extremely high, the tank top may be overstressed unless the cargo is evenly spread across the tank top to equalize the weight distribution. Due consideration shall be paid to ensure that the tank top is not overstressed during voyage and during loading by a pile of the cargo.

Precautions

Avoid breathing dust. Persons who may be exposed to the dust of the cargo shall wear a dust filter mask, protective eyewear and clothing as necessary.

Ventilation

No special requirements.

Carriage

No special requirements.

Discharge

No special requirements.

Clean-up

No special requirements."

"ILMENITE (UPGRADED)**Description**

Ilmenite (upgraded), is obtained from the smelting of rock or sand Ilmenite into electric arc furnaces. Ilmenite (upgraded) has a granular form and its colour varies from black (normal grades) to brown-orange for its purified grade.

Ilmenite (upgraded) is also known as Titanium slag, Titanium Ore Concentrate, Chloride Slag, Sulphate Slag, High Grade Sulphate Slag, Slag fines, Slag ilmenite electro thermal smelting or TiO₂ slag.

Characteristics

Angle of repose	Bulk density (kg/m ³)	Stowage factor (m ³ /t)
Not applicable	1,860 to 2,400	0.41 to 0.54
Size	Class	Group
Up to 12 mm	Not applicable	A

Hazard

This material may liquefy if shipped at moisture content in excess of its Transportable Moisture Limit (TML). See sections 7 and 8 of this Code.

This cargo is non-combustible or has a low fire-risk.

Stowage and segregation

No special requirements.

Hold cleanliness

No special requirements.

Weather precautions

This cargo shall be kept as dry as practicable before loading, during loading and while on the voyage. When a cargo is carried in a ship other than a specially constructed or fitted cargo ship complying with the requirements in subsection 7.3.2 of this Code, the following provisions shall be complied with:

- .1 the moisture content of the cargo shall be kept less than its TML during loading operations and the voyage;
- .2 unless expressly provided otherwise in this individual schedule, the cargo shall not be handled during precipitation;
- .3 unless expressly provided otherwise in this individual schedule, during handling of the cargo, all non-working hatches of the cargo spaces into which the cargo is loaded or to be loaded shall be closed;
- .4 the cargo may be handled during precipitation under the conditions stated in the procedures required in subsection 4.3.3 of this Code; and
- .5 the cargo in a cargo space may be discharged during precipitation provided that the total amount of the cargo in the cargo space is to be discharged in the port.

Loading

Trim in accordance with the relevant provisions required under sections 4 and 5 of the Code. As the density of the cargo is extremely high, the tank top may be overstressed unless the cargo is evenly spread across the tank top to equalize the weight distribution. Due consideration shall be paid to ensure that the tank top is not overstressed during voyage and during loading by a pile of the cargo.

Precautions

Bilge wells shall be clean, dry and covered as appropriate to prevent ingress of the cargo. Avoid breathing dust. Persons who may be exposed to the dust component of the cargo shall wear personal protective equipment including goggles or other equivalent dust eye-protection and respiratory protection as necessary. Wash hands and face before eating, drinking or smoking.

Ventilation

No special requirements.

Carriage

The appearance of the cargo shall be checked regularly during voyage. If free water above the cargo or fluid state of the cargo is observed during voyage, the master shall take appropriate actions to prevent cargo shifting and potential capsize of the ship, and give consideration to seeking emergency entry into a place of refuge.

Discharge

No special requirements.

Clean-up

No special requirements."

"NICKEL ORE

Description

Nickel ore varies in colour. There are several types of ore of variable particle size and moisture content. Some may contain clay-like ores. For concentrates, see NICKEL CONCENTRATE.

Characteristics

Angle of repose	Bulk density (kg/m ³)	Stowage factor (m ³ /t)
Not applicable	1,400 to 1,800	0.55 to 0.71
Size	Class	Group
Various	Not applicable	A

Hazard

This material may liquefy if shipped at a moisture content in excess of its Transportable Moisture Limit (TML). See sections 7 and 8 of this Code. This cargo is non-combustible or has a low fire-risk.

Stowage and segregation

No special requirements.

Hold cleanliness

Cargo spaces must be clean and dry.

Weather precautions

When a cargo is carried in a ship other than a specially constructed or fitted cargo ship complying with the requirements in subsection 7.3.2 of this Code, the following provisions shall be complied with:

- .1 all measures shall be taken during loading operations and the voyage to avoid an increase in the moisture content of the cargo;
- .2 unless expressly provided otherwise in this individual schedule, the cargo shall not be handled during precipitation;
- .3 unless expressly provided otherwise in this individual schedule, during handling of the cargo, all non-working hatches of the cargo spaces into which the cargo is loaded or to be loaded shall be closed;
- .4 the cargo may be handled during precipitation under the conditions stated in the procedures required in subsection 4.3.3 of this Code; and
- .5 the cargo in a cargo space may be discharged during precipitation provided that the total amount of the cargo in the cargo space is to be discharged in the port.

Loading

Trim in accordance with the relevant provisions required under sections 4 and 5 of the Code.

When the stowage factor of this cargo is equal or less than 0.56 m³/t, the tank top may be overstressed unless the cargo is evenly spread across the tank top to equalize the weight distribution. Due consideration shall be given to ensure that the tank top is not overstressed during the voyage and during loading by a pile of the cargo.

Precautions

Bilge wells shall be clean, dry and covered as appropriate, to prevent ingress of the cargo. The bilge system of a cargo space to which this cargo is to be loaded shall be tested to ensure that it is working.

Ventilation

The cargo spaces carrying this cargo shall not be ventilated during voyage.

Carriage

The appearance of the surface of this cargo shall be checked regularly during voyage. If free water above the cargo or fluid state of the cargo is observed during voyage, the master shall take appropriate actions to prevent cargo shifting and potential capsize of the ship, and give consideration to seeking emergency entry into a place of refuge.

Discharge

No special requirements.

Clean-up

No special requirements."

"SAND, HEAVY MINERAL

Description

The cargo is generally a blend of two or more heavy mineral sands. Such sands are characterized by their heavy bulk density and relatively fine grain size. Abrasive. May be dusty.

Characteristics

Angle of repose	Bulk density (kg/m³)	Stowage factor (m³/t)
Not applicable	2,380 to 3,225	0.31 to 0.42
Size	Class	Group
Up to 5 mm	Not applicable	A

Hazard

This cargo may liquefy if shipped at a moisture content in excess of its TML. See sections 7 and 8 of this Code.

This cargo is non-combustible or has a low fire-risk.

Stowage and segregation

No special requirements.

Hold cleanliness

No special requirements.

Weather precautions

When a cargo is carried in a ship other than a specially constructed or fitted cargo ship complying with the requirements in subsection 7.3.2 of this Code, the following provisions shall be complied with:

- .1 the moisture content of the cargo shall be kept less than its TML during loading operations and the voyage;
- .2 unless expressly provided otherwise in this individual schedule, the cargo shall not be handled during precipitation;
- .3 unless expressly provided otherwise in this individual schedule, during handling of the cargo, all non-working hatches of the cargo spaces into which the cargo is loaded or to be loaded shall be closed;
- .4 the cargo may be handled during precipitation under the conditions stated in the procedures required in subsection 4.3.3 of this Code; and
- .5 the cargo in a cargo space may be discharged during precipitation provided that the total amount of the cargo in the cargo space is to be discharged in the port.

Loading

Trim in accordance with the relevant provisions required under sections 4 and 5 of the Code.

As the density of the cargo is extremely high, the tank top may be overstressed unless the cargo is evenly spread across the tank top to equalize the weight distribution. Due consideration shall be paid to ensure that tank top is not overstressed during voyage and during loading by a pile of the cargo.

Precautions

Bilge wells shall be clean, dry and covered as appropriate, to prevent ingress of the cargo.

Ventilation

No special requirements.

Carriage

The appearance of the surface of this cargo shall be checked regularly during voyage. If free water above the cargo or fluid state of the cargo is observed during voyage, the master shall take appropriate actions to prevent cargo shifting and potential capsizing of the ship, and give consideration to seeking emergency entry into a place of refuge.

Discharge

No special requirements.

Clean-up

No special requirements."

"SILICON SLAG

Description

Silicon slag is an odourless greyish metallic material mainly in lump. It is composed of silicon and silicon dioxide in variable proportions.

Characteristics

Angle of repose	Bulk density (kg/m³)	Stowage factor (m³/t)
Not applicable	2,300 to 3,000	0.33 to 0.43
Size	Class	Group
Up to 150 mm	Not applicable	C

Hazard

The dust may cause irritation of eyes, skin and upper respiratory tract.
This cargo is non-combustible or has a low fire-risk.

Stowage and segregation

"Separated from" acids or base materials.

Hold cleanliness

No special requirements.

Weather precautions

No special requirements.

Loading

Trim in accordance with the relevant provisions required under sections 4 and 5 of the Code. As the density of the cargo is extremely high, the tank top may be overstressed unless the cargo is evenly spread across the tank top to equalize the weight distribution. Due consideration shall be paid to ensure that the tank top is not overstressed during the voyage and during the loading process by a pile of the cargo.

Precautions

Persons who may be exposed to the dust of the cargo shall wear protective clothing, goggles or other equivalent dust eye-protection and dust filter mask as necessary.

Ventilation

No special requirements.

Carriage

No special requirements.

Discharge

No special requirements.

Clean-up

No special requirements."

"SOLIDIFIED FUELS RECYCLED FROM PAPER AND PLASTICS"

This schedule shall not apply to material classified as dangerous goods (Class 4.2).

Description

Solidified fuels comprising papers and plastics by compressing or extruding in moulds. The main raw materials of this cargo are waste paper and plastic. Moisture content is 5% or less. Ash content is 10% or less. Total chlorine is 0.3% or less.

Characteristics

Angle of repose	Bulk density (kg/m³)	Stowage factor (m³/t)
Not applicable	400 to 500	2.0 to 2.5
Size	Class	Group
Length: 30 to 100 mm Diameter: 15 to 30 mm	MHB	B

Hazard

Spontaneous ignition is not liable to occur up to 200°C. When ignited, it burns violently. When melted, it generates flammable and toxic gases. Spontaneous-heating may take place and may deplete oxygen in the cargo spaces.

Stowage and segregation

No special requirements.

Hold cleanliness

No special requirements.

Weather precautions

No special requirements.

Loading

Prior to loading, the manufacturer or shipper shall give the master a certificate stating that the cargo is not class 4.2. Trim in accordance with the relevant provisions required under sections 4 and 5 of the Code.

Precautions

During handling and carriage, no hot work, burning and smoking shall be permitted in the vicinity of the cargo spaces containing this cargo. After discharging this cargo, entry into cargo spaces shall not be permitted unless they have been sufficiently ventilated.

Ventilation

The hatches of the cargo spaces shall be closed and the spaces shall not be ventilated during voyage.

Carriage

Entry into the cargo spaces shall not be permitted during voyage.

Discharge

The hatches of the cargo spaces shall be opened and sufficiently ventilated prior to entry.

Clean-up

No special requirements.

Emergency procedures

Special emergency equipment to be carried Protective clothing (protective glasses, heat-resistant gloves, coveralls).
Emergency procedures Wear protective clothing. Emergency action in the event of fire Batten down; use ship's fixed fire-fighting installation, if fitted. Extinguish fire with water, foam or dry chemicals. Medical First Aid Refer to the Medical First Aid Guide (MFAG), as amended.

..

"WOOD TORREFIED

Description

Wood torrefied is wood that has been partially burned or roasted and formed into pellets or briquettes. Chocolate brown or black in colour. May contain up to 3% binder.

Characteristics

Angle of repose	Bulk density (kg/m ³)	Stowage factor (m ³ /t)
35° or less	650 to 800	1.25 to 1.54
Size	Class	Group
Pellets with a diameter of 6 to 12 mm. Briquettes with a thickness of 12 to 50 mm and a length and width up to 75 mm.	MHB	B

Hazard

Shipments may be subject to oxidation leading to depletion of oxygen and increase of carbon monoxide and carbon dioxide in cargo and adjacent spaces.

Wood torrefied is readily combustible and may self-heat and spontaneously combust.

Handling of wood torrefied may cause dust to develop with a subsequent risk of dust explosion when loading. Dust may cause eye, skin and respiratory irritation.

Stowage and segregation

Segregation as for class 4.1 materials.

Hold cleanliness

Clean and dry as relevant to the hazards of the cargo.

Weather precautions

This cargo shall be kept as dry as practicable. This cargo shall not be handled during precipitation. During handling of this cargo, all non-working hatches of the cargo spaces into which this cargo is loaded or to be loaded shall be closed.

Loading

Trim in accordance with the relevant provisions required under sections 4, 5 and 6 of the Code.

Precautions

Entry of personnel into cargo and adjacent confined spaces shall not be permitted until tests have been carried out and it has been established that the oxygen content and carbon monoxide levels have been restored to the following levels: oxygen 20.7% and carbon monoxide <100 ppm. If these conditions are not met, additional ventilation shall be applied to the cargo hold or adjacent confined spaces and remeasuring shall be conducted after a suitable interval. An oxygen and carbon monoxide meter shall be worn and activated by all crew when entering cargo and adjacent enclosed spaces.

Persons who may be exposed to the dust of the cargo shall wear protective clothing, goggles or other equivalent dust eye-protection and dust filter masks, as necessary.

Ventilation

Ventilation of enclosed spaces adjacent to a cargo hold before entry may be necessary even if these spaces are apparently sealed from the cargo hold.

Carriage

Hatches of the cargo spaces carrying this cargo shall be weathertight to prevent the ingress of water.

Discharge

No special requirements.

Clean-up

No special requirements.

Emergency procedures

Special emergency equipment to be carried Self-contained breathing apparatus and combined or individual oxygen and carbon monoxide meters should be available.
Emergency procedures Nil
Emergency action in the event of fire Batten down; use ship's fixed fire-fighting installation, if fitted. Exclusion of air may be sufficient to control fire. Extinguish fire with carbon dioxide, foam or water.
Medical First Aid Refer to the Medical First Aid Guide (MFAG), as amended.

”

Appendix 3 – Properties of solid bulk cargoes

1 Non-cohesive cargoes

49 In paragraph 1.1, the new following Bulk Cargo Shipping Names are inserted in alphabetical order:

"GRAIN SCREENING PELLETS"

"WOOD TORREFIED"

Appendix 4 – Index

50 Include in ALUMINA HYDRATE a synonym as:

"Aluminium hydroxide"

51 Insert an additional name under SAND as:

"

Material	Group	References
Spodumene	C	see SAND

"

52 In the line for SILICOMANGANESE in the line for Material, amend the Bulk Shipping Name to read "SILICOMANGANESE (low carbon)".

53 Include the following names in the alphabetical index:

"

Material	Group	References
ALUMINA HYDRATE	A and B	
ALUMINIUM SMELTING / REMELTING BY-PRODUCTS, PROCESSED	A and B	
CLINKER ASH, WET	A and B	
COAL TAR PITCH	B	
COARSE IRON AND STEEL SLAG AND ITS MIXTURE	C	
CRUSHED CARBON ANODES	C	
GRAIN SCREENING PELLETS	C	
GRANULATED NICKEL MATTE (LESS THAN 2% MOISTURE CONTENT)	B	
GYPSUM GRANULATED	C	
ILMENITE (ROCK)	C	
ILMENITE (UPGRADED)	A	
NICKEL ORE	A	
SAND, HEAVY MINERAL	A	
SILICON SLAG	C	
SOLIDIFIED FUELS RECYCLED FROM PAPER AND PLASTICS	B	
WOOD TORREFIED	B	

"

ANNEX 7

**RESOLUTION MSC.355(92)
(Adopted on 21 June 2013)**

**AMENDMENTS TO THE INTERNATIONAL CONVENTION
FOR SAFE CONTAINERS (CSC), 1972**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

NOTING article X of the International Convention for Safe Containers, 1972 (hereinafter referred to as "the Convention"), concerning the special procedure for amending the annexes to the Convention,

HAVING CONSIDERED, at its ninety-second session, proposed amendments to the Convention in accordance with the procedure set forth in paragraphs 1 and 2 of article X of the Convention,

1. ADOPTS the amendments to the annexes of the Convention, the text of which is set out in the annex to the present resolution;
2. DETERMINES, in accordance with paragraph 3 of article X of the Convention, that the said amendments shall enter into force on 1 July 2014 unless, prior to 1 January 2014, five or more of the Contracting Parties notify the Secretary-General of their objection to the amendments;
3. REQUESTS the Secretary-General, in conformity with paragraph 2 of article X of the Convention, to communicate the certified copies of the present resolution and the text of the amendments contained in the annex to all Contracting Parties for their acceptance;
4. ALSO REQUESTS the Secretary-General to inform all Contracting Parties and Members of the Organization of any request and communication under article X of the Convention and of the date on which the amendments enter into force.

* * *

ANNEX

**DRAFT AMENDMENTS TO
THE INTERNATIONAL CONVENTION FOR SAFE CONTAINERS (CSC), 1972**

**ANNEX I
REGULATIONS FOR THE TESTING, INSPECTION, APPROVAL
AND MAINTENANCE OF CONTAINERS**

**Chapter I
Regulations common to all systems of approval**

- 1 After the heading of chapter I, the following text is inserted:

"General Provisions

The following definitions shall be applied for the purpose of this annex:

The letter *g* means the standard acceleration of gravity; *g* equals 9.8 m/s².

The word *load*, when used to describe a physical quantity to which units may be ascribed, signifies mass.

Maximum operating gross mass or *Rating* or *R* means the maximum allowable sum of the mass of the container and its cargo. The letter *R* is expressed in units of mass. Where the annexes are based on gravitational forces derived from this value, that force, which is an inertial force, is indicated as *Rg*.

Maximum permissible payload or *P* means the difference between maximum operating gross mass or rating and tare. The letter *P* is expressed in units of mass. Where the annexes are based on the gravitational forces derived from this value, that force, which is an inertial force, is indicated as *Pg*.

Tare means the mass of the empty container, including permanently affixed ancillary equipment."

Regulation 1 – Safety Approval Plate

- 2 Subparagraph 1(b) of regulation 1 is amended as follows:

"(b) On each container, all maximum operating gross mass markings shall be consistent with the maximum operating gross mass information on the Safety Approval Plate.";

- 3 Subparagraph 2(a) is amended as follows:

"(a) The plate shall contain the following information in at least the English or French language:

"CSC SAFETY APPROVAL"

Country of approval and approval reference

Date (month and year) of manufacture

Manufacturer's identification number of the container or, in the case of existing containers for which that number is unknown,

the number allotted by the Administration
Maximum operating gross mass (kg and lbs)
Allowable stacking load for 1.8 g (kg and lbs)
Transverse racking test force (newtons)";

- 4 At the end of paragraph 3, a new text is added as follows:

", at or before their next scheduled examination or before any other date approved by the Administration, provided this is not later than 1 July 2015.";

- 5 After the existing paragraph 4, a new paragraph 5 is added as follows:

"5 A container, the construction of which was completed prior to 1 July 2014, may retain the Safety Approval Plate as permitted by the Convention prior to that date as long as no structural modifications occur to that container.".

Chapter IV

Regulations for approval of existing containers and new containers not approved at time of manufacture

Regulation 9 – Approval of existing containers

- 6 Subparagraphs 1(c) and 1(e) are amended as follows:

"(c) maximum operating gross mass capability;"

"(e) allowable stacking load for 1.8 g (kg and lbs); and"

Regulation 10 – Approval of new containers not approved at time of manufacture

- 7 Subparagraphs (c) and (e) are amended as follows:

"(c) maximum operating gross mass capability;"

"(e) allowable stacking load for 1.8 g (kg and lbs); and"

Appendix

- 8 The fourth, fifth and sixth lines of the model of the Safety Approval Plate reproduced in the appendix are amended as follows:

"MAXIMUM OPERATING GROSS MASS kg lbs
ALLOWABLE STACKING LOAD FOR 1.8 g kg lbs
TRANSVERSE RACKING TEST FORCE newtons"

- 9 Items 4 to 8 of the appendix are amended as follows:

"4 Maximum operating gross mass (kg and lbs).

5 Allowable stacking load for 1.8 g (kg and lbs).

6 Transverse racking test force (newtons).

- 7 End-wall strength to be indicated on plate only if end-walls are designed to withstand a force of less or greater than 0.4 times the gravitational force by maximum permissible payload, i.e. $0.4Pg$.
- 8 Side-wall strength to be indicated on plate only if the side-walls are designed to withstand a force of less or greater than 0.6 times the gravitational force by maximum permissible payload, i.e. $0.6Pg$."
- 10 The existing paragraphs 10 and 11 are replaced as follows:
- "10 One door off stacking strength to be indicated on plate only if the container is approved for one door off operation. The marking shall show: ALLOWABLE STACKING LOAD ONE DOOR OFF FOR 1.8 g (... kg ... lbs). This marking shall be displayed immediately near the stacking test value (see line 5).
- 11 One door off racking strength to be indicated on plate only if the container is approved for one door off operation. The marking shall show: TRANSVERSE RACKING TEST FORCE (... newtons). This marking shall be displayed immediately near the racking test value (see line 6)."

ANNEX II STRUCTURAL SAFETY REQUIREMENTS AND TESTS

- 11 After the heading of chapter II, the following text is inserted:

"General Provisions

The following definitions shall be applied for the purpose of this annex:

The letter *g* means the standard acceleration of gravity; *g* equals 9.8 m/s^2 .

The word *load*, when used to describe a physical quantity to which units may be ascribed, signifies mass.

Maximum operating gross mass or Rating or R means the maximum allowable sum of the mass of the container and its cargo. The letter *R* is expressed in units of mass. Where the annexes are based on gravitational forces derived from this value, that force, which is an inertial force, is indicated as *Rg*.

Maximum permissible payload or P means the difference between maximum operating gross mass or rating and tare. The letter *P* is expressed in units of mass. Where the annexes are based on the gravitational forces derived from this value, that force, which is an inertial force, is indicated as *Pg*.

Tare means the mass of the empty container, including permanently affixed ancillary equipment."

12 The first sentence of the Introduction to annex II (Structural safety requirements and tests) is amended as follows:

"In setting the requirements of this annex, it is implicit that, in all phases of the operation of containers, the forces as a result of motion, location, stacking and gravitational effect of the loaded container and external forces will not exceed the design strength of the container."

13 In section 1 (Lifting), subsection 1(A) (Lifting from corner fittings) the text concerning test loadings and applied forces is amended as follows:

"TEST LOAD AND APPLIED FORCES

Internal load:

A uniformly distributed load such that the sum of the mass of container and test load is equal to 2R. In the case of a tank container, when the test load of the internal load plus the tare is less than 2R, a supplementary load, distributed over the length of the tank, is to be added to the container.

Externally applied forces:

Such as to lift the sum of a mass of 2R in the manner prescribed (under the heading TEST PROCEDURES)."

14 In section 1 (Lifting), subsection 1(B) (Lifting by any other additional methods) is replaced with the following:

"TEST LOAD AND APPLIED FORCES

TEST PROCEDURES

Internal load:

A uniformly distributed load such that the sum of the mass of container and test load is equal to 1.25R.

Externally applied forces:

Such as to lift the sum of a mass of 1.25R in the manner prescribed (under the heading TEST PROCEDURES).

Internal load:

A uniformly distributed load such that the sum of the mass of container and test load is equal to 1.25R. In the case of a tank container, when the test load of the internal load plus the tare is less than 1.25R, a supplementary load, distributed over the length of the tank, is to be added to the container.

(i) *Lifting from fork-lift pockets:*

The container shall be placed on bars which are in the same horizontal plane, one bar being centred within each fork-lift pocket which is used for lifting the loaded container. The bars shall be of the same width as the forks intended to be used in the handling, and shall project into the fork pocket 75% of the length of the fork pocket.

(ii) *Lifting from grappler-arm positions:*

The container shall be placed on pads in the same horizontal plane, one under each grappler-arm position. These pads shall be of the same sizes as the lifting area of the grappler arms intended to be used.

Externally applied forces:

Such as to lift the sum of a mass of 1.25R in the manner prescribed (under the heading TEST PROCEDURES).

iii) *Other methods:*

Where containers are designed to be lifted in the loaded condition by any method not mentioned in (A) or (B)(i) and (ii) they shall also be tested with the internal load and externally applied forces representative of the acceleration conditions appropriate to that method."

15 Paragraphs 1 and 2 of section 2 (STACKING) are amended as follows:

"1 For conditions of international transport where the maximum vertical acceleration varies significantly from 1.8 g and when the container is reliably and effectively limited to such conditions of transport, the stacking load may be varied by the appropriate ratio of acceleration.

2 On successful completion of this test, the container may be rated for the allowable superimposed static stacking load, which should be indicated on the Safety Approval Plate against the heading ALLOWABLE STACKING LOAD FOR 1.8 g (kg and lbs)."

16 In section 2 (STACKING) the text concerning test loadings and applied forces is amended as follows:

"TEST LOAD AND APPLIED FORCES

Internal load:

A uniformly distributed load such that the sum of the mass of container and test load is equal to 1.8R. Tank containers may be tested in the tare condition.

Externally applied forces:

Such as to subject each of the four top corner fittings to a vertical downward force equal to $0.25 \times 1.8 \times$ the gravitational force of the allowable superimposed static stacking load."

17 Section 3 (CONCENTRATED LOADS) is amended as follows:

"TEST LOAD AND APPLIED FORCES

TEST PROCEDURES

(a) On roof

Internal load:

None.

The externally applied forces shall be applied vertically downwards to the outer surface of the weakest area of the roof of the container.

Externally applied forces:

A concentrated gravitational force of 300 kg (660 lbs) uniformly distributed over an area of 600 mm x 300 mm (24 in x 12 in).

(b) On floor

Internal load:

Two concentrated loads each of 2,730 kg (6,000 lbs) and each added to the container floor within a contact area of 142 cm² (22 sq in).

The test should be made with the container resting on four level supports under its four bottom corners in such a manner that the base structure of the container is free to deflect.

Externally applied forces:

None.

A testing device loaded to a mass of 5,460 kg (12,000 lbs), that is, 2,730 kg (6,000 lbs) on each of two surfaces, having, when loaded, a total contact area of 284 cm² (44 sq in), that is, 142 cm² (22 sq in) on each surface, the surface width being 180 mm (7 in) spaced 760 mm (30 in) apart, centre to centre, should be manoeuvred over the entire floor area of the container.

"

18 The heading and subheading of the text concerning test loadings and applied forces in section 4 (TRANSVERSE RACKING) are replaced with the following respectively:

"TEST LOAD AND APPLIED FORCES" and "**Internal load:**".

19 In section 5 (LONGITUDINAL RESTRAINT (STATIC TEST)), the text concerning test loadings and applied forces is amended as follows:

"TEST LOAD AND APPLIED FORCES

Internal load:

A uniformly distributed load, such that the sum of the mass of a container and test load is equal to the maximum operating gross mass or rating R. In the case of a tank container, when the mass of the internal load plus the tare is less than the maximum gross mass or rating, R, a supplementary load is to be added to the container.

Externally applied forces:

Such as to subject each side of the container to longitudinal compressive and tensile forces of magnitude R_g , that is, a combined force of $2R_g$ on the base of the container as a whole."

- 20 The first paragraph of section 6 (END-WALLS) is amended as follows:

"The end-walls should be capable of withstanding a force of not less than 0.4 times the force equal to gravitational force by maximum permissible payload. If, however, the end-walls are designed to withstand a force of less or greater than 0.4 times the gravitational force by maximum permissible payload, such a strength factor shall be indicated on the Safety Approval Plate in accordance with annex I, regulation 1."

- 21 In section 6 (END-WALLS), the text concerning test loadings and applied forces is amended as follows:

"TEST LOAD AND APPLIED FORCES

Internal load:

Such as to subject the inside of an end-wall to a uniformly distributed force of $0.4P_g$ or such other force for which the container may be designed.

Externally applied forces:

None."

- 22 The first paragraph of section 7 (SIDE-WALLS) is amended as follows:

"The side-walls should be capable of withstanding a force of not less than 0.6 times the force equal to the gravitational force by maximum permissible payload. If, however, the side-walls are designed to withstand a force of less or greater than 0.6 times the gravitational force by maximum permissible payload, such a strength factor shall be indicated on the Safety Approval Plate in accordance with annex I, regulation 1."

- 23 In section 7 (SIDE-WALLS), the text concerning test loadings and applied forces is amended as follows:

"TEST LOAD AND APPLIED FORCES

Internal load:

Such as to subject the inside of a side-wall to a uniformly distributed force of $0.6P_g$ or such other force for which the container may be designed.

Externally applied forces: None."

24 The existing section 8 (ONE DOOR OFF OPERATION), is replaced with the following:

"8 ONE DOOR OFF OPERATION

8.1 Containers with one door removed have a significant reduction in their ability to withstand racking forces and, potentially, a reduction in stacking strength. The removal of a door on a container in operation is considered a modification of the container. Containers must be approved for one door off operation. Such approval shall be based on test results as set forth below.

8.2 On successful completion of the stacking test the container may be rated for the allowable superimposed stacking load, which shall be indicated on the Safety Approval Plate immediately below line 5: ALLOWABLE STACKING LOAD FOR 1.8 g (kg and lbs) ONE DOOR OFF.

8.3 On successful completion of the racking test the transverse racking test force shall be indicated on the Safety Approval Plate immediately below line 6: TRANSVERSE RACKING TEST FORCE ONE DOOR OFF (newtons).

TEST LOAD AND APPLIED FORCES TEST PROCEDURES

Stacking

Internal load:

A uniformly distributed load such that the sum of the mass of container and test load is equal to 1.8R. The test procedures shall be as set forth under **2 STACKING**

Externally applied forces:

Such as to subject each of the four top corner fittings to a vertical downward force equal to $0.25 \times 1.8 \times$ the gravitational force of the allowable superimposed static stacking load.

Transverse racking

Internal load:

None.

The test procedures shall be as set forth under **4 TRANSVERSE RACKING**

Externally applied forces:

Such as to rack the end structures of the container sideways. The forces shall be equal to those for which the container was designed."

ANNEX III CONTROL AND VERIFICATION

25 The existing section 4 is replaced with the following:

"4 Structurally sensitive components

4.1 The following components are structurally sensitive and should be examined for deficiencies in accordance with the following table:

(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)
Structurally sensitive component	Serious deficiency requiring immediate out-of-service determination	Deficiency requiring advice to owner and restrictions for transport	Restrictions to be applied in case of deficiencies according to column (iii)			
			Empty container		Loaded container	
			Sea transport	Other modes	Sea transport	Other modes
Top rail	Local deformation to the rail in excess of 60 mm or separation or cracks or tears in the rail material in excess of 45 mm in length. (see Note 1)	Local deformation to the rail in excess of 40 mm or separation or cracks or tears in the rail material in excess of 10 mm in length. (see Note 1)	No restriction	No restriction	Bottom lifting not allowed, Top lifting allowed only by use of spreaders without chains	Bottom lifting not allowed, Top lifting allowed only by use of spreaders without chains
Note 1: On some designs of tank containers the top rail is not a structurally significant component.						
Bottom rail	Local deformation perpendicular to the rail in excess of 100 mm or separation cracks or tears in the rail's material in excess of 75 mm in length (see Note 2)	Local deformation perpendicular to the rail in excess of 60 mm or separation cracks or tears in the rail's material: in excess of 25 mm in length in the upper flange; or b) of web in any length (see Note 2)	No restriction	No restriction	Lifting at (any) corner fitting not allowed	Lifting at (any) corner fitting not allowed
Note 2: The rails material does not include the rail's bottom flange.						
Header	Local deformation to the header in excess of 80 mm or cracks or tears in excess of 80 mm in length	Local deformation to the header in excess of 50 mm or cracks or tears in excess of 10 mm in length	Container shall not be overstowed	No restriction	Container shall not be overstowed	No restriction

(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)
Structurally sensitive component	Serious deficiency requiring immediate out-of-service determination	Deficiency requiring advice to owner and restrictions for transport	Restrictions to be applied in case of deficiencies according to column (iii)			
			Empty container		Loaded container	
			Sea transport	Other modes	Sea transport	Other modes
Sill	Local deformation to the sill in excess of 100 mm or cracks or tears in excess of 100 mm in length.	Local deformation to the sill in excess of 60 mm or cracks or tears in excess of 10 mm in length	Container shall not be overstowed	No restrictions	Container shall not be overstowed	No restrictions
Corner posts	Local deformation to the post in excess of 50 mm or cracks or tears in excess of 50 mm in length	Local deformation to the post in excess of 30 mm or cracks or tears of any length	Container shall not be overstowed	No restrictions	Container shall not be overstowed	No restrictions
Corner and intermediate fittings	Missing corner fittings, any through cracks or tears in the fitting, any deformation of the fitting that precludes full engagement of the securing or lifting fittings (see Note 3) or any weld separation of adjoining components in excess of 50 mm in length	Weld separation of adjoining components of 50 mm or less	Container shall not be lifted on board a ship if the damaged fittings prevent safe lifting or securing.	Container shall be lifted and handled with special care	Container shall not be loaded on board a ship.	Container shall be lifted and handled with special care
		Any reduction in the thickness of the plate containing the top aperture that makes it less than 25 mm thick	Container shall be lifted and handled with special care Container shall not be overstowed when twistlocks have to be used	Container shall be lifted and handled with special care	Container shall not be lifted by the top corner fittings.	Container shall be lifted and handled with special care.
		Any reduction in the thickness of the plate containing the top aperture that makes it less than 26 mm thick	Container shall not be overstowed when fully automatic twistlocks are to be used	Container shall be lifted and handled with special care	Container shall not be used with fully automatic twistlocks.	Container shall be lifted and handled with special care.

(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)
Structurally sensitive component	Serious deficiency requiring immediate out-of-service determination	Deficiency requiring advice to owner and restrictions for transport	Restrictions to be applied in case of deficiencies according to column (iii)			
			Empty container		Loaded container	
			Sea transport	Other modes	Sea transport	Other modes
	Note 3 The full engagement of securing or lifting fittings is precluded if there is any deformation of the fitting beyond 5 mm from its original plane, any aperture width greater than 66 mm, any aperture length greater than 127 mm or any reduction in thickness of the plate containing the top aperture that makes it less than 23 mm thick.					
Understructure	Two or more adjacent cross members missing or detached from the bottom rails. 20% or more of the total number of cross members missing or detached. (see Note 4)	One or two cross members missing or detached (see Note 4)	No restrictions	No restrictions	No restrictions	No restrictions
		More than two cross members missing or detached (see Notes 4 and 5)	No restrictions	No restrictions	Maximum payload shall be restricted to 0.5 x P	Maximum payload shall be restricted to 0.5 x P
	Note 4: If onward transport is permitted, it is essential that detached cross members are precluded from falling free. Note 5: Careful cargo discharge is required as forklift capability of the understructure might be limited.					
Locking rods	One or more inner locking rods are non-functional (see Note 6)	One or more outer locking rods are non-functional (see Note 6)	Container shall not be overstowed	No restriction	Container shall not be overstowed. Cargo shall be secured against the container frame and the door shall not be used to absorb acceleration forces – otherwise maximum payload shall be restricted to 0.5 P	Cargo shall be secured against the container frame and the door shall not be used to absorb acceleration forces – otherwise maximum payload shall be restricted to 0.5 P
	Note 6: Some containers are designed and approved (and so recorded on the CSC Plate) to operate with one door open or removed.					

ANNEX 8

**RESOLUTION MSC.356(92)
(Adopted on 21 June 2013)**

**AMENDMENTS TO THE PROTOCOL OF 1988 RELATING TO
THE INTERNATIONAL CONVENTION ON LOAD LINES, 1966, AS AMENDED**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO article VI of the Protocol of 1988 relating to the International Convention on Load Lines, 1966 (hereinafter referred to as the "1988 Load Lines Protocol") concerning amendment procedures,

NOTING the proposed amendments to the 1988 Load Lines Protocol to make the Code for recognized organizations (RO Code) mandatory,

HAVING CONSIDERED, at its ninety-second session, amendments to the 1988 Load Lines Protocol proposed and circulated in accordance with paragraph 2(a) of article VI thereof,

1. ADOPTS, in accordance with paragraph 2(d) of article VI of the 1988 Load Lines Protocol, amendments to the 1988 Load Lines Protocol, the text of which is set out in the annex to the present resolution;
2. DETERMINES, in accordance with paragraph 2(f)(ii)(bb) of article VI of the 1988 Load Lines Protocol, that the said amendments shall be deemed to have been accepted on 1 July 2014, unless, prior to that date, more than one third of the Parties to the 1988 Load Lines Protocol or Parties the combined merchant fleets of which constitute not less than 50 per cent of the gross tonnage of all the merchant fleets of all Parties, have notified their objections to the amendments;
3. INVITES the Parties concerned to note that, in accordance with paragraph 2(g)(ii) of article VI of the 1988 Load Lines Protocol, the amendments shall enter into force on 1 January 2015 upon their acceptance in accordance with paragraph 2 above;
4. REQUESTS the Secretary-General, in conformity with paragraph 2(e) of article VI of the 1988 Load Lines Protocol, to transmit certified copies of the present resolution and the text of the amendments contained in the annex to all Parties to the 1988 Load Lines Protocol;
5. ALSO REQUESTS the Secretary-General to transmit copies of this resolution and its annex to Members of the Organization, which are not Parties to the 1988 Load Lines Protocol.

* * *

ANNEX

**AMENDMENTS TO ANNEX B TO THE PROTOCOL OF 1988 RELATING TO
THE INTERNATIONAL CONVENTION ON LOAD LINES, 1966, AS AMENDED**

ANNEX I

Regulations for determining load lines

Chapter I

General

Regulation 2-1 – Authorization of recognized organizations

- 1 The existing text of regulation 2-1 is replaced with the following:

"The Administration shall authorize organizations, including classification societies, referred to in article 13 of the Convention and regulation 1(2) in accordance with the provisions of the present Convention and with the Code for Recognized Organizations (RO Code), consisting of part 1 and part 2 (the provisions of which shall be treated as mandatory) and part 3 (the provisions of which shall be treated as recommendatory), as adopted by the Organization by resolution MSC.349(92), as may be amended by the Organization, provided that:

- (a) amendments to part 1 and part 2 of the RO Code are adopted, brought into force and take effect in accordance with the provisions of article VI of the present Protocol;
- (b) amendments to part 3 of the RO Code are adopted by the Maritime Safety Committee in accordance with its Rules of Procedure; and
- (c) any amendments adopted by the Maritime Safety Committee and the Marine Environment Protection Committee are identical and come into force or take effect at the same time, as appropriate."

ANNEX 9

**RESOLUTION MSC.357(92)
(Adopted on 21 June 2013)**

**AMENDMENTS TO THE CODE FOR THE CONSTRUCTION AND EQUIPMENT
OF MOBILE OFFSHORE DRILLING UNITS (MODU CODE)**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO that the Assembly, when adopting resolution A.414(XI) on the *Code for the Construction and Equipment of Mobile Offshore Drilling Units* (MODU Code), authorized the Committee to amend the Code as necessary after due consultation with relevant organizations as the Committee deems necessary,

RECOGNIZING the need for introduction into this Code of provisions for enclosed space entry and rescue drills,

HAVING CONSIDERED, at its ninety-second session, the recommendations made by the Sub-Committee on Dangerous Goods, Solid Cargoes and Containers, at its seventeenth session,

1. ADOPTS amendments to the MODU Code, set out in the annex to the present resolution;
2. INVITES all Governments concerned to take appropriate steps to give effect to the annexed amendments to the Code by 1 January 2015.

* * *

ANNEX

**AMENDMENTS TO THE CODE FOR THE CONSTRUCTION AND EQUIPMENT
OF MOBILE OFFSHORE DRILLING UNITS (MODU CODE)**

- 1 After subsection 10.6.3 "Emergency drills", insert new subsection 10.6.4 as follows:

"10.6.4 Enclosed space entry and rescue drills

- .1 Crew members with enclosed space entry or rescue responsibilities should participate in an enclosed space entry and rescue drill to be held on board the unit, at least once every two months.
- .2 Enclosed space entry and rescue drills should be planned and conducted in a safe manner, taking into account, as appropriate, the guidance provided in the recommendations developed by the Organization*.

* Refer to the *Revised recommendations for entering enclosed spaces aboard ships* (resolution A.1050(27)).

- .3 Each enclosed space entry and rescue drill should include:

- .1 checking and use of personal protective equipment required for entry;
- .2 checking and use of communication equipment and procedures;
- .3 checking and use of instruments for measuring the atmosphere in enclosed spaces;
- .4 checking and use of rescue equipment and procedures; and
- .5 instructions in first aid and resuscitation techniques."

- 2 Renumber existing subsection 10.6.4 as 10.6.5.

- 3 After existing section 14.4, insert new sections 14.5 and 14.6 as follows:

"14.5 Procedures for entry into enclosed spaces

Written procedures for entry into enclosed spaces should be provided which should take into account, as appropriate, the guidance provided in recommendations developed by the Organization*.

* Refer to the *Revised recommendations for entering enclosed spaces aboard ships* (resolution A.1050(27)).

14.6 Records

The date when musters and enclosed space entry and rescue drills are held, details of abandonment drills, drills of other life-saving appliances and onboard training should be recorded in such logbook as may be prescribed by the Administration. If a full muster, drill or training session is not held at the appointed time, an entry should be made in the logbook stating the circumstances and the extent of the muster, drill or training session held."

- 4 Renumber existing sections 14.5 to 14.7 as 14.7 to 14.9, respectively.

ANNEX 10

**RESOLUTION MSC.358(92)
(Adopted on 21 June 2013)**

**AMENDMENTS TO THE CODE FOR THE CONSTRUCTION AND EQUIPMENT OF
MOBILE OFFSHORE DRILLING UNITS, 1989 (1989 MODU CODE)**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO that the Assembly, when adopting resolution A.649(16) on the *Code for the Construction and Equipment of Mobile Offshore Drilling Units, 1989* (1989 MODU Code), authorized the Committee to amend the Code, when appropriate, taking into consideration the developing design and safety features after due consultation with appropriate organizations,

RECOGNIZING the need for introduction into this Code of provisions for enclosed space entry and rescue drills,

HAVING CONSIDERED, at its ninety-second session, the recommendations made by the Sub-Committee on Dangerous Goods, Solid Cargoes and Containers, at its seventeenth session,

1. ADOPTS amendments to the 1989 MODU Code, set out in the annex to the present resolution;
2. INVITES all Governments concerned to take appropriate steps to give effect to the annexed amendments to the 1989 MODU Code by 1 January 2015.

* * *

ANNEX

**AMENDMENTS TO THE CODE FOR THE CONSTRUCTION AND EQUIPMENT
OF MOBILE OFFSHORE DRILLING UNITS, 1989 (1989 MODU CODE)**

- 1 After existing section 14.4, insert new section 14.5 as follows:

"14.5 Procedures for entry into enclosed spaces

Written procedures for entry into enclosed spaces should be provided which should take into account, as appropriate, the guidance provided in recommendations developed by the Organization*.

* Refer to the *Revised recommendations for entering enclosed spaces aboard ships* (resolution A.1050(27))."

- 2 Renumber existing sections 14.5 to 14.11 as 14.6 to 14.12, respectively.

- 3 After renumbered section 14.12, insert new section 14.13 as follows:

"14.13 Enclosed space entry and rescue drills

- .1 Crew members with enclosed space entry or rescue responsibilities should participate in an enclosed space entry and rescue drill to be held on board the unit at least once every two months.
- .2 Enclosed space entry and rescue drills should be planned and conducted in a safe manner, taking into account, as appropriate, the guidance provided in the recommendations developed by the Organization*.

* Refer to the *Revised recommendations for entering enclosed spaces aboard ships* (resolution A.1050(27)).

- .3 Each enclosed space entry and rescue drill should include:

- .1 checking and use of personal protective equipment required for entry;
- .2 checking and use of communication equipment and procedures;
- .3 checking and use of instruments for measuring the atmosphere in enclosed spaces;
- .4 checking and use of rescue equipment and procedures; and
- .5 instructions in first aid and resuscitation techniques."

- 4 Renumber existing section 14.13 as 14.14 and amend it to read:

"14.14 Records

The date when musters and enclosed space entry and rescue drills are held, details of abandonment drills, drills of other life-saving appliances and onboard training should be recorded in such logbook as may be prescribed by the Administration. If a full muster, drill or training session is not held at the appointed time, an entry should be made in the logbook stating the circumstances and the extent of the muster, drill or training session held."

- 5 In the existing paragraphs 14.8.9 and 14.11.3, references to the renumbered paragraphs are updated.

ANNEX 11

**RESOLUTION MSC.359(92)
(Adopted on 21 June 2013)**

**AMENDMENTS TO THE CODE FOR THE CONSTRUCTION AND EQUIPMENT
OF MOBILE OFFSHORE DRILLING UNITS, 2009 (2009 MODU CODE)**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO that the Assembly, when adopting resolution A.1023(26) on the *Code for the Construction and Equipment of Mobile Offshore Drilling Units, 2009 (2009 MODU Code)*, authorized the Committee to amend the Code as appropriate, taking into consideration development in the design and technologies, in consultation with appropriate organizations,

RECOGNIZING the need for introduction into this Code of provisions for enclosed space entry and rescue drills,

HAVING CONSIDERED, at its ninety-second session, the recommendations made by the Sub-Committee on Dangerous Goods, Solid Cargoes and Containers, at its seventeenth session,

1. ADOPTS amendments to the 2009 MODU Code, set out in the annex to the present resolution;
2. INVITES all Governments concerned to take appropriate steps to give effect to the annexed amendments to the 2009 MODU Code by 1 January 2015.

* * *

ANNEX

**AMENDMENTS TO THE CODE FOR THE CONSTRUCTION AND EQUIPMENT OF
MOBILE OFFSHORE DRILLING UNITS, 2009 (2009 MODU CODE)**

- 1 After existing section 14.6, insert new section 14.7 as follows:

"14.7 Procedures for entry into enclosed spaces

Written procedures for entry into enclosed spaces should be provided which should take into account, as appropriate, the guidance provided in recommendations developed by the Organization*.

* Refer to the *Revised recommendations for entering enclosed spaces aboard ships* (resolution A.1050(27))."

- 2 Renumber existing sections 14.7 to 14.12 as 14.8 to 14.13, respectively.

- 3 After renumbered section 14.13, insert new section 14.14 to read:

"14.14 Enclosed space entry and rescue drills

.1 Crew members with enclosed space entry or rescue responsibilities should participate in an enclosed space entry and rescue drill to be held on board the unit at least once every two months. If a full drill is not held at the appointed time, an entry should be made in the official log or tour record stating the circumstances and the extent of the drill held.

.2 Enclosed space entry and rescue drills should be planned and conducted in a safe manner, taking into account, as appropriate, the guidance provided in the recommendations developed by the Organization*.

* Refer to the *Revised recommendations for entering enclosed spaces aboard ships* (resolution A.1050(27)).

.3 Each enclosed space entry and rescue drill should include:

- .1 checking and use of personal protective equipment required for entry;
- .2 checking and use of communication equipment and procedures;
- .3 checking and use of instruments for measuring the atmosphere in enclosed spaces;
- .4 checking and use of rescue equipment and procedures; and
- .5 instructions in first aid and resuscitation techniques."

- 4 Renumber existing sections 14.13 and 14.14 as 14.15 and 14.16, respectively.
- 5 In renumbered section 14.16 "Records", amend paragraph 14.16.1.2 to read:

"14.16.1.2 drills and exercises under paragraph 14.10.2 and sections 14.13 and 14.14."
- 6 In the existing paragraphs 14.1.2, 14.9.9, 14.12.3 and 14.14.2, references to the renumbered paragraphs are updated.

ANNEX 12

**RESOLUTION MSC.360(92)
(Adopted on 21 June 2013)**

**AMENDMENTS TO THE CODE OF SAFETY FOR DYNAMICALLY
SUPPORTED CRAFT (DSC CODE)**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO that the Assembly, when adopting resolution A.373(X) on the *Code of Safety for Dynamically Supported Craft* (DSC Code), authorized the Committee to amend the Code as may be necessary,

RECOGNIZING the need for introduction into this Code of provisions for enclosed space entry and rescue drills,

HAVING CONSIDERED, at its ninety-second session, the recommendations made by the Sub-Committee on Dangerous Goods, Solid Cargoes and Containers, at its seventeenth session,

1. ADOPTS amendments to the DSC Code, set out in the annex to the present resolution;
2. INVITES all Governments concerned to take appropriate steps to give effect to the annexed amendments to the Code by 1 January 2015.

* * *

ANNEX

**AMENDMENTS TO THE CODE OF SAFETY FOR DYNAMICALLY
SUPPORTED CRAFT (DSC CODE)**

Insert a new paragraph in chapter 17 "Operational requirements" as follows:

"17.5.4 Personnel with enclosed space entry or rescue responsibilities should participate in an enclosed space entry and rescue drill, to be held on board the craft, at least once every two months. Enclosed space entry and rescue drills should be planned and conducted in a safe manner, taking into account, as appropriate, the guidance provided in the recommendations developed by the Organization*.

* Refer to the *Revised recommendations for entering enclosed spaces aboard ships* (resolution A.1050(27))."

ANNEX 13

DRAFT AMENDMENTS TO SOLAS CHAPTER II-2

CHAPTER II-2

CONSTRUCTION – PROTECTION, FIRE DETECTION AND FIRE EXTINCTION

Part A – General

Regulation 1 – Application

- 1 The following new paragraph 2.6 is added after existing paragraph 2.5:

"2.6 Vehicle carriers constructed before [date of entry into force] shall comply with paragraph 2.2 of regulation 20-1, as adopted by resolution [MSC....(....)]."

Regulation 3 – Definitions

- 2 The following three new paragraphs are added after paragraph 53:

"54 *Fire damper* is a device installed in a ventilation duct, which under normal conditions remains open allowing flow in the duct, and is closed during a fire, preventing the flow in the duct to restrict the passage of fire. In using the above definition the following terms may be associated:

- .1 *automatic fire damper* is a fire damper that closes independently in response to exposure to fire products;
- .2 *manual fire damper* is a fire damper that is intended to be opened or closed by the crew by hand at the damper itself; and
- .3 *remotely operated fire damper* is a fire damper that is closed by the crew through a control located at a distance away from the controlled damper.

55 *Smoke damper* is a device installed in a ventilation duct, which under normal conditions remains open allowing flow in the duct, and is closed during a fire, preventing the flow in the duct to restrict the passage of smoke and hot gases. A smoke damper is not expected to contribute to the integrity of a fire rated division penetrated by a ventilation duct. In using the above definition the following terms may be associated:

- .1 *automatic smoke damper* is a smoke damper that closes independently in response to exposure to smoke or hot gases.
- .2 *manual smoke damper* is a smoke damper intended to be opened or closed by the crew by hand at the damper itself.
- .3 *remotely operated smoke damper* is a smoke damper that is closed by the crew through a control located at a distance away from the controlled damper.

56 *Vehicle carrier* means a cargo ship with multi deck ro-ro spaces designed for the carriage of empty cars and trucks as cargo."

Part B – Prevention of fire and explosion

Regulation 4 – Probability of ignition

3 The existing paragraph 5.5 is replaced by the following:

"5.5 Inert gas systems

5.5.1 Application

5.5.1.1 For tankers of 20,000 tonnes deadweight and upwards constructed on or after 1 July 2002 but before [*date of entry into force*], the protection of the cargo tanks shall be achieved by a fixed inert gas system in accordance with the requirements of the Fire Safety Systems Code, as adopted by resolution MSC.98(73), except that the Administration may accept other equivalent systems or arrangements, as described in paragraph 5.5.4.

5.5.1.2 For tankers of 8,000 tonnes deadweight and upwards constructed on or after [*date of entry into force*] when carrying cargoes described in regulation 1.6.1 or 1.6.2, the protection of the cargo tanks shall be achieved by a fixed inert gas system in accordance with the requirements of the Fire Safety Systems Code, except that the Administration may accept other equivalent systems or arrangements, as described in paragraph 5.5.4.

5.5.1.3 Tankers operating with a cargo tank cleaning procedure using crude oil washing shall be fitted with an inert gas system complying with the Fire Safety Systems Code and with fixed tank washing machines. However, inert gas systems fitted on tankers constructed on or after 1 July 2002 but before [*date of entry into force*] shall comply with the Fire Safety Systems Code, as adopted by resolution MSC.98(73).

5.5.1.4 Tankers required to be fitted with inert gas systems shall comply with the following provisions:

- .1 double-hull spaces shall be fitted with suitable connections for the supply of inert gas;
- .2 where hull spaces are connected to a permanently fitted inert gas distribution system, means shall be provided to prevent hydrocarbon gases from the cargo tanks entering the double hull spaces through the system; and
- .3 where such spaces are not permanently connected to an inert gas distribution system, appropriate means shall be provided to allow connection to the inert gas main.

5.5.2 Inert gas systems of chemical tankers and gas carriers

5.5.2.1 The requirements for inert gas systems contained in the Fire Safety Systems Code need not be applied to chemical tankers and gas carriers constructed before [*date of entry into force*]:

- .1 when carrying cargoes described in regulation 1.6.1, provided that they comply with the requirements for inert gas systems on chemical tankers established by the Administration, based on the guidelines developed by the Organization^{*}; or

^{*} Refer to the *Regulation for inert gas systems on chemical tankers*, adopted by the Organization by resolution A.567(14), and Corr.1.

- .2 when carrying flammable cargoes other than crude oil or petroleum products such as cargoes listed in chapters 17 and 18 of the International Bulk Chemical Code, provided that the capacity of tanks used for their carriage does not exceed 3,000 m³ and the individual nozzle capacities of tank washing machines do not exceed 17.5 m³/h and the total combined throughput from the number of machines in use in a cargo tank at any one time does not exceed 110 m³/h.

5.5.3 General requirements for inert gas systems

5.5.3.1 The inert gas system shall be capable of inerting, purging and gas-freeing empty tanks and maintaining the atmosphere in cargo tanks with the required oxygen content.

[5.5.3.2 The inert gas system referred to in paragraph 5.5.3.1 shall be designed, constructed and tested in accordance with the Fire Safety Systems Code.]

5.5.3.4 Tankers fitted with a fixed inert gas system shall be provided with a closed ullage system.

5.5.4 Requirements for equivalent systems

5.5.4.1 The Administration may, after having given consideration to the ship's arrangement and equipment, accept other fixed installations, in accordance with regulation I/5 and paragraph 5.5.4.3.

5.5.4.2 For tankers of 8,000 tonnes deadweight and upwards but less than 20,000 tonnes deadweight constructed on or after *[date of entry into force]*, the Administration may accept other equivalent arrangements or means of protection in lieu of fixed installations, in accordance with regulation I/5 and paragraph 5.5.4.3.

5.5.4.3 Equivalent systems or arrangements shall:

- .1 be capable of preventing dangerous accumulations of explosive mixtures in intact cargo tanks during normal service throughout the ballast voyage and necessary in-tank operations; and
- .2 be so designed as to minimize the risk of ignition from the generation of static electricity by the system itself."

Part C – Suppression of fire

Regulation 9 - Containment of fire

4 Paragraph 7 is replaced by the following:

"7 Ventilation systems

(This paragraph applies to ships constructed on or after [*date of entry into force*].)

7.1 General

7.1.1 Ventilation ducts, including single and double wall ducts, shall be of steel or equivalent material. Unless expressly provided otherwise in paragraph 7.1.6, any other material used in the construction of ducts, including insulation, shall also be non-combustible. However, short ducts, not generally exceeding 2 m in length and with a free cross-sectional area* not exceeding 0.02 m², need not be of steel or equivalent material, subject to the following conditions:

- .1 the ducts shall be made of heat resisting non-combustible material, which may be faced internally and externally with membranes having low flame-spread characteristics and, in each case, a calorific value** not exceeding 45 MJ/m² of their surface area for the thickness used;
- .2 the ducts are only used at the end of the ventilation device; and
- .3 the ducts are not situated less than 600 mm, measured along the duct, from an opening in an "A" or "B" class division, including continuous "B" class ceiling.

* The term *free cross-sectional area* means, even in the case of a pre-insulated duct, the area calculated on the basis of the inner dimensions of the duct itself and not the insulation.

** Refer to the recommendations published by the International Organization for Standardization, in particular publication ISO 1716:2002, Reaction to the fire tests for building products – Determination of the heat of combustion.

7.1.2 The following arrangements shall be tested in accordance with the Fire Test Procedures Code:

- .1 fire dampers, including their relevant means of operation, however, the testing is not required for dampers located at the lower end of the duct in exhaust ducts for galley ranges, which must be of steel and capable of stopping the draught in the duct; and
- .2 duct penetrations through "A" class divisions. However, the test is not required where steel sleeves are directly joined to ventilation ducts by means of riveted or screwed connections or by welding.

7.1.3 Fire dampers shall be easily accessible. Where they are placed behind ceilings or linings, these ceilings or linings shall be provided with an inspection hatch on which the identification number of the fire damper is marked. The fire damper identification number shall also be marked on any remote controls provided.

7.1.4 Ventilation ducts shall be provided with hatches for inspection and cleaning. The hatches shall be located near the fire dampers.

7.1.5 The main inlets and outlets of ventilation systems shall be capable of being closed from outside the spaces being ventilated. The means of closing shall be easily accessible as well as prominently and permanently marked and shall indicate the operating position of the closing device.

7.1.6 Combustible gaskets in flanged ventilation duct connections are not permitted within 600 mm of openings in "A" or "B" class divisions and in ducts required to be of "A" class construction.

7.1.7 Ventilation openings or air balance ducts between two enclosed spaces shall not be provided except as permitted by paragraphs II-2/9.4.1.2.1 and II-2/9.4.2.3.

7.2 Arrangement of ducts

7.2.1 The ventilation systems for machinery spaces of category A, vehicle spaces, ro-ro spaces, galleys, special category spaces and cargo spaces shall, in general, be separated from each other and from the ventilation systems serving other spaces. However, the galley ventilation systems on cargo ships of a gross tonnage of less than 4,000 and in passenger ships carrying not more than 36 passengers need not be completely separated from other ventilation systems, but may be served by separate ducts from a ventilation unit serving other spaces. In such a case, an automatic fire damper shall be fitted in the galley ventilation duct near the ventilation unit.

7.2.2 Ducts provided for the ventilation of machinery spaces of category A, galleys, vehicle spaces, ro-ro spaces or special category spaces shall not pass through accommodation spaces, service spaces, or control stations unless they comply with paragraph 7.2.4.

7.2.3 Ducts provided for the ventilation of accommodation spaces, service spaces or control stations shall not pass through machinery spaces of category A, galleys, vehicle spaces, ro-ro spaces or special category spaces unless they comply with paragraph 7.2.4.

7.2.4 As permitted by paragraphs 7.2.2 and 7.2.3 ducts shall be:

- .1 constructed of steel having a thickness of at least 3 mm for ducts with a free cross-sectional area of less than 0.075 m², at least 4 mm for ducts with a free cross-sectional area of between 0.075 m² and 0.45 m², and at least 5 mm for ducts with a free cross-sectional area of over 0.45 m²;
- .2 suitably supported and stiffened;
- .3 fitted with automatic fire dampers close to the boundaries penetrated; and
- .4 insulated to "A-60" class standard from the boundaries of the spaces they serve to a point at least 5 m beyond each fire damper;

or

- .5 constructed of steel in accordance with paragraphs 7.2.4.1.1 and 7.2.4.1.2; and
- .6 insulated to "A-60" class standard throughout the spaces they pass through, except for ducts that pass through spaces of category (9) or (10) as defined in paragraph 9.2.2.3.2.2.

7.2.5 For the purposes of paragraphs 7.2.4.4 and 7.2.4.6, ducts shall be insulated over their entire cross-sectional external surface. Ducts that are outside but adjacent to the specified space, and share one or more surfaces with it, shall be considered to pass through the specified space, and shall be insulated over the surface they share with the space for a distance of 450 mm past the duct*.

* Sketches of such arrangements are contained in the Unified Interpretations of SOLAS chapter II-2 (MSC.1/Circ.1276).

7.2.6 Where it is necessary that a ventilation duct passes through a main vertical zone division, an automatic fire damper shall be fitted adjacent to the division. The damper shall also be capable of being manually closed from each side of the division. The control location shall be readily accessible and be clearly and prominently marked. The duct between the division and the damper shall be constructed of steel in accordance with paragraphs 7.2.4.1 and 7.2.4.2 and insulated to at least the same fire integrity as the division penetrated. The damper shall be fitted on at least one side of the division with a visible indicator showing the operating position of the damper.

7.3 Details of fire dampers and duct penetrations

7.3.1 Ducts passing through "A" class divisions shall meet the following requirements:

- .1 Where a thin plated duct with a free cross sectional area equal to, or less than, 0.02 m^2 passes through "A" class divisions, the opening shall be fitted with a steel sheet sleeve having a thickness of at least 3 mm and a length of at least 200 mm, divided preferably into 100 mm on each side of a bulkhead or, in the case of a deck, wholly laid on the lower side of the decks penetrated.
- .2 Where ventilation ducts with a free cross-sectional area exceeding 0.02 m^2 , but not more than 0.075 m^2 , pass through "A" class divisions, the openings shall be lined with steel sheet sleeves. The ducts and sleeves shall have a thickness of at least 3 mm and a length of at least 900 mm. When passing through bulkheads, this length shall be divided preferably into 450 mm on each side of the bulkhead. These ducts, or sleeves lining such ducts, shall be provided with fire insulation. The insulation shall have at least the same fire integrity as the division through which the duct passes.

- .3 Automatic fire dampers shall be fitted in all ducts with a free cross-sectional area exceeding 0.075 m^2 that pass through "A" class divisions. Each damper shall be fitted close to the division penetrated and the duct between the damper and division penetrated shall be constructed of steel in accordance with paragraphs 7.2.4.5 and 7.2.4.6. The fire damper shall operate automatically, but shall also be capable of being closed manually from both sides of the division. The damper shall be fitted with a visible indicator which shows the operating position of the damper. Fire dampers are not required, however, where ducts pass through spaces surrounded by "A" class divisions, without serving those spaces, provided those ducts have the same fire integrity as the divisions which they penetrate. A duct of cross-sectional area exceeding 0.075 m^2 shall not be divided into smaller ducts at the penetration of an "A" class division and then recombined into the original duct once through the division to avoid installing the damper required by this provision.

7.3.2 Ventilation ducts with a free cross-sectional area exceeding 0.02 m^2 passing through "B" class bulkheads shall be lined with steel sheet sleeves of 900 mm in length, divided preferably into 450 mm on each side of the bulkheads unless the duct is of steel for this length.

7.3.3 All fire dampers shall be capable of manual operation. The dampers shall have a direct mechanical means of release or, alternatively, be closed by electrical, hydraulic, or pneumatic operation. All dampers shall be manually operable from both sides of the division. Automatic fire dampers, including those capable of remote operation, shall have a failsafe mechanism that will close the damper in a fire even upon loss of electrical power or hydraulic or pneumatic pressure loss. Remotely operated fire dampers shall be capable of being reopened manually at the damper.

7.4 Ventilation systems for passenger ships carrying more than 36 passengers

7.4.1 In addition to the requirements in sections 7.1, 7.2 and 7.3, the ventilation system of a passenger ship carrying more than 36 passengers shall also meet the following requirements.

7.4.2 In general, the ventilation fans shall be so arranged that the ducts reaching the various spaces remain within a main vertical zone.

7.4.3 Stairway enclosures shall be served by an independent ventilation fan and duct system (exhaust and supply) which shall not serve any other spaces in the ventilation systems.

7.4.4 A duct, irrespective of its cross-section, serving more than one 'tween-deck accommodation space, service space or control station, shall be fitted, near the penetration of each deck of such spaces, with an automatic smoke damper that shall also be capable of being closed manually from the protected deck above the damper. Where a fan serves more than one 'tween-deck space through separate ducts within a main vertical zone, each dedicated to a single 'tween-deck space, each duct shall be provided with a manually operated smoke damper fitted close to the fan.

7.4.5 Vertical ducts shall, if necessary, be insulated as required by tables 9.1 and 9.2. Ducts shall be insulated as required for decks between the space they serve and the space being considered, as applicable.

7.5 Exhaust ducts from galley ranges

7.5.1 Requirements for passenger ships carrying more than 36 passengers

7.5.1.1 In addition to the requirements in sections 7.1, 7.2 and 7.3, exhaust ducts from galley ranges shall be constructed in accordance with paragraphs 7.2.4.5 and 7.2.4.6 and insulated to "A-60" class standard throughout accommodation spaces, service spaces, or control stations they pass through. They shall also be fitted with:

- .1 a grease trap readily removable for cleaning unless an alternative approved grease removal system is fitted;
- .2 a fire damper located in the lower end of the duct at the junction between the duct and the galley range hood which is automatically and remotely operated and, in addition, a remotely operated fire damper located in the upper end of the duct close to the outlet of the duct;
- .3 a fixed means for extinguishing a fire within the duct*;
- .4 remote-control arrangements for shutting off the exhaust fans and supply fans, for operating the fire dampers mentioned in paragraph 7.5.1.1.2 and for operating the fire-extinguishing system, which shall be placed in a position outside the galley close to the entrance to the galley. Where a multi-branch system is installed, a remote means located with the above controls shall be provided to close all branches exhausting through the same main duct before an extinguishing medium is released into the system; and
- .5 suitably located hatches for inspection and cleaning, including one provided close to the exhaust fan and one fitted in the lower end where grease accumulates.

* Refer to the recommendations published by the International Organization for Standardization, in particular publication ISO 15371:2009, Ships and marine technology – Fire-extinguishing systems for protection of galley cooking equipment.

7.5.1.2 Exhaust ducts from ranges for cooking equipment installed on open decks shall conform to paragraph 7.5.1.1, as applicable, when passing through accommodation spaces or spaces containing combustible materials.

7.5.2 Requirements for cargo ships and passenger ships carrying not more than 36 passengers

When passing through accommodation spaces or spaces containing combustible materials, the exhaust ducts from galley ranges shall be constructed in accordance with paragraphs 7.2.4.1 and 7.2.4.2. Each exhaust duct shall be fitted with:

- .1 a grease trap readily removable for cleaning;
- .2 an automatically and remotely operated fire damper located in the lower end of the duct at the junction between the duct and the galley range hood and, in addition, a remotely operated fire damper in the upper end of the duct close to the outlet of the duct;
- .3 arrangements, operable from within the galley, for shutting off the exhaust and supply fans; and
- .4 fixed means for extinguishing a fire within the duct.*

* Refer to the recommendations published by the International Organization for Standardization, in particular publication ISO 15371:2009, Ships and marine technology – Fire-extinguishing systems for protection of galley cooking equipment.

7.6 Ventilation rooms serving machinery spaces of category A containing internal combustion machinery

7.6.1 Where a ventilation room serves only such an adjacent machinery space and there is no fire division between the ventilation room and the machinery space, the means for closing the ventilation duct or ducts serving the machinery space shall be located outside of the ventilation room and machinery space.

7.6.2 Where a ventilation room serves such a machinery space as well as other spaces and is separated from the machinery space by a "A-0" class division, including penetrations, the means for closing the ventilation duct or ducts for the machinery space can be located in the ventilation room. In this case, the ventilation ducts shall be dedicated to the machinery space in question.

7.7 Ventilation systems for laundries in passenger ships carrying more than 36 passengers

Exhaust ducts from laundries and drying rooms of category (13) spaces as defined in paragraph 9.2.2.3.2.2 shall be fitted with:

- .1 filters readily removable for cleaning purposes;
- .2 a fire damper located in the lower end of the duct which is automatically and remotely operated;
- .3 remote-control arrangements for shutting off the exhaust fans and supply fans from within the space and for operating the fire damper mentioned in paragraph 7.7.1.2; and
- .4 suitably located hatches for inspection and cleaning."

Regulation 10 – Fire fighting

5 Paragraph 1 (Purpose), is replaced by the following:

"1.1 The purpose of this regulation is to suppress and swiftly extinguish a fire in the space of origin, except for paragraph 1.2. For this purpose, the following functional requirements shall be met:

- .1 fixed fire-extinguishing systems shall be installed having due regard to the fire growth potential of the protected spaces; and
- .2 fire-extinguishing appliances shall be readily available.

1.2 For open-top container holds* and on deck container stowage areas on ships designed to carry containers on or above the weather deck, constructed on or after [date of entry into force], fire protection arrangements shall be provided for the purpose of containing a fire in the space or area of origin and cooling adjacent areas to prevent fire spread and structural damage.

* For a definition of this term, refer to the Interim guidelines for open-top containerships (MSC/Circ.608/Rev.1)."

6 In paragraph 2.1.3, add the words ",other than those included in paragraph 7.3.2," between the words "cargo ships" and "the diameter".

7 In paragraph 2.2.4.1.2, add the words ",other than those included in paragraph 7.3.2," between the words "cargo ship" and "need".

8 The following new paragraph 7.3 is added after existing paragraph 7.2:

"7.3 Fire fighting for ships designed to carry containers on or above the weather deck, constructed on or after [date of entry into force]

7.3.1 Ships shall carry, in addition to the equipment and arrangements required by regulations 10.1 and 10.2, at least one water mist lance.

7.3.1.1 The water mist lance shall consist of a tube with a piercing nozzle which is capable of penetrating a container wall and producing water mist inside a confined space (container, etc.) when connected to the fire main.

7.3.2 Ships designed to carry five or more tiers of containers on or above the weather deck shall carry, in addition to the requirements of paragraph 7.3.1, mobile water monitors* as follows:

ships with breadth up to 30 m:	at least two mobile water monitors
ships with breadth of 30 m or more:	at least four mobile water monitors

* Refer to the *Guidelines for the design, performance, testing and approval of mobile water monitors used for the protection of on-deck cargo areas of ships designed and constructed to carry five or more tiers of containers on or above the weather deck* (MSC.1/Circ...).

7.3.2.1 The mobile water monitors, all necessary hoses, fittings and required fixing hardware shall be kept ready for use in a location outside the cargo space area not likely to be cut-off in the event of a fire in the cargo spaces.

7.3.2.2 A sufficient number of fire hydrants shall be provided such that:

- .1 all provided mobile water monitors can be operated simultaneously for creating effective water barriers forward and aft of each container bay;

- .2 the two jets of water required by paragraph 2.1.5.1 can be supplied at the pressure required by paragraph 2.1.6; and
- .3 each of the required mobile water monitors can be supplied by separate hydrants at the pressure necessary to reach the top tier of containers on deck.

7.3.2.3 The mobile water monitors may be supplied by the fire main, provided the capacity of fire pumps and fire main diameter are adequate to simultaneously operate the mobile water monitors and two jets of water from fire hoses at the required pressure values. If carrying dangerous goods, the capacity of fire pumps and fire main diameter shall also comply with regulation 19.3.1.5, as far as applicable to on-deck cargo areas.

7.3.2.4 The operational performance of each mobile water monitor shall be tested during initial survey on board the ship to the satisfaction of the Administration. The test shall verify that:

- .1 the mobile water monitor can be securely fixed to the ship structure ensuring safe and effective operation; and
- .2 the mobile water monitor jet reaches the top tier of containers with all required monitors and water jets from fire hoses operated simultaneously."

Part D – Escape

Regulation 13 – Means of escape

9 The following new subparagraph 4.1.1.3 is added after existing subparagraph 4.1.1.2, and a semi-colon and the word "and" are added at the end of subparagraph 4.1.1.2:

- ".3 all inclined ladders/stairways with open treads in machinery spaces being part of or providing access to escape routes but not located within a protected enclosure shall be made of steel. Such ladders/stairways shall be fitted with steel shields attached to their undersides, such as to provide escaping personnel protection against heat and flame from beneath."

10 The following new paragraph 4.1.5 is inserted after existing paragraph 4.1.4:

"4.1.5 Escape from main workshops within machinery spaces

Two means of escape shall be provided from the main workshop within a machinery space. At least one of these escape routes shall provide a continuous fire shelter to a safe position outside the machinery space."

11 In the first sentence of paragraph 4.2.1, the words "paragraph 4.2.2" are replaced with the words "paragraph 4.2.4".

12 The following new subparagraph 4.2.1.3 is added after existing subparagraph 4.2.1.2, and a semi-colon and the word "and" are added at the end of subparagraph 4.2.1.2:

- "3 all inclined ladders/stairways with open treads in machinery spaces being part of or providing access to escape routes but not located within a protected enclosure shall be made of steel. Such ladders/stairways shall be fitted with steel shields attached to their undersides, such as to provide escaping personnel protection against heat and flame from beneath."

13 The following new paragraphs 4.2.2 and 4.2.3 are inserted after existing paragraph 4.2.1 and the following paragraphs are renumbered accordingly:

"4.2.2 *Escape from machinery control rooms in machinery spaces of category "A"*

Two means of escape shall be provided from the machinery control room located within a machinery space. At least one of these escape routes shall provide a continuous fire shelter to a safe position outside the machinery space.

4.2.3 *Escape from main workshops in machinery spaces of category "A"*

Two means of escape shall be provided from the main workshop within a machinery space. At least one of these escape routes shall provide a continuous fire shelter to a safe position outside the machinery space."

Part E – Operational requirements

Regulation 16 – Operations

14 Insert a new paragraph 3.3 after the existing paragraph 3.2 as follows:

"3.3 Operation of inert gas system

3.3.1 The inert gas system for tankers required in accordance with regulation 4.5.5.1 shall be so operated as to render and maintain the atmosphere of the cargo tanks non-flammable, except when such tanks are required to be gas-free.

3.3.2 Notwithstanding the above, for chemical tankers, the application of inert gas, may take place after the cargo tank has been loaded, but before commencement of unloading and shall continue to be applied until that cargo tank has been purged of all flammable vapours before gas-freeing. Only nitrogen is acceptable as inert gas under this provision.

3.3.3 If the oxygen content of the inert gas exceeds 5 per cent by volume, immediate action shall be taken to improve the gas quality. Unless the quality of the gas improves, all operations in those cargo tanks to which inert gas is being supplied shall be suspended so as to avoid air being drawn into the cargo tanks, the gas regulating valve, if fitted, shall be closed and the off-specification gas shall be vented to atmosphere.

3.3.4 In the event that the inert gas system is unable to meet the requirement in paragraph 16.3.3.1 and it has been assessed that it is impracticable to effect a repair, then cargo discharge and cleaning of those cargo tanks requiring inerting shall only be resumed when suitable emergency procedures have been followed, taking into account guidelines developed by the Organization*.

* Refer to the Clarification of inert gas system requirements under the Convention (MSC/Circ.485) and to the *Revised Guidelines for inert gas systems* (MSC/Circ.353), as amended by MSC/Circ.387."

Part G – Special requirements

Regulation 18 – Helicopter facilities

15 Paragraphs 5.1.3 to 5.1.5 are replaced by the following, and the remaining paragraphs are renumbered accordingly:

- "3 a foam application system in accordance with the guidelines developed by the Organization";

^{*} Refer to the *Guidelines for the approval of helicopter facility foam fire-fighting appliances* (MSC.1/Circ.1431)."

16 The following new regulation 20-1 is added after existing regulation 20:

"Regulation 20-1 – Requirements for vehicle carriers carrying motor vehicles with compressed hydrogen or natural gas in their tanks for their own propulsion as cargo"

1 Purpose

The purpose of this regulation is to provide additional safety measures in order to address the fire safety objectives of this chapter for vehicle carriers with vehicle and ro-ro spaces intended for carriage of motor vehicles with compressed hydrogen or compressed natural gas in their tanks for their own propulsion as cargo.

2 Application

2.1 In addition to complying with the requirements of regulation 20, as appropriate, vehicle spaces of a vehicle carrier constructed on or after [*date of entry into force*] intended for the carriage of motor vehicles with compressed hydrogen or compressed natural gas in their tanks for their own propulsion as cargo shall comply with the requirements in paragraphs 3 to 5 of this regulation.

2.2 In addition to complying with the requirements of regulation 20, as appropriate, a vehicle carrier constructed before [*date of entry into force*] shall comply with the requirements in paragraph 5 of this regulation.

3 Requirements for spaces intended for carriage of motor vehicles with compressed natural gas in their tanks for their own propulsion as cargo

3.1 Electrical equipment and wiring

All electrical equipment and wiring shall be of a certified safe type for use in an explosive methane and air mixture*.

^{*} Refer to the recommendations of the International Electrotechnical Commission, in particular, publication IEC 60079.

3.2 Ventilation arrangement

3.2.1 Electrical equipment and wiring, if installed in any ventilation duct, shall be of a certified safe type for use in explosive methane and air mixtures.

3.2.2 The fans shall be such as to avoid the possibility of ignition of methane and air mixtures. Suitable wire mesh guards shall be fitted over inner and outlet ventilation openings.

3.3 Other ignition sources

Other equipment which may constitute a source of ignition of methane and air mixtures shall not be permitted.

4 Requirements for spaces intended for carriage of motor vehicles with compressed hydrogen in their tanks for their own propulsion as cargo

4.1 Electrical equipment and wiring

All electrical equipment and wiring shall be of a certified safe type for use in an explosive hydrogen and air mixture*.

* Refer to the recommendations of the International Electrotechnical Commission, in particular, publication IEC 60079.

4.2 Ventilation arrangement

4.2.1 Electrical equipment and wiring, if installed in any ventilation duct, shall be of a certified safe type for use in explosive hydrogen and air mixtures and the outlet from any exhaust duct shall be sited in a safe position, having regard to other possible sources of ignition.

4.2.2 The fans shall be designed such as to avoid the possibility of ignition of hydrogen and air mixtures. Suitable wire mesh guards shall be fitted over inner and outlet ventilation openings.

4.3 Other ignition sources

Other equipment which may constitute a source of ignition of hydrogen and air mixtures shall not be permitted.

5 Detection

When a vehicle carrier carries as cargo one or more motor vehicles with either compressed hydrogen or compressed natural gas in their tanks for their own propulsion, at least two portable gas detectors shall be provided. Such detectors shall be suitable for the detection of the gas fuel and be of a certified safe type for use in the explosive gas and air mixture."

ANNEX 14

DRAFT AMENDMENTS TO THE INTERNATIONAL CODE FOR FIRE SAFETY SYSTEMS (FSS CODE)

CHAPTER 15 INERT GAS SYSTEMS

The text of existing chapter 15 is replaced by the following:

1 Application

This chapter details the specifications for inert gas systems as required by chapter II-2 of the Convention.

2 Engineering specifications

2.1 Definitions

For the purposes of this chapter:

2.1.1 *Cargo tanks* means those cargo tanks, including slop tanks, which carry cargoes, or cargo residues, having a flashpoint not exceeding 60°C.

2.1.2 *Inert gas system* includes inert gas systems using flue gas, inert gas generators, and nitrogen generators and means the inert gas plant and inert gas distribution together with means for preventing backflow of cargo gases to machinery spaces, fixed and portable measuring instruments and control devices.

2.1.3 *Gas-safe space* is a space in which the entry of gases would produce hazards with regard to flammability or toxicity.

2.1.4 *Gas-free* is a condition in a tank where the content of hydrocarbon or other flammable vapour is less than 1 per cent of the lower flammable limit (LFL), the oxygen content is at least 21 per cent, and no toxic gases are present*.

* Refer to the *Revised Recommendations for entering enclosed spaces aboard ships* (resolution A.1050(27)).

2.2 Requirements for all systems

2.2.1 General

2.2.1.1 The inert gas system referred to in chapter II-2 of the Convention shall be designed, constructed and tested to the satisfaction of the Administration. It shall be designed to be capable of rendering and maintaining the atmosphere of the relevant cargo tanks non-flammable*.

* Refer to the *Revised Standards for the design, testing and locating of devices to prevent the passage of flame into cargo tanks in tankers* (MSC/Circ.677, as amended by MSC/Circ.1009 and MSC.1/Circ.1324) and the *Revised Factors to be taken into consideration when designing cargo tank venting and gas-freeing arrangements* (MSC/Circ.731).

2.2.1.2 The system shall be capable of:

- .1 inerting empty cargo tanks and maintaining the atmosphere in any part of the tank with an oxygen content not exceeding 8 per cent by volume and at a positive pressure in port and at sea except when it is necessary for such a tank to be gas-free;
- .2 eliminating the need for air to enter a tank during normal operations except when it is necessary for such a tank to be gas-free;
- .3 purging empty cargo tanks of hydrocarbon or other flammable vapours, so that subsequent gas-freeing operations will at no time create a flammable atmosphere within the tank;
- .4 delivering inert gas to the cargo tanks at a rate of at least 125 per cent of the maximum rate of discharge capacity of the ship expressed as a volume. For chemical tankers and chemical/product tankers, the Administration may accept inert gas systems having a lower delivery capacity provided that the maximum rate of discharge of cargoes from cargo tanks being protected by the system is restricted to not more than 80 per cent of the inert gas capacity; and
- .5 delivering inert gas with an oxygen content of not more than 5 per cent by volume to the cargo tanks at any required rate of flow.

2.2.1.3 Materials used in inert gas systems shall be suitable for their intended purpose. In particular, those components which may be subjected to corrosive action of the gases and/or liquids are to be either constructed of corrosion-resistant material or lined with rubber, glass fibre epoxy resin or other equivalent coating material.

2.2.1.4 The inert gas supply may be:

- .1 treated flue gas from main or auxiliary boilers, or
- .2 gas from an oil or gas-fired gas generator, or
- .3 gas from nitrogen generators.

The Administration may accept systems using inert gases from one or more separate gas generators or other sources or any combination thereof, provided that an equivalent level of safety is achieved. Such systems shall, as far as practicable, comply with the requirements of this chapter. Systems using stored carbon dioxide shall not be permitted unless the Administration is satisfied that the risk of ignition from generation of static electricity by the system itself is minimized.

2.2.2 Safety measures

2.2.2.1 The inert gas system shall be so designed that the maximum pressure which it can exert on any cargo tank will not exceed the test pressure of any cargo tank.

2.2.2.2 Automatic shutdown of the inert gas system and its components parts shall be arranged on predetermined limits being reached, taking into account the provisions of paragraphs 2.2.4, 2.3.2 and 2.4.2.

2.2.2.3 Suitable shutoff arrangements shall be provided on the discharge outlet of each generator plant.

2.2.2.4 The system shall be designed to ensure that if the oxygen content exceeds 5 per cent by volume, the inert gas shall be automatically vented to atmosphere.

2.2.2.5 Arrangements shall be provided to enable the functioning of the inert gas plant to be stabilized before commencing cargo discharge. If blowers are to be used for gas-freeing, their air inlets shall be provided with blanking arrangements.

2.2.2.6 Where a double block and bleed valve is installed, the system shall ensure upon loss of power, the block valves are automatically closed and the bleed valve is automatically open.

2.2.3 System components

2.2.3.1 Non-return devices

2.2.3.1.1 At least two non-return devices shall be fitted in order to prevent the return of vapour and liquid to the inert gas plant, or to any gas-safe spaces.

2.2.3.1.2 The first non-return device shall be a deck seal of the wet, semi-wet, or dry type or a double-block and bleed arrangement. Two shut-off valves in series with a venting valve in between, may be accepted provided:

- .1 the operation of the valve is automatically executed. Signal(s) for opening/closing is (are) to be taken from the process directly, e.g. inert gas flow or differential pressure; and
- .2 alarm for faulty operation of the valves is provided, e.g. the operation status of "blower stop" and "supply valve(s) open" is an alarm condition.

2.2.3.1.3 The second non-return device shall be a non-return valve or equivalent capable of preventing the return of vapours and liquids and fitted between the deck water seal (or equivalent device) and the first connection from the inert gas main to a cargo tank. It shall be provided with positive means of closure. As an alternative to positive means of closure, an additional valve having such means of closure may be provided between the non-return valve and the first connection to the cargo tanks to isolate the deck water seal, or equivalent device, from the inert gas main to the cargo tanks.

2.2.3.1.4 A water seal, if fitted, shall be capable of being supplied by two separate pumps, each of which shall be capable of maintaining an adequate supply at all times. The audible and visual alarm on the low level of water in the water seal shall operate at all times.

2.2.3.1.5 The arrangement of the water seal, or equivalent devices, and its associated fittings shall be such that it will prevent backflow of vapours and liquids and will ensure the proper functioning of the seal under operating conditions.

2.2.3.1.6 Provision shall be made to ensure that the water seal is protected against freezing, in such a way that the integrity of seal is not impaired by overheating.

2.2.3.1.7 A water loop or other approved arrangement shall also be fitted to each associated water supply and drain pipe and each venting or pressure-sensing pipe leading to gas-safe spaces. Means shall be provided to prevent such loops from being emptied by vacuum.

2.2.3.1.8 Any water seal, or equivalent device, and loop arrangements shall be capable of preventing return of vapours and liquids to an inert gas plant at a pressure equal to the test pressure of the cargo tanks.

2.2.3.1.9 The non-return devices shall be located in the cargo area on deck.

2.2.3.2 *Inert gas lines*

2.2.3.2.1 The inert gas main may be divided into two or more branches forward of the non-return devices required by paragraph 2.2.3.1.

2.2.3.2.2 The inert gas main shall be fitted with branch piping leading to the cargo tank. Branch piping for inert gas shall be fitted with either stop valves or equivalent means of control for isolating each tank. Where stop valves are fitted, they shall be provided with locking arrangements. The control system shall provide unambiguous information of the operational status of such valves to at least the control panel required in paragraph 2.2.4.

2.2.3.2.3 Each cargo tank not being inerted shall be capable of being separated from the inert gas main by:

- .1 removing spool-pieces, valves or other pipe sections, and blanking the pipe ends; or
- .2 arrangement of two spectacle flanges in series with provisions for detecting leakage into the pipe between the two spectacle flanges; or
- .3 equivalent arrangements to the satisfaction of the Administration, providing at least the same level of protection.

2.2.3.2.4 Means shall be provided to protect cargo tanks against the effect of overpressure or vacuum caused by thermal variations and/or cargo operations when the cargo tanks are isolated from the inert gas mains.

2.2.3.2.5 Piping systems shall be so designed as to prevent the accumulation of cargo or water in the pipelines under all normal conditions.

2.2.3.2.6 Arrangements shall be provided to enable the inert gas main to be connected to an external supply of inert gas. The arrangements shall consist of a 250 mm nominal pipe size bolted flange, isolated from the inert gas main by a valve and located forward of the non-return valve. The design of the flange should conform to the appropriate class in the standards adopted for the design of other external connections in the ship's cargo piping system.

2.2.3.2.7 If a connection is fitted between the inert gas main and the cargo piping system, arrangements shall be made to ensure an effective isolation having regard to the large pressure difference which may exist between the systems. This shall consist of two shutoff valves with an arrangement to vent the space between the valves in a safe manner or an arrangement consisting of a spool-piece with associated blanks.

2.2.3.2.8 The valve separating the inert gas main from the cargo main and which is on the cargo main side shall be a non-return valve with a positive means of closure.

2.2.3.2.9 Inert gas piping systems shall not pass through accommodation, service and control station spaces.

2.2.3.2.10 In combination carriers, the arrangement to isolate the slop tanks containing oil or oil residues from other tanks shall consist of blank flanges which will remain in position at all times when cargoes other than oil are being carried except as provided for in the relevant section of the guidelines developed by the Organization*.

* Refer to the Revised Guidelines for inert gas systems (MSC/Circ.353), as amended by MSC/Circ.387.

2.2.4 Indicators and alarms

2.2.4.1 The operation status of the inert gas system shall be indicated in a control panel.

2.2.4.2 Instrumentation shall be fitted for continuously indicating and permanently recording, when inert gas is being supplied:

- .1 the pressure of the inert gas mains forward of the non-return devices; and
- .2 the oxygen content of the inert gas.

2.2.4.3 The indicating and recording devices shall be placed in the cargo control room where provided. But where no cargo control room is provided, they shall be placed in a position easily accessible to the officer in charge of cargo operations.

2.2.4.4 In addition, meters shall be fitted:

- .1 in the navigating bridge to indicate at all times the pressure referred to in paragraph 2.2.4.2.1 and the pressure in the slop tanks of combination carriers, whenever those tanks are isolated from the inert gas main; and
- .2 in the machinery control room or in the machinery space to indicate the oxygen content referred to in paragraph 2.2.4.2.2.

2.2.4.5 Audible and visual alarms

2.2.4.5.1 Audible and visual alarms shall be provided, based on the system designed, to indicate:

- .1 oxygen content in excess of 5 per cent by volume;
- .2 failure of the power supply to the indicating devices as referred to in paragraph 2.2.4.2;
- .3 gas pressure less than 100 mm water gauge. The alarm arrangement shall be such as to ensure that the pressure in slop tanks in combination carriers can be monitored at all times;

- .4 high-gas pressure; and
- .5 failure of the power supply to the automatic control system.

2.2.4.5.2 The alarms required in paragraphs 2.2.4.5.1.1, 2.2.4.5.1.3 and 2.2.4.5.1.5 shall be fitted in the machinery space and cargo control room, where provided, but in each case in such a position that they are immediately received by responsible members of the crew.

2.2.4.5.3 An audible alarm system independent of that required in paragraph 2.2.4.5.1.3 or automatic shutdown of cargo pumps shall be provided to operate on predetermined limits of low pressure in the inert gas main being reached.

2.2.4.5.4 Two oxygen sensors shall be positioned at appropriate locations in the space or spaces containing the inert gas system. If the oxygen level falls below 19 per cent, these sensors shall trigger alarms, which shall be both visible and audible inside and outside the space or spaces and shall be placed in such a position that they are immediately received by responsible members of the crew.

2.2.5 Instruction manuals

Detailed instruction manuals shall be provided on board, covering the operations, safety and maintenance requirements and occupational health hazards relevant to the inert gas system and its application to the cargo tank system.* The manuals shall include guidance on procedures to be followed in the event of a fault or failure of the inert gas system.

* Refer to the *Revised Guidelines for inert gas systems* (MSC/Circ.353), as amended by MSC/Circ.387.

2.3 Requirements for flue gas and inert gas generator systems

In addition to the provisions in paragraph 2.2, for inert gas systems using flue gas or inert gas generators, the provisions of this section shall apply.

2.3.1 System requirements

2.3.1.1 Inert gas generators

2.3.1.1.1 Two fuel oil pumps shall be fitted to the inert gas generator. Suitable fuel in sufficient quantity shall be provided for the inert gas generators.

2.3.1.1.2 The inert gas generators shall be located outside the cargo tank area. Spaces containing inert gas generators shall have no direct access to accommodation service or control station spaces, but may be located in machinery spaces. If they are not located in machinery spaces, such a compartment shall be separated by a gastight steel bulkhead and/or deck from accommodation, service and control station spaces. Adequate positive-pressure-type mechanical ventilation shall be provided for such a compartment.

2.3.1.2 Gas regulating valves

2.3.1.2.1 A gas regulating valve shall be fitted in the inert gas main. This valve shall be automatically controlled to close, as required in paragraph 2.2.2.2. It shall

also be capable of automatically regulating the flow of inert gas to the cargo tanks unless means are provided to automatically control the inert gas flow rate.

2.3.1.2.2 The gas regulating valve shall be located at the forward bulkhead of the forward most gas-safe space through which the inert gas main passes.

2.3.1.3 Cooling and scrubbing arrangement

2.3.1.3.1 Means shall be fitted which will effectively cool the volume of gas specified in paragraph 2.2.1.2 and remove solids and sulphur combustion products. The cooling water arrangements shall be such that an adequate supply of water will always be available without interfering with any essential services on the ship. Provision shall also be made for an alternative supply of cooling water.

2.3.1.3.2 Filters or equivalent devices shall be fitted to minimize the amount of water carried over to the inert gas blowers.

2.3.1.4 Blowers

2.3.1.4.1 At least two inert gas blowers shall be fitted and be capable of delivering to the cargo tanks at least the volume of gas required by paragraph 2.2.1.2. For systems fitted with inert gas generators the Administration may permit only one blower if that system is capable of delivering the total volume of gas required by paragraph 2.2.1.2 to the cargo tanks, provided that sufficient spares for the blower and its prime mover are carried on board to enable any failure of the blower and its prime mover to be rectified by the ship's crew.

2.3.1.4.2 Where inert gas generators are served by positive displacement blowers, a pressure relief device shall be provided to prevent excess pressure being developed on the discharge side of the blower.

2.3.1.4.3 When two blowers are provided, the total required capacity of the inert gas system shall be divided evenly between the two and in no case is one blower to have a capacity less than 1/3 of the total required.

2.3.1.5 Inert gas isolating valves

For systems using flue gas, flue gas isolating valves shall be fitted in the inert gas mains between the boiler uptakes and the flue gas scrubber. These valves shall be provided with indicators to show whether they are open or shut, and precautions shall be taken to maintain them gas-tight and keep the seatings clear of soot. Arrangements shall be made to ensure that boiler soot blowers cannot be operated when the corresponding flue gas valve is open.

2.3.1.6 Prevention of flue gas leakage

2.3.1.6.1 Special consideration shall be given to the design and location of scrubber and blowers with relevant piping and fittings in order to prevent flue gas leakages into enclosed spaces.

2.3.1.6.2 To permit safe maintenance, an additional water seal or other effective means of preventing flue gas leakage shall be fitted between the flue gas isolating valves and scrubber or incorporated in the gas entry to the scrubber.

2.3.2 Indicators and alarms

2.3.2.1 In addition to the requirements in paragraph 2.2.4.2, means shall be provided for continuously indicating the temperature of the inert gas at the discharge side of the system, whenever it is operating.

2.3.2.2 In addition to the requirements of paragraph 2.2.4.5, audible and visual alarms shall be provided to indicate:

- .1 insufficient fuel oil supply to the oil-fired inert gas generator;
- .2 failure of the power supply to the generator;
- .3 low water pressure or low water flow rate to the cooling and scrubbing arrangement;
- .4 high water level in the cooling and scrubbing arrangement;
- .5 high gas temperature;
- .6 failure of the inert gas blowers; and
- .7 low water level in the water seal.

2.4 Requirements for nitrogen generator systems

In addition to the provisions in paragraph 2.2, for inert gas systems using nitrogen generators, the provisions of this section shall apply.

2.4.1 System requirements

2.4.1.1 The system shall be provided with one or more compressors to generate enough positive pressure to be capable of delivering the total volume of gas required by paragraph 2.2.1.2.

2.4.1.2 A feed air treatment system shall be fitted to remove free water, particles and traces of oil from the compressed air.

2.4.1.3 The air compressor and nitrogen generator may be installed in the engine-room or in a separate compartment. A separate compartment and any installed equipment shall be treated as an "Other machinery space" with respect to fire protection. Where a separate compartment is provided for the nitrogen generator, the compartment shall be fitted with an independent mechanical extraction ventilation system providing six air changes per hour. The compartment is to have no direct access to accommodation spaces, service spaces and control stations.

2.4.1.4 Where a nitrogen receiver or a buffer tank is installed, it may be installed in a dedicated compartment, in a separate compartment containing the air compressor and the generator, in the engine room, or in the cargo area. Where the nitrogen receiver or a buffer tank is installed in an enclosed space, the access shall be arranged only from the open deck and the access door shall open outwards. Adequate, independent mechanical ventilation, of the extraction type, shall be provided for such a compartment.

2.4.2 Indicators and alarms

2.4.2.1 In addition to the requirements in paragraph 2.2.4.2, instrumentation is to be provided for continuously indicating the temperature and pressure of air at the suction side of the nitrogen generator.

2.4.2.2 In addition to the requirements in paragraph 2.2.4.5, audible and visual alarms shall be provided to include:

- .1 failure of the electric heater, if fitted;
- .2 low feed-air pressure or flow from the compressor;
- .3 high-air temperature; and
- .4 high condensate level at automatic drain of water separator."

ANNEX 15

**RESOLUTION MSC.361(92)
(Adopted on 21 June 2013)**

OPERATION OF THE INTERNATIONAL LRIT DATA EXCHANGE AFTER 2013

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO the provisions of regulation V/19-1 (Long-range identification and tracking (LRIT) of ships) of the International Convention for the Safety of Life at Sea (SOLAS), 1974, as amended (the Convention), and, in particular, paragraph 10.1 of the *Revised performance standards and functional requirements for the long-range identification and tracking (LRIT) of ships*, adopted by resolution MSC.263(84), as amended by resolution MSC.330(90),

FURTHER RECALLING that, at its eighty-ninth session, it adopted resolution MSC.322(89) on Operation of the International LRIT Data Exchange (IDE) with respect to the operation of the IDE until 31 December 2013,

BEARING IN MIND that, at its ninetieth session, it agreed with a proposal for the continuation of the hosting, maintenance and operation of the IDE by the European Maritime Safety Agency (EMSA) and of its disaster recovery site by the United States beyond 2013,

HAVING CONSIDERED, at its ninety-second session, the need to put in place all the necessary arrangements so as to ensure the continuous operation of the IDE after 31 December 2013,

1. EXPRESSES its appreciation to Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, the United Kingdom and the European Commission for their generous offers to continue hosting, maintaining and operating the IDE by EMSA beyond 2013, at no cost to either the Contracting Governments to the Convention or the Organization;
2. EXPRESSES ALSO its appreciation to the United States for their generous offers to continue hosting, maintaining and operating the disaster recovery site of the IDE beyond 2013, at no cost to either the Contracting Governments to the Convention or the Organization;
3. AGREES that EMSA should continue hosting, maintaining and operating the IDE at EMSA premises in Lisbon, Portugal, beyond 2013, until advised otherwise;
4. AGREES ALSO that the United States should continue hosting, maintaining and operating the disaster recovery site of the IDE at the United States Coast Guard Operations System Center (OSC), subject to their national procurement regulations, beyond 2013, until advised otherwise.

ANNEX 16

DRAFT AMENDMENTS TO THE INTERNATIONAL CODE FOR THE CONSTRUCTION AND EQUIPMENT OF SHIPS CARRYING DANGEROUS CHEMICALS IN BULK (IBC CODE)

Chapter 1 – General

- 1 New paragraphs 1.3.37 and 1.3.38 are added as follows:

"1.3.37 Purging means the introduction of inert gas into a tank which is already in an inert condition with the object of further reducing the oxygen content; and/or reducing the existing hydrocarbon or other flammable vapours content to a level below which combustion cannot be supported if air is subsequently introduced into the tank.

1.3.38 Gas-freeing means the process where a portable or fixed ventilation system is used to introduce fresh air into a tank in order to reduce the concentration of hazardous gases or vapours to a level safe for tank entry."

Chapter 2 – Ship survival capability and location of cargo tanks

2.2 – Freeboard and intact stability

- 2 The title of section 2.2 is amended to read:

"Freeboard and stability"

- 3 A new subparagraph 2.2.6 is added as follows:

"2.2.6 All ships, subject to the Code, shall be fitted with a stability instrument, capable of verifying compliance with intact and damage stability requirements, approved by the Administration having regard to the performance standards recommended by the Organization*:

- .1 ships constructed before [date of entry into force] shall comply with this requirement at the first scheduled renewal survey of the ship after [date of entry into force] but not later than [five years after date of entry into force];
- .2 notwithstanding the requirements of 2.2.6.1, a stability instrument installed on a tanker constructed before [date of entry into force] need not be replaced provided it is capable of verifying compliance with intact and damage stability, to the satisfaction of the Administration; and
- .3 for the purposes of control under regulation 11 of MARPOL Annex I, the Administration shall issue a document of approval for the stability instrument.

* Refer to part B, chapter 4, of the International Code on Intact Stability, 2008 (2008 IS Code), as amended; the *Guidelines for the Approval of Stability Instruments* (MSC.1/Circ.1229), annex, section 4, as amended; and the technical standards defined in part 1 of the *Guidelines for verification of damage stability requirements for tankers* (MSC.1/Circ.1461).

- 4 A new subparagraph 2.2.7 is added as follows:

"2.2.7 The Administration may give special dispensation to the following ships from the requirements of paragraph 2.2.6 provided the procedures employed for intact and damage stability verification maintain the same degree of safety, as being loaded in accordance with the approved conditions*. Any such dispensation shall be duly noted on the International Certificate of Fitness referred to in paragraph 1.5.4:

- .1 ships which are on a dedicated service, with a limited number of permutations of loading such that all anticipated conditions have been approved in the stability information provided to the master in accordance with the requirements of paragraph 2.2.5;
- .2 ships where stability verification is made remotely by a means approved by the Administration;
- .3 ships which are loaded within an approved range of loading conditions; or
- .4 ships constructed before [date of entry into force] provided with approved limiting KG/GM curves covering all applicable intact and damage stability requirements.

* Refer to operational guidance provided in part 2 of the *Guidelines for verification of damage stability requirements for tankers* (MSC.1/Circ.1461)."

Chapter 8 – Cargo tank venting and gas-freeing arrangements

- 5 In paragraph 8.15, the references to "SOLAS regulations II-2/4.5.3 and 4.5.6" are replaced by the references to "SOLAS regulations II-2/4.5.3, 4.5.6 and 16.3.2".

- 6 A new paragraph 8.5 is inserted as follows:

"8.5 Cargo tank purging

When the application of inert gas is required by 11.1.1, before gas freeing, the cargo tanks shall be purged with inert gas through outlet pipes with cross sectional area such that an exit velocity of at least 20 m/s can be maintained when any three tanks are being simultaneously supplied with inert gas. The outlets shall extend not less than 2 m above the deck level. Purging shall continue until the concentration of hydrocarbon or other flammable vapours in the cargo tanks has been reduced to less than 2 per cent by volume."

- 7 The existing paragraph 8.5 and subparagraphs 8.5.1, 8.5.2 and 8.5.3 are renumbered as paragraph 8.6 and subparagraphs 8.6.1, 8.6.2 and 8.6.3, respectively.

Chapter 9 – Environmental control

- 8 The chapeau of paragraph 9.1.3 is replaced by the following:

"9.1.3 Where inerting or padding of cargo tanks is required by this Code in column "h" of chapter 17:"

Chapter 11 – Fire protection and fire extinction*

9 Subparagraph 11.1.1.1 is replaced by the following:

"11.1.1.1 Regulations 10.8 and 10.9 shall not apply;"

Chapter 15 – Special requirements

10 Paragraph 15.13.5 is replaced by the following:

"15.13.5 When a product containing an oxygen dependent inhibitor is to be carried in a ship:

- .1 constructed on or after [date of entry into force of the new SOLAS inert gas requirements], and for which inerting is required as per paragraph 11.1.1 of this Code, the application of inert gas shall not take place before loading or during the voyage, but shall be applied before commencement of unloading*;
- .2 constructed before [entry into force of the SOLAS amendments for inert gas], the product shall be carried without inertion (in tanks of a size not greater than 3,000 m³). Such cargo shall not be carried in a tank requiring inertion under the requirements of SOLAS chapter II-2*.

* When new arrangements for the carriage of oxygen-dependent inhibitors are agreed."

Chapter 17 – Summary of minimum requirements

11 The explanatory notes for "Tank environment control (column h)" are replaced by the following:

"Tank environmental control (column h)	Inert:	inerting (9.1.2.1)
	Pad:	liquid or gas padding (9.1.2.2)
	Dry:	drying (9.1.2.3)
	Vent:	natural or forced ventilation (9.1.2.4)
	No:	no special requirements under this Code (inerting requirements may be required under SOLAS)"

Certificate of Fitness

12 Paragraph 6 is replaced with the following:

"6 That the ship must be loaded:

- .1* only in accordance with loading conditions verified compliant with intact and damage stability requirements using the approved stability instrument fitted in accordance with paragraph 2.2.6 of the Code;
- .2* where a dispensation permitted by paragraph 2.2.7 of the Code applies and the approved stability instrument required by paragraph 2.2.6 of the Code is not fitted, loading shall be made in accordance with the following approved methods:

- (i) 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
- (ii) in accordance with loading conditions verified remotely using an approved means; or
- (iii) in accordance with a loading condition which lies within an approved range of conditions defined in the approved loading manual referred to in (i) above; or
- (iv) in accordance with a loading condition verified using approved critical KG/GM data defined in the approved loading manual referred to in (i) above;

.3* 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 shall be communicated to the certifying Administration who may authorize in writing the adoption of the proposed loading condition.

* Delete as appropriate."

ANNEX 18

**RESOLUTION MSC.362(92)
(Adopted on 14 June 2013)**

**REVISED RECOMMENDATION ON A STANDARD METHOD FOR
EVALUATING CROSS-FLOODING ARRANGEMENTS**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO resolution A.266(VIII), by which the Assembly, at its eighth session, adopted the *Recommendation on a standard method for establishing compliance with the requirements for cross-flooding arrangements* in passenger ships,

RECALLING FURTHER resolution MSC.245(83), by which it, at its eighty-third session, adopted the *Recommendation on a standard method for evaluating cross-flooding arrangements*,

NOTING that the above *Recommendation on a standard method for evaluating cross-flooding arrangements* needed to be revised and improved, based on recent research results regarding cross-flooding,

RECOGNIZING the need to establish a methodology for evaluating cross-flooding arrangements on ships subject to the applicable subdivision and damage stability requirements of SOLAS chapter II-1 to ensure uniform treatment of cross-flooding and equalization arrangements,

HAVING CONSIDERED, at its ninety-second session, the *Revised Recommendation on a standard method for evaluating cross-flooding arrangements*, prepared by the Sub-Committee on Stability and Load Lines and on Fishing Vessels Safety, at its fifty-fifth session,

1. ADOPTS the *Revised Recommendation on a standard method for evaluating cross-flooding arrangements*, the text of which is set out in the annex to the present resolution;
2. INVITES Governments to apply the annexed Revised Recommendation to ships constructed on or after 14 June 2013 and to bring it to the attention of all parties concerned;
3. NOTES that calculations to evaluate cross-flooding arrangements performed before 14 June 2013 remain valid.

* * *

ANNEX

**REVISED RECOMMENDATION ON A STANDARD METHOD FOR
EVALUATING CROSS-FLOODING ARRANGEMENTS**

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1	Definitions
2	Formulae
3	Air pipe venting criteria
4	Alternatives
Appendix 1	Examples for treatment of heel angles and water heads at different stages of cross-flooding
Appendix 2	Friction coefficients in cross-flooding arrangements
Appendix 3	Example using figures for a passenger ship

1 Definitions

$\sum k$: Sum of friction coefficients in the considered cross-flooding arrangement.

$s \text{ (m}^2\text{)}$: Cross-section area of the cross-flooding pipe or duct. If the cross-section area is not circular, then:

$$s_{equiv} = \frac{\pi \cdot D_{equiv}^2}{4}$$

where:

$$D_{equiv} = \frac{4 \cdot A}{p}$$

A = actual cross-section area

p = actual cross-section perimeter

$\theta_0(^{\circ})$: Angle before commencement of cross-flooding. The cross-flooding device may be assumed to be full or empty dependent on its arrangement and internal volume (see figure 1(b) in appendix 1).

$\theta_f(^{\circ})$: Heel angle at final equilibrium ($\theta_f \leq \theta$).

$\theta(^{\circ})$: Any angle of heel between the commencement of cross-flooding and the final equilibrium at a given time.

$W_f(\text{m}^3)$: Volume of water which is used to bring the ship from commencement of cross-flooding θ_0 to final equilibrium θ_f .

$W_{\theta}(\text{m}^3)$: Volume of water which is used to bring the ship from any angle of heel θ to the final equilibrium θ_f .

$H_0(\text{m})$: Head of water before commencement of cross-flooding, with the same assumption as for θ_0 .

$H_{\theta}(\text{m})$: Head of water when any angle of heel θ is achieved.

$h_f(\text{m})$: Final head of water after cross-flooding ($h_f = 0$, when the level inside the equalizing compartment is equal to the free level of the sea).

$g \text{ (m/s}^2\text{)}$: The acceleration due to gravity (9.81 m/s²).

2 Formulae

2.1 Time required from commencement of cross-flooding θ_0 to the final equilibrium θ_f :

$$T_f = \frac{2W_f}{S \cdot F} \cdot \frac{1}{\sqrt{2gH_0}} \cdot \frac{1}{\left(1 + \sqrt{\frac{h_f}{H_0}}\right)}$$

2.2 Time required to bring the ship from any angle of heel θ to the final equilibrium θ_f :

$$T_{\theta} = \frac{2W_{\theta}}{S \cdot F} \cdot \frac{1}{\sqrt{2gH_{\theta}}} \cdot \frac{1}{\left(1 + \sqrt{\frac{h_f}{H_{\theta}}}\right)}$$

2.3 Time required from commencement of cross-flooding θ_0 until any angle of heel θ is achieved:

$$T = T_f - T_{\theta}$$

2.4 Dimensionless factor of reduction of speed through an equalization device, being a function of bends, valves, etc. in the cross-flooding system:

$$F = \frac{1}{\sqrt{(\sum k_i) + 1}}$$

Values for k can be obtained from appendix 2 or other appropriate sources such as computational fluid dynamics (CFD) or model testing. If other appropriate sources are used, then the +1 factor in the formulae may not be appropriate. CFD can also be used to evaluate the discharge coefficient for the whole cross-flooding duct.

2.5 Cross-flooding through successive devices of different cross-section:

If the same flow crosses successive flooding devices of cross-section $S_1, S_2, S_3...$ having corresponding friction coefficients $k_1, k_2, k_3...$, then the total k coefficient referred to S_1 is:

$$\sum k = k_1 + k_2 \cdot S_1^2/S_2^2 + k_3 \cdot S_1^2/S_3^2...$$

2.6 If different flooding devices are not crossed by the same volume, each k coefficient should be multiplied by the square of the ratio of the volume crossing the device and the volume crossing the reference section (which will be used for the time calculation):

$$\sum k = k_1 + k_2 \cdot S_1^2/S_2^2 \cdot W_2^2/W_1^2 + k_3 \cdot S_1^2/S_3^2 \cdot W_3^2/W_1^2...$$

2.7 For cross-flooding through devices in parallel that lead to the same space, equalization time should be calculated assuming that:

$$S \cdot F = S_1 \cdot F_1 + S_2 \cdot F_2 + ...$$

With $F = \frac{1}{\sqrt{(\sum k_i) + 1}}$ for each device of cross-section S_i

3 Air pipe venting criteria

3.1 In arrangements where the total air pipe sectional area is 10 per cent or more of the cross-flooding sectional area, the restrictive effect of any air back pressure may be neglected in the cross-flooding calculations. The air pipe sectional area should be taken as the minimum or the net sectional area of any automatic closing devices, if that is less.

3.2 In arrangements where the total air pipe sectional area is less than 10 per cent of the cross-flooding sectional area, the restrictive effect of air back pressure should be considered in the cross-flooding calculations. The following method may be used for this purpose:

The k coefficient used in the calculation of cross-flooding time should take into account the drop of head in the air pipe. This can be done using an equivalent coefficient k_e , which is calculated according to the following formula:

$$k_e = k_w + k_a \cdot (\rho_a / \rho_w) \cdot (S_w / S_a)^2$$

where:

k_w = k coefficient for the cross-flooding arrangement (water)

k_a = k coefficient for the air pipe

ρ_a = air density

ρ_w = water density

S_w = cross-section area of the cross-flooding device (water)

S_a = cross-section of air pipe

4 Alternatives

As an alternative to the provisions in sections 2 and 3, and for arrangements other than those shown in appendix 2, direct calculation using computational fluid dynamics (CFD), time-domain simulations or model testing may also be used.

* * *

Appendix 1

EXAMPLES FOR TREATMENT OF HEEL ANGLES AND WATER HEADS AT DIFFERENT STAGES OF CROSS-FLOODING

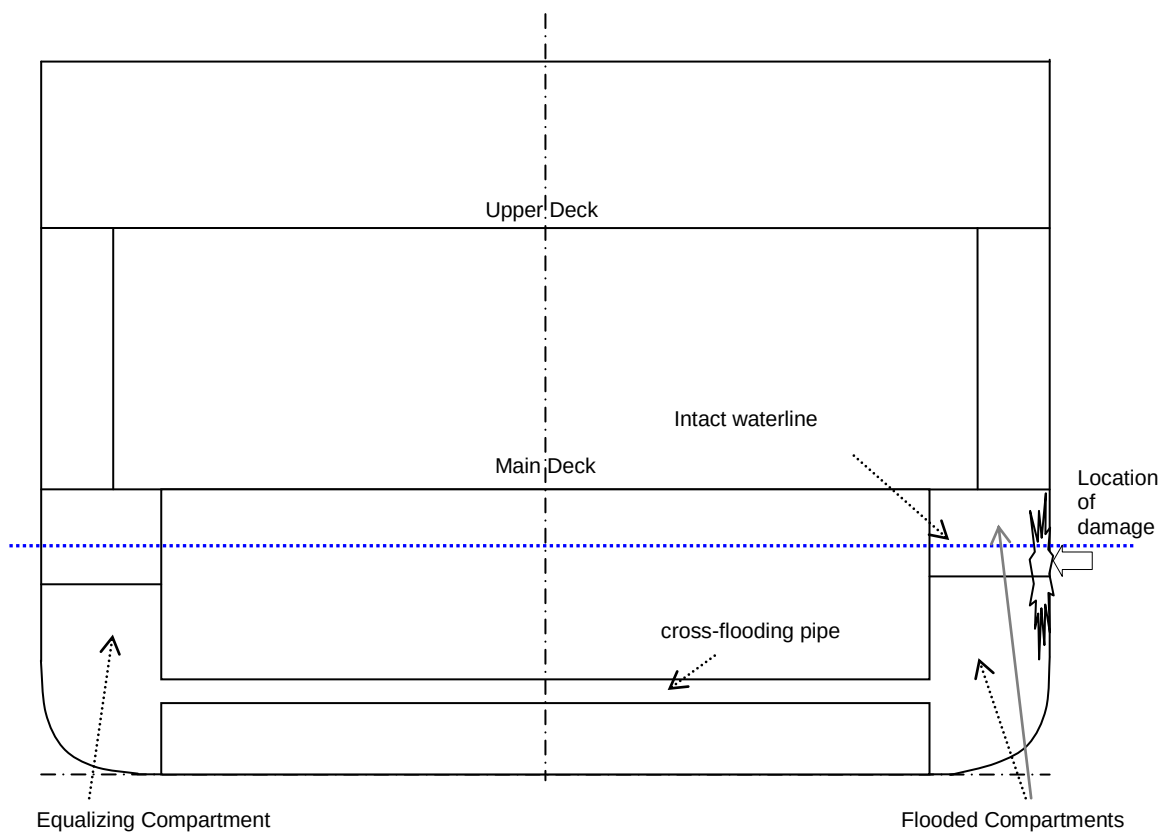


Figure 1(a) – Section showing cross-flooding pipe and compartments

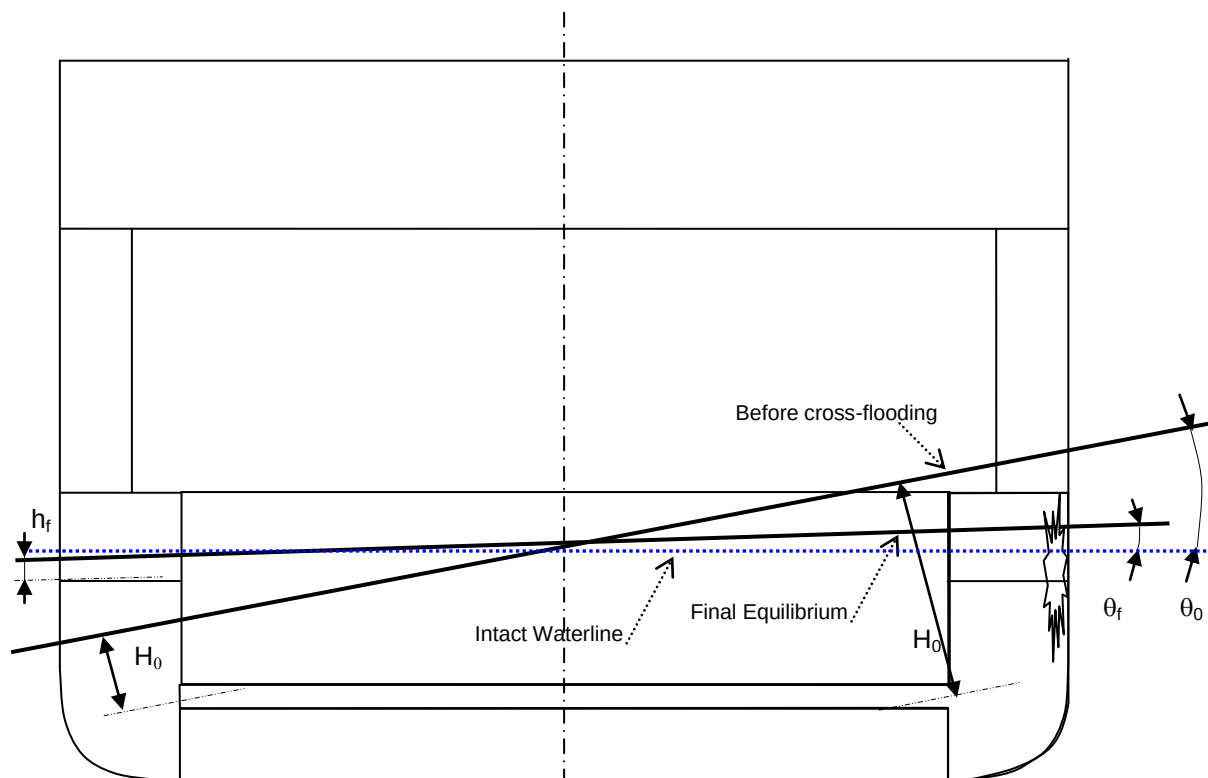


Figure 1(b) – Initial and Final stages of cross-flooding

Note: H_0 on the left side of figure 1(b) depicts the head of water if the cross-flooding device was assumed full whereas H_0 on the right side of figure 1(b) shows the head of water if the cross-flooding device was assumed empty.

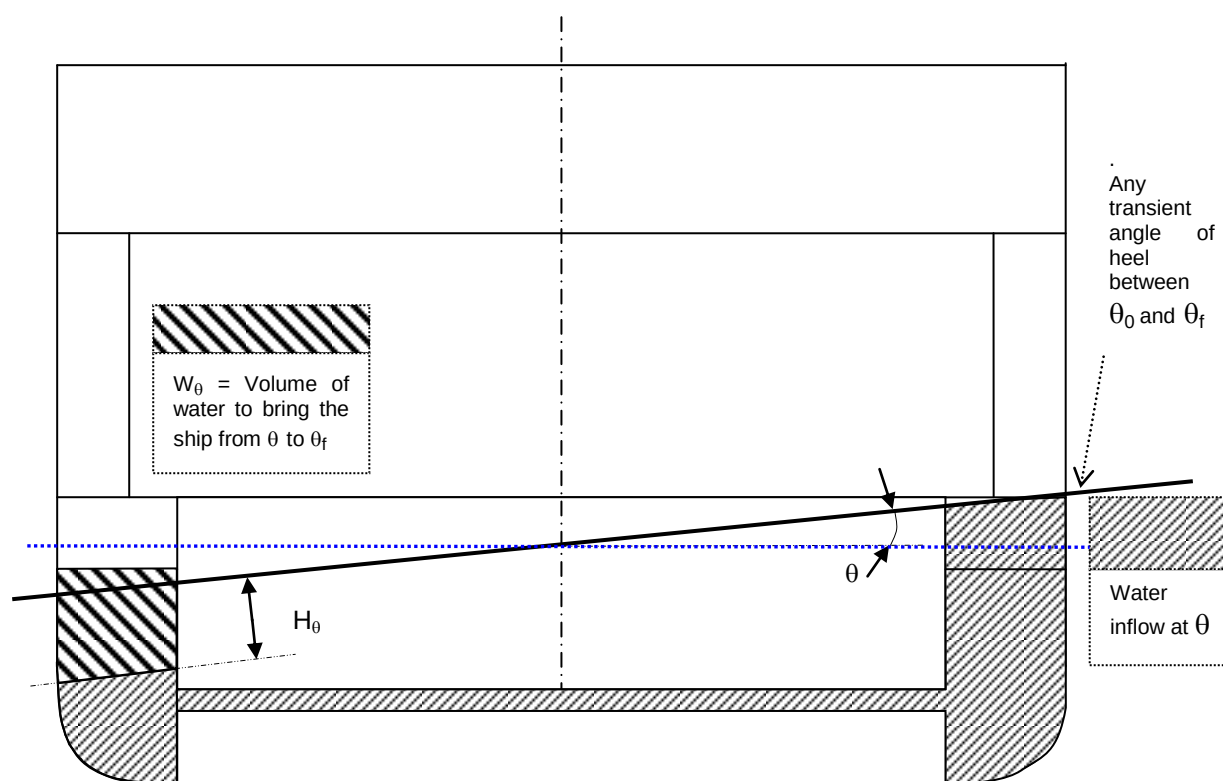


Figure 1(c) – Situation at any transient angle of heel, θ

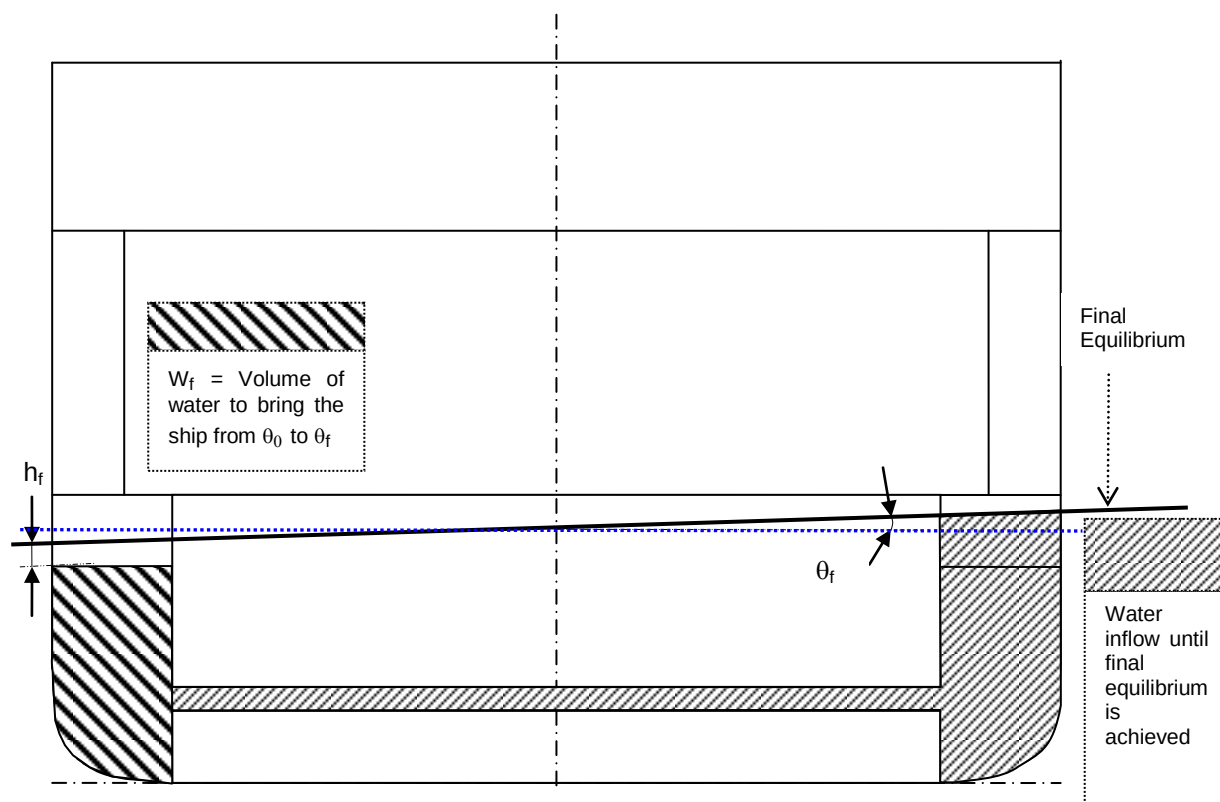
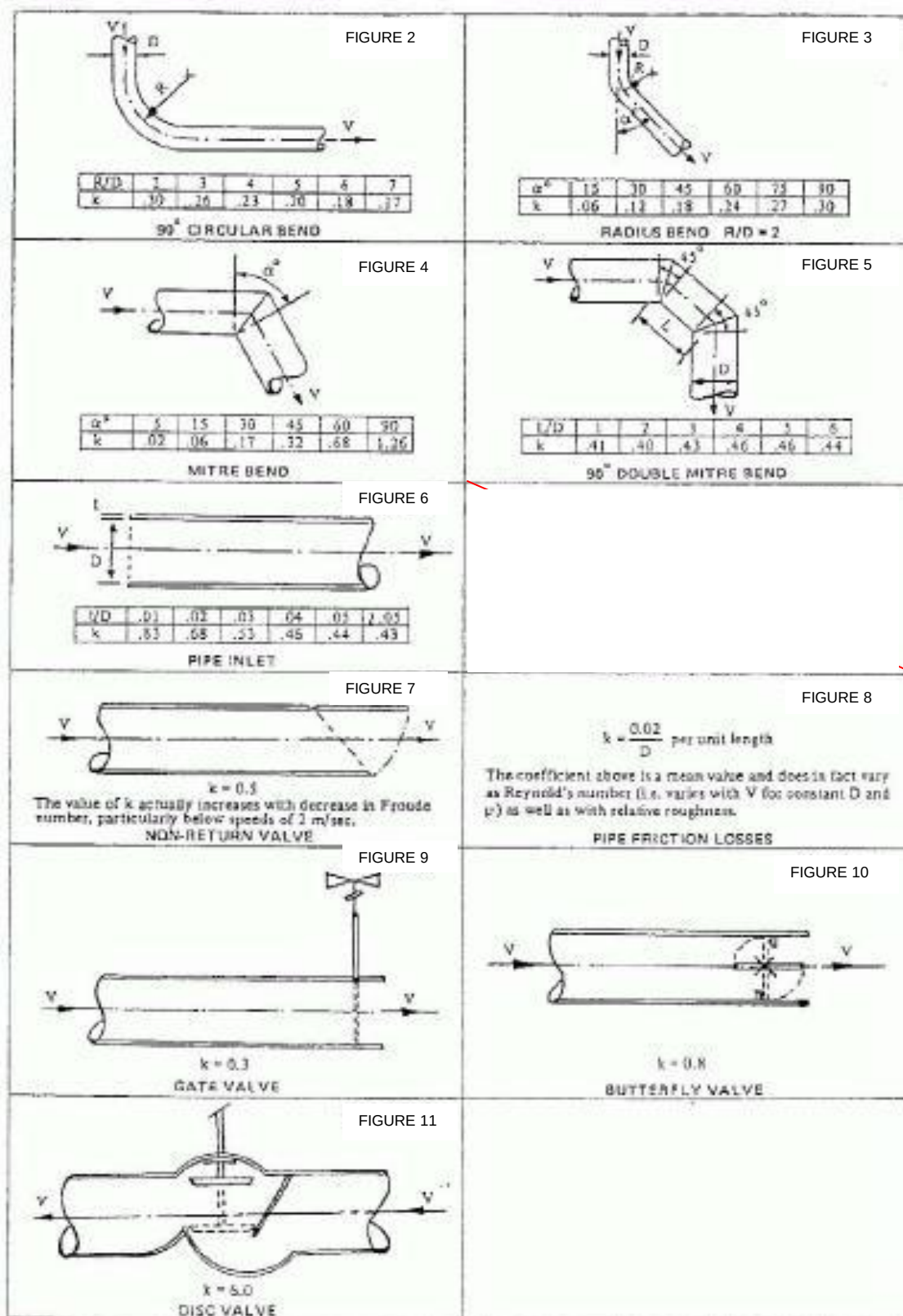


Figure 1(d) – Situation at final equilibrium

* * *

Appendix 2

FRICITION COEFFICIENTS IN CROSS-FLOODING ARRANGEMENTS



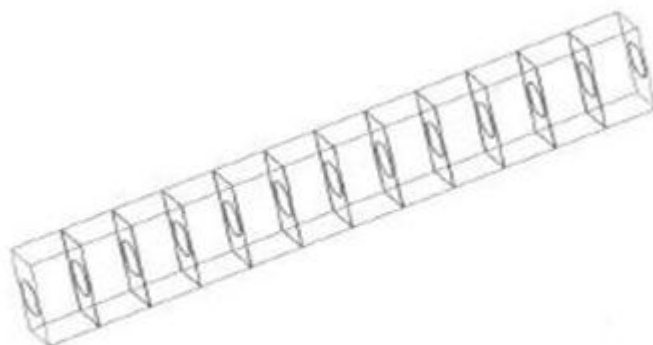


Figure 11
Cross-flooding through a series of structural ducts with 1 manhole

$$k = 0.6718 \times L_i^{0.119} \quad (0 < L_i < 12)$$

$$k = 0.903 \quad (12 \leq L_i)$$

where:

k friction coefficient related to each space between two adjacent girders
 L_i Length of the duct in meters

Note: k is evaluated with effective cross-section area therefore in calculations use the real cross-section area A and not S_{equiv} . The pressure loss for entrance in the first manhole is already computed in the calculation.

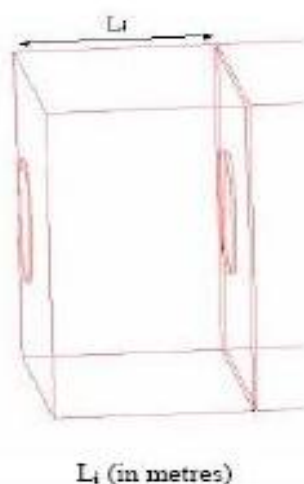


Figure 12

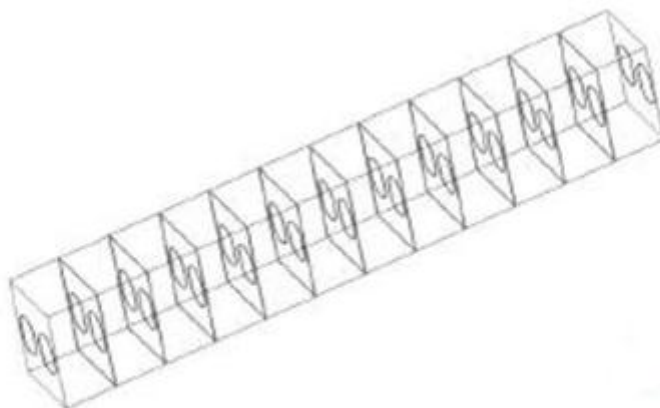


Figure 13
Cross-flooding through a series of structural ducts with 2 manholes

$$k = 1.7968 \times L_i^{-0.026} \quad (0 < L_i < 12)$$

$$k = 1.684 \quad (12 \leq L_i)$$

where:

k	friction coefficient related to each space between two adjacent girders
L_i	Length of the duct in meters

Note: k is evaluated with effective cross-section area therefore in calculations use the real cross-section area A and not S_{equiv} . The pressure loss for entrance in the first manhole is already computed in the calculation.

* * *

Appendix 3

EXAMPLE USING FIGURES FOR A PASSENGER SHIP

Dimension of the considered cross-flooding pipe:

Diameter	D = 0.39 m
Length	l = 21.0 m
Cross-section area	S = 0.12 m ²
Wall thickness	t = 17.5 mm

k-values for the considered cross-flooding system:

Inlet	0.45
Pipe friction $\left(\frac{0.02l}{D}\right)$	1.08
2 radius bends ($\alpha = 45^\circ$)	0.36
Non-return valve	0.50

Sufficient air venting is assumed to be in place.

From this follows:

$$F = \frac{1}{\sqrt{(\sum k_i) + 1}} \quad F = \frac{1}{\sqrt{3.39}} = 0.54$$

Time required from commencement of cross-flooding θ_0 to the final equilibrium condition θ_f :

$$T_f = \frac{2W_f}{S \cdot F} \cdot \frac{1}{\sqrt{2gH_0}} \left(\frac{1}{1 + \sqrt{\frac{h_f}{H_0}}} \right)$$

Head of water before commencement of cross-flooding:

$$H_0 = 5.3 \text{ m}$$

Volume of water which is used to bring the ship from commencement of cross-flooding to the final equilibrium condition:

$$W_f = 365 \text{ m}^3$$

Final head of water after cross-flooding:

$$h_f = 1.5m$$

$$T_f = \frac{2 \cdot 365m^3}{0.12m^2 \cdot 0.54} \cdot \frac{1}{\sqrt{2 \cdot 9.81m/s^2 \cdot 5.3m}} \cdot \frac{1}{\left(1 + \sqrt{\frac{1.5m}{5.3m}}\right)}$$

$$T_f = 721s$$

Calculation of any transient situation of cross-flooding:

The purpose is to find the situation after 600s.

Assumed transient situation:

Cross-flooded volume: $265 m^3$

Volume of water which is used to bring the vessel from the transient situation to the final equilibrium : $W_\theta = 365 m^3 - 265 m^3 = 100 m^3$

Corresponding head of water: $H_\theta = 2.8 m$

Time required to bring the vessel from any transient situation to the final equilibrium condition:

$$T_\theta = \frac{2W_\theta}{S \cdot F} \cdot \frac{1}{\sqrt{2gH_\theta}} \cdot \frac{1}{\left(1 + \sqrt{\frac{h_f}{H_\theta}}\right)}$$

$$T_\theta = \frac{2 \cdot 100m^3}{0.12m^2 \cdot 0.54} \cdot \frac{1}{\sqrt{2 \cdot 9.81m/s^2 \cdot 2.8m}} \cdot \frac{1}{\left(1 + \sqrt{\frac{1.5 \approx m}{2.8 \approx m}}\right)}$$

$$T_\theta = 240 s$$

Time between commencement of cross-flooding and assumed transient situation:

$$T = T_f - T_\theta = 721 s - 240 s = 481 s$$

As T is less than 600 s, further transient situations with larger cross-flooded volume may be calculated in the same way.

On the reverse, if T was of more than 600 s, further transient situation with smaller cross-flooded volume may be calculated.

Situation after 600 s may be found by successive iterations.

ANNEX 19

DRAFT AMENDMENTS TO THE CODE FOR THE CONSTRUCTION AND EQUIPMENT OF SHIPS CARRYING DANGEROUS CHEMICALS IN BULK (BCH CODE)

CHAPTER II CARGO CONTAINMENT

Part A – Physical protection (Siting of cargo tanks: ship stability)

- 1 The existing subparagraph 2.2.1 is replaced by the following:

"2.2.1 General: Ships subject to this Code may be assigned the minimum freeboard permitted by the International Convention on Load Lines, 1966. The additional requirements in paragraph 2.2.4, taking into account any empty or partially filled tank as well as the specific gravities of cargoes to be carried, however, should govern the allowed operating draught for any actual condition of loading.

2.2.1.1 All ships engaged in the transport of chemicals in bulk should be supplied with loading and stability manuals for the information and guidance of the master. These manuals should contain details concerning the loaded conditions of full and empty or partially empty tanks, the position of these tanks in the ship, the specific gravities of the various parcels of cargoes carried, and any ballast arrangements in critical conditions of loading. Provisions for evaluating other conditions of loading should be contained in the manuals.

2.2.1.2 All ships, subject to the Code, shall be fitted with a stability instrument, capable of verifying compliance with intact and damage stability requirements, approved by the Administration, having regard to the performance standards recommended by the Organization*:

- .1 ships constructed before [date of entry into force] shall comply with this paragraph at the first scheduled renewal survey of the ship after [date of entry into force] but not later than [five years after date of entry into force];
- .2 notwithstanding the requirements of 2.2.1.2.1, a stability instrument installed on a ship constructed before [date of entry into force] need not be replaced provided it is capable of verifying compliance with intact and damage stability, to the satisfaction of the Administration; and
- .3 for the purposes of control under regulation 11 of MARPOL Annex I, the Administration shall issue a document of approval for the stability instrument.

* Refer to part B, chapter 4, of the International Code on Intact Stability, 2008 (2008 IS Code), as amended; the *Guidelines for the Approval of Stability Instruments* (MSC.1/Circ.1229), annex, section 4, as amended; and the technical standards defined in part 1 of the *Guidelines for verification of damage stability requirements for tankers* (MSC.1/Circ.1461).

2.2.1.3 The Administration may give special dispensation to the following ships from the requirements of paragraph 2.2.1.2 provided the procedures employed for intact and damage stability verification maintain the same degree of safety as being loaded in accordance with the approved conditions**. Any such dispensation shall be duly noted on the Certificate of Fitness referred to in paragraph 1.6.3:

- .1 ships which are on a dedicated service, with a limited number of permutations of loading such that all anticipated conditions have been approved in the stability information provided to the master in accordance with the requirements of paragraph 2.2.1.1;
- .2 ships where stability verification is made remotely by a means approved by the Administration;
- .3 ships which are loaded within an approved range of loading conditions; or
- .4 ships provided with approved limiting KG/GM curves covering all applicable intact and damage stability requirements.

^{**} Refer to operational guidance provided in part 2 of the *Guidelines for verification of damage stability requirements for tankers* (MSC.1/Circ.1461)."

Certificate of Fitness

2 The existing paragraph 6 is replaced by the following:

"6 That the ship must be loaded:

- .1^{*} only in accordance with loading conditions verified compliant with intact and damage stability requirements using the approved stability instrument fitted in accordance with paragraph 2.2.1.2 of the Code;
- .2^{*} where a dispensation permitted by paragraph 2.2.1.3 of the Code applies and the approved stability instrument required by paragraph 2.2.1.2 of the Code is not fitted, loading shall be made in accordance with the following approved methods:
 - .i 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
 - .ii in accordance with loading conditions verified remotely using an approved means; or
 - .iii in accordance with a loading condition which lies within an approved range of conditions defined in the approved loading manual referred to in i above; or
 - .iv in accordance with a loading condition verified using approved critical KG/GM data defined in the approved loading manual referred to in i above;
- .3^{*} 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 shall be communicated to the certifying Administration who may authorize in writing the adoption of the proposed loading condition.

^{*} Delete as appropriate."

ANNEX 20

DRAFT AMENDMENTS TO THE CODE FOR EXISTING SHIPS CARRYING LIQUEFIED GASES IN BULK (EGC CODE)

Chapter II – Freeboard and stability

- 1 A new paragraph 2.3 is added as follows:

"2.3 All ships, subject to the Code shall be fitted with a stability instrument, capable of verifying compliance with intact and damage stability requirements, approved by the Administration having regard to the performance standards recommended by the Organization*:

- .1 ships constructed before [date of entry into force] shall comply with this paragraph at the first scheduled renewal survey of the ship after [date of entry into force] but not later than [five years after date of entry into force];
- .2 notwithstanding the requirements of 2.3.1, a stability instrument installed on a ship constructed before [date of entry into force] need not be replaced provided it is capable of verifying compliance with intact and damage stability, to the satisfaction of the Administration; and
- .3 for the purposes of control under regulation 11 of MARPOL Annex I, the Administration shall issue a document of approval for the stability instrument.

* Refer to part B, chapter 4, of the International Code on Intact Stability, 2008 (2008 IS Code), as amended; the *Guidelines for the Approval of Stability Instruments* (MSC.1/Circ.1229), annex, section 4, as amended; and the technical standards defined in part 1 of the *Guidelines for verification of damage stability requirements for tankers* (MSC.1/Circ.1461)."

- 2 A new paragraph 2.4 is added as follows:

"2.4 The Administration may give special dispensation to the following ships from the requirements of paragraph 2.3, provided the procedures employed for intact and damage stability verification maintain the same degree of safety as being loaded in accordance with the approved conditions*. Any such dispensation shall be duly noted on the Certificate of Fitness referred to in paragraph 1.6.1:

- .1 ships which are on a dedicated service, with a limited number of permutations of loading such that all anticipated conditions have been approved in the stability information provided to the master in accordance with the requirements of paragraph 2.2;
- .2 ships where stability verification is made remotely by a means approved by the Administration;
- .3 ships which are loaded within an approved range of loading conditions; or

- .4 ships provided with approved limiting KG/GM curves covering all applicable intact and damage stability requirements.

* Refer to operational guidance provided in part 2 of the *Guidelines for verification of damage stability requirements for tankers* (MSC.1/Circ.1461)."

Certificate of Fitness

3 A new paragraph 6 is added as follows:

"6 That the ship must be loaded:

- .1* only in accordance with loading conditions verified compliant with intact and damage stability requirements using the approved stability instrument fitted in accordance with paragraph 2.3 of the Code;
- .2* where a dispensation permitted by paragraph 2.4 of the Code applies and the approved stability instrument required by paragraph 2.3 of the Code is not fitted, loading shall be made in accordance with the following approved methods:
 - .i 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
 - .ii in accordance with loading conditions verified remotely using an approved means.....; or
 - .iii in accordance with a loading condition which lies within an approved range of conditions defined in the approved loading manual referred to in i above; or
 - .iv in accordance with a loading condition verified using approved critical KG/GM data defined in the approved loading manual referred to in i above;
- .3* 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 shall be communicated to the certifying Administration who may authorize in writing the adoption of the proposed loading condition.

* Delete as appropriate."

ANNEX 21

DRAFT AMENDMENTS TO THE CODE FOR THE CONSTRUCTION AND EQUIPMENT OF SHIPS CARRYING LIQUEFIED GASES IN BULK (GC CODE)

CHAPTER II SHIP SURVIVAL CAPABILITY AND CARGO TANK LOCATION

Paragraph 2.2 – Freeboard and stability

1 A new subparagraph 2.2.4 is added as follows:

"2.2.4 All ships, subject to the Code, shall be fitted with a stability instrument, capable of verifying compliance with intact and damage stability requirements, approved by the Administration having regard to the performance standards recommended by the Organization*:

- .1 ships constructed before [date of entry into force] shall comply with this requirement at the first scheduled renewal survey of the ship after [date of entry into force] but not later than [five years after date of entry into force];
- .2 notwithstanding the requirements of 2.2.4.1, a stability instrument installed on a ship constructed before [date of entry into force] need not be replaced provided it is capable of verifying compliance with intact and damage stability, to the satisfaction of the Administration; and
- .3 for the purposes of control under regulation 11 of MARPOL Annex I, the Administration shall issue a document of approval for the stability instrument.

* Refer to part B, chapter 4, of the International Code on Intact Stability, 2008 (2008 IS Code), as amended; the Guidelines for the Approval of Stability Instruments (MSC.1/Circ.1229), annex, section 4, as amended; and the technical standards defined in part 1 of the *Guidelines for verification of damage stability requirements for tankers* (MSC.1/Circ.1461)."

2 A new subparagraph 2.2.5 is added as follows:

"2.2.5 The Administration may give special dispensation to the following ships from the requirements of paragraph 2.2.4 provided the procedures employed for intact and damage stability verification maintain the same degree of safety as being loaded in accordance with the approved conditions*. Any such dispensation shall be duly noted on the Certificate of Fitness referred to in paragraph 1.6.4:

- .1 ships which are on a dedicated service, with a limited number of permutations of loading such that all anticipated conditions have been approved in the stability information provided to the master in accordance with the requirements of paragraph 2.2.3;
- .2 ships where stability verification is made remotely by a means approved by the Administration;

- .3 ships which are loaded within an approved range of loading conditions; or
- .4 ships provided with approved limiting KG/GM curves covering all applicable intact and damage stability requirements.

* Refer to operational guidance provided in part 2 of the *Guidelines for verification of damage stability requirements for tankers* (MSC.1/Circ.1461)."

Certificate of Fitness

3 The existing paragraph 6 is replaced by the following:

"6 That the ship must be loaded:

- .1* only in accordance with loading conditions verified compliant with intact and damage stability requirements using the approved stability instrument fitted in accordance with paragraph 2.2.4 of the Code;
- .2* where a dispensation permitted by paragraph 2.2.5 of the Code applies and the approved stability instrument required by paragraph 2.2.4 of the Code is not fitted, loading shall be made in accordance with the following approved methods:
 - .i 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
 - .ii in accordance with loading conditions verified remotely using an approved means.....; or
 - .iii in accordance with a loading condition which lies within an approved range of conditions defined in the approved loading manual referred to in i above; or
 - .iv in accordance with a loading condition verified using approved critical KG/GM data defined in the approved loading manual referred to in i above;
- .3* 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 shall be communicated to the certifying Administration who may authorize in writing the adoption of the proposed loading condition.

* Delete as appropriate."

ANNEX 22

DRAFT ASSEMBLY RESOLUTION

USE OF NATIONAL TONNAGE IN APPLYING INTERNATIONAL CONVENTIONS

THE ASSEMBLY,

RECALLING Article 15(j) of the Convention on the International Maritime Organization concerning the functions of the Assembly in relation to regulations and guidelines concerning maritime safety and the prevention and control of marine pollution from ships,

RECALLING ALSO that the International Convention on Tonnage Measurement of Ships, 1969 (1969 Tonnage Convention) introduced a new measurement system and that the tonnages measured under this system could be different from those measured under national tonnage rules,

RECALLING FURTHER that recommendation 2 of the International Conference on Tonnage Measurement of Ships, 1969, recommended the acceptance of the tonnages measured under this new system as the parameters referred to where those terms are used in conventions, laws, and regulations, while recognizing that transition to this new system should cause the least possible impact on the economics of merchant shipping and port operations,

NOTING that article 3(2)(d) of the 1969 Tonnage Convention provides for certain ships to retain their national tonnages for the purpose of applying relevant requirements under other existing international conventions, if they do not undergo alterations or modifications which the Administration deems to be a substantial variation in their existing gross tonnage,

NOTING ALSO that the Interim Schemes for Tonnage Measurement of resolutions A.494(XII), A.540(13) and A.541(13) effectively extended this use of national tonnages to certain other ships, for the purpose of applying relevant requirements, respectively, of the International Convention for the Safety of Life at Sea (SOLAS), 1974, as amended, the International Convention on Training, Certification and Watchkeeping for Seafarers (STCW), 1978, and the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL),

NOTING FURTHER that resolutions A.758(18) *Application of recommendation 2 of the International Conference on Tonnage Measurement of Ships, 1969* and A.791(19) *Application of the International Convention on Tonnage Measurement of Ships, 1969, to existing ships* were adopted to address identification of national tonnages on International Tonnage Certificates (1969) and other pertinent certificates, including Ship Safety Certificates and International Oil Pollution Prevention Certificates,

BEING AWARE that amendments to the SOLAS, STCW and MARPOL Conventions made subsequent to the adoption of resolutions A.494(XII), A.540(13) and A.541(13) have led to misunderstandings over the use of national tonnage when applying newly established tonnage-based requirements for ships measured in accordance with the provisions of the 1969 Tonnage Convention and the Interim Schemes for Tonnage Measurement, highlighting the need for updated recommendations on this matter,

BEARING IN MIND the decisions of the Maritime Safety Committee to apply newly established tonnage-based requirements of the International Ship and Port Facility and Security (ISPS) and International Safety Management (ISM) Codes using a ship's tonnage as measured under the rules of the 1969 Tonnage Convention,

RECOGNIZING the necessity of uniform implementation of the 1969 Tonnage Convention with regard to national tonnages,

HAVING CONSIDERED the recommendations made by the Maritime Safety Committee, at its ninety-second session (12 to 21 June 2013), and the Marine Environment Protection Committee, at its sixty-fifth session (13 to 17 May 2013),

1. ADOPTS the Recommendation on the use of national tonnage in applying international conventions, as set out in the annex to the present resolution;
2. AGREES that Governments which are Contracting Governments to the 1969 Tonnage Convention should use this Recommendation when applying the provisions of the 1969 Tonnage Convention and Interim Schemes for Tonnage Measurement;
3. REVOKES resolutions A.758(18) and A.791(19).

* * *

ANNEX

RECOMMENDATION ON THE USE OF NATIONAL TONNAGE IN APPLYING INTERNATIONAL CONVENTIONS

1 In order to ensure consistency when using national tonnage to apply relevant requirements under international conventions, in accordance with article 3(2)(d) of the International Convention on Tonnage Measurement of Ships, 1969 (1969 Tonnage Convention) (TM 69) and Interim Schemes for Tonnage Measurement, as set forth in the *Revised Interim Scheme for tonnage measurement for certain ships* (resolution A.494(XII) for SOLAS), and the *Interim Scheme for tonnage measurement for certain ships for the purposes of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto* (resolution A.541(13)), Administrations are recommended to accept the following.

National tonnage versus convention tonnage

2 National tonnage refers to the tonnage measurement of a ship under the Administration's national tonnage rules that predated the adoption of the measurement rules of the 1969 Tonnage Convention. National gross tonnage is often expressed in terms of gross register tons (GRT). In contrast, the unitless gross tonnage measurement under the rules of the 1969 Tonnage Convention is expressed in terms of gross tonnage (GT).

Eligibility to use national tonnage

3 The 1969 Tonnage Convention and the Interim Schemes for Tonnage Measurement provide for the use of national tonnage in applying relevant requirements under international conventions to certain ships with keel laid dates on or before 18 July 1994¹. Further, a ship which undergoes an alteration or modification which the Administration deems to be a substantial variation in its "existing" tonnage as described in article 3(2)(b) of the 1969 Tonnage Convention is treated as if the date on which the alterations or modifications commenced was the keel laid date for this purpose. The following table lists the basis for use of national tonnages as a function of a ship's keel laid/substantial alteration date and its national gross tonnage.

Basis for Using National Tonnage to Apply International Conventions*			
Ship's Keel Laid Date / Substantial Alteration Date	Ship's National Gross Tonnage		
	GRT < 400	400 ≤ GRT < 1600	GRT ≥ 1600
Before 18 July 1982	TM69 Art.3(2)(d)	TM69 Art.3(2)(d)	TM69 Art.3(2)(d)
18 July 1982 - 31 December 1985	A.494(XII) / A.541(13)	A.494(XII)	A.494(XII)
1 January 1986 - 18 July 1994	A.494(XII) / A.541(13)	A.494(XII)	Not Eligible
After 18 July 1994	Not Eligible	Not Eligible	Not Eligible

* Unless otherwise provided for in an International Convention or other instrument.

¹ The Interim Schemes for Tonnage Measurement do not apply to ships covered by article 3(2)(d) of the 1969 Tonnage Convention, and may be applied to an eligible ship for the life of the ship under interpretations established at MSC 50 (MSC 50/27). A third Interim Scheme for Tonnage Measurement, resolution A.540(13) for the STCW Convention, is no longer applicable as a result of the 1995 amendments to the Convention.

Relevant requirements under international conventions

4 The term "relevant requirements under" in article 3(2)(d) of the 1969 Tonnage Convention and throughout this Recommendation refers to tonnage-based requirements for which a tonnage threshold was in effect on or before 18 July 1994, the date when the 1969 Tonnage Convention came fully into force. As such, national tonnage may not be used when applying newer tonnage thresholds in international conventions, unless otherwise provided in an international convention or other instrument. For example, for eligible ships, national tonnages may be used to apply the 500 gross tonnage cargo ship exemption threshold of regulation I/3 of SOLAS, which predates 18 July 1994. However, national tonnages may not similarly be used to apply the 500 gross tonnage threshold of SOLAS regulation XI-2/2.1.1.2, which came into effect after this date².

Remarks on International Tonnage Certificates (1969)

5 Notwithstanding the provisions of resolutions A.494(XII) and A.541(13), which state that gross tonnage measured under the national tonnage rules shall not be shown on the International Tonnage Certificate (1969), an entry may be made under "Remarks" on the International Tonnage Certificate (1969), to reflect the shipowner's decision to use national tonnages, as follows:

- .1 For ships covered by article 3(2)(d) of the 1969 Tonnage Convention,

"The ship is remeasured according to article 3(2)(d) of the 1969 Tonnage Convention. The GROSS TONNAGE according to the measurement system previously in force to the measurement system of the International Convention on Tonnage Measurement of Ships, 1969, is: ... *(insert GRT tonnage)* ... RT, according to the regulations of ... *(insert country name)*"
- .2 For ships covered by resolution A.494(XII) and/or resolution A.541(13),

"The ship is additionally measured according to resolution(s) ... *(insert A.494(XII) and/or A.541(13), as applicable)* ... The GROSS TONNAGE according to the measurement system previously in force to the measurement system of the International Convention on Tonnage Measurement of Ships, 1969, is: ... *(insert GRT tonnage)* ... RT, according to the regulations of ... *(insert country name)*"

Remarks on other international certificates (1969)

6 For ships for which the International Tonnage Certificate (1969) includes a "Remarks" entry on national tonnage as described in paragraph 5 of this Recommendation, the appropriate box in the appropriate Ship Safety Certificate, the International Oil Pollution Prevention Certificate or other such official certificates issued by the Administration may show only that national gross tonnage with one of the following footnotes:

² Refer to the Interim Scheme for the compliance of certain cargo ships with the special measures to enhance maritime security (MSC/Circ.1157) for additional details. The Interim Scheme for the compliance of certain cargo ships and special purpose ships with the management for the safe operation of ships (MSC.1/Circ.1231) similarly addresses use of national tonnages in applying the SOLAS ISM Code.

"The above gross tonnage has been determined by the tonnage authorities of the Administration in accordance with the national tonnage rules which were in force prior to the coming into force of the International Convention on Tonnage Measurement of Ships, 1969"; or

"See REMARKS column of the valid International Tonnage Certificate (1969)."

Removal of remarks

7 Should a ship lose eligibility for using national tonnage to apply relevant requirements under international conventions by undergoing alterations or modifications which the Administration deems to be a substantial variation in its existing tonnage as described in article 3(2)(b) of the 1969 Tonnage Convention, the Administration should ensure associated certificates described in paragraphs 5 and 6 of this Recommendation are reissued or otherwise amended to delete reference to the ship's national tonnage.

ANNEX 23

**RESOLUTION MSC.363(92)
(Adopted on 14 June 2013)**

PERFORMANCE STANDARDS FOR ELECTRONIC INCLINOMETERS

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO resolution A.886(21), by which the Assembly resolved that the function of adopting performance standards and technical specifications, as well as amendments thereto, shall be performed by the Maritime Safety Committee and/or the Marine Environment Protection Committee, as appropriate, on behalf of the Organization,

NOTING that in the *Revised Guidance to the master for avoiding dangerous situations in adverse weather and sea conditions* (MSC.1/Circ.1228), information about heel angle and roll period is regarded as relevant for assessment of the ship's stability situation in adverse weather and sea conditions,

NOTING ALSO that, at its ninetieth session, it had adopted resolution MSC.333(90) on *Revised Performance standards for shipborne voyage data recorders (VDRs)*,

NOTING FURTHER that, at its eighty-eighth session, instead of adding the requirement for an electronic inclinometer to the performance standards for VDRs, it had decided to develop dedicated performance standards for inclinometers,

RECOGNIZING the need to define minimum requirements for a heel angle and roll period measurement device to ensure that heeling information is provided in a reliable manner on board ships to be used by the crew to assess the dynamic situation of the ship and to be available for marine casualty investigation,

HAVING CONSIDERED, at its ninety-second session, the draft Performance standards for electronic inclinometers prepared by the Sub-Committee on Safety of Navigation, at its fifty-eighth session,

1. ADOPTS the Performance standards for electronic inclinometers, set out in the annex to the present resolution;
2. RECOMMENDS Governments ensure that electronic inclinometers installed on or after 1 July 2015, conform to performance standards not inferior to those specified in the annex to the present resolution.

ANNEX

PERFORMANCE STANDARDS FOR ELECTRONIC INCLINOMETERS

1 SCOPE

1.1 Electronic inclinometers are intended to support the decision-making process on board in order to avoid dangerous situations as well as assist in and facilitate maritime casualty investigations by providing information about the roll period and the heel angle of the ship.

1.2 Electronic inclinometers should, in a reliable form:

- .1 determine the actual heel angle with the required accuracy;
- .2 determine the roll amplitude with the required accuracy;
- .3 determine the roll period with the required accuracy;
- .4 present the information on a bridge display; and
- .5 provide a standardized interface to instantaneous heel angle to the voyage data recorder (VDR).

2 APPLICATION OF THESE STANDARDS

2.1 These Performance standards should apply to all electronic inclinometers intended to support the decision-making process on board in order to avoid dangerous situations as well as to assist in maritime casualty investigations, if carried, on all ships¹.

2.2 In addition to the general requirements set out in the *General requirements for shipborne radio equipment forming part of the Global Maritime Distress and Safety System (GMDSS) and for electronic navigation aids* (resolution A.694(17)²) and the presentation requirements set out in the *Performance standards for the presentation of navigation-related information on shipborne navigational displays* (resolution MSC.191(79)), electronic inclinometers should meet the requirements of these standards and follow the relevant guidelines on ergonomic principles³ adopted by the Organization.

3 DEFINITIONS

For the purpose of these Performance standards, the following definitions apply:

- .1 *Rolling* is the motion around the longitudinal axis of the ship;
- .2 *Actual heel angle* is the momentary angle of roll referenced to a levelled ship to port or starboard side;

¹ These Performance standards do not apply to electronic inclinometers installed for purposes which are outside the scope of these guidelines, e.g. monitoring of cargo status.

² Refer to IEC Publication 60945 – Maritime navigation and radiocommunication equipment and systems – General requirements.

³ Refer to the *Guidelines on ergonomic criteria for bridge equipment and layout* (MSC/Circ.982).

- .3 *Roll period* is the time between two successive maximum values of heel angle on the same side of the ship; and
- .4 *Roll amplitude* is the maximum values of heel angle to port or starboard side.

MODULE A – SENSOR

4 MEASUREMENT OF ACTUAL HEEL ANGLE

Electronic inclinometers should be capable of measuring the actual heel angle and determining the amplitude of the rolling oscillation of the ship over a range of ± 90 degrees.

5 MEASUREMENT OF ROLL PERIOD

Electronic inclinometers should be capable of measuring the time between the maximum values of the rolling oscillation and determining the roll period over a minimum range of 4 to 40 s.

6 ACCURACY

6.1 Electronic inclinometers should provide the data with sufficient accuracy for a proper assessment of the ship's dynamic situation. Minimum accuracy of the measurements should be 5 per cent of reading or ± 1 degree, whichever is the greater for angle measurements and 5 per cent of reading or ± 1 s, whichever is the greater for time measurements.

6.2 Actual heel angle and time measurement accuracy should not be unduly affected by other linear or rotational movements of the ship (e.g. surging, swaying, heaving, pitching, yawing) or by transverse acceleration ranging from -0.8 g to +0.8 g.

MODULE B – OPERATIONAL AND FUNCTIONAL REQUIREMENTS

7 DISPLAY REQUIREMENTS

7.1 Electronic inclinometers should display:

- .1 the roll period with a minimum resolution of 1 s; and
- .2 the roll amplitude to both port and starboard side with a minimum resolution of 1 degree.

7.2 The actual heel angle to port or starboard should be indicated in an analogue form between the limits of ± 45 degrees.

7.3 The display may be implemented as a dedicated display or integrated into other bridge systems.

8 OPERATIONAL ALERTS

Electronic inclinometers may optionally provide a warning for indicating that a set heel angle had been exceeded.

9 PERFORMANCE TESTS, MALFUNCTIONS AND INDICATIONS

Electronic inclinometers should internally check and indicate to the user if all components are operative and if the information provided is valid or not.

MODULE C – INTERFACING AND INTEGRATION

10 CONNECTIONS TO OTHER EQUIPMENT

10.1 Electronic inclinometers should comprise a digital interface providing actual heel angle information to other systems like, e.g. VDR, with an update rate of at least 5 Hz. Electronic inclinometers should also comprise a digital interface providing the displayed information of roll period and roll amplitude (see paragraph 7.1).

10.2 Electronic inclinometers should have a bidirectional interface to facilitate communication, to transfer alerts from inclinometers to external systems and to acknowledge and silence alerts from external systems.

10.3 The digital interface should comply with the relevant international standards⁴.

11 INSTALLATION POSITION

The installation position of the sensors of the electronic inclinometer should be recorded and made available for the configuration of the VDR.

12 POWER SUPPLY

Electronic inclinometers should be powered from the ship's main source of electrical energy. In addition, it should be possible to operate the electronic inclinometers from the ship's emergency source of electrical energy.

⁴ Refer to standard IEC 61162 – Maritime navigation and radiocommunication equipment and systems – Digital interfaces.

ANNEX 24

**RESOLUTION MSC.364(92)
(Adopted on 14 June 2013)**

**PROCEDURE FOR CALCULATING THE NUMBER OF FISHING VESSELS OF
EACH CONTRACTING STATE TO THE 2012 CAPE TOWN AGREEMENT
BY THE DEPOSITARY**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

NOTING WITH APPRECIATION the adoption, on 11 October 2012, of the Cape Town Agreement of 2012 on the Implementation of the Provisions of the Torremolinos Protocol of 1993 relating to the Torremolinos International Convention for the Safety of Fishing Vessels, 1977 (hereinafter referred to as "the Agreement"), by the 2012 International Conference on the Safety of Fishing Vessels, held in Cape Town, South Africa, from 9 to 11 October 2012,

RECOGNIZING the significant contribution to maritime safety in general and to that of fishing vessels in particular which can be made by implementation of the provisions of the Agreement,

NOTING that the Agreement, in accordance with article 4(1), shall enter into force 12 months after the date on which not less than 22 States, the aggregate number of whose fishing vessels of 24 m in length and over operating on the high seas is not less than 3,600, have expressed their consent to be bound by it,

NOTING ALSO Conference resolution 5, which requests the Maritime Safety Committee to develop a procedure for calculating the number of fishing vessels of each Contracting State to the Agreement by the Depositary at the earliest opportunity, but not later than 1 January 2014,

HAVING CONSIDERED, at its ninety-second session (12 to 21 June 2013), a Procedure for calculating the number of fishing vessels of each Contracting State to the Agreement by the Depositary, proposed by the Sub-Committee on Stability and Load Lines and on Fishing Vessels Safety, at its fifty-fifth session,

1. ADOPTS the Procedure for calculating the number of fishing vessels of each Contracting State to the 2012 Cape Town Agreement by the Depositary, the text of which is set out in the annex to the present resolution;
2. URGES States, when expressing their consent to be bound by the Agreement, to communicate to the Depositary the number of fishing vessels of 24 m in length and over (as defined in the 1993 Torremolinos Protocol) under their flag authorized to operate on the high seas;
3. ALSO URGES States to become a Contracting State to the Agreement as soon as possible to facilitate its early entry into force and cooperate with each other to achieve this end.

* * *

ANNEX

PROCEDURE FOR CALCULATING THE NUMBER OF FISHING VESSELS OF EACH CONTRACTING STATE TO THE 2012 CAPE TOWN AGREEMENT

General

1 In order for the Depositary to calculate the number of fishing vessels of each Contracting State to the 2012 Cape Town Agreement, the procedure below is to be followed:

- .1 States, when expressing their consent to be bound by the Agreement, would be requested to communicate to the Depositary (the Secretary-General), the number of fishing vessels of 24 m in length and over (as defined in the 1993 Torremolinos Protocol) under their flag, authorized to operate on the high seas;
- .2 if the information in subparagraph .1 above is unavailable at the time of the expression of consent, the Depositary will contact the FAO Secretariat to request the numbers of fishing vessels of 24 m in length and over provided to FAO by a Contracting State which is Party to the FAO Agreement to promote compliance with international conservation and management measures by fishing vessels on the high seas (the Compliance Agreement); and
- .3 if the information in subparagraph .2 above is unavailable, the Depositary will obtain information from databases of Regional Fisheries Bodies (RFBs) or other international maritime databases, as appropriate, for the purpose of obtaining the number of fishing vessels of 24 m in length and over, authorized to operate on the high seas flying the flag of the Contracting State.

Simplified procedure for Parties to the 1993 Torremolinos Protocol

2 Article 3(4) of the 2012 Cape Town Agreement provides a simplified procedure for signature of the Agreement by Parties to the 1993 Torremolinos Protocol, whereby such States, having signed the Agreement in accordance with paragraph (2)(c) of article 3, shall be deemed to have expressed their consent to be bound by it 12 months after the day of its adoption.

3 For States using the simplified procedure, the Depositary will request them to confirm whether the number of fishing vessels reported to the Organization when that State expressed its consent to be bound by the 1993 Torremolinos Protocol meets the criteria of article 4(1) of the Agreement. In the event of no reply, the Depositary will use the procedures in paragraph 1.2 or 1.3 above for the purpose of article 4(1) of the Agreement.

Confirmation and final determination of data

4 In cases where the procedures in paragraph 1.2 or 1.3 above apply, the Depositary shall contact the Contracting State to the Agreement to confirm the number of fishing vessels obtained by the Depositary. The Contracting State will have a period of 60 days to confirm the number or to provide a more accurate number. In the event of no reply, the Depositary will use the number derived from the above procedures for the purpose of article 4(1) of the Agreement.

ANNEX 25

INTERNATIONAL REGULATIONS FOR THE SAFETY OF FISHING VESSELS

CONSOLIDATED TEXT OF THE REGULATIONS ANNEXED TO THE TORREMOLINOS PROTOCOL OF 1993 RELATING TO THE TORREMOLINOS INTERNATIONAL CONVENTION FOR THE SAFETY OF FISHING VESSELS, 1977, AS MODIFIED BY THE CAPE TOWN AGREEMENT OF 2012 ON THE IMPLEMENTATION OF THE PROVISIONS OF THE TORREMOLINOS PROTOCOL OF 1993 RELATING TO THE TORREMOLINOS INTERNATIONAL CONVENTION FOR THE SAFETY OF FISHING VESSELS, 1977 (AGREEMENT)

REGULATIONS FOR THE CONSTRUCTION AND EQUIPMENT OF FISHING VESSELS

CHAPTER I

GENERAL PROVISIONS

Regulation 1 Application

- (1) Unless expressly provided otherwise, the provisions of this annex shall apply to new vessels.
- (2) For the purpose of this Protocol¹, the Administration may decide to use the following gross tonnage in place of length (L) as the basis for measurement for all chapters:
- (a) a gross tonnage of 300 shall be considered equivalent to a length (L) of 24 m;
 - (b) a gross tonnage of 950 shall be considered equivalent to a length (L) of 45 m;
 - (c) a gross tonnage of 2,000 shall be considered equivalent to a length (L) of 60 m; and
 - (d) a gross tonnage of 3,000 shall be considered equivalent to a length (L) of 75 m.
- (3) Each Party which avails itself of the possibility afforded in paragraph (2) shall communicate to the Organization the reasons for that decision.
- (4) Where a Party has concluded that it is not immediately possible to implement all of the measures provided for in chapters VII, VIII, IX and X on existing vessels, the Party may, in accordance with a plan, progressively implement the provisions of chapter IX over a period of no more than 10 years and the provisions of chapters VII, VIII and X over a period of no more than five years.

¹ In accordance with article 2 of the 2012 Cape Town Agreement, a reference to "the present Protocol" or to "the Convention", respectively, shall be deemed to mean a reference to the Agreement.

(5) Each Party which avails itself of the possibility afforded in paragraph (4) shall in its first communication to the Organization:

- (a) indicate the provisions of chapters VII, VIII, IX and X to be progressively implemented;
- (b) explain the reasons for the decision taken under paragraph (4);
- (c) describe the plan for progressive implementation, which shall not be for more than five or 10 years, as appropriate; and
- (d) in subsequent communications on the application of this Protocol, describe measures taken with a view to giving effect to the provisions of the Protocol and progress made in line with the time frame established.

(6) The Administration may exempt a vessel from annual surveys, as specified in regulations 7(1)(d) and 9(1)(d), if it considers that the application is unreasonable and impracticable in view of the vessel's operating area and the type of vessel.

Regulation 2

Definitions

(1) *New vessel* is a vessel for which, on or after the date of entry into force of the present Protocol:

- (a) the building or major conversion contract is placed; or
- (b) the building or major conversion contract has been placed before the date of entry into force of the present Protocol, and which is delivered three years or more after the date of such entry into force; or
- (c) in the absence of a building contract:
 - (i) the keel is laid; or
 - (ii) construction identifiable with a specific vessel begins; or
 - (iii) assembly has commenced comprising at least 50 tonnes or 1 per cent of the estimated mass of all structural material, whichever is less.

(2) *Existing vessel* is a fishing vessel which is not a new vessel.

(3) *Approved* means approved by the Administration.

(4) *Crew* means the skipper and all persons employed or engaged in any capacity on board a vessel on the business of that vessel.

(5) *Length (L)* shall be taken as 96 per cent of the total length on a waterline at 85 per cent of the least moulded depth measured from the keel line, or as the length from the foreside of the stem to the axis of the rudder stock on that waterline, if that be greater. In vessels designed with rake of keel the waterline on which this length is measured shall be parallel to the designed waterline.

- (6) *Forward and after perpendiculars* shall be taken at the forward and after ends of the length (L). The forward perpendicular shall be coincident with the foreside of the stem on the waterline on which the length is measured.
- (7) *Breadth (B)* is the maximum breadth of the vessel, measured amidships to the moulded line of the frame in a vessel with a metal shell and to the outer surface of the hull in a vessel with a shell of any other material.
- (8) (a) The *moulded depth* is the vertical distance measured from the keel line to the top of the working deck beam at side.
- (b) In vessels having rounded gunwales, the moulded depth shall be measured to the point of intersection of the moulded lines of the deck and side shell plating, the lines extending as though the gunwale were of angular design.
- (c) Where the working deck is stepped and the raised part of the deck extends over the point at which the moulded depth is to be determined, the moulded depth shall be measured to a line of reference extending from the lower part of the deck along a line parallel with the raised part.
- (9) *Depth (D)* is the moulded depth amidships.
- (10) *Deepest operating waterline* is the waterline related to the maximum permissible operating draught.
- (11) *Amidships* is the mid-length of L.
- (12) *Midship section* is that section of the hull defined by the intersection of the moulded surface of the hull with a vertical plane perpendicular to the waterline and centreline planes passing through amidships.
- (13) *Keel line* is the line parallel to the slope of keel passing amidships through:
- (a) the top of the keel or line of intersection of the inside of shell plating with the keel where a bar keel extends above that line of a vessel with a metal shell; or
- (b) the rabbet lower line of the keel of a vessel with a shell of wood or a composite vessel; or
- (c) the intersection of a fair extension of the outside of the shell contour at the bottom with the centreline of a vessel with a shell of material other than wood and metal.
- (14) *Working deck* is generally the lowest complete deck above the deepest operating waterline from which fishing is undertaken. In vessels fitted with two or more complete decks, the Administration may accept a lower deck as a working deck provided that that deck is situated above the deepest operating waterline.
- (15) *Superstructure* is the decked structure on the working deck extending from side to side of the vessel or with the side plating not being inboard of the shell plating more than 0.04B.

(16) *Enclosed superstructure* is a superstructure with:

- (a) enclosing bulkheads of efficient construction;
- (b) access openings, if any, in those bulkheads fitted with permanently attached weathertight doors of a strength equivalent to the unpierced structure which can be operated from each side; and
- (c) other openings in sides or ends of the superstructure fitted with efficient weathertight means of closing.

A bridge or poop shall not be regarded as enclosed unless access is provided for the crew to reach machinery and other working spaces inside those superstructures by alternative means which are available at all times when bulkhead openings are closed.

(17) *Superstructure deck* is that complete or partial deck forming the top of a superstructure, deckhouse or other erection situated at a height of not less than 1.8 m above the working deck. Where this height is less than 1.8 m, the top of such deckhouses or other erections shall be treated in the same way as the working deck.

(18) *Height of a superstructure or other erection* is the least vertical distance measured at side from the top of the deck beams of a superstructure or an erection to the top of the working deck beams.

(19) *Weathertight* means that in any sea conditions water will not penetrate into the vessel.

(20) *Watertight* means capable of preventing the passage of water through the structure in any direction under a head of water for which the surrounding structure is designed.

(21) *Collision bulkhead* is a watertight bulkhead up to the working deck in the forepart of the vessel which meets the following conditions:

- (a) The bulkhead shall be located at a distance from the forward perpendicular:
 - (i) not less than 0.05L and not more than 0.08L for vessels of 45 m in length and over;
 - (ii) not less than 0.05L and not more than 0.05L plus 1.35 m for vessels of less than 45 m in length, except as may be allowed by the Administration;
 - (iii) in no case, less than 2 m.
- (b) Where any part of the underwater body extends forward of the forward perpendicular, e.g. a bulbous bow, the distance stipulated in subparagraph (a) shall be measured from a point at mid-length of the extension forward of the forward perpendicular or from a point 0.015L forward of the forward perpendicular, whichever is less.
- (c) The bulkhead may have steps or recesses provided they are within the limits prescribed in subparagraph (a).

(22) *Gross tonnage* means the gross tonnage calculated in accordance with the tonnage measurement regulations contained in Annex I to the International Convention on Tonnage Measurement of Ships, 1969, or any instrument amending or replacing it.

(23) *Anniversary date* means the day and the month of each year which will correspond to the date of expiry of the relevant certificate.

Regulation 3 Exemptions

(1) The Administration may exempt any vessel which embodies features of a novel kind from any of the requirements of chapters II, III, IV, V, VI and VII, the application of which might seriously impede research into the development of such features and their incorporation in vessels. Any such vessel shall, however, comply with safety requirements which, in the opinion of that Administration, are adequate for the service for which it is intended and are such as to ensure the overall safety of the vessel.

(2) Exemptions from the requirements of chapter IX are dealt with in regulation IX/3 and exemptions from chapter X are dealt with in regulation X/2.

(3) The Administration may exempt any vessel entitled to fly its flag from any of the requirements of this annex, if it considers that the application is unreasonable and impracticable in view of the type of vessel, the weather conditions and the absence of general navigational hazards, provided:

- (a) the vessel complies with safety requirements which, in the opinion of that Administration, are adequate for the service for which it is intended and are such as to ensure the overall safety of the vessel and persons on board;
- (b) the vessel is operating solely in:
 - (i) a common fishing zone established in adjoining marine areas under the jurisdiction of neighbouring States which have established that zone, in respect of vessels entitled to fly their flags, only to the extent and under the conditions that those States agree, in accordance with international law, to establish in this regard; or
 - (ii) the exclusive economic zone of the State of the flag it is entitled to fly, or, if that State has not established such a zone, in an area beyond and adjacent to the territorial sea of that State determined by that State in accordance with international law and extending not more than 200 nautical miles from the baselines from which the breadth of its territorial sea is measured; or
 - (iii) the exclusive economic zone or a marine area under the jurisdiction of another State, or a common fishing zone, in accordance with an agreement between the States concerned in accordance with international law, only to the extent and under the conditions that those States agree to establish in this regard; and
- (c) the Administration notifies the Secretary-General of the terms and conditions on which the exemption is granted under this paragraph.

(4) An Administration which allows any exemption under paragraph (1) or (2) shall communicate to the Organization particulars of the same to the extent necessary to confirm that the level of safety is adequately maintained and the Organization shall circulate such particulars to the Parties for their information.

Regulation 4 Equivalents

(1) Where the present regulations require that a particular fitting, material, appliance or apparatus, or type thereof, shall be fitted or carried in a vessel, or that any particular provision shall be made, the Administration may allow any other fitting, material, appliance or apparatus, or type thereof, to be fitted or carried, or any other provision to be made in that vessel, if it is satisfied by trial thereof or otherwise that such fitting, material, appliance or apparatus, or type thereof, or provision, is at least as effective as that required by the present regulations.

(2) Any Administration which so allows, in substitution, a fitting, material, appliance or apparatus, or type thereof, or provision, shall communicate to the Organization particulars thereof together with a report on any trials made and the Organization shall circulate such particulars to other Parties for the information of their officers.

Regulation 5 Repairs, alterations and modifications

(1) A vessel which undergoes repairs, alterations, modifications and outfitting related thereto shall continue to comply with at least the requirements previously applicable to the vessel.

(2) Repairs, alterations and modifications of a major character and outfitting related thereto shall meet the requirements for a new vessel only to the extent of such repairs, alterations and modifications and in so far as the Administration deems reasonable and practicable.

Regulation 6 Inspection and survey

(1) The inspection and survey of vessels, so far as regards the enforcement of the provisions of the present regulations and the granting of exemptions therefrom, shall be carried out by officers of the Administration. The Administration may, however, entrust the inspections and surveys either to surveyors nominated for the purpose or to organizations recognized by it.

(2) An Administration nominating surveyors or recognizing organizations to conduct inspections and surveys as set forth in paragraph (1) shall as a minimum empower any nominated surveyor or recognized organization to:

- (a) require repairs to a vessel; and
- (b) carry out inspections and surveys if requested by the appropriate authorities of a port State.

The Administration shall notify the Organization of the specific responsibilities and conditions of the authority delegated to nominated surveyors or recognized organizations.

(3) When a nominated surveyor or recognized organization determines that the condition of the vessel or its equipment does not correspond substantially with the particulars of the certificate or is such that the vessel is not fit to proceed to sea without danger to the vessel or persons on board, such surveyor or organization shall immediately ensure that corrective action is taken and shall in due course notify the Administration. If such corrective action is not taken, the relevant certificate should be withdrawn and the Administration shall be notified immediately; and, if the vessel is in the port of another Party, the appropriate authorities of the port State shall also be notified immediately. When an officer of the Administration, a nominated surveyor or a recognized organization has notified the appropriate authorities of the port State, the Government of the port State concerned shall give such officer, surveyor or organization any necessary assistance to carry out their obligations under this regulation. When applicable, the Government of the port State concerned shall ensure that the vessel shall not sail until it can proceed to sea, or leave port for the purpose of proceeding to the appropriate repair yard, without danger to the vessel or persons on board.

(4) In every case, the Administration shall fully guarantee the completeness and efficiency of the inspection and survey and shall undertake to ensure the necessary arrangements to satisfy this obligation.

Regulation 7 **Surveys of life-saving appliances and other equipment**

(1) The life-saving appliances and other equipment as referred to in paragraph (2)(a) shall be subject to the surveys specified below:

- (a) an initial survey before the vessel is put in service;
- (b) a renewal survey at intervals specified by the Administration but not exceeding five years, except where regulations 13(2), 13(5) and 13(6) are applicable;
- (c) a periodical survey within three months before or after the second anniversary date or within three months before or after the third anniversary date of the International Fishing Vessel Safety Certificate which shall take the place of one of the annual surveys specified in paragraph (1)(d). Alternatively, the Administration may decide that the periodical survey shall be carried out within three months before the second anniversary date and three months after the third anniversary date of the International Fishing Vessel Safety Certificate;
- (d) an annual survey within three months before or after each anniversary date of the International Fishing Vessel Safety Certificate; and
- (e) an additional survey either general or partial, according to the circumstances, shall be made after a repair resulting from investigations prescribed in regulation 10 or whenever any important repairs or renewals are made. The survey shall be such as to ensure that the necessary repairs or renewals have been effectively made, that the material and workmanship of such repairs or renewals are in all respects satisfactory, and that the vessel complies in all respects with the provisions of the present regulations and of the International Regulations for Preventing Collisions at Sea in force, and of the laws, decrees, orders and regulations promulgated as a result thereof by the Administration.

- (2) The surveys referred to in paragraph (1) shall be carried out as follows:
- (a) the initial survey shall include a complete inspection of the fire safety systems and appliances, life-saving appliances and arrangements except radio installations, the shipborne navigational equipment, pilot transfer arrangements and other equipment to which chapters II, III, IV, V, VI, VII, VIII and X apply to ensure that they comply with the requirements of the present regulations, are in satisfactory condition and are fit for the service for which the vessel is intended. The fire control plans, nautical publications, lights, shapes, means of making sound signals and distress signals shall also be subject to the above-mentioned survey for the purpose of ensuring that they comply with the requirements of the present regulations and, where applicable, the International Regulations for Preventing Collisions at Sea in force;
 - (b) the renewal and periodical surveys shall include an inspection of the equipment referred to in paragraph (2)(a) to ensure that it complies with the relevant requirements of the present regulations and the International Regulations for Preventing Collisions at Sea in force, is in satisfactory condition and is fit for the service for which the vessel is intended; and
 - (c) the annual survey shall include a general inspection of the equipment referred to in paragraph (2)(a) to ensure that it has been maintained in accordance with regulation 10(1) and that it remains satisfactory for the service for which the vessel is intended.
- (3) The periodical and annual surveys referred to in paragraphs (1)(c) and (1)(d) shall be endorsed on the International Fishing Vessel Safety Certificate.

Regulation 8 **Surveys of radio installations**

- (1) The radio installations, including those used in life-saving appliances, of vessels to which chapters VII and IX apply shall be subject to the surveys specified below:
- (a) an initial survey before the vessel is put in service;
 - (b) a renewal survey at intervals specified by the Administration but not exceeding five years, except where regulations 13(2), 13(5) and 13(6) are applicable;
 - (c) a periodical survey within three months before or after each anniversary date of the International Fishing Vessel Safety Certificate; or a periodical survey within three months before or after the second anniversary date or within three months before or after the third anniversary date of the International Fishing Vessel Safety Certificate. Alternatively, the Administration may decide that the periodical survey shall be carried out within three months before the second anniversary date and three months after the third anniversary date of the International Fishing Vessel Safety Certificate; and
 - (d) an additional survey either general or partial, according to the circumstances, shall be made after a repair resulting from investigations prescribed in regulation 10 or whenever any important repairs or renewals

are made. The survey shall be such as to ensure that the necessary repairs or renewals have been effectively made, that the material and workmanship of such repairs or renewals are in all respects satisfactory, and that the vessel complies in all respects with the provisions of the present regulations and of the International Regulations for Preventing Collisions at Sea in force, and of the laws, decrees, orders and regulations promulgated as a result thereof by the Administration.

- (2) The surveys referred to in paragraph (1) shall be carried out as follows:
- (a) the initial survey shall include a complete inspection of the radio installations, including those used in life-saving appliances, to ensure that they comply with the requirements of the present regulations; and
 - (b) the renewal and periodical surveys shall include an inspection of the radio installations, including those used in life-saving appliances, to ensure that they comply with the requirements of the present regulations.
- (3) The periodical surveys referred to in paragraph (1)(c) shall be endorsed on the International Fishing Vessel Safety Certificate.

Regulation 9 **Surveys of structure, machinery and equipment**

- (1) The structure, machinery and equipment (other than items in respect of regulations 7 and 8) as referred to in paragraph (2)(a) shall be subject to the surveys and inspections specified below:
- (a) an initial survey including an inspection of the outside of the vessel's bottom before the vessel is put in service;
 - (b) a renewal survey at intervals specified by the Administration but not exceeding five years, except where regulations 13(2), 13(5) and 13(6) are applicable;
 - (c) an intermediate survey within three months before or after the second anniversary date or within three months before or after the third anniversary date of the International Fishing Vessel Safety Certificate, which shall take the place of one of the annual surveys specified in paragraph (1)(d). Alternatively, the Administration may decide that the intermediate survey shall be carried out within three months before the second anniversary date and three months after the third anniversary date of the International Fishing Vessel Safety Certificate;
 - (d) an annual survey within three months before or after each anniversary date of the International Fishing Vessel Safety Certificate;
 - (e) a minimum of two inspections of the outside of the vessel's bottom during any five-year period, except where regulation 13(5) is applicable. Where regulation 13(5) is applicable, this five-year period may be extended to coincide with the extended period of validity of the certificate. In all cases the interval between any two such inspections shall not exceed 36 months; and

- (f) an additional survey either general or partial, according to the circumstances, shall be made after a repair resulting from investigations prescribed in regulation 10, or whenever any important repairs or renewals are made. The survey shall be such as to ensure that the necessary repairs or renewals have been effectively made, that the material and workmanship of such repairs or renewals are in all respects satisfactory, and that the vessel complies in all respects with the provisions of the present regulations and of the International Regulations for Preventing Collisions at Sea in force, and of the laws, decrees, orders and regulations promulgated as a result thereof by the Administration.
- (2) The surveys and inspections referred to in paragraph (1) shall be carried out as follows:
- (a) the initial survey shall include a complete inspection of the structure, machinery and equipment. This survey shall be such as to ensure that the arrangements, materials, scantlings and workmanship of the structure, boilers and other pressure vessels, their appurtenances, main and auxiliary machinery including steering gear and associated control systems, electrical installation and other equipment comply with the requirements of the present regulations, are in satisfactory condition and are fit for the service for which the vessel is intended and that the required stability information is provided;
 - (b) the renewal survey shall include an inspection of the structure, machinery and equipment referred to in paragraph (2)(a) to ensure that they comply with the requirements of the present regulations, are in satisfactory condition and are fit for the service for which the vessel is intended;
 - (c) the intermediate survey shall include an inspection of the structure, boilers and other pressure vessels, machinery and equipment, the steering gear and the associated control systems and electrical installations to ensure that they remain satisfactory for the service for which the vessel is intended;
 - (d) the annual survey shall include a general inspection of the structure, machinery and equipment referred to in paragraph (2)(a), to ensure that they have been maintained in accordance with regulation 10(1) and that they remain satisfactory for the service for which the vessel is intended; and
 - (e) the inspection of the outside of the vessel's bottom and the survey of related items inspected at the same time shall be such as to ensure that they remain satisfactory for the service for which the vessel is intended.
- (3) The intermediate and annual surveys and the inspections of the outside of the vessel's bottom referred to in paragraphs (1)(c), (1)(d) and (1)(e) shall be endorsed on the International Fishing Vessel Safety Certificate.

Regulation 10

Maintenance of conditions after survey

- (1) The condition of the vessel and its equipment shall be maintained to conform with the provisions of the present regulations to ensure that the vessel in all respects will remain fit to proceed to sea without danger to the vessel or persons on board.

(2) After any survey of the vessel under regulation 7, 8 or 9 has been completed, no change shall be made in the structural arrangements, machinery, equipment and other items covered by the survey, without the sanction of the Administration.

(3) Whenever an accident occurs to a vessel or a defect is discovered, either of which affects the safety of the vessel or the efficiency or completeness of its life-saving appliances or other equipment, the skipper or owner of the vessel shall report at the earliest opportunity to the Administration, the nominated surveyor or recognized organization responsible for issuing the relevant certificate, who shall cause investigations to be initiated to determine whether a survey, as required by regulation 7, 8 or 9, is necessary. If the vessel is in a port of another Party, the skipper or owner shall also report immediately to the appropriate authorities of the port State and the nominated surveyor or recognized organization shall ascertain that such a report has been made.

Regulation 11

Issue or endorsement of certificates

(1) A certificate called an International Fishing Vessel Safety Certificate shall be issued, except for vessels exempted under regulation 3(3), after an initial or renewal survey to a fishing vessel which complies with the relevant requirements of chapters II, III, IV, V, VI, VII, VIII, IX and X and any other relevant requirements of the present regulations.

(2) The International Fishing Vessel Safety Certificate referred to in paragraph (1) shall be supplemented by a Record of Equipment.

(3) When an exemption is granted to a vessel under and in accordance with the provisions of the present regulations, except for vessels exempted under regulation 3(3), a certificate called an International Fishing Vessel Exemption Certificate shall be issued in addition to the certificate prescribed in this regulation.

(4) The certificates referred to in this regulation shall be issued or endorsed either by the Administration or by any person or organization authorized by it. In every case, that Administration assumes full responsibility for the certificates.

Regulation 12

Issue or endorsement of certificates by another Party

A Party may, at the request of the Administration, cause a vessel to be surveyed and, if satisfied that the requirements of the present regulations are complied with, shall issue or authorize the issue of certificates to the vessel and, where appropriate, endorse or authorize the endorsement of certificates on the vessel in accordance with the present regulations. Any certificate so issued shall contain a statement to the effect that it has been issued at the request of the Government of the State the flag of which the vessel is entitled to fly, and it shall have the same force and receive the same recognition as a certificate issued under regulation 11.

Regulation 13

Duration and validity of certificates

(1) An International Fishing Vessel Safety Certificate shall be issued for a period specified by the Administration which shall not exceed five years. An International Fishing Vessel Exemption Certificate shall not be valid for longer than the period of the certificate to which it refers.

- (2) (a) Notwithstanding the requirements of paragraph (1), when the renewal survey is completed within three months before the expiry date of the existing certificate, the new certificate shall be valid from the date of completion of the renewal survey to a date not exceeding five years from the date of expiry of the existing certificate.
- (b) When the renewal survey is completed after the expiry date of the existing certificate, the new certificate shall be valid from the date of completion of the renewal survey to a date not exceeding five years from the date of expiry of the existing certificate.
- (c) When the renewal survey is completed more than three months before the expiry date of the existing certificate, the new certificate shall be valid from the date of completion of the renewal survey to a date not exceeding five years from the date of completion of the renewal survey.
- (3) If a certificate is issued for a period of less than five years, the Administration may extend the validity of the certificate beyond the expiry date to the maximum period specified in paragraph (1), provided that the surveys referred to in regulations 7, 8 and 9 applicable when a certificate is issued for a period of five years are carried out as appropriate.
- (4) If a renewal survey has been completed and a new certificate cannot be issued or placed on board the vessel before the expiry date of the existing certificate, the person or organization authorized by the Administration may endorse the existing certificate and such a certificate shall be accepted as valid for a further period which shall not exceed five months from the expiry date.
- (5) If a vessel at the time when a certificate expires is not in a port in which it is to be surveyed, the Administration may extend the period of validity of the certificate but this extension shall be granted only for the purpose of allowing the vessel to complete its voyage to the port in which it is to be surveyed, and then only in cases where it appears proper and reasonable to do so. No certificate shall be extended for a period longer than three months, and a vessel to which an extension is granted shall not, on its arrival in the port in which it is to be surveyed, be entitled by virtue of such extension to leave that port without having a new certificate. When the renewal survey is completed, the new certificate shall be valid to a date not exceeding five years from the date of expiry of the existing certificate before the extension was granted.
- (6) In special circumstances, as determined by the Administration, a new certificate need not be dated from the date of expiry of the existing certificate as required by paragraph (2)(b) or (5). In these special circumstances, the new certificate shall be valid to a date not exceeding five years from the date of completion of the renewal survey.
- (7) If an annual, intermediate or periodical survey is completed before the period specified in the relevant regulations, then:
- (a) the anniversary date shown on the relevant certificate shall be amended by endorsement to a date which shall not be more than three months later than the date on which the survey was completed;
- (b) the subsequent annual, intermediate or periodical survey required by the relevant regulations shall be completed at the intervals prescribed by these regulations using the new anniversary date; and

- (c) the expiry date may remain unchanged provided one or more annual, intermediate or periodical surveys, as appropriate, are carried out so that the maximum intervals between the surveys prescribed by the relevant regulations are not exceeded.
- (8) A certificate issued under regulation 11 or 12 shall cease to be valid in any of the following cases:
- (a) if the relevant surveys and inspections are not completed within the periods specified under regulations 7(1), 8(1) and 9(1);
 - (b) if the certificate is not endorsed in accordance with the present regulations; and
 - (c) upon transfer of the vessel to the flag of another State. A new certificate shall only be issued when the Government issuing the new certificate is fully satisfied that the vessel is in compliance with the requirements of regulations 10(1) and 10(2). In the case of a transfer between Parties, if requested within three months after the transfer has taken place, the Government of the State whose flag the vessel was formerly entitled to fly shall, as soon as possible, transmit to the Administration copies of the certificates carried by the vessel before a transfer and, if available, copies of the relevant survey reports.

Regulation 14 **Forms of certificates and records of equipment**

The certificates and records of equipment shall be drawn up in the form corresponding to the models given in the appendix to the Annex to the present Protocol. If the language used is neither English nor French, the text shall include a translation into one of these languages.²

Regulation 15 **Availability of certificates**

The certificates issued under regulations 11 and 12 shall be readily available on board for examination at all times.

Regulation 16 **Acceptance of certificates**

Certificates issued under the authority of a Party shall be accepted by the other Party for all purposes covered by the present Protocol. They shall be regarded by the other Party as having the same force as certificates issued by them.

Regulation 17 **Privileges**

The privileges of the present Protocol may not be claimed in favour of any vessel unless it holds appropriate valid certificates.

² Refer to resolution A.561(14) on *Translation of the text of certificates*.

CHAPTER II

CONSTRUCTION, WATERTIGHT INTEGRITY AND EQUIPMENT

Regulation 1 **Construction**

- (1) Strength and construction of hull, superstructures, deckhouses, machinery casings, companionways and any other structures and vessel's equipment shall be sufficient to withstand all foreseeable conditions of the intended service and shall be to the satisfaction of the Administration.
- (2) The hull of vessels intended for operation in ice shall be strengthened in accordance with the anticipated conditions of navigation and area of operation.
- (3) Bulkheads, closing devices and closures of openings in these bulkheads, as well as methods for their testing, shall be in accordance with the requirements of the Administration. Vessels constructed of material other than wood shall be fitted with a collision bulkhead and at least with watertight bulkheads bounding the main machinery space. Such bulkheads shall be extended up to the working deck. In vessels constructed of wood such bulkheads, which as far as practicable shall be watertight, shall also be fitted.
- (4) Pipes piercing the collision bulkhead shall be fitted with suitable valves operable from above the working deck and the valve chest shall be secured at the collision bulkhead inside the forepeak. No door, manhole, ventilation duct or any other opening shall be fitted in the collision bulkhead below the working deck.
- (5) Where a long forward superstructure is fitted, the collision bulkhead shall be extended weathertight to the deck next above the working deck. The extension need not be fitted directly over the bulkhead below provided it is located within the limits given in regulation 1/2(21) and the part of the deck which forms the step is made effectively weathertight.
- (6) The number of openings in the collision bulkhead above the working deck shall be reduced to the minimum compatible with the design and normal operation of the vessel. Such openings shall be capable of being closed weathertight.
- (7) In vessels of 75 m in length and over, a watertight double bottom shall be fitted, as far as practicable, between the collision bulkhead and the afterpeak bulkhead.

Regulation 2 **Watertight doors**

- (1) The number of openings in watertight bulkheads, as required by regulation 1(3), shall be reduced to the minimum compatible with the general arrangements and operational needs of the vessel; openings shall be fitted with watertight closing appliances to the satisfaction of the Administration. Watertight doors shall be of an equivalent strength to the adjacent unpierced structure.
- (2) In vessels of less than 45 m in length, such doors may be of the hinged type, which shall be capable of being operated locally from each side of the door and shall normally be kept closed at sea. A notice shall be attached to the door on each side to state that the door shall be kept closed at sea.

- (3) In vessels of 45 m in length and over, watertight doors shall be of the sliding type in:
- (a) spaces where it is intended to open them at sea and if located with their sills below the deepest operating waterline, unless the Administration considers it to be impracticable or unnecessary taking into account the type and operation of the vessels; and
 - (b) the lower part of a machinery space where there is access from it to a shaft tunnel.

Otherwise watertight doors may be of the hinged type.

- (4) Sliding watertight doors shall be capable of being operated when the vessel is listed up to 15° either way.

- (5) Sliding watertight doors whether manually operated or otherwise shall be capable of being operated locally from each side of the door; in vessels of 45 m in length and over, these doors shall also be capable of being operated by remote control from an accessible position above the working deck except when the doors are fitted in crew accommodation spaces.

- (6) Means shall be provided at remote operating positions to indicate when a sliding door is open or closed.

Regulation 3

Hull integrity

- (1) External openings shall be capable of being closed so as to prevent water from entering the vessel. Deck openings which may be open during fishing operations shall normally be arranged near to the vessel's centreline. However, the Administration may approve different arrangements if satisfied that the safety of the vessel will not be impaired.

- (2) Fish flaps on stern trawlers shall be power-operated and capable of being controlled from any position which provides an unobstructed view of the operation of the flaps.

Regulation 4

Weathertight doors

- (1) All access openings in bulkheads of enclosed superstructures and other outer structures through which water could enter and endanger the vessel, shall be fitted with doors permanently attached to the bulkhead, framed and stiffened so that the whole structure is of equivalent strength to the unpierced structure, and weathertight when closed. The means for securing these doors weathertight shall consist of gaskets and clamping devices or other equivalent means and shall be permanently attached to the bulkhead or to the doors themselves, and shall be so arranged that they can be operated from each side of the bulkhead. The Administration may, without prejudice to the safety of the crew, permit the doors to be opened from one side only for freezer rooms, provided that a suitable alarm device is fitted to prevent persons being trapped in those rooms.

- (2) The height above deck of sills in those doorways, in companionways, erections and machinery casings which give direct access to parts of the deck exposed to the weather and sea shall be at least 600 mm on the working deck and at least 300 mm on the superstructure deck. Where operating experience has shown justification and on approval of the

Administration, these heights, except in the doorways giving direct access to machinery spaces, may be reduced to not less than 380 mm and 150 mm respectively.

Regulation 5 **Hatchways closed by wood covers**

- (1) The height above deck of hatchway coamings shall be at least 600 mm on exposed parts of the working deck and at least 300 mm on the superstructure deck.
- (2) The finished thickness of wood hatchway covers shall include an allowance for abrasion due to rough handling. In any case, the finished thickness of these covers shall be at least 4 mm for each 100 mm of unsupported span subject to a minimum of 40 mm and the width of their bearing surfaces shall be at least 65 mm.
- (3) Arrangements for securing wood hatchway covers weathertight shall be provided to the satisfaction of the Administration.

Regulation 6 **Hatchways closed by covers other than wood**

- (1) The height above deck of hatchway coamings shall be as specified in regulation 5(1). Where operating experience has shown justification, and on the approval by the Administration, the height of these coamings may be reduced, or the coamings omitted entirely, provided that the safety of vessels is not thereby impaired. In this case, the hatchway openings shall be kept as small as practicable and the covers be permanently attached by hinges or equivalent means and be capable of being rapidly closed and battened down, or by equally effective arrangements to the satisfaction of the Administration.
- (2) For the purpose of strength calculations, it shall be assumed that hatchway covers are subjected to the weight of cargo intended to be carried on them or to the following static loads, whichever is the greater:
 - (a) 10 kN/m² for vessels of 24 m in length;
 - (b) 17 kN/m² for vessels of 100 m in length and over.

For intermediate lengths the load values shall be determined by linear interpolation. The Administration may reduce the loads to not less than 75 per cent of the above values for covers to hatchways situated on the superstructure deck in a position abaft a point located 0.25L from the forward perpendicular.

- (3) Where covers are made of mild steel, the maximum stress calculated according to paragraph (2) multiplied by 4.25 shall not exceed the minimum ultimate strength of the material. Under these loads the deflections shall not be more than 0.0028 times the span.
- (4) Covers made of materials other than mild steel shall be at least of equivalent strength to those made of mild steel, and their construction shall be of sufficient stiffness ensuring weathertightness under the loads specified in paragraph (2).
- (5) Covers shall be fitted with clamping devices and gaskets sufficient to ensure weathertightness, or other equivalent arrangements to the satisfaction of the Administration.

Regulation 7 **Machinery space openings**

- (1) Machinery space openings shall be framed and enclosed by casings of a strength equivalent to the adjacent superstructure. External access openings therein shall be fitted with doors complying with the requirements of regulation 4.
- (2) Openings other than access openings shall be fitted with covers of equivalent strength to the unpierced structure, permanently attached thereto and capable of being closed weathertight.

Regulation 8 **Other deck openings**

- (1) Where it is essential for fishing operations, flush deck scuttles of the screw, bayonet or equivalent type and manholes may be fitted provided these are capable of being closed watertight and such devices shall be permanently attached to the adjacent structure. Having regard to the size and disposition of the openings and the design of the closing devices, metal-to-metal closures may be fitted if the Administration is satisfied that they are effectively watertight.
- (2) Openings other than hatchways, machinery space openings, manholes and flush scuttles in the working or superstructure deck shall be protected by enclosed structures fitted with weathertight doors or their equivalent. Companionways shall be situated as close as practicable to the centreline of the vessel.

Regulation 9 **Ventilators**

- (1) In vessels of 45 m in length and over, the height above deck of ventilator coamings, other than machinery space ventilator coamings, shall be at least 900 mm on the working deck and at least 760 mm on the superstructure deck. In vessels of less than 45 m in length, the height of these coamings shall be 760 mm and 450 mm respectively. The height above deck of machinery space ventilator openings shall be to the satisfaction of the Administration.
- (2) Coamings of ventilators shall be of equivalent strength to the adjacent structure and capable of being closed weathertight by closing appliances permanently attached to the ventilator or adjacent structure. Where the coaming of any ventilator exceeds 900 mm in height, it shall be specially supported.
- (3) Closing appliances in vessels of 45 m in length and over need not be fitted to ventilators the coamings of which extend to more than 4.5 m above the working deck or more than 2.3 m above the superstructure deck unless specifically required by the Administration. In vessels of less than 45 m in length, closing appliances need not be fitted to ventilators the coamings of which extend to more than 3.4 m above the working deck or more than 1.7 m above the superstructure deck. If the Administration is satisfied that it is unlikely that water will enter the vessel through machinery space ventilators, closing appliances to such ventilators may be omitted.

Regulation 10

Air pipes

- (1) Where air pipes to tanks and void spaces below deck extend above the working or the superstructure decks, the exposed parts of the pipes shall be of strength equivalent to the adjacent structures and fitted with appropriate protection. Openings of air pipes shall be provided with means of closing, permanently attached to the pipe or adjacent structure.
- (2) The height of air pipes above deck to the point where water may have access below shall be at least 760 mm on the working deck and at least 450 mm on the superstructure deck. The Administration may accept reduction of the height of an air pipe to avoid interference with the fishing operations.

Regulation 11

Sounding devices

- (1) Sounding devices, to the satisfaction of the Administration, shall be fitted:
- (a) to the bilges of those compartments which are not readily accessible at all times during the voyage; and
 - (b) to all tanks and cofferdams.
- (2) Where sounding pipes are fitted, their upper ends shall be extended to a readily accessible position and, where practicable, above the working deck. Their openings shall be provided with permanently attached means of closing. Sounding pipes which are not extended above the working deck shall be fitted with automatic self-closing devices.

Regulation 12

Sidescuttles and windows

- (1) Sidescuttles to spaces below the working deck and to spaces within the enclosed structures on that deck shall be fitted with hinged deadlights capable of being closed watertight.
- (2) No sidescuttle shall be fitted in such a position that its sill is less than 500 mm above the deepest operating waterline.
- (3) Sidescuttles fitted less than 1,000 mm above the deepest operating waterline shall be of the fixed type.
- (4) Sidescuttles, together with their glasses and deadlights shall be of an approved construction. Those prone to be damaged by fishing gear shall be suitably protected.
- (5) Toughened safety glass or its equivalent shall be used for the wheelhouse windows.
- (6) The Administration may accept sidescuttles and windows without deadlights in side and aft bulkheads of deckhouses located on or above the working deck, if satisfied that the safety of the vessel will not be impaired.

Regulation 13

Inlets and discharges

(1) Discharges led through the shell either from spaces below the working deck or from within enclosed superstructures or deckhouses on the working deck fitted with doors complying with the requirements of regulation 4 shall be fitted with accessible means for preventing water from passing inboard. Normally each separate discharge shall have an automatic non-return valve with a positive means of closing it from an accessible position. Such a valve is not required if the Administration considers that the entry of water into the vessel through the opening is not likely to lead to dangerous flooding and that the thickness of the piping is sufficient. The means for operating the positive action valve shall be provided with an indicator showing whether the valve is open or closed.

(2) In manned machinery spaces main and auxiliary sea inlets and discharges essential for the operation of machinery may be controlled locally. The controls shall be accessible and shall be provided with indicators showing whether the valves are open or closed.

(3) Fittings attached to the shell and the valves required by this regulation shall be of steel, bronze or other approved ductile material. All pipes between the shell and the valves shall be of steel, except that in spaces other than machinery spaces of vessels constructed of material other than steel the Administration may approve the use of other materials.

Regulation 14

Freeing ports

(1) Where bulwarks on weather parts of the working deck form wells, the minimum freeing port area (A) in square metres on each side of the vessel for each well on the working deck shall be determined in relation to the length (l) and height of bulwark in the well as follows:

- (a) $A = 0.07 l$
(l need not be taken as greater than 0.7L).
- (b)
 - (i) Where the bulwark is more than 1,200 mm in average height, the required area shall be increased by 0.004 m² per metre of length of well for each 100 mm difference in height.
 - (ii) Where the bulwark is less than 900 mm in average height, the required area may be decreased by 0.004 m² per metre of length of well for each 100 mm difference in height.

(2) The freeing port area calculated according to paragraph (1) shall be increased where the Administration considers that the vessel's sheer is not sufficient to ensure that the deck is rapidly and effectively freed of water.

(3) Subject to the approval of the Administration the minimum freeing port area for each well on the superstructure deck shall be not less than one half the area (A) given in paragraph (1).

(4) Freeing ports shall be so arranged along the length of bulwarks as to ensure that the deck is freed of water most rapidly and effectively. Lower edges of freeing ports shall be as near the deck as practicable.

(5) Poundboards and means for stowage of the fishing gear shall be arranged so that the effectiveness of freeing ports will not be impaired. Poundboards shall be so constructed that they can be locked in position when in use and shall not hamper the discharge of shipped water.

(6) Freeing ports over 300 mm in depth shall be fitted with bars spaced not more than 230 mm or less than 150 mm apart or provided with other suitable protective arrangements. Freeing port covers, if fitted, shall be of approved construction. If devices are considered necessary for locking freeing port covers during fishing operations, they shall be to the satisfaction of the Administration and easily operable from a readily accessible position.

(7) In vessels intended to operate in areas subject to icing, covers and protective arrangements for freeing ports shall be capable of being easily removed to restrict ice accretion. The size of openings and means provided for removal of these protective arrangements shall be to the satisfaction of the Administration.

Regulation 15

Anchor and mooring equipment

Anchor equipment designed for quick and safe operation shall be provided which shall consist of anchoring equipment, anchor chains or wire ropes, stoppers and a windlass or other arrangements for dropping and hoisting the anchor and for holding the vessel at anchor in all foreseeable service conditions. Vessels shall also be provided with adequate mooring equipment for safe mooring in all operating conditions. Anchor and mooring equipment shall be to the satisfaction of the Administration.³

CHAPTER III

STABILITY AND ASSOCIATED SEAWORTHINESS

Regulation 1

General

Vessels shall be so designed and constructed that the requirements of this chapter will be satisfied in the operating conditions referred to in regulation 7. Calculations of the righting lever curves shall be to the satisfaction of the Administration.⁴

Regulation 2

Stability criteria

(1) The following minimum stability criteria shall be met unless the Administration is satisfied that operating experience justifies departures therefrom:

- (a) the area under the righting lever curve (GZ curve) shall not be less than 0.055 m-rad up to 30° angle of heel and not less than 0.09 m-rad up to 40° or the angle of flooding Θ_f if this angle is less than 40°.

³ See annex II, "Recommended practice for anchor and mooring equipment", of part B of the Code of Safety for Fishermen and Fishing Vessels, 2005.

⁴ See part B, chapter 2, section 2.1 of the *International Code on Intact Stability, 2008 (2008 IS CODE)*, adopted by the Maritime Safety Committee of the Organization by resolution MSC.267(85) and the Code of practice concerning the accuracy of stability information for fishing vessels, adopted by the Organization by resolution MSC.267(85).

Additionally, the area under the righting lever curve (GZ curve) between the angles of heel of 30° and 40° or between 30° and Θ_f , if this angle is less than 40° shall not be less than 0.03 m-rad. Θ_f is the angle of heel at which openings in the hull, superstructure or deckhouses which cannot rapidly be closed weathertight commence to immerse. In applying this criterion, small openings through which progressive flooding cannot take place need not be considered as open;

- (b) the righting level GZ shall be at least 200 mm at an angle of heel equal to or greater than 30°;
- (c) the maximum righting lever GZ_{max} shall occur at an angle of heel preferably exceeding 30° but not less than 25°;
- (d) the initial metacentric height GM shall not be less than 350 mm for single deck vessels. In vessels with complete superstructure or vessels of 70 m in length and over, the metacentric height may be reduced to the satisfaction of the Administration but in no case shall be less than 150 mm.

(2) Where arrangements other than bilge keels are provided to limit the angles of roll, the Administration shall be satisfied that the stability criteria given in paragraph (1) are maintained in all operating conditions.

(3) Where ballast is provided to ensure compliance with paragraph (1), its nature and arrangement shall be to the satisfaction of the Administration.

Regulation 3

Flooding of fish-holds

The angle of heel at which progressive flooding of fish-holds could occur through hatches which remain open during fishing operations and which cannot rapidly be closed shall be at least 20° unless the stability criteria of regulation 2(1) can be satisfied with the respective fish-holds partially or completely flooded.

Regulation 4

Particular fishing methods

Vessels engaged in particular fishing methods where additional external forces are imposed on the vessel during fishing operations, shall meet the stability criteria of regulation 2(1) increased, if necessary, to the satisfaction of the Administration.

Regulation 5

Severe wind and rolling

Vessels shall be able to withstand, to the satisfaction of the Administration, the effect of severe wind and rolling in associated sea conditions taking account of the seasonal weather conditions, the sea states in which the vessel will operate, the type of vessel and its mode of operation.⁵

⁵ See part B, chapter 2, paragraph 2.1.4 of the *International Code on Intact Stability, 2008 (2008 IS CODE)*, adopted by the Maritime Safety Committee of the Organization by resolution MSC.267(85).

Regulation 6 Water on deck

Vessels shall be able to withstand, to the satisfaction of the Administration, the effect of water on deck, taking account of the seasonal weather conditions, the sea states in which the vessel will operate, the type of vessel and its mode of operation.⁶

Regulation 7 Operating conditions

(1) The number and type of operating conditions to be considered shall be to the satisfaction of the Administration and shall include the following, as appropriate:

- (a) departure for the fishing grounds with full fuel, stores, ice, fishing gear, etc.;
- (b) departure from the fishing grounds with full catch;
- (c) arrival at home port with full catch and 10 per cent stores, fuel, etc.; and
- (d) arrival at home port with 10 per cent stores, fuel, etc. and a minimum catch, which shall normally be 20 per cent of full catch but may be up to 40 per cent, provided the Administration is satisfied that operating patterns justify such a value.

(2) In addition to the specific operating conditions given in paragraph (1) the Administration shall also be satisfied that the minimum stability criteria given in regulation 2 are met under all other actual operating conditions including those which produce the lowest values of the stability parameters contained in these criteria. The Administration shall also be satisfied that those special conditions associated with a change in the vessel's mode or areas of operation which affect the stability considerations of this chapter are taken into account.

(3) Concerning the conditions referred to in paragraph (1), the calculations shall include the following:

- (a) allowance for the weight of the wet fishing nets and tackle, etc. on the deck;
- (b) allowance for ice accretion, if anticipated, in accordance with the provisions of regulation 8;
- (c) homogeneous distribution of the catch, unless this is inconsistent with practice;
- (d) catch on deck, if anticipated, in operating conditions referred to in paragraph (1)(b) and (c) and paragraph (2);
- (e) water ballast if carried either in tanks which are especially provided for this purpose or in other tanks also equipped for carrying water ballast; and
- (f) allowance for the free surface effect of liquids and, if applicable, catch carried.

⁶ See the *Guidance on a method of calculation of the effect of water on deck*, contained in recommendation 1 of attachment 3 to the Final Act of the International Conference on Safety of Fishing Vessels, 1993.

Regulation 8

Ice accretion

(1) For vessels operating in areas where ice accretion is likely to occur the following icing allowance shall be made in the stability calculations:⁷

- (a) 30 kg/m² on exposed weather decks and gangways;
- (b) 7.5 kg/m² for projected lateral area of each side of the vessel above the water plane;
- (c) the projected lateral area of discontinuous surfaces of rail, spars (except masts) and rigging of vessels having no sails and the projected lateral area of other small objects shall be computed by increasing the total projected area of continuous surfaces by 5 per cent and the static moments of this area by 10 per cent.

(2) Vessels intended for operation in areas where ice accretion is known to occur shall be:

- (a) designed to minimize the accretion of ice; and
- (b) equipped with such means for removing ice as the Administration may require.

Regulation 9

Inclining test

(1) Every vessel shall undergo an inclining test upon its completion and the actual displacement and position of the centre of gravity shall be determined for the lightship condition.

(2) Where alterations are made to a vessel affecting its lightship condition and the position of the centre of gravity, the vessel shall, if the Administration considers this necessary, be re-inclined and the stability information revised.

(3) The Administration may allow the inclining test of an individual vessel to be dispensed with, provided basic stability data are available from the inclining test of a sister ship and it is shown, to the satisfaction of the Administration, that reliable stability information for the exempted vessel can be obtained from such basic data.

Regulation 10

Stability information

(1) Suitable stability information shall be supplied to enable the skipper to assess with ease and certainty the stability of the vessel under various operating conditions.⁸ Such information shall include specific instructions to the skipper warning him of those

⁷ For sea areas, where ice accretion may occur and modifications of the icing allowance are suggested, see the Guidance relating to ice accretion, contained in recommendation 2 of attachment 3 to the Final Act of the International Conference on Safety of Fishing Vessels, 1993.

⁸ See the *Guidance on stability information*, contained in recommendation 3 of attachment 3 to the Final Act of the International Conference on Safety of Fishing Vessels, 1993.

operating conditions which could adversely affect either the stability or the trim of the vessel. A copy of the stability information shall be submitted to the Administration for approval.⁹

(2) The approved stability information shall be kept on board, readily accessible at all times and inspected at the periodical surveys of the vessel to ensure that it has been approved for the actual operating conditions.

(3) Where alterations are made to a vessel affecting its stability, revised stability calculations shall be prepared and submitted to the Administration for approval. If the Administration decides that the stability information must be revised, the new information shall be supplied to the skipper and the superseded information removed.

Regulation 11 **Portable fish-hold divisions**

The catch shall be properly secured against shifting which could cause dangerous trim or heel of the vessel. The scantlings of portable fish-hold divisions, if fitted, shall be to the satisfaction of the Administration.¹⁰

Regulation 12 **Bow height**

The bow height shall be sufficient, to the satisfaction of the Administration, to prevent the excessive shipping of water and shall be determined taking account of the seasonal weather conditions, the sea states in which the vessel will operate, the type of vessel and its mode of operation.¹¹

Regulation 13 **Maximum permissible operating draught**

A maximum permissible operating draught shall be approved by the Administration and shall be such that, in the associated operating condition, the stability criteria of this chapter and the requirements of chapters II and VI, as appropriate, are satisfied.

Regulation 14 **Subdivision and damage stability**

Vessels of 100 m in length and over, where the total number of persons carried is 100 or more, shall be capable, to the satisfaction of the Administration, of remaining afloat with positive stability, after the flooding of any one compartment assumed damaged, having regard to the type of vessel, the intended service and area of operation.¹²

⁹ See the *Code of practice concerning the accuracy of stability information for fishing vessels*, adopted by the Organization by resolution A.267(VIII).

¹⁰ See appendix V of the *Recommendation on intact stability of fishing vessels*, adopted by the Organization by resolution A.168(ES.IV), as amended by resolution A.268(VIII).

¹¹ See the *Guidance on a method of calculation of bow height*, contained in recommendation 4 of attachment 3 to the Final Act of the International Conference on Safety of Fishing Vessels, 1993.

¹² See the *Guidance on subdivision and damage stability calculations*, contained in recommendation 5 of attachment 3 to the Final Act of the International Conference on Safety of Fishing Vessels, 1993.

CHAPTER IV
MACHINERY AND ELECTRICAL INSTALLATIONS AND PERIODICALLY UNATTENDED
MACHINERY SPACES

PART A
GENERAL

Regulation 1
Application

The provisions of this chapter shall apply to vessels of 45 m in length and over.

Regulation 2
Definitions

- (1) *Main steering gear* is the machinery, the steering gear power units, if any, and ancillary equipment and the means of applying torque to the rudder stock (e.g. tiller or quadrant) necessary for effecting movement of the rudder for the purpose of steering the vessel under normal service conditions.
- (2) *Auxiliary means of activating the rudder* is the equipment which is provided for effecting movement of the rudder for the purpose of steering the vessel in the event of failure of the main steering gear.
- (3) *Steering gear power unit* means, in the case of:
- (a) electric steering gear, an electric motor and its associated electrical equipment;
 - (b) electro-hydraulic steering gear, an electric motor and its associated electrical equipment and connected pump; and
 - (c) other hydraulic steering gear, a driving engine and connected pump.
- (4) *Maximum ahead service speed* is the greatest speed which the vessel is designed to maintain in service at sea at its maximum permissible operating draught.
- (5) *Maximum astern speed* is the speed which it is estimated the vessel can attain at the designed maximum astern power at its maximum permissible operating draught.
- (6) *Fuel oil unit* is the equipment used for the preparation of fuel oil for delivery to an oil-fired boiler, or equipment used for the preparation of oil for delivery to an internal combustion engine, and includes any oil pressure pumps, filters and heaters dealing with oil at a pressure greater than 0.18 N/mm².
- (7) *Normal operational and habitable conditions* means conditions under which the vessel as a whole, its machinery services, means of main and auxiliary propulsion, steering gear and associated equipment, aids to safe navigation and to limit the risks of fire and flooding, internal and external means of communicating and signalling, means of escape and winches for rescue boats, are in proper working order and the minimum comfortable conditions of habitability are satisfactory.

(8) *Dead ship condition* is the condition under which the main propulsion plant, boilers and auxiliaries are not in operation due to the absence of power.

(9) *Main switchboard* is a switchboard directly supplied by the main source of electrical power and intended to distribute electrical energy.

(10) *Periodically unattended machinery spaces* means those spaces containing main propulsion and associated machinery and all sources of main electrical supply which are not at all times manned under all operating conditions, including manoeuvring.

Regulation 3 **General**

Machinery installations

(1) Main propulsion, control, steam pipe, fuel oil, compressed air, electrical and refrigeration systems; auxiliary machinery; boilers and other pressure vessels; piping and pumping arrangements; steering equipment and gears, shafts and couplings for power transmission shall be designed, constructed, tested, installed and serviced to the satisfaction of the Administration. This machinery and equipment, as well as lifting gear, winches, fish handling and fish processing equipment shall be protected so as to reduce to a minimum any danger to persons on board. Special attention shall be paid to moving parts, hot surfaces and other dangers.

(2) Machinery spaces shall be so designed as to provide safe and free access to all machinery and its controls as well as to any other parts which may require servicing. Such spaces shall be adequately ventilated.

(3) (a) Means shall be provided whereby the operational capability of the propulsion machinery can be sustained or restored even though one of the essential auxiliaries becomes inoperative. Special consideration shall be given to the functioning of:

- (i) the arrangements which supply fuel oil pressure for main propulsion machinery;
- (ii) the normal sources of lubricating oil pressure;
- (iii) the hydraulic, pneumatic and electrical means for the control of main propulsion machinery including controllable pitch propellers;
- (iv) the sources of water pressure for main propulsion cooling systems; and
- (v) an air compressor and an air receiver for starting or control purposes,

provided that the Administration may, having regard to overall safety considerations, accept a partial reduction in capability in lieu of full normal operation.

(b) Means shall be provided whereby the machinery can be brought into operation from the dead ship condition without external aid.

(4) Main propulsion machinery and all auxiliary machinery essential to the propulsion and the safety of the vessel shall, as fitted, be capable of operating whether the vessel is upright or listed up to 15° either way under static conditions and up to 22.5° either way under dynamic conditions, i.e. when rolling either way and simultaneously pitching (inclined dynamically) up to 7.5° by bow or stern. The Administration may permit deviation from these angles, taking into consideration the type, size and service conditions of the vessel.

(5) Special consideration shall be given to the design, construction and installation of propulsion machinery systems so that any mode of their vibrations shall not cause undue stresses in such machinery systems in the normal operating ranges.

Electrical installations

- (6) The design and construction of electrical installations shall be such as to provide:
- (a) the services necessary to maintain the vessel in normal operational and habitable conditions without having recourse to an emergency source of power;
 - (b) the services essential to safety when failure of the main source of electrical power occurs; and
 - (c) protection of the crew and vessel from electrical hazards.
- (7) The Administration shall be satisfied that regulations 16 to 18 are uniformly implemented and applied.¹³

Periodically unattended machinery spaces

- (8) Regulations 19 to 24 shall apply, in addition to regulations 3 to 18 and V/1 to V/44, to vessels with periodically unattended machinery spaces.
- (9) Measures shall be taken, to the satisfaction of the Administration, to ensure that all equipment is functioning in a reliable manner in all operating conditions, including manoeuvring, and that arrangements to the satisfaction of the Administration are made for regular inspections and routine tests to ensure continuous reliable operation.
- (10) Vessels shall be provided with documentary evidence, to the satisfaction of the Administration, of their fitness to operate with periodically unattended machinery spaces.

PART B MACHINERY INSTALLATIONS

(See also regulation 3)

Regulation 4 Machinery

- (1) Main and auxiliary machinery essential for the propulsion and safety of the vessel shall be provided with effective means of control.

¹³ See also the recommendation published by the International Electrotechnical Commission and, in particular, Publication 60092, Electrical installations in ships.

(2) Internal combustion engines of a cylinder diameter greater than 200 mm or a crankcase volume greater than 0.6 m³ shall be provided with crankcase explosion relief valves of an approved type with sufficient relief area.

(3) Where main or auxiliary machinery including pressure vessels or any parts of such machinery are subject to internal pressure and may be subject to dangerous overpressure, means shall be provided, where applicable, which will protect against such excessive pressure.

(4) All gearing and every shaft and coupling used for transmission of power to machinery essential for the propulsion and safety of the vessel or the safety of persons on board shall be so designed and constructed that it will withstand the maximum working stresses to which it may be subjected in all service conditions. Due consideration shall be given to the type of engines by which it is driven or of which it forms part.

(5) Main propulsion machinery and, where applicable, auxiliary machinery shall be provided with automatic shut-off arrangements in the case of failures, such as lubricating oil supply failure, which could lead rapidly to damage, complete breakdown or explosion. An advance alarm shall also be provided so that warning is given before automatic shut-off, but the Administration may permit provisions for overriding automatic shut-off devices. The Administration may also exempt vessels from the provisions of this paragraph, giving consideration to the type of vessel or its specific service.

Regulation 5 ***Means of going astern***¹⁴

(1) Vessels shall have sufficient power for going astern to secure proper control of the vessel in all normal circumstances.

(2) The ability of the machinery to reverse the direction of thrust of the propeller in sufficient time and so to bring the vessel to rest within a reasonable distance from maximum ahead service speed shall be demonstrated at sea.

Regulation 6 **Steam boilers, feed systems and steam piping arrangements**

(1) Every steam boiler and every unfired steam generator shall be provided with not less than two safety valves of adequate capacity. Provided that the Administration may, having regard to the output or any other features of any steam boiler or unfired steam generator, permit only one safety valve to be fitted if satisfied that adequate protection against overpressure is thereby provided.

(2) Every oil-fired steam boiler which is intended to operate without manual supervision shall have safety arrangements which shut off the fuel supply and give an alarm in the case of low water level, air supply failure or flame failure.

(3) The Administration shall give special consideration to steam boiler installations to ensure that feed systems, monitoring devices and safety provisions are adequate in all respects to ensure the safety of boilers, steam pressure vessels and steam piping arrangements.

¹⁴ See the *Recommendation on the provision and the display of manoeuvring information on board ships*, adopted by the Organization by resolution A.601(15) and *Standards for ship manoeuvrability*, adopted by the Maritime Safety Committee of the Organization by resolution MSC.137(76).

Regulation 7
Communication between the wheelhouse and machinery space

Two separate means of communication between the wheelhouse and the machinery space control platform shall be provided, one of which shall be an engine-room telegraph.

Regulation 8
Wheelhouse control of propulsion machinery

(1) Where remote control of propulsion machinery is provided from the wheelhouse, the following shall apply:

- (a) under all operating conditions, including manoeuvring, the speed, direction of thrust and, if applicable, the pitch of the propeller shall be fully controllable from the wheelhouse;
- (b) the remote control referred to in subparagraph (a) shall be performed by means of a control device to the satisfaction of the Administration with, where necessary, means of preventing overload of the propulsion machinery;
- (c) the main propulsion machinery shall be provided with an emergency stopping device in the wheelhouse and independent from the wheelhouse control system referred to in subparagraph (a);
- (d) remote control of the propulsion machinery shall be possible only from one station at a time; at any control station, interlocked control units may be permitted. There shall be at each station an indicator showing which station is in control of the propulsion machinery. The transfer of control between the wheelhouse and machinery spaces shall be possible only in the machinery space or control room;
- (e) indicators shall be fitted in the wheelhouse for:
 - (i) propeller speed and direction in the case of fixed propellers;
 - (ii) propeller speed and pitch position in the case of controllable pitch propellers; and
 - (iii) advance alarm as required in regulation 4(5);
- (f) it shall be possible to control the propulsion machinery locally even in the case of failure in any part of the remote control system;
- (g) unless the Administration considers it impracticable, the design of the remote control system shall be such that, if it fails, an alarm will be given and the pre-set speed and direction of thrust will be maintained until local control is in operation;
- (h) special arrangements shall be provided to ensure that automatic starting shall not exhaust the starting possibilities. An alarm shall be provided to indicate low starting air pressure and shall be set at a level which will still permit main engine starting operations.

(2) Where the main propulsion and associated machinery including sources of main electrical supply are provided with various degrees of automatic or remote control and are under continuous manned supervision from a control room, the control room shall be so designed, equipped and installed that the machinery operation will be as safe and effective as if it were under direct supervision.

(3) In general, automatic starting, operational and control systems shall include means for manually overriding the automatic means, even in the case of failure of any part of the automatic and remote control system.

Regulation 9

Air pressure systems

(1) Means shall be provided to prevent excess pressure in any part of compressed air systems and wherever water-jackets or casings of air compressors and coolers might be subjected to dangerous excess pressure due to leakage into them from air pressure parts. Suitable pressure-relief arrangements shall be provided.

(2) The main starting air arrangements for main propulsion internal combustion engines shall be adequately protected against the effects of backfiring and internal explosion in the starting air pipes.

(3) All discharge pipes from starting air compressors shall lead directly to the starting air receivers and all starting pipes from the air receivers to main or auxiliary engines shall be entirely separate from the compressor discharge pipe system.

(4) Provision shall be made to reduce to a minimum the entry of oil into the air pressure systems and to drain these systems.

Regulation 10

Arrangements for fuel oil, lubricating oil and other flammable oils

(1) Fuel oil which has a flashpoint of less than 60°C (closed cup test) as determined by an approved flashpoint apparatus shall not be used as fuel, except in emergency generators, in which case the flashpoint shall be not less than 43°C. Provided that the Administration may permit the general use of fuel oil having a flashpoint of not less than 43°C subject to such additional precautions as it may consider necessary and on condition that the temperature of the space in which such fuel is stored or used shall not rise to within 10°C below the flashpoint of the fuel.

(2) Safe and efficient means of ascertaining the amount of fuel oil contained in any oil tank shall be provided. If sounding pipes are installed, their upper ends shall terminate in safe positions and shall be fitted with suitable means of closure. Gauges made of glass of substantial thickness and protected with a metal case may be used, provided that automatic closing valves are fitted. Other means of ascertaining the amount of fuel oil contained in any fuel oil tank may be permitted providing their failure or overfilling of the tanks will not permit release of fuel.

(3) Provision shall be made to prevent overpressure in any oil tank or in any part of the fuel oil system including the filling pipes. Relief valves and air or overflow pipes shall discharge to a position and in a manner which is safe.

(4) Subject to the satisfaction of the Administration, fuel oil pipes which, if damaged, would allow oil to escape from a storage, settling or daily service tank situated above the double bottom, shall be fitted with a cock or valve on the tank capable of being closed from a safe position outside the space concerned in the event of a fire arising in the space in which such tanks are situated. In the special case of deep tanks situated in any shaft or pipe tunnel or similar space, valves on the tank shall be fitted but control in the event of fire may be effected by means of an additional valve on the pipe or pipes outside the tunnel or similar space. If such additional valve is fitted in the machinery space, it shall be capable of being operated outside this space.

(5) Pumps forming part of the fuel oil system shall be separate from any other system and the connections of any such pumps shall be provided with an efficient relief valve which shall be in closed circuit. Where fuel oil tanks are alternatively used as liquid ballast tanks, proper means shall be provided to isolate the fuel oil and ballast systems.

(6) No oil tank shall be situated where spillage or leakage therefrom can constitute a hazard by falling on heated surfaces. Precautions shall be taken to prevent any oil that may escape under pressure from any pump, filter or heater from coming into contact with heated surfaces.

(7) (a) Fuel oil pipes and their valves and fittings shall be steel or other equivalent material, provided that restricted use of flexible pipes may be permitted in positions where the Administration is satisfied that they are necessary. Such flexible pipes and end attachments shall be of adequate strength and shall, to the satisfaction of the Administration, be constructed of approved fire-resistant materials or have fire-resistant coatings.

(b) Where necessary, fuel oil and lubricating oil pipelines shall be screened or otherwise suitably protected to avoid, as far as practicable, oil spray or oil leakage on heated surfaces or into machinery air intakes. The number of joints in piping systems shall be kept to a minimum.

(8) As far as practicable, fuel oil tanks shall be part of the vessel's structure and shall be located outside machinery spaces of category A. Where fuel oil tanks, other than double bottom tanks, are necessarily located adjacent to or within machinery spaces of category A, at least one of their vertical sides shall be contiguous to the machinery space boundaries, and shall preferably have a common boundary with the double bottom tanks, where fitted, and the area of the tank boundary common with the machinery space shall be kept to a minimum. When such tanks are sited within the boundaries of machinery spaces of category A, they shall not contain fuel oil having a flashpoint of less than 60°C (closed cup test). In general, the use of free-standing fuel oil tanks shall be avoided in fire hazard areas and, particularly, in machinery spaces of category A. When free-standing fuel oil tanks are permitted, they shall be placed in an oil-tight spill tray of ample size having a suitable drain pipe leading to a suitably sized spill oil tank.

(9) The ventilation of machinery spaces shall be sufficient under all normal conditions to prevent accumulation of oil vapour.

(10) The arrangements for the storage, distribution and use of oil employed in pressure lubrication systems shall be to the satisfaction of the Administration. Such arrangements in machinery spaces of category A and, wherever practicable, in other machinery spaces shall at least comply with the provisions of paragraphs (1), (3), (6) and (7) and, in so far as the Administration may consider necessary, with paragraphs (2) and (4). This does not preclude

the use of sight flow glasses in lubrication systems provided they are shown by test to have a suitable degree of fire resistance.

(11) The arrangements for the storage, distribution and use of flammable oils employed under pressure in power transmission systems other than oils referred to in paragraph (10) in control and activating systems and heating systems shall be to the satisfaction of the Administration. In locations where means of ignition are present, such arrangements shall at least comply with the provisions of paragraphs (2) and (6) and with the provisions of paragraphs (3) and (7) in respect of strength and construction.

(12) Fuel oil, lubricating oil and other flammable oils shall not be carried in forepeak tanks.

Regulation 11

Bilge pumping arrangements

(1) An efficient bilge pumping plant shall be provided which under all practical conditions shall be capable of pumping from and draining any watertight compartment which is neither a permanent oil tank nor a permanent water tank whether the vessel is upright or listed. Wing suctions shall be provided if necessary for that purpose. Arrangements shall be provided for easy flow of water to the suction pipes. Provided the Administration is satisfied that the safety of the vessel is not impaired the bilge pumping arrangements may be dispensed with in particular compartments.

(2) (a) At least two independently driven power bilge pumps shall be provided, one of which may be driven by the main engine. A ballast pump or other general service pump of sufficient capacity may be used as a power driven bilge pump.

(b) Power bilge pumps shall be capable of giving a speed of water of at least 2 m/s through the main bilge pipe which shall have an internal diameter of at least:

$$d = 25 + 1.68 \sqrt{L(B + D)}$$

where: d is the internal diameter in millimetres; and L, B and D are in metres.

However, the actual internal diameter of the bilge main may be rounded off to the nearest standard size acceptable to the Administration.

(c) Each of the bilge pumps provided in accordance with this regulation shall be provided with a direct bilge suction, one of these suctions drawing from the port side of the machinery space and the other from the starboard side, except that in the case of a vessel of less than 75 m in length only one bilge pump need be provided with a direct bilge suction.

(d) No bilge suction shall have an inside diameter of less than 50 mm. The arrangement and sizing of the bilge system shall be such that the full rated capacity of the pump specified above can be applied to each of the watertight compartments located between the collision and afterpeak bulkheads.

- (3) A bilge ejector in combination with an independently driven high pressure seawater pump may be installed as a substitute for one independently driven bilge pump required by paragraph (2)(a), provided this arrangement is to the satisfaction of the Administration.
- (4) In vessels, where fish handling or processing may cause quantities of water to accumulate in enclosed spaces, adequate drainage shall be provided.
- (5) Bilge pipes shall not be led through fuel oil, ballast or double bottom tanks, unless these pipes are of heavy gauge steel construction.
- (6) Bilge and ballast pumping systems shall be arranged so as to prevent water passing from the sea or from water ballast spaces into holds or into machinery spaces or from one watertight compartment to another. The bilge connection to any pump which draws from the sea or from water ballast spaces shall be fitted with either a non-return valve or a cock which cannot be opened simultaneously either to the bilges and to the sea or to the bilges and water ballast spaces. Valves in bilge distribution boxes shall be of a non-return type.
- (7) Any bilge pipe piercing a collision bulkhead shall be fitted with a positive means of closing at the bulkhead with remote control from the working deck with an indicator showing the position of the valve provided that, if the valve is fitted on the after side of the bulkhead and is readily accessible under all service conditions, the remote control may be dispensed with.

Regulation 12

Protection against noise

Measures shall be taken to reduce the effects of noise upon personnel in machinery spaces to levels satisfactory to the Administration.¹⁵

Regulation 13

Steering gear

- (1) Vessels shall be provided with a main steering gear and an auxiliary means of actuating the rudder to the satisfaction of the Administration. The main steering gear and the auxiliary means of actuating the rudder shall be arranged so that, so far as is reasonable and practicable, a single failure in one of them will not render the other one inoperative.
- (2) Where the main steering gear comprises two or more identical power units, an auxiliary steering gear need not be fitted if the main steering gear is capable of operating the rudder as required by paragraph (10) when any one of the units is out of operation. Each of the power units shall be operated from a separate circuit.
- (3) The position of the rudder, if power operated, shall be indicated in the wheelhouse. The rudder angle indication for power-operated steering gear shall be independent of the steering gear control system.
- (4) In the event of failure of any of the steering gear units, an alarm shall be given in the wheelhouse.

¹⁵ See the *Code on Noise Levels on Board Ships*, adopted by the Organization by resolution A.468(XII) and the *Code on Noise Levels on Board Ships*, adopted by the Maritime Safety Committee of the Organization by resolution MSC.337(91), as appropriate.

(5) Indicators for running indication of the motors of electric and electrohydraulic steering gear shall be installed in the wheelhouse. Short circuit protection, an overload alarm and a no-voltage alarm shall be provided for these circuits and motors. Protection against excess current, if provided, shall be for not less than twice the full load current of the motor or circuit so protected, and shall be arranged to permit the passage of the appropriate starting currents.

(6) The main steering gear shall be of adequate strength and sufficient to steer the vessel at maximum service speed. The main steering gear and rudder stock shall be so designed that they will not be damaged at maximum speed astern or by manoeuvring during fishing operations.

(7) The main steering gear shall, with the vessel at its maximum permissible operating draught, be capable of putting the rudder over from 35° on one side to 35° on the other side with the vessel running ahead at maximum service speed. The rudder shall be capable of being put over from 35° on either side to 30° on the other side in not more than 28 s, under the same conditions. The main steering gear shall be operated by power where necessary to fulfil these requirements.

(8) The main steering gear power unit shall be arranged to start either by manual means in the wheelhouse or automatically when power is restored after a power failure.

(9) The auxiliary means for actuating the rudder shall be of adequate strength and sufficient to steer the vessel at navigable speed and capable of being brought speedily into action in an emergency.

(10) The auxiliary means for actuating the rudder shall be capable of putting the rudder over from 15° on one side to 15° on the other side in not more than 60 s with the vessel running at one-half of its maximum service speed ahead or 7 knots whichever is the greater. The auxiliary means for actuating the rudder shall be operated by power, where necessary, to fulfil these requirements.

(11) Electric or electrohydraulic steering gear in vessels of 75 m in length and over shall be served by at least two circuits fed from the main switchboard and these circuits shall be as widely separated as possible.

Regulation 14 Engineers' alarm

In vessels of 75 m in length and over, an engineers' alarm shall be provided to be operated from the engine control room or at the manoeuvring platform as appropriate, and shall be clearly audible in the engineers' accommodation.

Regulation 15 Refrigeration systems for the preservation of the catch

(1) Refrigeration systems shall be so designed, constructed, tested and installed as to take account of the safety of the system and also the emission of chlorofluorocarbons (CFCs) or any other ozone-depleting substances from the refrigerant held in quantities or concentrations which are hazardous to human health or to the environment, and shall be to the satisfaction of the Administration.

- (2) Refrigerants to be used in refrigeration systems shall be to the satisfaction of the Administration. However, methylchloride or CFCs whose ozone-depleting potential is higher than 5 per cent of CFC-11 shall not be used as refrigerants.
- (3) (a) Refrigerating installations shall be adequately protected against vibration, shock, expansion, shrinkage, etc. and shall be provided with an automatic safety control device to prevent a dangerous rise in temperature and pressure.
- (b) Refrigeration systems in which toxic or flammable refrigerants are used shall be provided with drainage devices leading to a place where the refrigerant presents no danger to the vessels or to persons on board.
- (4) (a) Any space containing refrigerating machinery including condensers and gas tanks utilizing toxic refrigerants shall be separated from any adjacent space by gastight bulkheads. Any space containing the refrigerating machinery including condensers and gas tanks shall be fitted with a leak detection system having an indicator outside the space adjacent to the entrance and shall be provided with an independent ventilation system and a water spray system.
- (b) When such containment is not practicable, due to the size of the vessel, the refrigeration system may be installed in the machinery space provided that the quantity of refrigerant used will not cause danger to persons in the machinery space, should all the gas escape, and provided that an alarm is fitted to give warning of a dangerous concentration of gas should any leakage occur in the compartment.
- (5) In refrigerating machinery spaces and refrigerating rooms, alarms shall be connected to the wheelhouse or control stations or escape exits to prevent persons being trapped. At least one exit from each such space shall be capable of being opened from the inside. Where practicable, exits from the spaces containing refrigerating machinery using toxic or flammable gas shall not lead directly into any accommodation spaces.
- (6) Where any refrigerant harmful to persons is used in a refrigeration system, at least two sets of breathing apparatus shall be provided, one of which shall be placed in a position not likely to become inaccessible in the event of leakage of refrigerant. Breathing apparatus provided as part of the vessel's fire-fighting equipment may be considered as meeting all or part of this provision provided its location meets both purposes. Where self-contained breathing apparatus is used, spare cylinders shall be provided.
- (7) Adequate guidance for the safe operation and emergency procedures for the refrigeration system shall be provided by suitable notices displayed on board the vessel.

PART C
ELECTRICAL INSTALLATIONS
(See also regulation 3)

Regulation 16
Main source of electrical power

- (1) (a) Where electrical power constitutes the only means of maintaining auxiliary services essential for the propulsion and the safety of the vessel, a main source of electrical power shall be provided which shall include at least two

generating sets, one of which may be driven by the main engine. The Administration may accept other arrangements having equivalent electrical capability.

- (b) The power of these sets shall be such as to ensure the functioning of the services referred to in regulation 3(6)(a), excluding the power required in fishing activities, processing and preservation of the catch, in the event of any one of these generating sets being stopped.
 - (c) The arrangement of the vessel's main source of electrical power shall be such that the services referred to in regulation 3(6)(a) can be maintained regardless of the number of revolutions and direction of the main propelling engines or shafting.
 - (d) Where transformers constitute an essential part of the supply system required by this paragraph, the system shall be so arranged as to ensure continuity of the supply.
- (2)
- (a) The arrangement of the main lighting system shall be such that a fire or other casualty in the space or spaces containing the main source of electrical power, including transformers, if any, will not render the emergency lighting system inoperative.
 - (b) The arrangement of the emergency lighting system shall be such that a fire or other casualty in the space or spaces containing the emergency source of electrical power, including transformers, if any, will not render the main lighting system inoperative.

Regulation 17 **Emergency source of electrical power**

(1) A self-contained emergency source of electrical power located, to the satisfaction of the Administration, outside the machinery spaces shall be provided and so arranged as to ensure its functioning in the event of fire or other causes of failure of the main electrical installations.

(2) The emergency source of electrical power shall be capable, having regard to starting current and the transitory nature of certain loads, of serving simultaneously for a period of at least 3 h:

- (a) the VHF radio installation required by regulations IX/6(1)(a) and (b) and, if applicable:
 - (i) the MF radio installation required by regulations IX/8(1)(a) and (b) and regulation IX/9(1)(b) and (c);
 - (ii) the ship earth station required by regulation IX/9(1)(a); and
 - (iii) the MF/HF radio installation required by regulations IX/9 (2)(a) and (b) and regulation IX/10(1);
- (b) internal communication equipment, fire detecting systems and signals which may be required in an emergency;

- (c) the navigation lights, if solely electrical, and the emergency lights:
 - (i) of launching stations and overside of the vessel;
 - (ii) in all alleyways, stairways and exits;
 - (iii) in spaces containing machinery or the emergency source of power;
 - (iv) in control stations; and
 - (v) in fish handling and fish processing spaces; and
 - (d) the operation of the emergency fire pump, if any.
- (3) The emergency source of electrical power may be either a generator or an accumulator battery.
- (4) (a) Where the emergency source of electrical power is a generator, it shall be provided both with an independent fuel supply and with efficient starting arrangements to the satisfaction of the Administration. Unless a second independent means of starting the emergency generator is provided the single source of stored energy shall be protected to preclude its complete depletion by the automatic starting system.
- (b) Where the emergency source of electrical power is an accumulator battery it shall be capable of carrying the emergency load without recharging whilst maintaining the voltage of the battery throughout the discharge period within plus or minus 12 per cent of its nominal voltage. In the event of failure of the main power supply this accumulator battery shall be automatically connected to the emergency switchboard and shall immediately supply at least those services specified in paragraphs (2)(b) and (c). The emergency switchboard shall be provided with an auxiliary switch allowing the battery to be connected manually, in case of failure of the automatic connection system.
- (5) The emergency switchboard shall be installed as near as is practicable to the emergency source of power and shall be located in accordance with paragraph (1). Where the emergency source of power is a generator, the emergency switchboard shall be located in the same place unless the operation of the emergency switchboard would thereby be impaired.
- (6) An accumulator battery fitted in accordance with this regulation shall be installed in a well-ventilated space which shall not be the space containing the emergency switchboard. An indicator shall be mounted in a suitable place on the main switchboard or in the machinery control room to indicate when the battery constituting the emergency source of power is being discharged. The emergency switchboard is to be supplied in normal operation from the main switchboard by an inter-connector feeder which is to be protected at the main switchboard against overload and short circuit. The arrangement at the emergency switchboard shall be such that, in the event of a failure of the main power supply, an automatic connection of the emergency supply shall be provided. When the system is arranged for feedback operation, the inter-connector feeder shall also be protected at the emergency switchboard at least against short circuit.

(7) The emergency generator and its prime mover and any accumulator battery shall be so arranged as to ensure that they will function at full rated power when the vessel is upright and when rolling up to an angle of 22.5° either way and simultaneously pitching 10° by bow or stern, or is in any combination of angles within those limits.

(8) The emergency source of electrical power and automatic starting equipment shall be so constructed and arranged as to enable adequate testing to be carried out by the crew while the vessel is in operating condition.

Regulation 18
Precautions against shock, fire and other hazards of electrical origin

(1) (a) Exposed permanently fixed metal parts of electrical machines or equipment which are not intended to be "live", but which are liable under fault conditions to become "live" shall be earthed (grounded), unless:

- (i) they are supplied at a voltage not exceeding 55 V direct current or 55 V root mean square, between conductors; autotransformers shall not be used for the purpose of achieving this alternative current voltage; or
- (ii) they are supplied at a voltage not exceeding 250 V by safety isolating transformers supplying one consuming device only; or
- (iii) they are constructed in accordance with the principle of double insulation.

(b) Portable electrical equipment shall operate at a safe voltage, exposed metal parts of such equipment which are not intended to have a voltage but which may have such under fault conditions, shall be earthed. The Administration may require additional precautions for portable electric lamps, tools or similar apparatus for use in confined or exceptionally damp spaces where particular risks due to conductivity may exist.

(c) Electrical apparatus shall be so constructed and so installed that it shall not cause injury when handled or touched in the normal manner.

(2) Main and emergency switchboards shall be so arranged as to give easy access as may be needed to apparatus and equipment, without danger to attendants. The sides and backs and, where necessary, the fronts of switchboards, shall be suitably guarded. Exposed "live" parts having voltages to earth exceeding a voltage to be specified by the Administration shall not be installed on the front of such switchboards. There shall be non-conducting mats or gratings at the front and rear, where necessary.

(3) (a) The hull return system of distribution shall not be used for power, heating or lighting in vessels of 75 m in length and over.

(b) The requirement of subparagraph (a) does not preclude, under conditions approved by the Administration, the use of:

- (i) impressed current cathodic protective systems;
- (ii) limited and locally earthed systems; or

- (iii) insulation level monitoring devices provided the circulation current does not exceed 30 mA under the most unfavourable conditions.
- (c) Where the hull return system is used, all final subcircuits (all circuits fitted after the last protective device) shall be two-wire and special precautions shall be taken to the satisfaction of the Administration.
- (4)
 - (a) Where a distribution system, whether primary or secondary, for power, heating or lighting, with no connection to earth is used, a device capable of monitoring the insulation level to earth shall be provided.
 - (b) Where the distribution system is in accordance with subparagraph (a) and a voltage exceeding 55 V direct current or 55 V root mean square, between conductors, is used, a device capable of continuously monitoring the insulation level to earth and of giving an audible or visual indication of abnormally low insulation values shall be provided.
 - (c) Distribution systems which are supplied at a voltage not exceeding 250 V direct current or 250 V root mean square, between conductors and which are limited in extent, may comply with subparagraph (a), subject to the satisfaction of the Administration.
- (5)
 - (a) Except as permitted by the Administration in exceptional circumstances, all metal sheaths and armour of cables shall be electrically continuous and shall be earthed.
 - (b) All electrical cables shall be at least of a flame-retardant type and shall be so installed as not to impair their original flame-retarding properties. The Administration may permit the use of special types of cables when necessary for particular applications, such as radio frequency cables, which do not comply with the foregoing.
 - (c) Cables and wiring serving essential or emergency power, lighting, internal communications or signals shall as far as practicable be routed clear of galleys, machinery spaces of category A and other high fire risk areas and laundries, fish handling and fish processing spaces and other spaces where there is a high moisture content. Cables connecting fire pumps to the emergency switchboard shall be of a fire-resistant type where they pass through high fire risk areas. Where practicable, all such cables should be run in such a manner as to preclude their being rendered unserviceable by heating of the bulkheads that may be caused by a fire in an adjacent space.
 - (d) Where cables which are installed in spaces where the risk of fire or explosion exists in the event of an electrical fault, special precautions against such risks shall be taken to the satisfaction of the Administration.
 - (e) Wiring shall be supported in such a manner as to avoid chafing or other damage.
 - (f) Terminations and joints in all conductors shall be made such that they retain the original electrical, mechanical, flame-retarding and, where necessary, fire-resisting properties of the cable.

- (g) Cables installed in refrigerated compartments shall be suitable for low temperatures and high humidity.
- (6)
 - (a) Circuits shall be protected against short circuit. Circuits shall also be protected against overload, except in accordance with regulation 13 or where the Administration may exceptionally otherwise permit.
 - (b) The rating or appropriate setting of the overload protective device for each circuit shall be permanently indicated at the location of the protective device.
- (7) Lighting fittings shall be arranged to prevent temperature rises which could damage the wiring and to prevent surrounding material from becoming excessively hot.
- (8) Lighting or power circuits terminating in a space where the risk of fire or explosion exists shall be provided with isolating switches outside the space.
- (9)
 - (a) The housing of an accumulator battery shall be constructed and ventilated to the satisfaction of the Administration.
 - (b) Electrical and other equipment which may constitute a source of ignition of flammable vapours shall not be permitted in these compartments except as permitted in paragraph (10).
 - (c) An accumulator battery shall not be located in accommodation spaces unless installed in a hermetically sealed container.
- (10) In spaces where flammable mixtures are liable to collect and in any compartment assigned principally to the containment of an accumulator battery, no electrical equipment shall be installed, unless the Administration is satisfied that it is:
 - (a) essential for operational purposes;
 - (b) of a type which will not ignite the mixture concerned;
 - (c) appropriate to the space concerned; and
 - (d) appropriately certified for safe usage in the dusts, vapours or gases likely to be encountered.
- (11) Lightning conductors shall be fitted to all wooden masts or topmasts. In vessels constructed of non-conductive materials, the lightning conductors shall be connected by suitable conductors to a copper plate fixed to the vessel's hull well below the waterline.

PART D
PERIODICALLY UNATTENDED MACHINERY SPACES
(See also regulation 3)

Regulation 19
Fire safety

Fire prevention

- (1) Special consideration shall be given to high pressure fuel oil pipes. Where practicable, leakages from such piping systems shall be collected in a suitable drain tank which shall be provided with a high level alarm.
- (2) Where daily service fuel oil tanks are filled automatically or by remote control, means shall be provided to prevent overflow spillages. Similar consideration shall be given to other equipment which treats flammable liquids automatically, e.g. fuel oil purifiers, which, whenever practicable, shall be installed in a special space reserved for purifiers and their heaters.
- (3) Where fuel oil daily service tanks or settling tanks are fitted with heating arrangements, a high temperature alarm shall be provided if the flashpoint of the fuel oil can be exceeded.

Fire detection

- (4) An approved fire detection system based on a self-monitoring principle and including facilities for periodical testing shall be installed in machinery spaces.
- (5) The detection system shall initiate both audible and visual alarm in the wheelhouse and in sufficient appropriate spaces to be heard and observed by persons on board, when the vessel is in harbour.
- (6) The fire detection system shall be fed automatically from an emergency source of power if the main source of power fails.
- (7) Internal combustion engines of 2,500 kW and over shall be provided with crankcase oil mist detectors or engine bearing temperature detectors or equivalent devices.

Fire fighting

- (8) A fixed fire-extinguishing system shall be provided to the satisfaction of the Administration, which shall be in compliance with the requirements of regulations V/22 and V/40.
- (9) In vessels of 75 m in length and over, provision shall be made for immediate water delivery from the fire main system either by:
- (a) remote starting arrangements of one of the main fire pumps in the wheelhouse and at the fire control station, if any; or

- (b) permanent pressurization of the fire main system, due regard being paid to the possibility of freezing.¹⁶

(10) The Administration shall be satisfied with the maintenance of the fire integrity of the machinery spaces, the location and centralization of the fire-extinguishing system controls, the shutdown arrangements referred to in regulation 24, e.g. ventilation, fuel pumps, etc., and may require fire-extinguishing appliances and other fire-fighting equipment and breathing apparatus in addition to the relevant requirements of chapter V.

Regulation 20 **Protection against flooding**

(1) Bilges in machinery spaces shall be provided with a high level alarm in such a way that the accumulation of liquids is detected at normal angles of trim and heel. The detection system shall initiate an audible and visual alarm in the places where continuous watch is maintained.

(2) The controls of any valve serving a sea inlet, a discharge below the waterline or a bilge injection system shall be so sited as to allow adequate time for operation in case of influx of water to the space.

Regulation 21 **Communications**

In vessels of 75 m in length and over, one of the two separate means of communication referred to in regulation 7 shall be a reliable vocal communication. An additional reliable means of vocal communication shall be provided between the wheelhouse and the engineers' accommodation.

Regulation 22 **Alarm system**

- (1) An alarm system shall be provided which shall indicate any fault requiring attention.
- (2)
 - (a) The alarm system shall be capable of sounding an audible alarm in the machinery space and shall indicate visually each separate alarm function at a suitable position.
 - (b) The alarm system shall have a connection to the engineers' cabins through a selector switch to ensure connection to one of those cabins and to the engineers' public rooms, if any. The Administration may permit alternative arrangements which provide an equivalent measure of safety.
 - (c) An engineers' alarm and an alarm to the wheelhouse for persons on watch shall be activated if an alarm function has not received attention within a limited period as specified by the Administration.
 - (d) Audible and visual alarms shall be activated in the wheelhouse for any situation requiring action by the responsible person on watch or which should be brought to his attention.

¹⁶ See the *Guidance for precautions against freezing of fire mains*, contained in recommendation 6 of attachment 3 to the Final Act of the International Conference on Safety of Fishing Vessels, 1993.

- (e) The alarm system shall as far as practicable be designed on the fail-safe principle.
- (3) The alarm system shall be:
 - (a) continuously powered with automatic change-over to a stand-by power supply in case of loss of normal power supply; and
 - (b) activated by failure of the normal power supply.
- (4) (a) The alarm system shall be able to indicate at the same time more than one fault and the acceptance of any alarm shall not inhibit another alarm.
- (b) Acceptance at the position referred to in paragraph (2)(a) of any alarm condition shall be indicated at the positions where it was shown. Alarms shall be maintained until they are accepted and the visual indications shall remain until the fault has been corrected. All alarms shall automatically reset when the fault has been rectified.

Regulation 23

Special requirements for machinery, boiler and electrical installations

- (1) In vessels of 75 m in length and over, the main source of electrical power shall be supplied as follows:
 - (a) where the electrical power can normally be supplied by one generator, there shall be provided suitable load shedding arrangements to ensure the integrity of supplies to services required for propulsion and steering. To cover the case of loss of the generator in operation, there shall be adequate provisions for automatic starting and connecting to the main switchboard of a stand-by generator of sufficient capacity to permit propulsion and steering and with automatic restarting of the essential auxiliaries including, where necessary, sequential operations. Means may be provided to the satisfaction of the Administration for remote (manual) starting and connection of the stand-by generator to the main switchboard as well as means of repeated remote starting of essential auxiliaries; and
 - (b) if the electrical power is normally supplied by more than one generating set simultaneously, there shall be provisions, e.g. by load shedding, to ensure that, in case of loss of one of these generating sets, the remaining ones are kept in operation without overload to permit propulsion and steering.
- (2) Where required to be duplicated, other auxiliary machinery essential to propulsion shall be fitted with automatic change-over devices allowing transfer to a stand-by machine. An alarm shall be given on automatic change-over.
- (3) Automatic control and alarm systems shall be provided as follows:
 - (a) the control system shall be such that, through the necessary automatic arrangements, the services needed for the operation of the main propulsion machinery and its auxiliaries are ensured;
 - (b) means shall be provided to keep the starting air pressure at the required level where internal combustion engines are used for main propulsion;

- (c) an alarm system complying with regulation 22 shall be provided for all important pressures, temperatures, fluid levels, etc.; and
- (d) where appropriate, an adequate central position shall be arranged with the necessary alarm panels and instrumentation indicating any alarmed fault.

Regulation 24 **Safety system**

A safety system shall be provided so that serious malfunction in machinery or boiler operations, which presents an immediate danger, shall initiate the automatic shutdown of that part of the plant and an alarm shall be given. Shutdown of the propulsion system shall not be automatically activated except in cases which could lead to serious damage, complete breakdown or explosion. Where arrangements for overriding the shutdown of the main propelling machinery are fitted, these shall be such as to preclude inadvertent activation. Visual means shall be provided to show whether or not it has been activated.

CHAPTER V

FIRE PROTECTION, FIRE DETECTION, FIRE EXTINCTION AND FIRE FIGHTING

(See also regulation IV/19)

PART A **GENERAL**

Regulation 1 **General**

- (1) Unless expressly provided otherwise, this chapter shall apply to new vessels of 45 m in length and over.
- (2) One of the following methods of protection shall be adopted in accommodation and service spaces:
 - (a) Method IF – The construction of all internal divisional bulkheads of non-combustible "B" or "C" class divisions generally without the installation of a detection or sprinkler system in the accommodation and service spaces; or
 - (b) Method IIF – The fitting of an automatic sprinkler and fire alarm system for the detection and extinction of fire in all spaces in which fire might be expected to originate, generally with no restrictions on the type of internal divisional bulkheads; or
 - (c) Method IIIF – The fitting of an automatic fire alarm and detection system in all spaces in which a fire might be expected to originate, generally with no restriction on the type of internal divisional bulkheads, except that in no case shall the area of any accommodation space or spaces bounded by an "A" or "B" class division exceed 50 m². However, the Administration may increase this area for public spaces.
- (3) The requirements for use of non-combustible materials in construction and insulation of the boundary bulkheads of machinery spaces, control stations, etc., and the protection of stairway enclosures and corridors shall be common to all three methods.

Regulation 2 Definitions

(1) *Non-combustible material* means a material which neither burns nor gives off flammable vapours in sufficient quantity for self-ignition when heated to approximately 750°C, this being determined to the satisfaction of the Administration by an established test procedure. Any other material is a combustible material.¹⁷

(2) *A standard fire test* is one in which specimens of the relevant bulkheads or decks are exposed in a test furnace to temperatures corresponding approximately to the standard time-temperature curve. The specimen shall have an exposed surface of not less than 4.65 m² and a height (or length of deck) of 2.44 m, resembling as closely as possible the intended construction and including where appropriate at least one joint. The standard time-temperature curve is defined by a smooth curve drawn through the following temperature points measured above the initial furnace temperature:

at the end of the first 5 min	556°C
at the end of the first 10 min	659°C
at the end of the first 15 min	718°C
at the end of the first 30 min	821°C
at the end of the first 60 min	925°C

(3) *"A" class divisions* are those divisions formed by bulkheads and decks which comply with the following:

- (a) they shall be constructed of steel or other equivalent material;
- (b) they shall be suitably stiffened;
- (c) they shall be so constructed as to be capable of preventing the passage of smoke and flame to the end of the one-hour standard fire test; and
- (d) they shall be insulated with approved non-combustible materials such that the average temperature of the unexposed side will not rise more than 139°C above the original temperature, nor will the temperature, at any one point, including any joint, rise more than 180°C above the original temperature, within the time listed below:

class "A-60"	60 min
class "A-30"	30 min
class "A-15"	15 min
class "A-0"	0 min

The Administration may require a test of a prototype bulkhead or deck to ensure that it meets the above requirements for integrity and temperature rise.¹⁸

¹⁷ See Part 1 – Non-combustibility test, contained in annex 1 of the *International Code for Application of Fire Test Procedures, 2010*, adopted by the Maritime Safety Committee of the Organization by resolution MSC.307(88).

¹⁸ See Part 3 – Test for "A", "B" and "F" class divisions, contained in annex 1 of the *International Code for Application of Fire Test Procedures, 2010*, adopted by the Maritime Safety Committee of the Organization by resolution MSC.307(88).

(4) *"B" class divisions* are those divisions formed by bulkheads, decks, ceilings or linings which comply with the following:

- (a) they shall be so constructed as to be capable of preventing the passage of flame to the end of the first one-half hour of the standard fire test;
- (b) they shall have an insulation value such that the average temperature of the unexposed side will not rise more than 139°C above the original temperature, nor will the temperature at any one point, including any joint, rise more than 225°C above the original temperature, within the time listed below:

class "B-15"	15 min
class "B-0"	0 min; and
- (c) they shall be constructed of approved non-combustible materials and all materials entering into the construction and erection of "B" class divisions shall be non-combustible with the exception that combustible veneers may be permitted provided they meet the relevant requirements of this chapter.

The Administration may require a test of a prototype division to ensure that it meets the above requirements for integrity and temperature rise.¹⁹

(5) *"C" class divisions* are those divisions constructed of approved non-combustible materials. They need meet no requirements relative to the passage of smoke and flame nor the limiting of temperature rise. Combustible veneers are permitted provided they meet other requirements of this chapter.

(6) *"F" class divisions* are those divisions formed by bulkheads, decks, ceilings or linings which comply with the following:

- (a) they shall be so constructed as to be capable of preventing the passage of flame to the end of the first one-half hour of the standard fire test; and
- (b) they shall have an insulation value such that the average temperature of the unexposed side will not rise more than 139°C above the original temperature, nor will the temperature at any one point, including any joint, rise more than 225°C above the original temperature, up to the end of the first one-half hour of the standard fire test.

The Administration may require a test of a prototype division to ensure that it meets the above requirements for integrity and temperature rise.¹⁸

(7) *Continuous "B" class ceilings or linings* are those "B" class ceilings or linings which terminate only at an "A" or "B" class division.

(8) *Steel or other equivalent material* means steel or any material which, by itself or due to insulation provided, has structural and integrity properties equivalent to steel at the end of the applicable fire exposure to the standard fire test (e.g. aluminium alloy with appropriate insulation).

¹⁹ Part 3 – Test for "A", "B" and "F" class divisions, contained in annex 1 of the *International Code for Application of Fire Test Procedures, 2010*, adopted by the Maritime Safety Committee of the Organization by resolution MSC.307(88).

(9) *Low flame spread* means that the surface thus described will adequately restrict the spread of flame, this being determined to the satisfaction of the Administration by an established test procedure.

(10) *Accommodation spaces* are those spaces used for public spaces, corridors, lavatories, cabins, offices, hospitals, cinemas, games and hobbies rooms, pantries containing no cooking appliances and similar spaces.

(11) *Public spaces* are those portions of the accommodation spaces which are used for halls, dining rooms, lounges, and similar permanently enclosed spaces.

(12) *Service spaces* are those spaces used for galleys, pantries containing cooking appliances, lockers and store-rooms, workshops other than those forming part of the machinery spaces, and similar spaces and trunks to such spaces.

(13) *Control stations* are those spaces in which the vessel's radio or main navigation equipment or the emergency source of power is located, or where the fire recording or fire control equipment is centralized.

(14) *Machinery spaces of category A* are those spaces which contain internal combustion type machinery used either:

- (a) for main propulsion; or
- (b) for other purposes where such machinery has in the aggregate a total power output of not less than 750 kW,

or which contain any oil-fired boiler or fuel oil unit.

(15) *Machinery spaces* are those machinery spaces of category A and all other spaces containing propulsion machinery, boilers, fuel oil units, steam and internal combustion engines, generators, steering gear, major electrical machinery, oil filling stations, refrigerating, stabilizing, ventilating and air conditioning machinery and similar spaces, and trunks to such spaces.

PART B

FIRE SAFETY MEASURES IN VESSELS OF 60 METRES IN LENGTH AND OVER

Regulation 3

Structure

(1) The hull, superstructure, structural bulkheads, decks and deckhouses shall be constructed of steel or other equivalent material except as otherwise specified in paragraph (4).

(2) The insulation of aluminium alloy components of "A" or "B" class divisions, except structures which, in the opinion of the Administration, are non-load bearing, shall be such that the temperature of the structural core does not rise more than 200°C above the ambient temperature at any time during the applicable fire exposure to the standard fire test.

(3) Special attention shall be given to the insulation of aluminium alloy components of columns, stanchions and other structural members required to support survival craft stowage, launching and embarkation areas, and "A" and "B" class divisions, to ensure:

- (a) that for such members supporting survival craft areas and "A" class divisions the temperature rise limitation specified in paragraph (2) shall apply at the end of one hour; and
- (b) that for such members required to support "B" class divisions, the temperature rise limitation specified in paragraph (2) shall apply at the end of one half-hour.

(4) Crowns and casings of machinery spaces of category A shall be of steel construction adequately insulated and any openings therein shall be suitably arranged and protected to prevent the spread of fire.

Regulation 4

Bulkheads within the accommodation and service spaces

(1) Within the accommodation and service spaces, all bulkheads required to be "B" class divisions shall extend from deck to deck and to the shell or other boundaries, unless continuous "B" class ceilings or linings, or both, are fitted on both sides of the bulkheads in which case the bulkhead may terminate at the continuous ceiling or lining.

(2) Method IF. All bulkheads not required by this or other regulations of this part to be "A" or "B" class divisions shall be at least "C" class divisions.

(3) Method IIF. There shall be no restriction on the construction of bulkheads not required by this or other regulations of this part to be "A" or "B" class divisions except in individual cases where "C" class bulkheads are required in accordance with table 1 in regulation 7.

(4) Method IIIF. There shall be no restriction on the construction of bulkheads not required by this or other regulations of this part to be "A" or "B" class divisions. In no case shall the area of any accommodation space or spaces bounded by a continuous "A" or "B" class division exceed 50 m², except in individual cases where "C" class bulkheads are required in accordance with table 1 in regulation 7. However, the Administration may increase this area for public spaces.

Regulation 5

Protection of stairways and lift trunks in accommodation spaces, service spaces and control stations

(1) Stairways which penetrate only a single deck shall be protected at least at one level by at least "B-0" class divisions and self-closing doors. Lifts which penetrate only a single deck shall be enclosed by "A-0" class divisions with steel doors at both levels. Stairways and lift trunks which penetrate more than a single deck shall be enclosed by at least "A-0" class divisions and protected by self-closing doors at all levels.

(2) All stairways shall be of steel frame construction except where the Administration permits the use of other equivalent material.

Regulation 6

Doors in fire-resistant divisions

- (1) Doors shall have resistance to fire as far as practicable, equivalent to the division in which they are fitted. Doors and door frames in "A" class divisions shall be constructed of steel. Doors in "B" class divisions shall be non-combustible. Doors fitted in boundary bulkheads of machinery spaces of category A shall be self-closing and reasonably gastight. The Administration may permit the use of combustible materials in doors separating cabins from the individual interior sanitary accommodation, such as showers, if constructed according to method IF.
- (2) Doors required to be self-closing shall not be fitted with hold-back hooks. However, hold-back arrangements fitted with remote release fittings of the fail-safe type may be used.
- (3) Ventilation openings may be permitted in and under the doors in corridor bulkheads, except that such openings shall not be permitted in and under stairway enclosure doors. The openings shall be provided only in the lower half of a door. Where such opening is in or under a door, the total net area of any such opening or openings shall not exceed 0.05 m². When such opening is cut in a door, it shall be fitted with a grille made of non-combustible material.
- (4) Watertight doors need not be insulated.

Regulation 7

Fire integrity of bulkheads and decks

- (1) In addition to the specific provisions for fire integrity of bulkheads and decks required elsewhere in this part, the minimum fire integrity of bulkheads and decks shall be as prescribed in table 1 and table 2 of this regulation.
- (2) The following requirements shall govern application of the tables:
- (a) tables 1 and 2 shall apply respectively to bulkheads and decks separating adjacent spaces; and
 - (b) for determining the appropriate fire integrity standards to be applied to divisions between adjacent spaces, such spaces are classified according to their fire risk as follows:
 - (i) Control stations (1)

Spaces containing emergency sources of power and lighting.
Wheelhouse and chartroom.
Spaces containing the vessel's radio equipment.
Fire-extinguishing rooms, fire-control rooms and fire-recording stations.
Control room for propulsion machinery when located outside the machinery space.
Spaces containing centralized fire alarm equipment.
 - (ii) Corridors (2)

Corridors and lobbies

- (iii) Accommodation spaces (3)

Spaces as defined in regulations 2(10) and (11) excluding corridors.
- (iv) Stairways (4)

Interior stairways, lifts and escalators other than those wholly contained within the machinery spaces and enclosures thereto. In this connection, a stairway which is enclosed only at one level shall be regarded as part of the space from which it is not separated by a fire door.
- (v) Service spaces of low fire risk (5)

Lockers and store-rooms having areas of less than 2 m², drying rooms and laundries.
- (vi) Machinery spaces of category A (6)

Spaces as defined in regulation 2(14).
- (vii) Other machinery spaces (7)

Spaces as defined in regulation 2(15) including fishmeal processing spaces, but excluding machinery spaces of category A.
- (viii) Cargo spaces (8)

All spaces used for cargo, including cargo oil tanks, and trunkways and hatchways to such spaces.
- (ix) Service spaces of high fire risk (9)

Galleys, pantries containing cooking appliances, paint rooms, lamp rooms, lockers and store-rooms having areas of 2 m² or more, and workshops other than those forming part of the machinery spaces.
- (x) Open decks (10)

Open deck spaces and enclosed promenades, spaces for processing fish in the raw state, fish washing spaces and similar spaces containing no fire risk.

The air spaces outside superstructures and deckhouses.

The title of each category is intended to be typical rather than restrictive. The number in parenthesis following each category refers to the applicable column or row in the tables.

Table 1 – Fire integrity of bulkheads separating adjacent spaces

Spaces	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Control stations (1)	A-0 ^e	A-0	A-60	A-0	A-15	A-60	A-15	A-60	A-60	*
Corridors (2)		C	B-0	B-0 A-0 ^c	B-0	A-60	A-0	A-0	A-0	*
Accommodation spaces (3)			C ^{a,b}	B-0 A-0 ^c	B-0	A-60	A-0	A-0	A-0	*
Stairways (4)				B-0 A-0 ^c	B-0 A-0 ^c	A-60	A-0	A-0	A-0	*
Service spaces of low fire risk (5)					C	A-60	A-0	A-0	A-0	*
Machinery spaces of category A (6)						*	A-0	A-0	A-60	*
Other machinery spaces (7)							A-0 ^d	A-0	A-0	*
Cargo spaces (8)								*	A-0	*
Service spaces of high fire risk (9)									A-0 ^d	*
Open decks (10)										-

Table 2 – Fire integrity of decks separating adjacent spaces

Space above ↓ Space → below	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Control stations (1)	A-0	A-0	A-0	A-0	A-0	A-60	A-0	A-0	A-0	*
Corridors (2)	A-0	*	*	A-0	*	A-60	A-0	A-0	A-0	*
Accommodation spaces (3)	A-60	A-0	*	A-0	*	A-60	A-0	A-0	A-0	*
Stairways (4)	A-0	A-0	A-0	*	A-0	A-60	A-0	A-0	A-0	*
Service spaces of low fire risk (5)	A-15	A-0	A-0	A-0	*	A-60	A-0	A-0	A-0	*
Machinery spaces of category A (6)	A-60	A-60	A-60	A-60	A-60	*	A-60	A-30	A-60	*
Other machinery spaces (7)	A-15	A-0	A-0	A-0	A-0	A-0	*	A-0	A-0	*
Cargo spaces (8)	A-60	A-0	A-0	A-0	A-0	A-0	A-0	*	A-0	*
Service spaces of high fire risk (9)	A-60	A-0	A-0	A-0	A-0	A-0	A-0	A-0	A-0 ^d	*
Open decks (10)	*	*	*	*	*	*	*	*	*	—

Notes: To be applied to both tables 1 and 2, as appropriate.

- a No special requirements are imposed upon these bulkheads in methods IIF and IIIF fire protection.
- b In case of method IIIF "B" class bulkheads of "B-0", rating shall be provided between spaces or groups of spaces of 50 m² and over in area.
- c For clarification as to which applies see regulations 4 and 5.
- d Where spaces are of the same numerical category and superscript ^d appears, a bulkhead or deck of the rating shown in the tables is only required when the adjacent spaces are for a different purpose, e.g. in category (9). A galley next to a galley does not require a bulkhead, but a galley next to a paint room requires an "A-0" bulkhead.
- e Bulkheads separating the wheelhouse, chartroom and radio room from each other may be "B-0" rating.
- f Fire insulation need not be fitted if the machinery space in category (7), in the opinion of the Administration, has little or no fire risk.
- * Where an asterisk appears in the tables, the division is required to be of steel or equivalent material, but is not required to be of "A" class standard.

(3) Continuous "B" class ceilings or linings, in association with the relevant decks or bulkheads, may be accepted as contributing, wholly or in part, to the required insulation and integrity of a division.

(4) Windows and skylights to machinery spaces shall be as follows:

- (a) where skylights can be opened, they shall be capable of being closed from outside the space. Skylights containing glass panels shall be fitted with external shutters of steel or other equivalent material permanently attached;
- (b) glass or similar materials shall not be fitted in machinery space boundaries. This does not preclude the use of wire-reinforced glass for skylights and glass in control rooms within the machinery spaces; and
- (c) in skylights referred to in subparagraph (a) wire-reinforced glass shall be used.

(5) External boundaries which are required by regulation 3(1) to be of steel or equivalent material may be pierced for the fitting of windows and sidescuttles, provided that there is no requirement elsewhere in this part for such boundaries to have "A" class integrity. Similarly, in such boundaries which are not required to have "A" class integrity, doors may be of materials to the satisfaction of the Administration.

Regulation 8 **Details of construction**

(1) Method IF. In accommodation and service spaces and control stations all linings, draught stops, ceilings and their associated grounds shall be of non-combustible materials.

(2) Methods IIF and IIIF. In corridors and stairway enclosures serving accommodation and service spaces and control stations, ceilings, linings, draught stops and their associated grounds shall be of non-combustible materials.

(3) Methods IF, IIF and IIIF

- (a) Except in cargo spaces or refrigerated compartments of service spaces, insulating materials shall be non-combustible. Vapour barriers and adhesives used in conjunction with insulation, as well as the insulation of pipe fittings, for cold service systems need not be of non-combustible material, but they shall be kept to the minimum quantity practicable and their exposed surfaces shall have qualities of resistance to the propagation of flame to the satisfaction of the Administration. In spaces where penetration of oil products is possible, the surface of insulation shall be impervious to oil or oil vapour.
- (b) Where non-combustible bulkheads, linings and ceilings are fitted in accommodation and service spaces, they may have a combustible veneer not exceeding 2 mm in thickness within any such space except corridors, stairway enclosures and control stations, where it shall not exceed 1.5 mm in thickness.
- (c) Air spaces enclosed behind ceilings, panellings, or linings shall be divided by close-fitting draught stops spaced not more than 14 m apart. In the

vertical direction, such spaces, including those behind linings of stairways, trunks, etc., shall be closed at each deck.

Regulation 9

Ventilation systems

- (1) (a) Ventilation ducts shall be of non-combustible material. Short ducts, however, not generally exceeding 2 m in length and with a cross section not exceeding 0.02 m² need not be non-combustible, subject to the following conditions:
- (i) these ducts shall be of a material which, to the satisfaction of the Administration, has a low fire risk;
 - (ii) they may only be used at the end of the ventilation device; and
 - (iii) they shall not be situated less than 600 mm, measured along the duct, from an opening in an "A" or "B" class division including continuous "B" class ceilings.
- (b) Where the ventilation ducts with a free cross-sectional area exceeding 0.02 m² pass through "A" class bulkheads or decks, the openings shall be lined with a steel sheet sleeve unless the ducts passing through the bulkheads or decks are of steel in the vicinity of passage through the deck or bulkhead and comply in that portion of the duct with the following:
- (i) for ducts with a free cross-sectional area exceeding 0.02 m², the sleeves shall have a thickness of at least 3 mm and a length of at least 900 mm. When passing through bulkheads, this length shall preferably be divided evenly on each side of the bulkhead. Ducts with a free cross-sectional area exceeding 0.02 m² shall be provided with fire insulation. The insulation shall have at least the same fire integrity as the bulkhead or deck through which the duct passes. Equivalent penetration protection may be provided to the satisfaction of the Administration; and
 - (ii) ducts with a free cross-sectional area exceeding 0.075 m² shall be fitted with fire dampers in addition to the requirements of subparagraph (b)(i). The fire damper shall operate automatically, but shall also be capable of being closed manually from both sides of the bulkhead or deck. The damper shall be provided with an indicator which shows whether the damper is open or closed. Fire dampers are not required, however, where ducts pass through spaces surrounded by "A" class divisions, without serving those spaces, provided those ducts have the same fire integrity as the bulkheads which they penetrate.
- (c) Ventilation ducts for machinery spaces of category A or galleys shall not in general pass through accommodation spaces, service spaces or control stations. Where the Administration permits this arrangement, the ducts shall be constructed of steel or equivalent material and so arranged as to preserve the integrity of the divisions.

- (d) Ventilation ducts of accommodation spaces, service spaces or control stations shall not, in general, pass through machinery spaces of category A or through galleys. Where the Administration permits this arrangement, the ducts shall be constructed of steel or equivalent material and so arranged as to preserve the integrity of the divisions.
 - (e) Where ventilation ducts with a free cross-sectional area exceeding 0.02 m² pass through "B" class bulkheads, the openings shall be lined with steel sheet sleeves of at least 900 mm in length, unless the ducts are of steel for this length in way of the bulkheads. When passing through a "B" class bulkhead, this length shall preferably be divided evenly on each side of the bulkhead.
 - (f) Such measures, as are practicable, shall be taken in respect of control stations outside machinery spaces in order to ensure that ventilation, visibility and freedom from smoke are maintained, so that, in the event of fire, the machinery and equipment contained therein may be supervised and continue to function effectively. Alternative and separate means of air supply shall be provided; air inlets of the two sources of supply shall be so disposed that the risk of both inlets drawing in smoke simultaneously is minimized. At the discretion of the Administration, such requirements need not apply to control stations situated on, and openings on to, an open deck, or where local closing arrangements are equally effective.
 - (g) Where they pass through accommodation spaces or spaces containing combustible materials, the exhaust ducts from galley ranges shall be constructed of "A" class divisions. Each exhaust duct shall be fitted with:
 - (i) a grease trap readily removable for cleaning;
 - (ii) a fire damper located in the lower end of the duct;
 - (iii) arrangements, operable from within the galley, for shutting off the exhaust fan; and
 - (iv) fixed means for extinguishing a fire within the duct, except where the Administration considers such fittings impractical in a vessel of less than 75 m in length.
- (2) The main inlets and outlets of all ventilation systems shall be capable of being closed from outside the spaces being ventilated. Power ventilation of accommodation spaces, service spaces, control stations and machinery spaces shall be capable of being stopped from an easily accessible position outside the space being served. This position should not be readily cut off in the event of a fire in the spaces served. The means provided for stopping the power ventilation of the machinery spaces shall be entirely separate from the means provided for stopping ventilation of other spaces.
- (3) Means shall be provided for closing, from a safe position, the annular spaces around funnels.
- (4) Ventilation systems serving machinery spaces shall be independent of systems serving other spaces.

(5) Store-rooms containing appreciable quantities of highly flammable products shall be provided with ventilation arrangements which are separate from other ventilation systems. Ventilation shall be arranged at high and low levels and the inlets and outlets of ventilators shall be positioned in safe areas and fitted with spark arresters.

Regulation 10 **Heating installations**

(1) Electric radiators shall be fixed in position and so constructed as to reduce fire risks to a minimum. No such radiator shall be fitted with an element so exposed that clothing, curtains or other similar materials can be scorched or set on fire by heat from the element.

(2) Heating by means of open fires shall not be permitted. Heating stoves and other similar appliances shall be firmly secured and adequate protection and insulation against fire shall be provided beneath and around such appliances and in way of their uptakes. Uptakes of stoves which burn solid fuel shall be so arranged and designed as to minimize the possibility of becoming blocked by combustion products and shall have a ready means for cleaning. Dampers for limiting draughts in uptakes shall, when in the closed position, still leave an adequate area open. Spaces in which stoves are installed shall be provided with ventilators of sufficient area to provide adequate combustion-air for the stove. Such ventilators shall have no means of closure and their position shall be such that closing appliances in accordance with regulation II/9 are not required.

(3) Open flame gas appliances, except cooking stoves and water heaters, shall not be permitted. Spaces containing any such stoves or water heaters shall have adequate ventilation to remove fumes and possible gas leakage to a safe place. All pipes conveying gas from container to stove or water heater shall be of steel or other approved material. Automatic safety gas shut-off devices shall be fitted to operate on loss of pressure in the gas main pipe or flame failure on any appliance.

(4) Where gaseous fuel is used for domestic purposes, the arrangements, storage, distribution and use of the fuel shall be to the satisfaction of the Administration and in accordance with regulation 12.

Regulation 11 – Miscellaneous items²⁰

(1) All exposed surfaces in corridors and stairway enclosures and surfaces including grounds in concealed or inaccessible spaces in accommodation and service spaces and control stations shall have low flame-spread characteristics.²¹ Exposed surfaces of ceilings in accommodation and service spaces and control stations shall have low flame-spread characteristics.

(2) Paints, varnishes and other finishes used on exposed interior surfaces shall not be capable of producing excessive quantities of smoke or toxic gases or vapours. The Administration shall be satisfied that they are not of a nature to offer an undue fire hazard.

²⁰ See the *Guidance concerning the use of certain plastic materials*, contained in recommendation 7 of attachment 3 to the Final Act of the International Conference on Safety Fishing Vessels 1993.

²¹ See the *Guidelines on the evaluation of fire hazard properties of materials, adopted by the Organization by resolution A.166(ES.IV)* and Part 5 – Test for surface flammability (test for surface materials and primary deck coverings), contained in Annex 1 of the *International Code for Application of Fire Test Procedures, 2010* adopted by the Maritime Safety Committee of the Organization by resolution MSC.307(88).

- (3) Primary deck coverings within accommodation and service spaces and control stations, shall be of approved material which will not readily ignite or give rise to toxic or explosive hazards at elevated temperatures.²²
- (4) Where "A" or "B" class divisions are penetrated for the passage of electrical cables, pipes, trunks, ducts, etc., or for the fitting of ventilation terminals, lighting fixtures and similar devices, arrangements shall be made to ensure that the fire integrity of the divisions is not impaired.
- (5) (a) In accommodation and service spaces and control stations, pipes penetrating "A" or "B" class divisions shall be of approved materials having regard to the temperature such divisions are required to withstand. Where the Administration permits the conveying of oil and combustible liquids through accommodation and service spaces, the pipes conveying oil or combustible liquids shall be of an approved material having regard to the fire risk.
- (b) Materials readily rendered ineffective by heat shall not be used for overboard scuppers, sanitary discharges and other outlets which are close to the waterline and where the failure of the material in the event of fire would give rise to danger of flooding.
- (6) Cellulose-nitrate-based film shall not be used in cinematograph installations.
- (7) All waste receptacles other than those used in fish processing shall be constructed of non-combustible materials with no openings in the sides or bottom.
- (8) Machinery driving fuel oil transfer pumps, fuel oil unit pumps and other similar fuel pumps shall be fitted with remote controls situated outside the space concerned so that they can be stopped in the event of a fire arising in the space in which they are located.
- (9) Drip trays shall be fitted, where necessary, to prevent oil leaking into bilges.
- (10) Within compartments used for stowage of fish, combustible insulation shall be protected by close-fitting cladding.

Regulation 12

Storage of gas cylinders and dangerous materials

- (1) Cylinders for compressed, liquefied or dissolved gases shall be clearly marked by means of prescribed identifying colours, have a clearly legible identification of the name and chemical formula of their contents and be properly secured.
- (2) Cylinders containing flammable or other dangerous gases and expended cylinders shall be stored, properly secured on open decks and all valves, pressure regulators and pipes leading from such cylinders shall be protected against damage. Cylinders shall be protected against excessive variations in temperature, direct rays of the sun and accumulation of snow. However, the Administration may permit such cylinders to be stored in compartments complying with the requirements of paragraphs (3) to (5).

²² See the Recommendation on *Fire test procedures for ignitability of primary deck coverings*, adopted by the Organization by resolution A.687(17).

(3) Spaces containing highly flammable liquids, such as volatile paints, paraffin, benzole, etc. and, where permitted, liquefied gas, shall have direct access from open decks only. Pressure-adjusting devices and relief valves shall exhaust within the compartment. Where boundary bulkheads of such compartments adjoin other enclosed spaces, they shall be gastight.

(4) Except as necessary for service within the space, electrical wiring and fittings shall not be permitted within compartments used for the storage of highly flammable liquids or liquefied gases. Where such electrical fittings are installed, they shall be to the satisfaction of the Administration for use in a flammable atmosphere. Sources of heat shall be kept clear of such spaces and "No smoking" and "No naked light" notices shall be displayed in a prominent position.

(5) Separate storage shall be provided for each type of compressed gas. Compartments used for the storage of such gases shall not be used for storage of other combustible products nor for tools or objects not part of the gas distribution system. However, the Administration may relax these requirements considering the characteristics, volume and intended use of such compressed gases.

Regulation 13

Means of escape

(1) Stairways and ladders leading to and from all accommodation spaces and in spaces in which the crew is normally employed, other than machinery spaces, shall be so arranged as to provide ready means of escape to the open deck and, thence, to the survival craft. In particular, in relation to these spaces:

- (a) at all levels of accommodation, at least two widely separated means of escape shall be provided which may include the normal means of access from each restricted space or group of spaces;
- (b)
 - (i) below the weather deck, the main means of escape shall be a stairway and the second escape may be a trunk or a stairway; and
 - (ii) above the weather deck, the means of escape shall be stairways or doors to an open deck or a combination thereof;
- (c) exceptionally, the Administration may permit only one means of escape, due regard being paid to the nature and location of spaces and to the number of persons who normally might be accommodated or employed there;
- (d) a corridor or part of a corridor from which there is only one route of escape, shall not exceed 7 m in length; and
- (e) the width and continuity of the means of escape shall be to the satisfaction of the Administration.

(2) Two means of escape shall be provided from every machinery space of category A by one of the following means:

- (a) two sets of steel ladders as widely separated as possible leading to doors in the upper part of the space similarly separated and from which access is provided to the open deck. In general, one of these ladders shall provide

continuous fire shelter from the lower part of the space to a safe position outside the space. However, the Administration may not require such shelter if, due to special arrangements or dimensions of the machinery space, a safe escape route from the lower part of this space is provided. This shelter shall be of steel, insulated, where necessary, to the satisfaction of the Administration and be provided with a self-closing steel door at the lower end; or

- (b) one steel ladder leading to a door in the upper part of the space from which access is provided to the open deck and, additionally, in the lower part of the space and in a position well separated from the ladder referred to, a steel door capable of being operated from each side and which provides access to a safe escape route from the lower part of the space to the open deck.
- (3) From machinery spaces other than those of category A, escape routes shall be provided to the satisfaction of the Administration having regard to the nature and location of the space and whether persons are normally employed in that space.
- (4) Lifts shall not be considered as forming one of the required means of escape.

Regulation 14

Automatic sprinkler and fire alarm and fire detection systems (Method IIF)

- (1) In vessels in which method IIF is adopted, an automatic sprinkler and fire alarm system of an approved type and complying with the requirements of this regulation shall be installed and so arranged as to protect accommodation spaces and service spaces except spaces which afford no substantial fire risks, such as void spaces and sanitary spaces.
- (2) (a) The system shall be capable of immediate operation at all times and no action by the crew shall be necessary to set it in operation. It shall be of the wet pipe type, but small exposed sections may be of the dry pipe type where in the opinion of the Administration this is a necessary precaution. Any parts of the system which may be subjected to freezing temperatures in service shall be suitably protected against freezing.²³ It shall be kept charged at the necessary pressure and shall have provision for a continuous supply of water as required in paragraph (6)(b).
- (b) Each section of sprinklers shall include means for giving a visible and audible alarm signal automatically at one or more indicating units whenever any sprinkler comes into operation. Such units shall indicate in which section served by the system, fire has occurred and shall be centralized in the wheelhouse and, in addition, visible and audible alarms from the unit shall be placed in a position other than in the wheelhouse, so as to ensure that the indication of fire is immediately received by the crew. Such an alarm system shall be so constructed as to indicate if any fault occurs in the system.
- (3) (a) Sprinklers shall be grouped into separate sections, each of which shall contain not more than 200 sprinklers.

²³ See the *Guidance for precautions against freezing of fire mains*, contained in recommendation 6 of attachment 3 to the Final Act of the International Conference on Safety of Fishing Vessels, 1993.

- (b) Each section of sprinklers shall be capable of being isolated by one stop valve only. The stop valve in each section shall be readily accessible and its location shall be clearly and permanently indicated. Means shall be provided to prevent the operation of the stop valves by any unauthorized person.
 - (c) A gauge indicating the pressure in the system shall be provided at each section stop valve and at a central station.
 - (d) The sprinklers shall be resistant to corrosion. In accommodation and service spaces, the sprinklers shall come into operation within the temperature range of 68°C and 79°C, except that in locations such as drying rooms, where high ambient temperatures might be expected, the operating temperature may be increased by not more than 30°C above the maximum deck head temperature.
 - (e) A list or plan shall be displayed at each indicating unit showing the spaces covered and the location of the zone in respect of each section. Suitable instructions for testing and maintenance shall be available.
- (4) Sprinklers shall be placed in an overhead position and spaced in a suitable pattern to maintain an average application rate of not less than 5 l/m²/min over the nominal area covered by the sprinklers. Alternatively, the Administration may permit the use of sprinklers providing such quantity of water suitably distributed as has been shown to the satisfaction of the Administration to be not less effective.
- (5) (a) A pressure tank having a volume equal to at least twice that of the charge of water specified in this subparagraph shall be provided. The tank shall contain a standing charge of fresh water, equivalent to the amount of water which would be discharged in one minute by the pump referred to in paragraph (6)(b), and the arrangements shall provide for maintaining such air pressure in the tank as to ensure that, where the standing charge of fresh water in the tank has been used, the pressure will be not less than the working pressure of the sprinkler, plus the pressure due to a head of water measured from the bottom of the tank to the highest sprinkler in the system. Suitable means of replenishing the air under pressure and of replenishing the fresh water charge in the tank shall be provided. A glass gauge shall be provided to indicate the correct level of the water in the tank.
 - (b) Means shall be provided to prevent the passage of seawater into the tank.
- (6) (a) An independent power pump shall be provided solely for the purpose of continuing automatically the discharge of water from the sprinklers. The pump shall be brought into action automatically by the pressure drop in the system before the standing fresh water charge in the pressure tank is completely exhausted.
- (b) The pump and the piping system shall be capable of maintaining the necessary pressure at the level of the highest sprinkler to ensure a continuous output of water sufficient for the simultaneous coverage of the maximum area separated by fire-resisting bulkheads of "A" and "B" class divisions or an area of 280 m² whichever is the less at the application rate specified in paragraph (4).

- (c) The pump shall have fitted on the delivery side a test valve with a short open-ended discharge pipe. The effective area through the valve and pipe shall be adequate to permit the release of the required pump output while maintaining the pressure in the system specified in paragraph (5)(a).
 - (d) The sea inlet to the pump shall, wherever possible, be in the space containing the pump and shall be so arranged that, when the vessel is afloat, it will not be necessary to shut off the supply of seawater to the pump for any purpose other than the inspection or repair of the pump.
- (7) The sprinkler pump and tank shall be situated in a position reasonably remote from any machinery space of category A and shall not be situated in any space required to be protected by the sprinkler system.
- (8) (a) There shall not be less than two sources of power supply for the seawater pump and the automatic fire alarm and fire detection system. If the pump is electrically driven, it shall be connected to the main source of electrical power, which shall be capable of being supplied by at least two generators.
 - (b) The feeders shall be arranged so as to avoid galleys, machinery spaces and other enclosed spaces of high fire risk except, in so far as it is necessary to reach the appropriate switchboard. One of the sources of power supply for the fire alarm and fire detection system shall be an emergency source. Where one of the sources of power for the pump is an internal combustion-type engine, it shall, in addition to complying with the provisions of paragraph (7), be so situated that a fire in any protected space will not affect the air supply to that engine.
- (9) The sprinkler system shall have a connection from the vessel's fire main by way of a lockable screw-down non-return valve at the connection which will prevent a backflow from the sprinkler system to the fire main.
- (10) (a) A test valve shall be provided for testing the automatic alarm for each section of sprinklers by a discharge of water equivalent to the operation of one sprinkler. The test valve for each section shall be situated near the stop valve for that section.
 - (b) Means shall be provided for testing the automatic operation of the pump on reduction of pressure in the system.
 - (c) Switches shall be provided at one of the indicating positions referred to in paragraph (2)(b) which will enable the alarm and the indicators for each section of sprinklers to be tested.
- (11) Spare sprinkler heads shall be provided for each section of sprinklers to the satisfaction of the Administration.

Regulation 15

Automatic fire alarm and fire detection systems (Method IIIF)

- (1) In vessels, in which method IIIF is adopted, an automatic fire alarm and fire detection system of an approved type and complying with the requirements of this regulation shall be installed and so arranged as to detect the presence of fire in all accommodation

spaces and service spaces except spaces which afford no substantial fire risk, such as void spaces and sanitary spaces.

- (2) (a) The system shall be capable of immediate operation at all times and no action of the crew shall be necessary to set it in operation.
- (b) Each section of detectors shall include means for giving a visible and audible alarm signal automatically at one or more indicating units whenever any detector comes into operation. Such units shall indicate in which section served by the system a fire has occurred and shall be centralized on the wheelhouse and such other positions as will ensure that any alarm from the system is immediately received by the crew. Additionally, arrangements shall be provided to ensure that an alarm is sounded on the deck on which the fire has been detected. Such an alarm and detection system shall be so constructed as to indicate if any fault occurs in the system.

(3) Detectors shall be grouped into separate sections, each covering not more than 50 rooms served by such a system and containing not more than 100 detectors. Detectors shall be zoned to indicate on which deck a fire has occurred.

(4) The system shall be operated by an abnormal air temperature, by an abnormal concentration of smoke or by other factors indicative of incipient fire in any one of the spaces to be protected. Systems which are sensitive to air temperature shall not operate at less than 54°C and shall operate at a temperature not greater than 78°C when the temperature increase to those levels is not more than 1°C per minute. At the discretion of the Administration, the permissible temperature of operation may be increased to 30°C above the maximum deckhead temperature in drying rooms and similar places of normally high ambient temperature. Systems which are sensitive to smoke concentration shall operate on the reduction of the intensity of a transmitted light beam by an amount to be determined by the Administration. Other equally effective methods of operation may be accepted at the discretion of the Administration. The detection system shall not be used for any purpose other than fire detection.

(5) The detectors may be arranged to operate the alarm by the opening or closing of contacts or by other appropriate methods. They shall be fitted in an overhead position and shall be suitably protected against impact and physical damage. They shall be suitable for use in a marine atmosphere. They shall be placed in an open position clear of beams and other objects likely to obstruct the flow of hot gases or smoke to the sensitive element. Detectors operated by the closing of contacts shall be of the sealed contact type and the circuit shall be continuously monitored to indicate fault conditions.

(6) At least one detector shall be installed in each space where detection facilities are required and there shall be not less than one detector for each 37 m² of deck area approximately. In large spaces the detectors shall be arranged in a regular pattern so that no detector is more than 9 m from another detector or more than 4.5 m from a bulkhead.

(7) There shall be not less than two sources of power supply for the electrical equipment used in the operation of the fire alarm and fire detection system, one of which shall be an emergency source. The supply shall be provided by separate feeders reserved solely for that purpose. Such feeders shall run to a change-over switch situated in the control station for the fire detection system. The wiring system shall be so arranged as to avoid galleys, machinery spaces and other enclosed spaces having a high fire risk, except,

in so far as it is necessary, to provide for fire detection in such spaces or to reach the appropriate switchboard.

- (8) (a) A list or plan shall be displayed adjacent to each indicating unit showing the spaces covered and the location of the zone in respect of each system. Suitable instructions for testing and maintenance shall be available.
 - (b) Provision shall be made for testing the correct operation of the detectors and the indicating units by supplying means for applying hot air or smoke at detector positions.
- (9) Spare detector heads shall be provided for each section of detectors, to the satisfaction of the Administration.

Regulation 16
Fixed fire-extinguishing arrangements in cargo spaces of high fire risk

Cargo spaces of high fire risk shall be protected by a fixed gas fire-extinguishing system or by a fire-extinguishing system which gives equivalent protection, to the satisfaction of the Administration.

Regulation 17
Fire pumps

- (1) At least two fire pumps shall be provided.
- (2) If a fire in any one compartment could put all the fire pumps out of action, there shall be an alternative means of providing water for fire fighting. In vessels of 75 m in length and over, this alternative means shall be a fixed emergency fire pump independently driven. This emergency fire pump shall be capable of supplying two jets of water, to the satisfaction of the Administration.
- (3) (a) The fire pumps, other than the emergency pump, shall be capable of delivering for fire-fighting purposes a quantity of water at a minimum pressure of 0.25 N/mm², with a total capacity (Q) of at least:
- $$Q = (0.15 \sqrt{L(B + D)} + 2.25)^2 \text{ m}^3/\text{h}$$
- where L, B and D are in metres.
- However, the total required capacity of the fire pumps need not exceed 180 m³/h.
- (b) Each of the required fire pumps other than any emergency pump shall have a capacity of not less than 40 per cent of the total capacity of fire pumps required by subparagraph (a) and shall, in any event, be capable of delivering at least the jets of water required by regulation 19(2)(a). These fire pumps shall be capable of supplying the fire main systems under the required conditions. Where more than two pumps are installed, the capacity of such additional pumps shall be to the satisfaction of the Administration.
- (4) (a) Fire pumps shall be independently driven power pumps. Sanitary, ballast, bilge or general service pumps may be accepted as fire pumps, provided

that they are not normally used for pumping oil and that, if they are subject to occasional duty for the transfer or pumping of fuel oil, suitable change-over arrangements are fitted.

- (b) Relief valves shall be provided in conjunction with all fire pumps if the pumps are capable of developing a pressure exceeding the design pressure of the water service pipes, hydrants and hoses. These valves shall be so placed and adjusted as to prevent excessive pressure in any of the fire main systems.
- (c) Emergency power-operated fire pumps shall be independently driven self-contained pumps either with their own diesel engine prime mover and fuel supply fitted in an accessible position outside the compartment which contains the main fire pumps, or be driven by a self-contained generator, which may be the emergency generator referred to in regulation IV/17, of sufficient capacity and which is positioned in a safe place outside the engine room and preferably above the working deck. The emergency fire pump shall be capable of operating for a period of at least 3 h.
- (d) Emergency fire pumps, sea-suction valves and other necessary valves shall be operable from outside compartments containing main fire pumps in a position not likely to be cut off by a fire in those compartments.

Regulation 18 **Fire mains**

- (1) (a) Where more than one hydrant is required to provide the number of jets specified in regulation 19(2)(a), a fire main shall be provided.
- (b) Fire mains shall have no connections other than those required for fire fighting, except for the purpose of washing the deck and anchor chains and operation of bilge ejectors, subject to the efficiency of the fire-fighting system being maintained.
- (c) Where fire mains are not self-draining, suitable drain cocks shall be fitted where frost damage could be expected.²⁴
- (2) (a) The diameter of the fire main and water service pipes shall be sufficient for the effective distribution of the maximum required discharge from two fire pumps operating simultaneously or of 140 m³/h, whichever is the less.
- (b) With the two pumps simultaneously delivering through nozzles specified in regulation 19(5) the quantity of water specified in subparagraph (a), through any adjacent hydrants, the minimum pressure of 0.25 N/mm² shall be maintained at all hydrants.

Regulation 19 **Fire hydrants, fire hoses and nozzles**

- (1) (a) The number of fire hoses provided shall be equal to the number of fire hydrants arranged according to paragraph (2) and one spare hose.

²⁴ See the *Guidance for precautions against freezing of fire mains*, contained in recommendation 6 of attachment 3 to the Final Act of the International Conference on Safety of Fishing vessels, 1993.

This number does not include any fire hoses required in any engine or boiler room. The Administration may increase the number of fire hoses required so as to ensure that hoses in sufficient number are available and accessible at all times, having regard to the size of the vessel.

- (b) Fire hoses shall be of approved material and sufficient in length to project a jet of water to any of the spaces in which they may be required to be used. Their maximum length shall be 20 m. Every fire hose shall be provided with a nozzle and the necessary couplings. Fire hoses shall, together with any necessary fittings and tools, be kept ready for use in conspicuous positions near the water service hydrants or connections.
- (2) (a) The number and position of the hydrants shall be such that at least two jets of water not emanating from the same hydrant, one of which shall be from a single length of fire hose, may reach any part of the vessel normally accessible to the crew while the vessel is being navigated.
- (b) All required hydrants shall be fitted with fire hoses having dual purpose nozzles as required by paragraph (5). One hydrant shall be located near the entrance of the space to be protected.
- (3) Materials readily rendered ineffective by heat shall not be used for fire mains and hydrants, unless adequately protected. The pipes and hydrants shall be so placed that the fire hoses may be easily coupled to them. In vessels where deck cargo may be carried, the positions of the hydrants shall be such that they are always readily accessible and the pipes shall be arranged, as far as practicable, to avoid risk of damage by such cargo. Unless one fire hose and nozzle is provided for each hydrant, there shall be complete interchangeability of fire hose couplings and nozzles.
- (4) A cock or valve shall be fitted to serve each fire hose so that any fire hose may be removed while the fire pumps are operating.
- (5) (a) Standard nozzle sizes shall be 12 mm, 16 mm and 19 mm or as near thereto as possible. Larger diameter nozzles may be permitted at the discretion of the Administration.
- (b) For accommodation and service spaces, a nozzle size greater than 12 mm need not be used.
- (c) For machinery spaces and exterior locations, the nozzle size shall be such as to obtain the maximum discharge possible from two jets at the pressure specified in regulation 18(2)(b) from the smallest pump, provided that a nozzle size greater than 19 mm need not be used.

Regulation 20 **Fire extinguishers²⁵**

- (1) Fire extinguishers shall be of approved types. The capacity of required portable fluid extinguishers shall be not more than 13.5 l and not less than 9 l. Other extinguishers shall not be in excess of the equivalent portability of the 13.5 l fluid extinguisher and shall not

²⁵ See the *Improved Guidelines for marine portable fire extinguishers*, adopted by the Organization by resolution A.951(23).

be less than the fire-extinguishing equivalent of a 9 l fluid extinguisher. The Administration shall determine the equivalents of fire extinguishers.

- (2) Spare charges shall be provided to the satisfaction of the Administration.
- (3) Fire extinguishers containing an extinguishing medium which, in the opinion of the Administration, either by itself or under expected conditions of use, gives off toxic gases in such quantities as to endanger persons shall not be permitted.
- (4) Fire extinguishers shall be periodically examined and subjected to such tests as the Administration may require.
- (5) Normally, one of the portable fire extinguishers intended for use in any space shall be stowed near an entrance to that space.

Regulation 21

Portable fire extinguishers in control stations and accommodation and service spaces

- (1) At least five approved portable fire extinguishers shall be provided in control stations and accommodation and service spaces, to the satisfaction of the Administration.
- (2) Spare charges shall be provided to the satisfaction of the Administration.

Regulation 22

Fire-extinguishing appliances in machinery spaces

- (1) (a) Spaces containing oil-fired boilers or fuel oil units shall be provided with one of the following fixed fire-extinguishing systems, to the satisfaction of the Administration:
 - (i) a pressure water-spraying installation;
 - (ii) a fire-smothering gas installation;
 - (iii) a fire-extinguishing installation using vapours from low toxicity vapourizing liquids; or
 - (iv) a fire-extinguishing installation using high expansion foam.
- Where the engine and boiler rooms are not entirely separate, or if fuel oil can drain from the boiler room into the engine-room, the combined engine and boiler rooms shall be considered as one compartment.
- (b) New installations of halogenated hydrocarbon systems used as fire-extinguishing media shall be prohibited on new and existing vessels.
 - (c) Every boiler room shall be provided with at least one set of portable air-foam equipment to the satisfaction of the Administration.
 - (d) At least two approved portable extinguishers discharging foam or equivalent shall be provided in each firing space in each boiler room and each space in which a part of the fuel oil installation is situated. At least one approved foam-type extinguisher of at least 135 l capacity or equivalent shall be provided with hoses on reels suitable for reaching any part of the

boiler room. The Administration may relax the requirements of this subparagraph, having regard to the size and nature of the space to be protected.

- (e) In each firing space, there shall be a receptacle containing sand, sawdust impregnated with soda or other approved dry material, in such quantity as may be required by the Administration. Alternatively, an approved portable extinguisher may be provided.

(2) Spaces containing internal combustion machinery used either for main propulsion or for other purposes, when such machinery has a total power output of not less than 750 kW, shall be provided with the following arrangements:

- (a) one of the fire-extinguishing systems required by paragraph (1)(a);
- (b) at least one set of portable air-foam equipment to the satisfaction of the Administration; and
- (c) in each such space, approved foam-type fire extinguishers each of at least 45 l capacity, or equivalent, sufficient in number to enable foam or its equivalent to be directed on to any part of the fuel and lubricating oil pressure systems, gearing and other fire hazards. In addition, there shall be provided a sufficient number of portable foam extinguishers or equivalent which shall be so located that an extinguisher is not more than 10 m walking distance from any point in the space, provided that there shall be at least two such extinguishers in each such space. For smaller spaces, the Administration may relax these requirements.

(3) Spaces containing steam turbines or enclosed steam engines used either for main propulsion, or for other purposes, when such machinery has a total power output of not less than 750 kW shall be provided with the following arrangements:

- (a) foam fire extinguishers each of at least 45 l capacity, or equivalent, sufficient in number to enable foam or its equivalent to be directed on to any part of the pressure lubrication system, on to any part of the casings enclosing pressure lubricated parts of the turbines, engines or associated gearing, and any other fire hazards. Provided that such extinguishers shall not be required if protection at least equivalent to that of this subparagraph is provided in such spaces by a fixed fire-extinguishing system fitted in compliance with paragraph (1)(a); and
- (b) a sufficient number of portable foam extinguishers, or equivalent, which shall be so located that an extinguisher is not more than 10 m walking distance from any point in the space; provided that there shall be at least two such extinguishers in each such space, and such extinguishers shall not be required in addition to any provided in compliance with paragraph (2)(c).

(4) Where, in the opinion of the Administration, a fire hazard exists in any machinery space for which no specific provisions for fire-extinguishing appliances are prescribed in paragraphs (1), (2) and (3), there shall be provided in, or adjacent to, that space a number of approved portable fire extinguishers or other means of fire extinction to the satisfaction of the Administration.

(5) Where fixed fire-extinguishing systems not required by this part are installed, such systems shall be to the satisfaction of the Administration.

(6) For any machinery space of category A to which access is provided at a low level from an adjacent shaft tunnel, there shall be provided, in addition to any watertight door and on the side remote from that machinery space, a light steel fire-screen door which shall be capable of being operated from each side of the door.

Regulation 23 **International shore connection**

(1) At least one international shore connection, complying with paragraph (2), shall be provided.

(2) Standard dimensions of flanges for the international shore connection shall be in accordance with the following table:

Description	Dimension
Outside diameter	178 mm
Inner diameter	64 mm
Bolt circle diameter	132 mm
Slots in flange	4 holes 19 mm in diameter equidistantly placed on a bolt circle of the above diameter, slotted to the flange periphery
Flange thickness	14.5 mm minimum
Bolts and nuts	4 each of 16 mm in diameter and 50 mm in length

(3) This connection shall be constructed of material suitable for 1 N/ mm² service pressure.

(4) The flange shall have a flat face on one side and the other shall have a coupling permanently attached thereto that will fit the vessel's hydrant and hose. The connection shall be kept aboard the vessel together with a gasket of any material suitable for 1 N/mm² service pressure, together with four 16 mm bolts 50 mm in length and eight washers.

(5) Facilities shall be available enabling such a connection to be used on either side of the vessel.

Regulation 24 **Fireman's outfits**

(1) At least two fireman's outfits shall be carried to the satisfaction of the Administration.

(2) The fireman's outfits shall be stored so as to be easily accessible and ready for use and shall be stored in widely separated positions.

Regulation 25
Fire control plan

There shall be a permanently exhibited fire control plan to the satisfaction of the Administration.

Regulation 26
Ready availability of fire-extinguishing appliances

Fire-extinguishing appliances shall be kept in good order and available for immediate use at all times.

Regulation 27
Acceptance of substitutes

Where in this part any special type of appliance, apparatus, extinguishing medium or arrangement is specified, any other type of appliance, etc., may be allowed, provided the Administration is satisfied that it is not less effective.

PART C
FIRE SAFETY MEASURES IN VESSELS OF 45 METRES IN LENGTH AND OVER BUT
LESS THAN 60 METRES

Regulation 28
Structural fire protection

(1) The hull, superstructure, structural bulkheads, decks and deckhouses shall be constructed of non-combustible materials. The Administration may permit combustible construction, provided the requirements of this regulation and the additional fire-extinguishing requirements of regulation 40(3) are complied with.

- (2) (a) In vessels, the hull of which is constructed of non-combustible materials, the decks and bulkheads separating machinery spaces of category A from accommodation spaces, service spaces or control stations shall be constructed to "A-60" class standard where the machinery space of category A is not provided with a fixed fire-extinguishing system and to "A-30" class standard where such a system is fitted. Decks and bulkheads separating other machinery spaces from accommodation, service spaces and control stations shall be constructed to "A-0" class standard. Decks and bulkheads separating control stations from accommodation and service spaces shall be constructed to "A" class standard, insulated to the satisfaction of the Administration, except that an Administration may permit the fitting of "B-15" class divisions for separating such spaces as skipper's cabin from the wheelhouse.
- (b) In vessels, the hull of which is constructed of combustible materials, the decks and bulkheads separating machinery spaces from accommodation spaces, service spaces or control stations shall be constructed to "F" class or "B-15" class standard. In addition, machinery space boundaries shall, as far as practicable, prevent the passage of smoke. Decks and bulkheads separating control stations from accommodation and service spaces shall be constructed to "F" class standard.

- (3) (a) In vessels, the hull of which is constructed of non-combustible materials, bulkheads of corridors serving accommodation spaces, service spaces and control stations shall be of "B-15" class divisions.
- (b) In vessels, the hull of which is constructed of combustible materials, bulkheads of corridors serving accommodation spaces, service spaces and control stations shall be of "F" class divisions.
- (c) Any bulkhead required by subparagraph (a) or (b) shall extend from deck to deck unless a continuous ceiling of the same class as the bulkhead is fitted on both sides of the bulkhead, in which case the bulkhead may terminate at the continuous ceiling.
- (4) Interior stairways serving accommodation spaces, service spaces or control stations shall be of steel or other equivalent material. Such stairways shall be within enclosures constructed of "F" class divisions in vessels the hull of which is constructed of combustible materials, or "B-15" class divisions in vessels the hull of which is constructed of non-combustible materials, provided that, where a stairway penetrates only one deck, it need be enclosed at one level only.
- (5) Doors and other closures of openings in bulkheads and decks referred to in paragraphs (2) and (3), doors fitted to stairway enclosures referred to in paragraph (4) and doors fitted in engine and boiler casings, shall be as far as practicable equivalent in resisting fire to the divisions in which they are fitted. Doors to machinery spaces of category A shall be self-closing.
- (6) Lift trunks which pass through the accommodation and service spaces shall be constructed of steel or equivalent material and shall be provided with means of closing which will permit control of draught and smoke.
- (7) (a) In vessels, the hull of which is constructed of combustible materials, the boundary bulkheads and decks of spaces containing any emergency source of power and bulkheads and decks between galleys, paint rooms, lamp rooms or any store-rooms which contain appreciable quantities of highly flammable materials, and accommodation spaces, service spaces or control stations shall be constructed of "F" class or "B-15" class divisions.
- (b) In vessels, the hull of which is constructed of non-combustible materials, the decks and bulkheads referred to in subparagraph (a) shall be "A" class divisions insulated to the satisfaction of the Administration, having in mind the risk of fire, except that the Administration may accept "B-15" class divisions between a galley and accommodation spaces, service spaces and control stations when the galley contains electrically heated furnaces, electrically heated hot water appliances or other electrically heated appliances only.
- (c) Highly flammable products shall be carried in suitably sealed containers.
- (8) Where bulkheads or decks required by paragraphs (2), (3), (5) or (7) to be of "A" class, "B" class or "F" class divisions, are penetrated for the passage of electrical cables, pipes, trunks, ducts, etc., arrangements shall be made to ensure that the fire integrity of the division is not impaired.

(9) Air spaces enclosed behind ceilings, panellings or linings in accommodation spaces, service spaces and control stations shall be divided by close-fitting draught stops spaced not more than 7 m apart.

(10) Windows and skylights to machinery spaces shall be as follows:

- (a) where skylights can be opened, they shall be capable of being closed from outside the space. Skylights containing glass panels shall be fitted with external shutters of steel or other equivalent material permanently attached;
- (b) glass or similar materials shall not be fitted in machinery space boundaries. This does not preclude the use of wire-reinforced glass for skylights and glass in control rooms within the machinery spaces; and
- (c) in skylights referred to in subparagraph (a), wire-reinforced glass shall be used.

(11) Insulating materials in accommodation spaces, service spaces except domestic refrigerating compartments, control stations and machinery spaces shall be non-combustible. The surface of insulation fitted on the internal boundaries of machinery spaces of category A shall be impervious to oil or oil vapours.

(12) Within compartments used for stowage of fish, combustible insulation shall be protected by close-fitting cladding.

(13) Notwithstanding the requirements of this regulation, the Administration may accept "A-0" class divisions in lieu of "B-15" or "F" class divisions, having regard to the amount of combustible materials used in adjacent spaces.

Regulation 29

Ventilation systems

(1) Except as provided for in regulation 30(2), means shall be provided to stop fans and close main openings to ventilation systems from outside the spaces served.

(2) Means shall be provided for closing, from a safe position, the annular spaces around funnels.

(3) Ventilation openings may be permitted in and under the doors in corridor bulkheads except that such openings shall not be permitted in and under stairway enclosure doors. The openings shall be provided only in the lower half of a door. Where such opening is in or under a door, the total net area of any such opening or openings shall not exceed 0.05 m². When such opening is cut in a door, it shall be fitted with a grille made of non-combustible material.

(4) Ventilation ducts for machinery spaces of category A or galleys shall not, in general, pass through accommodation spaces, service spaces or control stations. Where the Administration permits this arrangement, the ducts shall be constructed of steel or equivalent material and arranged to preserve the integrity of the divisions.

(5) Ventilation ducts of accommodation spaces, service spaces or control stations shall not, in general, pass through machinery spaces of category A or through galleys. Where the Administration permits this arrangement, the ducts shall be constructed of steel or equivalent material and arranged to preserve the integrity of the divisions.

(6) Store-rooms containing appreciable quantities of highly flammable products shall be provided with ventilation arrangements which are separate from other ventilation systems. Ventilation shall be arranged at high and low levels and the inlets and outlets of ventilators shall be positioned in safe areas. Suitable wire mesh guards to arrest sparks shall be fitted over inlet and outlet ventilation openings.

(7) Ventilation systems serving machinery spaces shall be independent of systems serving other spaces.

(8) Where trunks or ducts serve spaces on both sides of "A" class bulkheads or decks, dampers shall be fitted so as to prevent the spread of fire and smoke between compartments. Manual dampers shall be operable from both sides of the bulkhead or the deck. Where the trunks or ducts with a free cross-sectional area exceeding 0.02 m² pass through "A" class bulkheads or decks, automatic self-closing dampers shall be fitted. Trunks serving compartments situated only on one side of such bulkheads shall comply with regulation 9(1)(b).

Regulation 30

Heating installations

(1) Electric radiators shall be fixed in position and so constructed as to reduce fire risks to a minimum. No such radiator shall be fitted with an element so exposed that clothing, curtains or other similar materials can be scorched or set on fire by heat from the element.

(2) Heating by means of open fires shall not be permitted. Heating stoves and other similar appliances shall be firmly secured and adequate protection and insulation against fire shall be provided beneath and around such appliances and in way of their uptakes. Uptakes of stoves which burn solid fuel shall be so arranged and designed as to minimize the possibility of becoming blocked by combustion products and shall have a ready means for cleaning. Dampers for limiting draughts in uptakes shall, when in the closed position, still leave an adequate area open. Spaces in which stoves are installed shall be provided with ventilators of sufficient area to provide adequate combustion-air for the stove. Such ventilators shall have no means of closure and their position shall be such that no closing appliances in accordance with regulation II/9 are required.

(3) Open flame gas appliances, except cooking stoves and water heaters, shall not be permitted. Spaces containing any such stoves or water heaters shall have adequate ventilation to remove fumes and possible gas leakage to a safe place. All pipes conveying gas from container to stove or water heater shall be of steel or other approved material. Automatic safety gas shut-off devices shall be fitted to operate on loss of pressure in the gas main pipe or flame failure on any appliance.

Regulation 31
Miscellaneous items²⁶

- (1) Exposed surfaces within accommodation spaces, service spaces, control stations, corridor and stairway enclosures and the concealed surfaces behind bulkheads, ceilings, panellings and linings in accommodation spaces, service spaces and control stations shall have low flame-spread characteristics.²⁷
- (2) All exposed surfaces of glass reinforced plastic construction within accommodation and service spaces, control stations, machinery spaces of category A and other machinery spaces of similar fire risk shall have the final lay-up layer of approved resin having inherent fire-retardant properties or be coated with an approved fire-retardant paint or be protected by non-combustible materials.
- (3) Paints, varnishes and other finishes used on exposed interior surfaces shall not be capable of producing excessive quantities of smoke or toxic gases or vapours. The Administration shall be satisfied that they are not of a nature to offer an undue fire hazard.
- (4) Primary deck coverings within accommodation and service spaces and control stations shall be of approved material which will not readily ignite or give rise to toxic or explosive hazards at elevated temperatures.²⁸
- (5) (a) In accommodation and service spaces and control stations, pipes penetrating "A" or "B" class divisions shall be of approved materials having regard to the temperature such divisions are required to withstand. Where the Administration permits the conveying of oil and combustible liquids through accommodation and service spaces, the pipes conveying oil or combustible liquids shall be of an approved material having regard to the fire risk.
- (b) Materials readily rendered ineffective by heat shall not be used for overboard scuppers, sanitary discharges and other outlets which are close to the waterline and where the failure of the material in the event of fire would give rise to danger of flooding.
- (6) All waste receptacles, other than those used in fish processing, shall be constructed of non-combustible materials with no openings in the sides and bottom.
- (7) Machinery driving fuel oil transfer pumps, fuel oil unit pumps and other similar fuel pumps shall be fitted with remote controls situated outside the space concerned so that they can be stopped in the event of a fire arising in the space in which they are located.
- (8) Drip trays shall be fitted, where necessary, to prevent oil leaking into bilges.

²⁶ See the *Guidance concerning the use of certain plastic materials*, contained in recommendation 7 of attachment 3 to the Final Act of the International Conference on Safety of Fishing Vessels, 1993.

²⁷ See the *Guidelines on the evaluation of fire hazard properties of materials*, adopted by the Organization by resolution A.166(ES.IV) and Part 5 – Testing for surface flammability (test for surface materials and primary deck coverings), contained in Annex 1 of the *International Code for Application of Fire Test Procedures, 2010*, adopted by the Maritime Safety Committee of the Organization by resolution MSC.307(88).

²⁸ For vessels, the decks of which are constructed of steel, see the Recommendation on *Fire test procedures for ignitability of primary deck coverings*, adopted by the Organization by resolution A.687(17).

Regulation 32 **Storage of gas cylinders and dangerous materials**

- (1) Cylinders for compressed, liquefied or dissolved gases shall be clearly marked by means of prescribed identifying colours, have a clearly legible identification of the name and chemical formula of their contents and be properly secured.
- (2) Cylinders containing flammable or other dangerous gases and expended cylinders shall be stored, properly secured, on open decks and all valves, pressure regulators and pipes leading from such cylinders shall be protected against damage. Cylinders shall be protected against excessive variations in temperature, direct rays of the sun, and accumulation of snow. However, the Administration may permit such cylinders to be stored in compartments complying with the requirements of paragraphs (3) to (5).
- (3) Spaces containing highly flammable liquids, such as volatile paints, paraffin, benzole, etc., and, where permitted, liquefied gas, shall have direct access from open decks only. Pressure-adjusting devices and relief valves shall exhaust within the compartment. Where boundary bulkheads of such compartments adjoin other enclosed spaces, they shall be gastight.
- (4) Except as necessary for service within the space, electrical wiring and fittings shall not be permitted within compartments used for the storage of highly flammable liquids or liquefied gases. Where such electrical fittings are installed, they shall be to the satisfaction of the Administration for use in a flammable atmosphere. Sources of heat shall be kept clear of such spaces and "No smoking" and "No naked light" notices shall be displayed in a prominent position.
- (5) Separate storage shall be provided for each type of compressed gas. Compartments used for the storage of such gases shall not be used for storage of other combustible products nor for tools or objects not part of the gas distribution system. However, the Administration may relax these requirements considering the characteristics, volume and intended use of such compressed gases.

Regulation 33 **Means of escape**

- (1) Stairways and ladders leading to and from all accommodation spaces and in spaces in which the crew is normally employed, other than machinery spaces, shall be so arranged as to provide ready means of escape to the open deck and, thence, to the survival craft. In particular, in relation to these spaces:
 - (a) at all levels of accommodation at least two widely separated means of escape shall be provided which may include the normal means of access from each restricted space or group of spaces;
 - (b)
 - (i) below the weather deck, the means of escape shall be a stairway and the second escape may be a trunk or a stairway; and
 - (ii) above the weather deck, the means of escape shall be stairways or doors to an open deck or a combination thereof. Where it is not practicable to fit stairways or doors, one of these means of escape may be by means of adequately sized portholes or hatches protected, where necessary, against ice accretion;
 - (c) exceptionally, the Administration may permit only one means of escape, due regard being paid to the nature and location of spaces and to the

number of persons who normally might be accommodated or employed there;

- (d) a corridor or a part of a corridor from which there is only one route of escape shall preferably not exceed 2.5 m in length and, in no case, be greater than 5 m in length; and
- (e) the width and continuity of the means of escape shall be to the satisfaction of the Administration.

(2) Two means of escape shall be provided from every machinery space of category A which shall be as widely separated as possible. Vertical escapes shall be by means of steel ladders. Where the size of the machinery spaces makes it impracticable, one of these means of escape may be omitted. In such cases, special consideration shall be given to the remaining exit.

(3) Lifts shall not be considered as forming one of the required means of escape.

Regulation 34 **Automatic fire alarm and fire detection systems**

Where the Administration has permitted under regulation 28(1) a combustible construction, or where otherwise appreciable amounts of combustible materials are used on the construction of accommodation spaces, service spaces and control stations, special consideration shall be given to the installation of an automatic fire alarm and fire detection system in those spaces, having due regard to the size of those spaces, their arrangement and location relative to control stations as well as, where applicable, the flame-spread characteristics of the installed furniture.

Regulation 35 **Fire pumps**

(1) The minimum number and type of fire pumps to be fitted shall be as follows:

- (a) one power pump not dependent upon the main machinery for its motive power; or
- (b) one power pump driven by main machinery, provided that the propeller shafting can be readily disconnected or provided that a controllable pitch propeller is fitted.

(2) Sanitary, bilge, ballast, general service or any other pumps may be used as fire pumps if they comply with the requirements of this chapter and do not affect the ability to cope with pumping of the bilges. Fire pumps shall be so connected that they cannot be used for pumping oil or other flammable liquids.

(3) Centrifugal pumps or other pumps connected to the fire main through which backflow could occur shall be fitted with non-return valves.

(4) Vessels not fitted with a power-operated emergency fire pump and without a fixed fire-extinguishing system in the machinery spaces shall be provided with additional fire-extinguishing means to the satisfaction of the Administration.

(5) Where fitted, emergency power-operated fire pumps shall be independently driven self-contained pumps either with their own prime mover and fuel supply fitted in an accessible position outside the compartment which contains the main fire pumps, or be driven by a self-contained generator which may be an emergency generator of sufficient capacity and which is positioned in a safe place outside the engine-room and preferably above the working deck.

(6) For any emergency fire pump, where fitted, the pump, sea-suction valves and other necessary valves shall be operable from outside compartments containing main fire pumps in a position not likely to be cut off by a fire in those compartments.

(7) The total capacity (Q) of main power-operated fire pumps shall be at least:

$$Q = (0.15 \sqrt{L(B + D)} + 2.25)^2 \text{ m}^3/\text{h}$$

where L, B and D are in metres.

(8) Where two independent power-operated fire pumps are fitted, the capacity of each pump shall not be less than 40 per cent of the quantity required by paragraph (7).

(9) When main power fire pumps are delivering the quantity of water required by paragraph (7) through the fire main, fire hoses and nozzles, the pressure maintained at any hydrant shall be not less than 0.25 N/mm².

(10) Where power-operated emergency fire pumps are delivering the maximum quantity of water through the jet required by regulation 37(1), the pressure maintained at any hydrant shall be to the satisfaction of the Administration.

Regulation 36 Fire mains

(1) Where more than one hydrant is required to provide the number of jets required by regulation 37(1), a fire main shall be provided.

(2) Materials readily rendered ineffective by heat shall not be used for fire mains, unless adequately protected.

(3) Where fire pump delivery pressure can exceed the designed working pressure of fire mains, relief valves shall be fitted.

(4) Fire mains shall have no connections other than those required for fire fighting, except for the purpose of washing the deck and anchor chains and operation of bilge ejectors, subject to the efficiency of the fire-fighting system being maintained.

(5) Where fire mains are not self-draining, suitable drain cocks shall be fitted where frost damage may be expected.²⁹

Regulation 37 Fire hydrants, fire hoses and nozzles

²⁹ See the *Guidance for precautions against freezing of fire mains*, contained in recommendation 6 of attachment 3 to the Final Act of the International Conference on Safety of Fishing Vessels, 1993.

- (1) Fire hydrants shall be positioned so as to allow easy and quick connection of fire hoses and so that at least one jet can be directed into any part of the vessel which is normally accessible during navigation.
- (2) The jet required in paragraph (1) shall be from a single length of fire hose.
- (3) In addition to the requirements of paragraph (1), machinery spaces of category A shall be provided with at least one hydrant complete with fire hose and dual purpose nozzle. The fire hydrant shall be located outside the space and near the entrance.
- (4) For every required fire hydrant, there shall be one fire hose. At least one spare fire hose shall be provided in addition to this requirement.
- (5) Single lengths of fire hose shall not exceed 20 m.
- (6) Fire hoses shall be of an approved material. Each fire hose shall be provided with couplings and a dual purpose nozzle.
- (7) Except where fire hoses are permanently attached to the fire main, the couplings of fire hoses and nozzles shall be completely interchangeable.
- (8) The nozzles, as required by paragraph (6) shall be appropriate to the delivery capacity of the fire pumps fitted, but in any case shall have a diameter of not less than 12 mm.

Regulation 38 **Fire extinguishers³⁰**

- (1) Fire extinguishers shall be of approved types. The capacity of required portable fluid extinguishers shall be not more than 13.5 l and not less than 9 l. Other extinguishers shall not be in excess of the equivalent portability of the 13.5 l fluid extinguisher and shall not be less than the fire-extinguishing equivalent of a 9 l fluid extinguisher. The Administration shall determine the equivalents of fire extinguishers.
- (2) Spare charges shall be provided to the satisfaction of the Administration.
- (3) Fire extinguishers containing an extinguishing medium which, in the opinion of the Administration, either by itself or under expected conditions of use, gives off toxic gases in such quantities as to endanger persons shall not be permitted.
- (4) Fire extinguishers shall be periodically examined and subjected to such tests as the Administration may require.
- (5) Normally, one of the portable fire extinguishers intended for use in any space shall be stowed near an entrance to that space.

³⁰ See the *Improved Guidelines for marine portable fire extinguishers*, adopted by the Organization by resolution A.951(23).

Regulation 39

Portable fire extinguishers in control stations and accommodation and service spaces

- (1) A sufficient number of approved portable fire extinguishers shall be provided in control stations and accommodation and service spaces to ensure that at least one extinguisher of a suitable type is readily available for use in any part of such spaces. The total number of extinguishers in these spaces, however, shall not be less than three.
- (2) Spare charges shall be provided to the satisfaction of the Administration.

Regulation 40

Fire-extinguishing appliances in machinery spaces

- (1) (a) Spaces containing oil-fired boilers, fuel oil units or internal combustion machinery having a total power output of not less than 750 kW shall be provided with one of the following fixed fire-extinguishing systems, to the satisfaction of the Administration:
- (i) a pressure water-spraying installation;
 - (ii) a fire-smothering gas installation;
 - (iii) a fire-extinguishing installation using vapours from low toxicity vapourizing liquids; or
 - (iv) a fire-extinguishing installation using high expansion foam.
- (b) New installations of halogenated hydrocarbon systems used as fire-extinguishing media shall be prohibited on new and existing vessels.
- (c) Where the engine and boiler rooms are not entirely separated from each other or if fuel oil can drain from the boiler room into the engine-room, the combined engine and boiler rooms shall be considered as one compartment.
- (2) Installations listed in paragraph (1)(a) shall be controlled from readily accessible positions outside such spaces not likely to be cut off by a fire in the protected space. Arrangements shall be made to ensure the supply of power and water necessary for the operation of the system in the event of fire in the protected space.
- (3) Vessels which are constructed mainly or wholly of wood or fibre reinforced plastic and fitted with oil-fired boilers or internal combustion machinery which are decked in way of the machinery space with such material, shall be provided with one of the extinguishing systems referred to in paragraph (1).
- (4) In all machinery spaces of category A at least two portable extinguishers shall be provided, of a type suitable for extinguishing fires involving fuel oil. Where such spaces contain machinery which has a total power output of not less than 250 kW, at least three such extinguishers shall be provided. One of the extinguishers shall be stowed near the entrance to the space.
- (5) Vessels having machinery spaces not protected by a fixed fire-extinguishing system shall be provided with at least a 45 l foam extinguisher or its equivalent, suitable for fighting

oil fires. Where the size of the machinery spaces makes this provision impracticable, the Administration may accept an additional number of portable fire extinguishers.

Regulation 41
Fireman's outfits

The number of fireman's outfits and their location shall be to the satisfaction of the Administration.

Regulation 42
Fire control plan

There shall be a permanently exhibited fire control plan to the satisfaction of the Administration. In small vessels, the Administration may dispense with this requirement.

Regulation 43
Ready availability of fire-extinguishing appliances

Fire-extinguishing appliances shall be kept in good order and available for immediate use at all times.

Regulation 44
Acceptance of substitutes

Where in this part any special type of appliance, apparatus, extinguishing medium or arrangement is specified, any other type of appliance, etc., may be allowed provided the Administration is satisfied that it is not less effective.

CHAPTER VI
PROTECTION OF THE CREW

Regulation 1
General protection measures

- (1) A lifeline system shall be designed to be effective for all needs and the necessary wires, ropes, shackles, eye bolts and cleats shall be provided.
- (2) Deck openings provided with coamings or sills of less than 600 mm in height shall be provided with guards, such as hinged or portable railings or nettings. The Administration may exempt small openings such as fish scuttles from compliance with these requirements.
- (3) Skylights or other similar openings shall be fitted with protective bars not more than 350 mm apart. The Administration may exempt small openings from compliance with this requirement.
- (4) The surface of all decks shall be so designed or treated as to minimize the possibility of personnel slipping. In particular, decks of working areas, such as in machinery spaces, in galleys, at winches and where fish is handled as well as at the foot and head of ladders and in front of doors, shall be provided with anti-skid surfaces.

Regulation 2 Deck openings

- (1) Hinged covers of hatchways, manholes and other openings shall be protected against accidental closing. In particular, heavy covers on escape hatches shall be equipped with counterweights, and so constructed as to be capable of being opened from each side of the cover.
- (2) Dimensions of access hatches shall not be less than 600 mm by 600 mm or 600 mm diameter.
- (3) Where practicable, handholds shall be provided above the level of the deck over escape openings.

Regulation 3 Bulwarks, rails and guards

- (1) Efficient bulwarks or guard rails shall be fitted on all exposed parts of the working deck and on superstructure decks if they are working platforms. The height of bulwarks or guard rails above deck shall be at least 1 m. Where this height would interfere with the normal operation of the vessel, a lesser height may be approved by the Administration.
- (2) The minimum vertical distance from the deepest operating waterline to the lowest point of the top of the bulwark, or to the edge of the working deck if guard rails are fitted shall ensure adequate protection of the crew from water shipped on deck, taking into account the sea states and the weather conditions in which the vessel may operate, the areas of operation, type of vessel and its method of fishing and shall be to the satisfaction of the Administration.³¹
- (3) Clearance below the lowest course of guard rails shall not exceed 230 mm. Other courses shall not be more than 380 mm apart, and the distance between stanchions shall not be more than 1.5 m. In a vessel with rounded gunwales, guard rail supports shall be placed on the flat of the deck. Rails shall be free from sharp points, edges and corners and shall be of adequate strength.
- (4) Means to the satisfaction of the Administration, such as guard rails, lifelines, gangways or underdeck passages, shall be provided to protect the crew in moving between accommodation, machinery and other working spaces. Storm rails shall be fitted, as necessary to the outside of all deckhouses and casings to secure safety of passage or work for the crew.
- (5) Stern trawlers shall be provided with suitable protection such as doors, gates or nets at the top of the stern ramp at the same height as the adjacent bulwark or guard rails. When such protection is not in position, a chain or other means of protection shall be provided across the ramp.

Regulation 4 Stairways and ladders

For the safety of the crew, stairways and ladders of adequate size and strength with handrails and non-slip treads shall be provided to the satisfaction of the Administration.

³¹ See the *Guidance on a method of calculation of the minimum distance from the deepest operating waterline to the lowest point of the top of the bulwark or to the edge of the working deck*, contained in recommendation 8 of attachment 3 to the Final Act of the International Conference on Safety of Fishing Vessels, 1993.

CHAPTER VII
LIFE-SAVING APPLIANCES AND ARRANGEMENTS

PART A
GENERAL

Regulation 1
Application

(1) Unless expressly provided otherwise, this chapter shall apply to new vessels of 45 m in length and over.

(2) Regulations 13 and 14 shall also apply to existing vessels of 45 m in length and over, provided that the Administration may defer the implementation of the requirements of these regulations until 1 February 1999 or the date of entry into force of this Protocol, whichever occurs later.

Regulation 2
Definitions

(1) *Float-free launching* is that method of launching a survival craft whereby the craft is automatically released from a sinking vessel and is ready for use.

(2) *Free-fall launching* is that method of launching a survival craft whereby the craft with its complement of persons and equipment on board is released and allowed to fall into the sea without any restraining apparatus.

(3) *Inflatable appliance* is an appliance which depends upon non-rigid, gas-filled chambers for buoyancy and which is normally kept uninflated until ready for use.

(4) *Inflated appliance* is an appliance which depends upon non-rigid, gas-filled chambers for buoyancy and which is kept inflated and ready for use at all times.

(5) *Launching appliance or arrangement* is a means of transferring a survival craft or rescue boat from its stowed position safely to the water.

(6) *Novel life-saving appliance or arrangement* is a life-saving appliance or arrangement which embodies new features not fully covered by the provisions of this chapter but which provides an equal or higher standard of safety.

(7) *Rescue boat* is a boat designed to rescue persons in distress and to marshal survival craft.

(8) *Retro-reflective material* is a material which reflects in the opposite direction a beam of light directed on it.

(9) *Survival craft* is a craft capable of sustaining the lives of persons in distress from the time of abandoning the vessel.

Regulation 3

Evaluation, testing and approval of life-saving appliances and arrangements

- (1) Except as provided in paragraphs (5) and (6), life-saving appliances and arrangements required by this chapter shall be approved by the Administration.
- (2) Before giving approval to life-saving appliances and arrangements, the Administration shall ensure that such life-saving appliances and arrangements:
- (a) are tested, to confirm that they comply with the requirements of this chapter, in accordance with the recommendations of the Organization;³² or
 - (b) have successfully undergone, to the satisfaction of the Administration, tests which are substantially equivalent to those specified in those recommendations.
- (3) Before giving approval to novel life-saving appliances or arrangements, the Administration shall ensure that such appliances or arrangements:
- (a) provide safety standards at least equivalent to the requirements of this chapter and have been evaluated and tested in accordance with the recommendations of the Organization;³³ or
 - (b) have successfully undergone, to the satisfaction of the Administration, evaluation and tests which are substantially equivalent to those recommendations.
- (4) Procedures adopted by the Administration for approval shall also include the conditions whereby approval would continue or would be withdrawn.
- (5) Before accepting life-saving appliances and arrangements that have not been previously approved by the Administration, the Administration shall be satisfied that life-saving appliances and arrangements comply with the requirements of this chapter.
- (6) Life-saving appliances required by this chapter, for which detailed specifications are not included in part C, shall be to the satisfaction of the Administration.

Regulation 4

Production tests

The Administration shall require life-saving appliances to be subjected to such production tests as are necessary to ensure that the life-saving appliances are manufactured to the same standard as the approved prototype.

³² See the *Revised Recommendation on testing of life-saving appliances*, adopted by the Maritime Safety Committee of the Organization by resolution MSC.89(70) as amended.

³³ See the *Code of practice for the evaluation, testing and acceptance of prototype novel life-saving appliances and arrangements*, adopted by the Organization by resolution A.520(13).

PART B
VESSEL REQUIREMENTS

Regulation 5
Number and types of survival craft and rescue boats

- (1) Every vessel shall be provided with at least two survival craft.
- (2) The number, capacity and type of survival craft and rescue boats of vessels of 75 m in length and over shall comply with the following:
 - (a) survival craft of sufficient aggregate capacity to accommodate on each side of the vessel at least the total number of persons on board shall be provided. However, if the vessel complies with subdivision requirements, damage stability criteria and criteria of increased structural fire protection additional to those stipulated by regulation III/14 and by chapter V, and the Administration considers that a decrease of the number of survival craft and their capacity will not affect safety, the Administration may allow this decrease, provided that the aggregate capacity of survival craft situated on each side of the vessel is sufficient to accommodate at least 50 per cent of the persons on board. In addition, liferafts for at least 50 per cent of the total number of persons on board shall be provided; and
 - (b) a rescue boat shall be provided, unless the vessel is provided with a lifeboat which fulfils the requirements for a rescue boat and which is capable of being recovered after the rescue operation.
- (3) Vessels of less than 75 m in length shall comply with the following:
 - (a) survival craft of sufficient aggregate capacity to accommodate on each side of the vessel at least the total number of persons on board shall be provided; and
 - (b) a rescue boat shall be provided, unless the vessel is provided with a suitable survival craft which is capable of being recovered after the rescue operation.
- (4) In lieu of meeting the requirements of paragraph 2(a) or 3(a), vessels may carry one or more lifeboats capable of being free-fall launched over the stern of the vessel of sufficient capacity to accommodate the total number of persons on board and with liferafts of sufficient capacity to accommodate the total number of persons on board.
- (5) Where the arrangement required in paragraph (3)(a) would interfere with the normal operation of the vessel, the Administration may decide, in lieu of meeting the requirements, that vessels carry survival craft capable of being launched from only one side of the vessel. These survival craft shall be of sufficient aggregate capacity to accommodate at least twice the total number of persons on board, provided that the survival craft of sufficient capacity to accommodate the total number of persons on board can be easily transferred to the other side of the vessel, where they can be launched safely and rapidly.
- (6) In the event of any one survival craft being lost or rendered unserviceable, there shall be sufficient survival craft available for use on either side, including those which are stowed in a position to be transferred to the other side, to accommodate the total number of

persons on board. The transfer shall be easy to do, at a single open deck level, and all craft shall be free of obstacles to avoid entrapment and facilitate easy deployment.

(7) Where the arrangement required in paragraph (3)(b) would interfere with the normal operation of the vessel, the Administration may decide, in lieu of meeting the requirements, that vessels carry other equivalent appliances for rescuing persons from the water, taking into account the vessel's navigational area and operational condition.

(8) The number of lifeboats and rescue boats that are carried on vessels shall be sufficient to ensure that, in providing for abandonment by the total number of persons on board, not more than nine liferafts need be marshalled by each lifeboat or rescue boat.

(9) The survival craft and rescue boats shall comply with the applicable requirements of regulations 17 to 23 inclusive.

Regulation 6 **Availability and stowage of survival craft and rescue boats**

(1) Survival craft shall:

- (a)
 - (i) be readily available in case of emergency;
 - (ii) be capable of being launched safely and rapidly under the conditions required by regulation 32(1)(a); and
 - (iii) be capable of rapid recovery if fulfilling also the requirements for a rescue boat;
- (b) be so stowed that:
 - (i) the marshalling of persons at the embarkation deck is not impeded;
 - (ii) their prompt handling is not impeded;
 - (iii) embarkation can be effected rapidly and in good order; and
 - (iv) the operation of any other survival craft is not interfered with.

(2) Where the distance from the embarkation deck to the waterline of the vessel in the lightest operating condition exceeds 4.5 m, survival craft, except float-free liferafts, shall be capable of being davit-launched with a full complement of persons or be provided with equivalent approved means of embarkation.

(3) Survival craft and launching appliances shall be in working order and available for immediate use before the vessel leaves port and kept so at all times when at sea.

- (4)
 - (a) Survival craft shall be stowed to the satisfaction of the Administration.
 - (b) Every lifeboat shall be attached to a separate set of davits or approved launching appliance.
 - (c) Survival craft shall be positioned as close to accommodation and service spaces as possible, stowed in suitable positions to ensure safe launching,

with particular regard to clearance from the propeller. Lifeboats for lowering down the vessel's side shall be stowed with regard to steeply overhanging portions of the hull, so ensuring, as far as practicable, that they can be launched down the straight side of the vessel. If positioned forward, they shall be stowed abaft the collision bulkhead in a sheltered position and in this respect the Administration shall give special consideration to the strength of the davits.

- (d) The method of launching and recovering of rescue boats shall be approved taking into account the weight of the rescue boat including its equipment and 50 per cent of the number of persons it is certificated to carry in regulations 23(1)(b)(ii) and 23(1)(c), the construction and size of the rescue boat and its position of stowage above the waterline in the vessel's lightest operating condition. However, every rescue boat stowed at a height of more than 4.5 m above the waterline in the vessel's lightest operating condition shall be provided with approved arrangements for launching and recovery.
- (e) Launching and embarkation appliances shall comply with the requirements of regulation 32.
- (f)
 - (i) The liferafts shall be so stowed as to be readily available in case of emergency in such a manner as to permit them to float free from their stowage, inflate and break free from the vessel in the event of its sinking. However, davit-launched liferafts need not float free.
 - (ii) Lashings, if used, shall be fitted with an automatic (hydrostatic) release system of an approved type.
- (g) The Administration, if it is satisfied that the constructional features of the vessel and the method of fishing operation may render it unreasonable and impractical to apply particular provisions of this paragraph, may accept relaxations from such provisions, provided that the vessel is fitted with alternative launching and recovering arrangements adequate for the service for which it is intended. The Administration which has allowed alternative launching and recovery arrangements under this subparagraph shall inform the Organization of the particulars of such arrangements for circulation to other Parties.

Regulation 7 **Embarkation into survival craft**

Suitable arrangements shall be made for embarkation into the survival craft, which shall include:

- (a) at least one ladder, or other approved means, on each side of the vessel to afford access to the survival craft when waterborne, except where the Administration is satisfied that the distance from the point of embarkation to the waterborne survival craft is such that a ladder is unnecessary;
- (b) means for illuminating the stowage position of survival craft and their launching appliances during preparation for, and the process of, launching, and also for illuminating the water into which the survival craft are launched

until the process of launching is completed, the power for which is to be supplied from the emergency source required by regulation IV/17;

- (c) arrangements for warning all persons on board that the vessel is about to be abandoned; and
- (d) means for preventing any discharge of water into the survival craft.

Regulation 8 Lifejackets

(1) For every person on board, a lifejacket of an approved type complying with the requirements of regulation 24 shall be carried.

(2) Lifejackets shall be so placed as to be readily accessible and their position shall be plainly indicated.

Regulation 9 Immersion suits and thermal protective aids

(1) An approved immersion suit, of an appropriate size, complying with the requirements of regulation 25 shall be provided for every person assigned to crew the rescue boat.

(2) Vessels complying with the requirements of regulation 5(2) and (3) shall carry immersion suits complying with the requirements of regulation 25 for every person on board not accommodated in:

- (a) lifeboats; or
- (b) davit-launched liferafts; or
- (c) liferafts served by equivalent approved appliances which do not require entry into the water to board the liferaft.

(3) In addition to paragraph (2)(a), vessels shall carry for each lifeboat at least three immersion suits complying with the requirements of regulation 25. In addition to the thermal protective aids required by regulation 17(8)(xxxi), vessels shall carry thermal protective aids complying with the requirements of regulation 26 for persons to be accommodated in the lifeboats and not provided with immersion suits. These immersion suits and thermal protective aids need not be required if the vessel is equipped with either totally enclosed lifeboats of such aggregate capacity as to accommodate on each side of the vessel at least the total number of persons on board or a free-fall lifeboat of sufficient capacity to accommodate the total number of persons on board.

(4) The requirements of paragraphs (2) and (3) do not apply to vessels constantly engaged in warm climates, where, in the opinion of the Administration, immersion suits and thermal protective aids are unnecessary.

(5) The immersion suits required by paragraphs (2) and (3) may be used to comply with the requirements of paragraph (1).

Regulation 10 Lifebuoys

(1) At least the following number of lifebuoys complying with the requirements of regulation 27(1) shall be provided:

- (a) eight lifebuoys in vessels of 75 m in length and over; and
- (b) six lifebuoys in vessels of less than 75 m in length.

(2) At least half of the number of lifebuoys referred to in paragraph (1) shall be provided with self-igniting lights complying with the requirements of regulation 27(2).

(3) At least two of the lifebuoys provided with self-igniting lights in accordance with paragraph (2) shall be provided with self-activating smoke signals complying with the requirements of regulation 27(3), and shall, where practicable, be capable of quick release from the navigation bridge.

(4) At least one lifebuoy on each side of the vessel shall be fitted with a buoyant lifeline complying with the requirements of regulation 27(4) equal in length to not less than twice the height at which it is stowed above the waterline in the lightest seagoing condition, or 30 m, whichever is greater. Such lifebuoys shall not have self-igniting lights.

(5) All lifebuoys shall be so placed as to be readily accessible to the persons on board and shall always be capable of being rapidly cast loose and shall not be permanently secured in any way.

Regulation 11 Line-throwing appliances

Every vessel shall carry a line-throwing appliance of an approved type, complying with the requirements of regulation 28.

Regulation 12 Distress signals

(1) Every vessel shall be provided, to the satisfaction of the Administration, with means of making effective distress signals by day and by night, including at least 12 rocket parachute flares complying with the requirements of regulation 29.

(2) Distress signals shall be of an approved type. They shall be so placed as to be readily accessible and their position shall be plainly indicated.

Regulation 13 Radio life-saving appliances

(1) At least three two-way VHF radiotelephone apparatus shall be provided on every vessel. Such apparatus shall conform to performance standards not inferior to those adopted by the Organization.³⁴ If a fixed two-way VHF radiotelephone apparatus is fitted in a survival craft, it shall conform to performance standards not inferior to those adopted by the Organization.³⁴

³⁴ See the Recommendation on *Performance standards for survival craft portable two-way VHF radiotelephone apparatus*, adopted by the Organization by resolution A.809(19) annex 1 or annex 2, as applicable.

(2) Two-way VHF radiotelephone apparatus provided on board existing vessels and not complying with the performance standards adopted by the Organization may be accepted by the Administration until 1 February 1999, or the date of entry into force of this Protocol, whichever occurs later, provided that the Administration is satisfied that they are compatible with approved two-way VHF radiotelephone apparatus.

Regulation 14 Radar transponders

At least one radar transponder shall be carried on each side of every vessel. Such radar transponders shall conform to performance standards not inferior to those adopted by the Organization.³⁵ The radar transponders³⁶ shall be stowed in such locations that they can be rapidly placed in any survival craft. Alternatively, one radar transponder shall be stowed in each survival craft.

Regulation 15 Retro-reflective materials on life-saving appliances

All survival craft, rescue boats, lifejackets and lifebuoys shall be fitted with retro-reflective material in accordance with the recommendations of the Organization.³⁷

Regulation 16 Operational readiness, maintenance and inspections

(1) Operational readiness

Before the vessel leaves port and at all times during the voyage, all life-saving appliances shall be in working order and ready for immediate use.

(2) Maintenance

- (a) Instructions for on-board maintenance of life-saving appliances approved by the Administration shall be provided and maintenance shall be carried out accordingly.
- (b) The Administration may accept, in lieu of the instructions required by subparagraph (a), a shipboard planned maintenance programme.

(3) Maintenance of falls

Falls used in launching shall be turned end for end at intervals of not more than 30 months and be renewed when necessary due to deterioration of the falls or at intervals of not more than 5 years, whichever is the earlier.

³⁵ See the Recommendation on *Performance standards for survival craft radar transponders for use in search and rescue operations*, adopted by the Organization by resolution A.802(19).

³⁶ One of these may be the radar transponder required by regulation IX/6(1)(c).

³⁷ See the Recommendation on the *Use and fitting of retro-reflective materials on life-saving appliances*, adopted by the Organization by resolution A.658(16).

(4) Spares and repair equipment

Spares and repair equipment shall be provided for life-saving appliances and their components which are subject to excessive wear or consumption and need to be replaced regularly.

(5) Weekly inspection

The following tests and inspections shall be carried out weekly:

- (a) all survival craft, rescue boats and launching appliances shall be visually inspected to ensure that they are ready for use;
- (b) all engines in lifeboats and rescue boats shall be run ahead and astern for a total period of not less than 3 min provided the ambient temperature is above the minimum temperature required for starting the engine; and
- (c) the general emergency alarm system shall be tested.

(6) Monthly inspections

Inspection of the life-saving appliances, including lifeboat equipment, shall be carried out monthly using a checklist to ensure that they are complete and in good order. A report of the inspection shall be entered in the log-book.

(7) Servicing of inflatable liferafts, inflatable lifejackets and inflated rescue boats

- (a) Every inflatable liferaft and inflatable lifejacket shall be serviced:
 - (i) at intervals not exceeding 12 months. However, in cases where it appears proper and reasonable, the Administration may extend this period to 17 months;
 - (ii) at an approved servicing station which is competent to service them, maintains proper servicing facilities and uses only properly trained personnel.³⁸
- (b) All repairs and maintenance of inflated rescue boats shall be carried out in accordance with the manufacturer's instructions. Emergency repairs may be carried out on board the vessel; however, permanent repairs shall be effected at an approved servicing station.

(8) Periodic servicing of hydrostatic release units

Disposable hydrostatic release units shall be replaced when their date of expiry has passed. If not disposable, hydrostatic release units shall be serviced:

- (a) at intervals not exceeding 12 months. However, in cases where it appears proper and reasonable, the Administration may extend this period to 17 months;

³⁸ See the *Recommendation on conditions for the approval of servicing stations for inflatable liferafts*, adopted by the Organization by resolution A.761(18).

- (b) at a servicing station which is competent to service them, maintains proper servicing facilities and uses only properly trained personnel.

(9) In cases of vessels where the nature of fishing operations may cause difficulty for compliance with the requirements of paragraphs (7) and (8), the Administration may allow the extension of the service intervals to 24 months, provided that the Administration is satisfied that such appliances are so manufactured and arranged that they will remain in satisfactory condition until the next period of servicing.

PART C

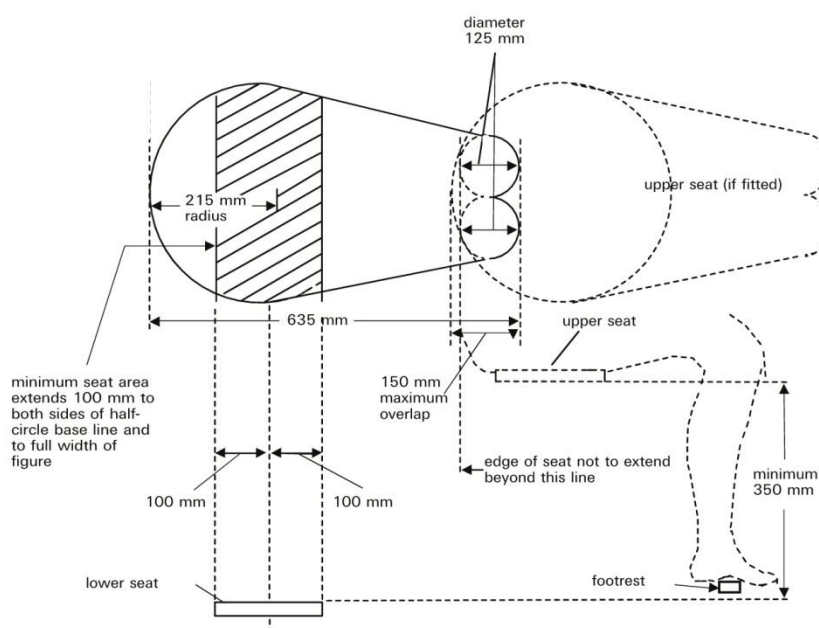
LIFE-SAVING APPLIANCES REQUIREMENTS

Regulation 17 - General requirements for lifeboats

(1) Construction of lifeboats

- (a) All lifeboats shall be properly constructed and shall be of such form and proportions that they have ample stability in a seaway and sufficient freeboard when loaded with their full complement of persons and equipment. All lifeboats shall have rigid hulls and shall be capable of maintaining positive stability when in an upright position in calm water and loaded with their full complement of persons and equipment and holed in any one location below the waterline, assuming no loss of buoyancy material and no other damage.
- (b) All lifeboats shall be of sufficient strength to enable them to be safely lowered into the water when loaded with their full complement of persons and equipment.
- (c) Hulls and rigid covers shall be fire-retardant or non-combustible.
- (d) Seating shall be provided on thwarts, benches or fixed chairs fitted as low as practicable in the lifeboat and constructed so as to be capable of supporting the number of persons each weighing 100 kg for which spaces are provided in compliance with the requirements of paragraph (2)(b)(ii).
- (e) Each lifeboat shall be of sufficient strength to withstand a load, without residual deflection on removal of that load:
 - (i) in the case of boats with metal hulls, 1.25 times the total mass of the lifeboat when loaded with its full complement of persons and equipment; or
 - (ii) in the case of other boats, twice the total mass of the lifeboat when loaded with its full complement of persons and equipment.
- (f) Each lifeboat shall be of sufficient strength to withstand, when loaded with its full complement of persons and equipment and with, where applicable, skates or fenders in position, a lateral impact against the vessel's side at an impact velocity of at least 3.5 m/s and also a drop into the water from a height of at least 3 m.
- (g) The vertical distance between the floor surface and the interior of the enclosure or canopy over 50 per cent of the floor area shall be:

- (i) not less than 1.3 m for a lifeboat permitted to accommodate nine persons or less;
 - (ii) not less than 1.7 m for a lifeboat permitted to accommodate 24 persons or more;
 - (iii) not less than the distance as determined by linear interpolation between 1.3 m and 1.7 m for a lifeboat permitted to accommodate between 9 and 24 persons.
- (2) Carrying capacity of lifeboats
- (a) No lifeboat shall be approved to accommodate more than 150 persons.
 - (b) The number of persons which a lifeboat shall be permitted to accommodate shall be equal to the lesser of:
 - (i) the number of persons having an average mass of 75 kg, all wearing lifejackets, that can be seated in a normal position without interfering with the means of propulsion or the operation of any of the lifeboat's equipment; or
 - (ii) the number of spaces that can be provided on the seating arrangements in accordance with figure 1. The shapes may be overlapped as shown, provided footrests are fitted and there is sufficient room for legs and the vertical separation between the upper and lower seat is not less than 350 mm.
 - (c) Each seating position shall be clearly indicated in the lifeboat.



(3) Access into lifeboats

- (a) Every vessel lifeboat shall be so arranged that it can be boarded by its full complement of persons in not more than 3 min from the time the instruction to board is given. Rapid disembarkation shall also be possible.
- (b) Lifeboats shall have a boarding ladder that can be used on either side of the lifeboat to enable persons in the water to board the lifeboat. The lowest step of the ladder shall be not less than 0.4 m below the lifeboat's light waterline.
- (c) The lifeboat shall be so arranged that helpless people can be brought on board either from the sea or on stretchers.
- (d) All surfaces on which persons might walk shall have a non-skid finish.

(4) Lifeboat buoyancy

All lifeboats shall have inherent buoyancy or shall be fitted with inherently buoyant material which shall not be adversely affected by seawater, oil or oil products, sufficient to float the lifeboat with all its equipment on board when flooded and open to the sea. Additional inherently buoyant material, equal to 280 N of buoyant force per person shall be provided for the number of persons the lifeboat is permitted to accommodate. Buoyant material, unless in addition to that required above, shall not be installed external to the hull of the lifeboat.

(5) Lifeboat freeboard and stability

All lifeboats, when loaded with 50 per cent of the number of persons the lifeboat is permitted to accommodate seated in their normal positions to one side of the centreline, shall have a freeboard, measured from the waterline to the lowest opening through which the lifeboat may become flooded, of at least 1.5 per cent of the lifeboat's length or 100 mm, whichever is the greater.

(6) Lifeboat propulsion

- (a) Every lifeboat shall be powered by a compression ignition engine. No engine shall be used for any lifeboat if its fuel has a flashpoint of 43°C or less (closed cup test).
- (b) The engine shall be provided with either a manual starting system, or a power starting system with two independent rechargeable energy sources. Any necessary starting aids shall also be provided. The engine starting systems and starting aids shall start the engine at an ambient temperature of -15°C within 2 min of commencing the start procedure unless, in the opinion of the Administration having regard to the particular voyages in which the vessel carrying the lifeboat is constantly engaged, a different temperature is appropriate. The starting systems shall not be impeded by the engine casing, thwarts or other obstructions.
- (c) The engine shall be capable of operating for not less than 5 min after starting from cold with the lifeboat out of the water.
- (d) The engine shall be capable of operating when the lifeboat is flooded up to the centreline of the crankshaft.

- (e) The propeller shafting shall be so arranged that the propeller can be disengaged from the engine. Provision shall be made for ahead and astern propulsion of the lifeboat.
 - (f) The exhaust pipe shall be so arranged as to prevent water from entering the engine in normal operation.
 - (g) All lifeboats shall be designed with due regard to the safety of persons in the water and to the possibility of damage to the propulsion system by floating debris.
 - (h) The speed of a lifeboat when proceeding ahead in calm water, when loaded with its full complement of persons and equipment and with all engine-powered auxiliary equipment in operation, shall be at least 6 knots and at least 2 knots when towing a 25-person liferaft loaded with its full complement of persons and equipment or its equivalent. Sufficient fuel, suitable for use throughout the temperature range expected in the area in which the vessel operates, shall be provided to run the fully loaded lifeboat at 6 knots for a period of not less than 24 h.
 - (i) The lifeboat engine, transmission and engine accessories shall be enclosed in a fire-retardant casing or other suitable arrangements providing similar protection. Such arrangements shall also protect persons from coming into accidental contact with hot or moving parts and protect the engine from exposure to weather and sea. Adequate means shall be provided to reduce the engine noise. Starter batteries shall be provided with casings which form a watertight enclosure around the bottom and sides of the batteries. The battery casings shall have a tight fitting top which provides for necessary gas venting.
 - (j) The lifeboat engine and accessories shall be designed to limit electromagnetic emissions so that engine operation does not interfere with the operation of radio life-saving appliances used in the lifeboat.
 - (k) Means shall be provided for recharging all engine-starting, radio and searchlight batteries. Radio batteries shall not be used to provide power for engine starting. Means shall be provided for recharging lifeboat batteries from the vessel's power supply at a supply voltage not exceeding 55 V which can be disconnected at the lifeboat embarkation station.
 - (l) Water-resistant instructions for starting and operating the engine shall be provided and mounted in a conspicuous place near the engine starting controls.
- (7) Lifeboat fittings
- (a) All lifeboats shall be provided with at least one drain valve fitted near the lowest point in the hull, which shall automatically open to drain water from the hull when the lifeboat is not waterborne and shall automatically close to prevent entry of water when the lifeboat is waterborne. Each drain valve shall be provided with a cap or plug to close the valve, which shall be attached to the lifeboat by a lanyard, a chain, or other suitable means. Drain valves shall be readily accessible from inside the lifeboat and their position shall be clearly indicated.

- (b) All lifeboats shall be provided with a rudder and tiller. When a wheel or other remote steering mechanism is also provided, the tiller shall be capable of controlling the rudder in case of failure of the steering mechanism. The rudder shall be permanently attached to the lifeboat. The tiller shall be permanently installed on, or linked to, the rudder stock; however, if the lifeboat has a remote steering mechanism, the tiller may be removable and securely stowed near the rudder stock. The rudder and tiller shall be so arranged as not to be damaged by operation of the release mechanism or the propeller.
- (c) Except in the vicinity of the rudder and propeller, a buoyant lifeline shall be becketed around the outside of the lifeboat.
- (d) Lifeboats which are not self-righting when capsized shall have suitable handholds on the underside of the hull to enable persons to cling to the lifeboat. The handholds shall be fastened to the lifeboat in such a way that, when subjected to an impact sufficient to cause them to break away from the lifeboat, they break away without damaging the lifeboat.
- (e) All lifeboats shall be fitted with sufficient watertight lockers or compartments to provide for the storage of the small items of equipment, water and provisions required by paragraph (8). Means shall be provided for the storage of collected rainwater.
- (f) Every lifeboat to be launched by a fall or falls shall be fitted with a release mechanism complying with the following requirements:
 - (i) the mechanism shall be so arranged that all hooks are released simultaneously;
 - (ii) the mechanism shall have two release capabilities as follows:
 - (1) a normal release capability which will release the lifeboat when it is waterborne or when there is no load on the hooks;
 - (2) an on-load release capability which will release the lifeboat with a load on the hooks. This release shall be so arranged as to release the lifeboat under any conditions of loading from no-load with the lifeboat waterborne to a load of 1.1 times the total mass of the lifeboat when loaded with its full complement of persons and equipment. This release capability shall be adequately protected against accidental or premature use;
 - (iii) the release control shall be clearly marked in a colour that contrasts with its surroundings;
 - (iv) the mechanism shall be designed with a factor of safety of 6 based on the ultimate strength of the materials used, assuming the mass of the lifeboat is equally distributed between the falls.

- (g) Every lifeboat shall be fitted with a release device to enable the forward painter to be released when under tension.
- (h) Every lifeboat which is fitted with a fixed two-way VHF radiotelephone apparatus with an antenna which is separately mounted shall be provided with arrangements for siting and securing the antenna effectively in its operating position.
- (i) Lifeboats intended for launching down the side of a vessel shall have skates and fenders, as necessary, to facilitate launching and prevent damage to the lifeboat.
- (j) A manually controlled lamp visible on a dark night with a clear atmosphere at a distance of at least 2 miles for a period of not less than 12 h shall be fitted to the top of the cover or enclosure. If the light is a flashing light, it shall initially flash at a rate of not less than 50 flashes per minute over the first 2 h of operation of the 12-hour operating period.
- (k) A lamp or source of light shall be fitted inside the lifeboat to provide illumination for not less than 12 h to enable reading of survival and equipment instructions; however, oil lamps shall not be permitted for this purpose.
- (l) Unless expressly provided otherwise, every lifeboat shall be provided with effective means of bailing or be automatically self-bailing.
- (m) Every lifeboat shall be so arranged that an adequate view forward, aft and to both sides is provided from the control and steering position for safe launching and manoeuvring.

(8) Lifeboat equipment

All items of lifeboat equipment, whether required by this paragraph or elsewhere in this chapter, with the exception of boat-hooks which shall be kept free for fending off purposes, shall be secured within the lifeboat by lashings, storage in lockers or compartments, storage in brackets or similar mounting arrangements or other suitable means. The equipment shall be secured in such a manner as not to interfere with any abandonment procedures. All items of lifeboat equipment shall be as small and of as little mass as possible and shall be packed in a suitable compact form. Except where otherwise stated, the normal equipment of every lifeboat shall consist of:

- (i) sufficient buoyant oars to make headway in calm seas. Thole pins, crutches or equivalent arrangements shall be provided for each oar provided. Thole pins or crutches shall be attached to the boat by lanyards or chains;
- (ii) two boat-hooks;
- (iii) a buoyant bailer and two buckets;
- (iv) a survival manual;³⁹

³⁹ See the *Instructions for action in survival craft*, adopted by the Organization by resolution A.657(16).

- (v) a binnacle containing an efficient compass which is luminous or provided with suitable means of illumination. In a totally enclosed lifeboat, the binnacle shall be permanently fitted at the steering position; in any other lifeboat, it shall be provided with suitable mounting arrangements;
- (vi) a sea-anchor of adequate size fitted with a shock-resistant hawser and a tripping line which provides a firm hand grip when wet. The strength of the sea-anchor, hawser and tripping line shall be adequate for all sea conditions;
- (vii) two efficient painters of a length equal to not less than twice the distance from the stowage position of the lifeboat to the waterline in the lightest seagoing condition or 15 m, whichever is the greater. One painter attached to the release device required by paragraph (7)(g) shall be placed at the forward end of the lifeboat and the other shall be firmly secured at or near the bow of the lifeboat ready for use;
- (viii) two hatchets, one at each end of the lifeboat;
- (ix) watertight receptacles containing a total of 3 l of fresh water for each person the lifeboat is permitted to accommodate, of which 1 l per person may be replaced by a de-salting apparatus capable of producing an equal amount of fresh water in two days;
- (x) a rustproof dipper with lanyard;
- (xi) a rustproof graduated drinking vessel;
- (xii) a food ration totalling not less than 10,000 kJ for each person the lifeboat is permitted to accommodate; these rations shall be kept in airtight packaging and be stowed in a watertight container;
- (xiii) four rocket parachute flares complying with the requirements of regulation 29;
- (xiv) six hand flares complying with the requirements of regulation 30;
- (xv) two buoyant smoke signals complying with the requirements of regulation 31;
- (xvi) one waterproof electric torch suitable for Morse signalling together with one spare set of batteries and one spare bulb in a waterproof container;
- (xvii) one daylight signalling mirror with instructions for its use for signalling to ships and aircraft;
- (xviii) one copy of the life-saving signals prescribed by regulation V/8 of the International Convention for the Safety of Life at Sea, 1974, on a waterproof card or in a waterproof container;
- (xix) one whistle or equivalent sound signal;

- (xx) a first-aid outfit in a waterproof case capable of being closed tightly after use;
- (xxi) six doses of anti-seasickness medicine and one seasickness bag for each person;
- (xxii) a jack-knife to be kept attached to the boat by a lanyard;
- (xxiii) three tin-openers;
- (xxiv) two buoyant rescue quoits, attached to not less than 30 m of buoyant line;
- (xxv) a manual pump;
- (xxvi) one set of fishing tackle;
- (xxvii) sufficient tools for minor adjustments to the engine and its accessories;
- (xxviii) portable fire-extinguishing equipment suitable for extinguishing oil fires;
- (xxix) a searchlight capable of effectively illuminating a light-coloured object at night, having a width of 18 m at a distance of 180 m for a total period of 6 h and of working for not less than 3 h continuously;
- (xxx) an efficient radar reflector, unless a survival craft radar transponder is stowed in the lifeboat;
- (xxxi) thermal protective aids complying with the requirements of regulation 26 sufficient for 10 per cent of the number of persons the lifeboat is permitted to accommodate or two, whichever is greater; and
- (xxxii) in the case of vessels engaged on voyages of such a nature and duration that, in the opinion of the Administration, the items specified in subparagraphs (xii) and (xxvi) are unnecessary, the Administration may allow these items to be dispensed with.

(9) Lifeboat markings

- (a) The dimension of the lifeboat and the number of persons which it is permitted to accommodate shall be marked on it in clear permanent characters.
- (b) The name and port of registry of the vessel to which the lifeboat belongs shall be marked on each side of the lifeboat's bow in block capitals of the Roman alphabet.
- (c) Means of identifying the vessel to which the lifeboat belongs and the number of the lifeboat shall be marked in such a way that they are, as far as practicable, visible from above.

Regulation 18
Self-righting partially enclosed lifeboats

(1) Self-righting partially enclosed lifeboats shall comply with the requirements of regulation 17 and, in addition, shall comply with the requirements of this regulation.

(2) Enclosure

- (a) Permanently attached rigid covers shall be provided extending over not less than 20 per cent of the length of the lifeboat from the stem and not less than 20 per cent of the length of the lifeboat from the aftermost part of the lifeboat.
- (b) The rigid covers shall form two shelters. If the shelters have bulkheads, they shall have openings of sufficient size to permit easy access by persons each wearing an immersion suit or warm clothes and a lifejacket. The interior height of the shelters shall be sufficient to permit persons easy access to their seats in the bow and stern of the lifeboat.
- (c) The rigid covers shall be so arranged that they include windows or translucent panels to admit sufficient daylight to the inside of the lifeboat with the openings or canopies closed so as to make artificial light unnecessary.
- (d) The rigid covers shall have railings to provide a secure handhold for persons moving about the exterior of the lifeboat.
- (e) Open parts of the lifeboat shall be fitted with a permanently attached foldable canopy so arranged that:
 - (i) it can be easily erected by not more than two persons in not more than 2 min; and
 - (ii) it is insulated to protect the occupants against cold by means of not less than two layers of material separated by an air gap or other equally efficient means.
- (f) The enclosure formed by the rigid covers and canopy shall be so arranged:
 - (i) as to allow launching and recovery operations to be performed without any occupant having to leave the enclosure;
 - (ii) that it has entrances at both ends and on each side, provided with efficient adjustable closing arrangements which can be easily and quickly opened and closed from inside or outside so as to permit ventilation but exclude seawater, wind and cold; means shall be provided for holding the entrances securely in the open and in the closed position;
 - (iii) that with the canopy erected and all entrances closed, sufficient air is admitted for the occupants at all times;
 - (iv) that it has means for collecting rainwater;

- (v) that the exterior of the rigid covers and canopy and the interior of that part of the lifeboat covered by the canopy is of a highly visible colour. The interior of the shelters shall be of a colour which does not cause discomfort to the occupants;
 - (vi) that it is possible to row the lifeboat.
- (3) Capsizing and re-righting
 - (a) A safety belt shall be fitted at each indicated seating position. The safety belt shall be so designed as to hold a person of a mass of 100 kg securely in place when the lifeboat is in a capsized position.
 - (b) The stability of the lifeboat shall be such that it is inherently or automatically self-righting when loaded with its full or a partial complement of persons and equipment and the persons are secured with safety belts.
- (4) Propulsion
 - (a) The engine and transmission shall be controlled from the helmsman's position.
 - (b) The engine and engine installation shall be capable of running in any position during capsize and continue to run after the lifeboat returns to the upright or shall automatically stop on capsizing and be easily restarted after the lifeboat returns to the upright and the water has been drained from the lifeboat. The design of the fuel and lubricating systems shall prevent the loss of fuel and the loss of more than 250 ml of lubricating oil from the engine during capsize.
 - (c) Air-cooled engines shall have a duct system to take in cooling air from, and exhaust it to, the outside of the lifeboat. Manually operated dampers shall be provided to enable cooling air to be taken in from, and exhausted to, the interior of the lifeboat.
- (5) Construction and fendering
 - (a) Notwithstanding regulation 17(1)(f), a self-righting partially enclosed lifeboat shall be so constructed and fendered as to ensure that the lifeboat renders protection against harmful accelerations resulting from an impact of the lifeboat, when loaded with its full complement of persons and equipment, against the vessel's side at an impact velocity of not less than 3.5 m/s.
 - (b) The lifeboat shall be automatically self-bailing.

Regulation 19 **Totally enclosed lifeboats**

- (1) Totally enclosed lifeboats shall comply with the requirements of regulation 17 and, in addition, shall comply with the requirements of this regulation.

(2) Enclosure

Every totally enclosed lifeboat shall be provided with a rigid watertight enclosure which completely encloses the lifeboat. The enclosure shall be so arranged that:

- (i) it protects the occupants against heat and cold;
- (ii) access to the lifeboat is provided by hatches which can be closed to make the lifeboat watertight;
- (iii) hatches are positioned so as to allow launching and recovery operations to be performed without any occupant having to leave the enclosure;
- (iv) access hatches are capable of being opened and closed from both inside and outside and are equipped with means to hold them securely in open positions;
- (v) it is possible to row the lifeboat;
- (vi) it is capable, when the lifeboat is in the capsized position with the hatches closed and without significant leakage, of supporting the entire mass of the lifeboat, including all equipment, machinery and its full complement of persons;
- (vii) it includes windows or translucent panels on both sides which admit sufficient daylight to the inside of the lifeboat with the hatches closed to make artificial light unnecessary;
- (viii) its exterior is of a highly visible colour and its interior of a colour which does not cause discomfort to the occupants;
- (ix) handrails provide a secure handhold for persons moving about the exterior of the lifeboat, and aid embarkation and disembarkation;
- (x) persons have access to their seats from an entrance without having to climb over thwarts or other obstructions;
- (xi) the occupants are protected from the effects of dangerous subatmospheric pressures which might be created by the lifeboat's engine.

(3) Capsizing and re-righting

- (a) A safety belt shall be fitted at each indicated seating position. The safety belt shall be designed to hold a person of a mass of 100 kg securely in place when the lifeboat is in a capsized position.
- (b) The stability of the lifeboat shall be such that it is inherently or automatically self-righting when loaded with its full or a partial complement of persons and equipment and all entrances and openings are closed watertight and the persons are secured with safety belts.
- (c) The lifeboat shall be capable of supporting its full complement of persons and equipment when the lifeboat is in the damaged condition prescribed in regulation 17(1)(a) and its stability shall be such that, in the event of

capsizing, it will automatically attain a position that will provide an above-water escape for its occupants.

- (d) The design of all engine exhaust pipes, air ducts and other openings shall be such that water is excluded from the engine when the lifeboat capsizes and re-rights.

(4) Propulsion

- (a) The engine and transmission shall be controlled from the helmsman's position.
- (b) The engine and engine installation shall be capable of running in any position during capsize and continue to run after the lifeboat returns to the upright or shall automatically stop on capsizing and be easily restarted after the lifeboat returns to the upright. The design of the fuel and lubricating systems shall prevent the loss of fuel and the loss of more than 250 ml of lubricating oil from the engine during capsize.
- (c) Air-cooled engines shall have a duct system to take in cooling air from, and exhaust it to, the outside of the lifeboat. Manually operated dampers shall be provided to enable cooling air to be taken in from, and exhausted to, the interior of the lifeboat.

(5) Construction and fendering

Notwithstanding regulation 17(1)(f), a totally enclosed lifeboat shall be so constructed and fendered as to ensure that the lifeboat renders protection against harmful accelerations resulting from an impact of the lifeboat, when loaded with its full complement of persons and equipment, against the vessel's side at an impact velocity of not less than 3.5 m/s.

(6) Free-fall lifeboats

A lifeboat arranged for free-fall launching shall be so constructed that it is capable of rendering protection against harmful accelerations resulting from being launched, when loaded with its full complement of persons and equipment, from at least the maximum height at which it is designed to be stowed above the waterline with the vessel in its lightest seagoing condition, under unfavourable conditions of trim of up to 10° and with the vessel listed not less than 20° either way.

Regulation 20 **General requirements for liferafts**

(1) Construction of liferafts

- (a) Every liferaft shall be so constructed as to be capable of withstanding exposure for 30 days afloat in all sea conditions.
- (b) The liferaft shall be so constructed that when it is dropped into the water from a height of 18 m, the liferaft and its equipment will operate satisfactorily. If the liferaft is to be stowed at a height of more than 18 m above the waterline in the lightest seagoing condition, it shall be of a type which has been satisfactorily drop-tested from at least that height.

- (c) The floating liferaft shall be capable of withstanding repeated jumps on to it from a height of at least 4.5 m above its floor both with and without the canopy erected.
 - (d) The liferaft and its fittings shall be so constructed as to enable it to be towed at a speed of 3 knots in calm water when loaded with its full complement of persons and equipment and with one of its sea-anchors streamed.
 - (e) The liferaft shall have a canopy to protect the occupants from exposure which is automatically set in place when the liferaft is launched and waterborne. The canopy shall comply with the following:
 - (i) it shall provide insulation against heat and cold by means of either two layers of material separated by an air gap or other equally efficient means. Means shall be provided to prevent accumulation of water in the air gap;
 - (ii) its interior shall be of a colour that does not cause discomfort to the occupants;
 - (iii) each entrance shall be clearly indicated and be provided with efficient adjustable closing arrangements which can be easily and quickly opened from inside and outside the liferaft so as to permit ventilation but exclude seawater, wind and cold. Liferafts accommodating more than eight persons shall have at least two diametrically opposite entrances;
 - (iv) it shall admit sufficient air for the occupants at all times, even with the entrances closed;
 - (v) it shall be provided with at least one viewing port;
 - (vi) it shall be provided with means for collecting rainwater;
 - (vii) it shall have sufficient headroom for sitting occupants under all parts of the canopy.
- (2) Minimum carrying capacity and mass of liferafts
- (a) No liferaft shall be approved which has a carrying capacity of less than six persons calculated in accordance with the requirements of regulation 21(3) or 22(3) as appropriate.
 - (b) Unless the liferaft is to be launched by an approved launching appliance complying with the requirements of regulation 32 and is not required to be portable, the total mass of the liferaft, its container and its equipment shall not be more than 185 kg.
- (3) Liferaft fittings
- (a) Lifelines shall be securely becketed around the inside and outside of the liferaft.

- (b) The liferaft shall be fitted with an efficient painter of length equal to not less than twice the distance from the stowed position to the waterline in the lightest seagoing condition or 15 m whichever is the greater.
- (4) Davit-launched liferafts
 - (a) In addition to the above requirements, a liferaft for use with an approved launching appliance shall:
 - (i) when the liferaft is loaded with its full complement of persons and equipment, be capable of withstanding a lateral impact against the vessel's side at an impact velocity of not less than 3.5 m/s and also a drop into the water from a height of not less than 3 m without damage that will affect its function;
 - (ii) be provided with means for bringing the liferaft alongside the embarkation deck and holding it securely during embarkation.
 - (b) Every davit-launched liferaft shall be so arranged that it can be boarded by its full complement of persons in not more than 3 min from the time the instruction to board is given.
- (5) Equipment
 - (a) The normal equipment of every liferaft shall consist of:
 - (i) one buoyant rescue quoit, attached to not less than 30 m of buoyant line;
 - (ii) one knife of the non-folding type having a buoyant handle and lanyard attached and stowed in a pocket on the exterior of the canopy near the point at which the painter is attached to the liferaft. In addition, a liferaft which is permitted to accommodate 13 persons or more shall be provided with a second knife which need not be of the non-folding type;
 - (iii) for a liferaft which is permitted to accommodate not more than 12 persons, one buoyant bailer. For a liferaft which is permitted to accommodate 13 persons or more, two buoyant bailers;
 - (iv) two sponges;
 - (v) two sea-anchors each with a shock-resistant hawser and tripping line, one being spare and the other permanently attached to the liferaft in such a way that when the liferaft inflates or is waterborne it will cause the liferaft to lie oriented to the wind in the most stable manner. The strength of each sea-anchor and its hawser and tripping line shall be adequate for all sea conditions. The sea-anchors shall be fitted with a swivel at each end of the line and shall be of a type which is unlikely to turn inside-out between its shroud lines;
 - (vi) two buoyant paddles;

- (vii) three tin-openers; safety knives containing special tin-opener blades are satisfactory for this requirement;
- (viii) one first-aid outfit in a waterproof case capable of being closed tightly after use;
- (ix) one whistle or equivalent sound signal;
- (x) four rocket parachute flares complying with the requirements of regulation 29;
- (xi) six hand flares complying with the requirements of regulation 30;
- (xii) two buoyant smoke signals complying with the requirements of regulation 31;
- (xiii) one waterproof electric torch suitable for Morse signalling together with one spare set of batteries and one spare bulb in a waterproof container;
- (xiv) an efficient radar reflector, unless a survival craft radar transponder is stowed in the liferaft;
- (xv) one daylight signalling mirror with instructions on its use for signalling to ships and aircraft;
- (xvi) one copy of the life-saving signals referred to in regulation V/8 of the International Convention for the Safety of Life at Sea, 1974, on a waterproof card or in a waterproof container;
- (xvii) one set of fishing tackle;
- (xviii) a food ration totalling not less than 10,000 kJ for each person the liferaft is permitted to accommodate; these rations shall be kept in airtight packaging and be stowed in a watertight container;
- (xix) watertight receptacles containing a total of 1.5 l of fresh water for each person the liferaft is permitted to accommodate, of which 0.5 l per person may be replaced by a de-salting apparatus capable of producing an equal amount of fresh water in two days;
- (xx) one rustproof graduated drinking vessel;
- (xxi) six doses of anti-seasickness medicine and one seasickness bag for each person the liferaft is permitted to accommodate;
- (xxii) instructions on how to survive;⁴⁰
- (xxiii) instructions for immediate action;⁴⁰

⁴⁰ See the *Instructions for action in survival craft*, adopted by the Organization by resolution A.657(16).

- (xxiv) thermal protective aids complying with the requirements of regulation 26 sufficient for 10 per cent of the number of persons the liferaft is permitted to accommodate or two, whichever is the greater.
 - (b) The marking required by regulations 21(7)(c)(v) and 22(7)(vii) on liferafts equipped in accordance with subparagraph (a) shall be SOLAS A PACK in block capitals of the Roman alphabet.
 - (c) Where appropriate the equipment shall be stowed in a container which, if it is not an integral part of, or permanently attached to, the liferaft, shall be stowed and secured inside the liferaft and be capable of floating in water for at least 30 min without damage to its contents.
- (6) Float-free arrangements for liferafts
- (a) Painter system

The liferaft painter system shall provide a connection between the vessel and the liferaft and shall be so arranged as to ensure that the liferaft when released and, in the case of an inflatable liferaft, inflated is not dragged under by the sinking vessel.
 - (b) Weak link

If a weak link is used in the float-free arrangements, it shall:

 - (i) not be broken by the force required to pull the painter from the liferaft container;
 - (ii) if applicable, be of sufficient strength to permit the inflation of the liferaft;
 - (iii) break under a strain of 2.2 ± 0.4 kN.
 - (c) Hydrostatic release units

If a hydrostatic release unit is used in the float-free arrangements, it shall:

 - (i) be constructed of compatible materials so as to prevent malfunction of the unit. Galvanizing or other forms of metallic coating on parts of the hydrostatic release unit shall not be accepted;
 - (ii) automatically release the liferaft at a depth of not more than 4 m;
 - (iii) have drains to prevent the accumulation of water in the hydrostatic chamber when the unit is in its normal position;
 - (iv) be so constructed as to prevent release when seas wash over the unit;

- (v) be permanently marked on its exterior with its type and serial number;
- (vi) be provided with a document or identification plate stating the date of manufacture, type and serial number;
- (vii) be such that each part connected to the painter system has a strength of not less than that required for the painter;
- (viii) if disposable, have instructions for determining the date of expiry and means for marking the date on the unit.

Regulation 21 **Inflatable liferafts**

(1) Inflatable liferafts shall comply with the requirements of regulation 20 and, in addition, shall comply with the requirements of this regulation.

(2) Construction of inflatable liferafts

- (a) The main buoyancy chamber shall be divided into not less than two separate compartments, each inflated through a non-return inflation valve on each compartment. The buoyancy chambers shall be so arranged that, in the event of any one of the compartments being damaged or failing to inflate, the intact compartments shall be able to support, with positive freeboard over the liferaft's entire periphery, the number of persons which the liferaft is permitted to accommodate, each having a mass of 75 kg and seated in their normal positions.
- (b) The floor of the liferaft shall be waterproof and shall be capable of being sufficiently insulated against cold either:
 - (i) by means of one or more compartments that the occupants can inflate, or which inflate automatically and can be deflated and re-inflated by the occupants; or
 - (ii) by other equally efficient means not dependent on inflation.
- (c) The liferaft shall be inflated with a non-toxic gas. Inflation shall be completed within a period of 1 min at an ambient temperature of between 18°C and 20°C and within a period of 3 min at an ambient temperature of -30°C. After inflation, the liferaft shall maintain its form when loaded with its full complement of persons and equipment.
- (d) Each inflatable compartment shall be capable of withstanding a pressure equal to at least three times the working pressure and shall be prevented from reaching a pressure exceeding twice the working pressure either by means of relief valves or by a limited gas supply. Means shall be provided for fitting the topping-up pump or bellows required by paragraph (10)(a)(ii) so that the working pressure can be maintained.

(3) Carrying capacity of inflatable liferafts

The number of persons which a liferaft shall be permitted to accommodate shall be equal to the lesser of:

- (i) the greatest whole number obtained by dividing by 0.096 the volume, measured in cubic metres, of the main buoyancy tubes (which for this purpose shall include neither the arches nor the thwarts, if fitted) when inflated; or
- (ii) the greatest whole number obtained by dividing by 0.372 the inner horizontal cross-sectional area of the liferaft measured in square metres (which for this purpose may include the thwart or thwarts, if fitted) measured to the innermost edge of the buoyancy tubes; or
- (iii) the number of persons having an average mass of 75 kg all wearing lifejackets, that can be seated with sufficient comfort and headroom without interfering with the operation of any of the liferaft's equipment.

(4) Access into inflatable liferafts

- (a) At least one entrance shall be fitted with a semi-rigid boarding ramp to enable persons to board the liferaft from the sea so arranged as to prevent significant deflation of the liferaft if the ramp is damaged. In the case of a davit-launched liferaft having more than one entrance, the boarding ramp shall be fitted at the entrance opposite the bowsing lines and embarkation facilities.
- (b) Entrances not provided with a boarding ramp shall have a boarding ladder, the lowest step of which shall be situated not less than 0.4 m below the liferaft's light waterline.
- (c) There shall be means inside the liferaft to assist persons to pull themselves into the liferaft from the ladder.

(5) Stability of inflatable liferafts

- (a) Every inflatable liferaft shall be so constructed that, when fully inflated and floating with the canopy uppermost, it is stable in a seaway.
- (b) The stability of the liferaft when in the inverted position shall be such that it can be righted in a seaway and in calm water by one person.
- (c) The stability of the liferaft when loaded with its full complement of persons and equipment shall be such that it can be towed at speeds of up to 3 knots in calm water.

(6) Inflatable liferaft fittings

- (a) The breaking strength of the painter system including its means of attachment to the liferaft, except the weak link required by regulation 20(6)(b), shall be not less than 10 kN for a liferaft permitted to accommodate nine persons or

more, and not less than 7.5 kN for any other liferaft. The liferaft shall be capable of being inflated by one person.

- (b) A manually controlled lamp visible on a dark night with a clear atmosphere at a distance of at least 2 miles for a period of not less than 12 h shall be fitted to the top of the liferaft canopy. If it is a flashing light, it shall flash at a rate of not less than 50 flashes per minute for the first 2 h of operation of the 12-hour operating period. The lamp shall be powered by a sea-activated cell or a dry chemical cell and shall light automatically when the liferaft inflates. The cell shall be of a type that does not deteriorate due to damp or humidity in the stowed liferaft.
- (c) A manually controlled lamp shall be fitted inside the liferaft capable of continuous operation for a period of at least 12 h. It shall light automatically when the liferaft inflates and be of sufficient intensity to enable reading of survival and equipment instructions.

(7) Containers for inflatable liferafts

- (a) The liferaft shall be packed in a container that is:
 - (i) so constructed as to withstand hard wear under conditions encountered at sea;
 - (ii) of sufficient inherent buoyancy, when packed with the liferaft and its equipment, to pull the painter from within and to operate the inflation mechanism should the vessel sink;
 - (iii) as far as practicable watertight, except for drain holes in the container bottom.
- (b) The liferaft shall be packed in its container in such a way as to ensure, as far as possible, that the waterborne liferaft inflates in an upright position on breaking free from its container.
- (c) The container shall be marked with:
 - (i) maker's name or trade mark;
 - (ii) serial number;
 - (iii) name of approving authority and the number of persons it is permitted to carry;
 - (iv) SFV;⁴¹
 - (v) type of emergency pack enclosed;
 - (vi) date when last serviced;

⁴¹ Inflatable liferafts complying with section 4.3 of the *International Life-Saving Appliance (LSA) Code*, adopted by the Maritime Safety Committee of the Organization by resolution MSC.48(66), as amended, and marked SOLAS A are fully equivalent to the liferafts described in this regulation, and may be accepted as fully equivalent to liferafts marked SFV.

- (vii) length of painter;
- (viii) maximum permitted height of stowage above waterline (depending on drop-test height and length of painter);
- (ix) launching instructions.

(8) Markings on inflatable liferafts

The liferaft shall be marked with:

- (i) maker's name or trade mark;
- (ii) serial number;
- (iii) date of manufacture (month and year);
- (iv) name of approving authority;
- (v) name and place of servicing station where it was last serviced;
- (vi) number of persons it is permitted to accommodate over each entrance in characters not less than 100 mm in height of a colour contrasting with that of the liferaft.

(9) Davit-launched inflatable liferafts

- (a) In addition to complying with the above requirements, a liferaft for use with an approved launching appliance shall, when suspended from its lifting hook or bridle, withstand a load of:
 - (i) 4 times the mass of its full complement of persons and equipment, at an ambient temperature and a stabilized liferaft temperature of $20\pm 3^{\circ}\text{C}$ with all relief valves inoperative; and
 - (ii) 1.1 times the mass of its full complement of persons and equipment at an ambient temperature and a stabilized liferaft temperature of -30°C with all relief valves operative.
- (b) Rigid containers for liferafts to be launched by a launching appliance shall be so secured that the container or parts of it are prevented from falling into the sea during and after inflation and launching of the contained liferaft.

(10) Additional equipment for inflatable liferafts

- (a) In addition to the equipment required by regulation 20(5), every inflatable liferaft shall be provided with:
 - (i) one repair outfit for repairing punctures in buoyancy compartments;
 - (ii) one topping-up pump or bellows.
- (b) The knives required by regulation 20(5)(a)(ii) shall be safety knives.

Regulation 22
Rigid liferafts

(1) Rigid liferafts shall comply with the requirements of regulation 20 and, in addition, shall comply with the requirements of this regulation.

(2) Construction of rigid liferafts

- (a) The buoyancy of the liferaft shall be provided by approved inherently buoyant material placed as near as possible to the periphery of the liferaft. The buoyant material shall be fire-retardant or be protected by a fire-retardant covering.
- (b) The floor of the liferaft shall prevent the ingress of water and shall effectively support the occupants out of the water and insulate them from cold.

(3) Carrying capacity of rigid liferafts

The number of persons which a liferaft shall be permitted to accommodate shall be equal to the lesser of:

- (i) the greatest whole number obtained by dividing by 0.096 the volume, measured in cubic metres, of the buoyancy material multiplied by a factor of 1 minus the specific gravity of that material; or
- (ii) the greatest whole number obtained by dividing by 0.372 the horizontal cross-sectional area of the floor of the liferaft measured in square metres; or
- (iii) the number of persons having an average mass of 75 kg all wearing lifejackets, that can be seated with sufficient comfort and headroom without interfering with the operation of any of the liferaft's equipment.

(4) Access into rigid liferafts

- (a) At least one entrance shall be fitted with a rigid boarding ramp to enable persons to board the liferaft from the sea. In the case of a davit-launched liferaft having more than one entrance, the boarding ramp shall be fitted at the entrance opposite to the bowing and embarkation facilities.
- (b) Entrances not provided with a boarding ramp shall have a boarding ladder, the lowest step of which shall be situated not less than 0.4 m below the liferaft's light waterline.
- (c) There shall be means inside the liferaft to assist persons to pull themselves into the liferaft from the ladder.

(5) Stability of rigid liferafts

- (a) Unless the liferaft is capable of operating safely whichever way up it is floating, its strength and stability shall be such that it is either self-righting or can be readily righted in a seaway and in calm water by one person.
 - (b) The stability of the liferaft when loaded with its full complement of persons and equipment shall be such that it can be towed at speeds of up to 3 knots in calm water.
- (6) Rigid liferaft fittings
- (a) The liferaft shall be fitted with an efficient painter. The breaking strength of the painter system, including its means of attachment to the liferaft, except the weak link required by regulation 20(6)(b), shall be not less than 10 kN for liferafts permitted to accommodate nine persons or more, and not less than 7.5 kN for any other liferaft.
 - (b) A manually controlled lamp visible on a dark night with a clear atmosphere at a distance of at least 2 miles for a period of not less than 12 h shall be fitted to the top of the liferaft canopy. If the light is a flashing light, it shall flash at a rate of not less than 50 flashes per minute for the first 2 h of operation of the 12-hour operating period. The lamp shall be powered by a sea-activated cell or a dry chemical cell and shall light automatically when the liferaft canopy is set in place. The cell shall be of a type that does not deteriorate due to damp or humidity in the stowed liferaft.
 - (c) A manually controlled lamp shall be fitted inside the liferaft, capable of continuous operation for a period of at least 12 h. It shall light automatically when the canopy is set in place and be of sufficient intensity to enable reading of survival and equipment instructions.
- (7) Markings on rigid liferafts
- The liferafts shall be marked with:
- (i) name and port of registry of the vessel to which it belongs;
 - (ii) maker's name or trade mark;
 - (iii) serial number;
 - (iv) name of approving authority;
 - (v) number of persons it is permitted to accommodate over each entrance in characters not less than 100 mm in height of a colour contrasting with that of the liferaft;
 - (vi) SFV;⁴²
 - (vii) type of emergency pack enclosed;

⁴² Rigid liferafts complying with chapter IV, section 4.3 of the *International Life-Saving Appliance (LSA) Code*, adopted by the Maritime Safety Committee of the Organization by resolution MSC.48(66), as amended, and marked SOLAS A are fully equivalent to the liferafts described in this regulation and may be accepted as fully equivalent to liferafts marked SFV.

- (viii) length of painter;
- (ix) maximum permitted height of stowage above waterline (drop-test height);
- (x) launching instructions.

(8) Davit-launched rigid liferafts

In addition to the above requirements, a rigid liferaft for use with an approved launching appliance shall, when suspended from its lifting hook or bridle, withstand a load of four times the mass of its full complement of persons and equipment.

Regulation 23
Rescue boats

(1) General requirements

- (a) Except as provided by this regulation, all rescue boats shall comply with the requirements of regulations 17(1) to 17(7)(d) inclusive and 17(7)(f), 17(7)(g), 17(7)(i), 17(7)(l) and 17(9).
- (b) Rescue boats may be either of rigid or inflated construction or a combination of both and shall:
 - (i) be not less than 3.8 m and not more than 8.5 m in length, except where, owing to the size of the vessel, or for other reasons where the carriage of such boats is considered unreasonable or impracticable, the Administration may accept a rescue boat of a lesser length but not less than 3.3 m;
 - (ii) be capable of carrying at least five seated persons and a person lying down or, in the case of a rescue boat less than 3.8 m in length, such lesser number as may be determined by the Administration.
- (c) The number of persons which a boat shall be permitted to accommodate shall be determined by the Administration.
- (d) Rescue boats which are a combination of rigid and inflated construction shall comply with the appropriate requirements of this regulation to the satisfaction of the Administration.
- (e) Unless the rescue boat has adequate sheer, it shall be provided with a bow cover extending for not less than 15 per cent of its length.
- (f) Rescue boats shall be capable of manoeuvring at speeds up to 6 knots and maintaining that speed for a period of at least 4 h.
- (g) Rescue boats shall have sufficient mobility and manoeuvrability in a seaway to enable persons to be retrieved from the water, marshal liferafts and tow the largest liferaft carried on the vessel when loaded with its full complement of persons and equipment or its equivalent at a speed of at least 2 knots.

- (h) A rescue boat shall be fitted with an inboard engine or outboard motor. If it is fitted with an outboard motor, the rudder and tiller may form part of the engine. Notwithstanding the requirements of regulation 17(6)(a), petrol-driven outboard engines with an approved fuel system may be fitted in rescue boats, provided the fuel tanks are specially protected against fire and explosion.
 - (i) Arrangements for towing shall be permanently fitted in rescue boats and shall be sufficiently strong to marshal or tow liferafts as required by paragraph (1)(g).
 - (j) Rescue boats shall be fitted with weathertight stowage for small items of equipment.
- (2) Rescue boat equipment
- (a) All items of rescue boat equipment, with the exception of boat-hooks which shall be kept free for fending off purposes, shall be secured within the rescue boat by lashings, storage in lockers or compartments, storage in brackets or similar mounting arrangements, or other suitable means. The equipment shall be secured in such a manner as not to interfere with any launching or recovery procedures. All items of rescue boat equipment shall be as small and of as little mass as possible and shall be packed in suitable and compact form.
 - (b) The normal equipment of every rescue boat shall consist of:
 - (i) sufficient buoyant oars or paddles to make headway in calm seas. Thole pins, crutches or equivalent arrangements shall be provided for each oar. Thole pins or crutches shall be attached to the boat by lanyards or chains;
 - (ii) a buoyant bailer;
 - (iii) a binnacle containing an efficient compass which is luminous or provided with suitable means of illumination;
 - (iv) a sea-anchor and tripping line with a hawser of adequate strength not less than 10 m in length;
 - (v) a painter of sufficient length and strength, attached to the release device complying with the requirements of regulation 17(7)(g) and placed at the forward end of the rescue boat;
 - (vi) one buoyant line, not less than 50 m in length, of sufficient strength to tow a liferaft as required by paragraph (1)(g);
 - (vii) one waterproof electric torch suitable for Morse signalling, together with one spare set of batteries and one spare bulb in a waterproof container;
 - (viii) one whistle or equivalent sound signal;

- (ix) a first-aid outfit in a waterproof case capable of being closed tightly after use;
 - (x) two buoyant rescue quoits, attached to not less than 30 m of buoyant line;
 - (xi) a searchlight capable of effectively illuminating a light-coloured object at night having a width of 18 m at a distance of 180 m for a total period of 6 h and of working for at least 3 h continuously;
 - (xii) an efficient radar reflector;
 - (xiii) thermal protective aids complying with the requirements of regulation 26 sufficient for 10 per cent of the number of persons the rescue boat is permitted to accommodate or two, whichever is the greater.
 - (c) In addition to the equipment required by paragraph (2)(b), the normal equipment of every rigid rescue boat shall include:
 - (i) a boat-hook;
 - (ii) a bucket;
 - (iii) a knife or hatchet.
 - (d) In addition to the equipment required by paragraph (2)(b), the normal equipment of every inflated rescue boat shall consist of:
 - (i) a buoyant safety knife;
 - (ii) two sponges;
 - (iii) an efficient manually operated bellows or pump;
 - (iv) a repair kit in a suitable container for repairing punctures;
 - (v) a safety boat-hook.
- (3) Additional requirements for inflated rescue boats
- (a) The requirements of regulations 17(1)(c) and 17(1)(e) do not apply to inflated rescue boats.
 - (b) An inflated rescue boat shall be constructed in such a way that, when suspended by its bridle or lifting hook:
 - (i) it is of sufficient strength and rigidity to enable it to be lowered and recovered with its full complement of persons and equipment;
 - (ii) it is of sufficient strength to withstand a load of 4 times the mass of its full complement of persons and equipment at an ambient temperature of $20\pm 3^{\circ}\text{C}$ with all relief valves inoperative;

- (iii) it is of sufficient strength to withstand a load of 1.1 times the mass of its full complement of persons and equipment at an ambient temperature of -30°C, with all relief valves operative.
- (c) Inflated rescue boats shall be so constructed as to be capable of withstanding exposure:
 - (i) when stowed on an open deck on a vessel at sea;
 - (ii) for 30 days afloat in all sea conditions.
- (d) In addition to complying with the requirements of regulation 17(9), inflated rescue boats shall be marked with a serial number, the maker's name or trade mark and the date of manufacture.
- (e) The buoyancy of an inflated rescue boat shall be provided by either a single tube subdivided into at least five separate compartments of approximately equal volume or two separate tubes neither exceeding 60 per cent of the total volume. The buoyancy tubes shall be so arranged that, in the event of any one of the compartments being damaged, the intact compartments shall be able to support the number of persons which the rescue boat is permitted to accommodate, each having a mass of 75 kg, when seated in their normal positions with positive freeboard over the rescue boat's entire periphery.
- (f) The buoyancy tubes forming the boundary of the inflated rescue boat shall, on inflation, provide a volume of not less than 0.17 m³ for each person the rescue boat is permitted to accommodate.
- (g) Each buoyancy compartment shall be fitted with a non-return valve for manual inflation and means for deflation. A safety relief valve shall also be fitted, unless the Administration is satisfied that such an appliance is unnecessary.
- (h) Underneath the bottom and on vulnerable places on the outside of the inflated rescue boat, rubbing strips shall be provided to the satisfaction of the Administration.
- (i) Where a transom is fitted, it shall not be inset by more than 20 per cent of the overall length of the rescue boat.
- (j) Suitable patches shall be provided for securing the painters fore and aft and the becketed lifelines inside and outside the boat.
- (k) The inflated rescue boat shall be maintained at all times in a fully inflated condition.

Regulation 24 **Lifejackets**

- (1) General requirements for lifejackets
 - (a) A lifejacket shall not sustain burning or continue melting after being totally enveloped in a fire for a period of 2 s.

- (b) A lifejacket shall be so constructed that:
 - (i) after demonstration, a person can correctly don it within a period of 1 min without assistance;
 - (ii) it is capable of being worn inside-out or is clearly capable of being worn in only one way and, as far as possible, cannot be donned incorrectly;
 - (iii) it is comfortable to wear;
 - (iv) it allows the wearer to jump from a height of at least 4.5 m into the water without injury and without dislodging or damaging the lifejacket.
 - (c) A lifejacket shall have sufficient buoyancy and stability in calm fresh water to:
 - (i) lift the mouth of an exhausted or unconscious person not less than 120 mm clear of the water with the body inclined backwards at an angle of not less than 20° and not more than 50° from the vertical position;
 - (ii) turn the body of an unconscious person in the water from any position to one where the mouth is clear of the water in not more than 5 s.
 - (d) A lifejacket shall have buoyancy which is not reduced by more than 5 per cent after 24 h submersion in fresh water.
 - (e) A lifejacket shall allow the person wearing it to swim a short distance and to board a survival craft.
 - (f) Each lifejacket shall be fitted with a whistle firmly secured by a cord.
- (2) Inflatable lifejackets

A lifejacket which depends on inflation for buoyancy shall have not less than two separate compartments and comply with the requirements of paragraph (1) and shall:

- (i) inflate automatically on immersion, be provided with a device to permit inflation by a single manual motion and be capable of being inflated by mouth;
- (ii) in the event of loss of buoyancy in any one compartment be capable of complying with the requirements of paragraphs (1)(b), (c) and (e);
- (iii) comply with the requirements of paragraph (1)(d) after inflation by means of the automatic mechanism.

(3) Lifejacket lights

- (a) Each lifejacket shall have a light which shall:
 - (i) have a luminous intensity of not less than 0.75 cd;
 - (ii) have a source of energy capable of providing a luminous intensity of 0.75 cd for a period of at least 8 h;
 - (iii) be visible over as great a segment of the upper hemisphere as is practicable when attached to a lifejacket.
- (b) If the light referred to in paragraph (3)(a) is a flashing light, it shall, in addition:
 - (i) be provided with a manually operated switch;
 - (ii) not be fitted with a lens or curved reflector to concentrate the beam;
 - (iii) flash at a rate of not less than 50 flashes per minute with an effective luminous intensity of at least 0.75 cd.

Regulation 25
Immersion suits

(1) General requirements for immersion suits

- (a) The immersion suit shall be constructed with waterproof materials such that:
 - (i) it can be unpacked and donned without assistance within 2 min taking into account any associated clothing, and a lifejacket if the immersion suit is to be worn in conjunction with a lifejacket;
 - (ii) it will not sustain burning or continue melting after being totally enveloped in a fire for a period of 2 s;
 - (iii) it will cover the whole body with the exception of the face. Hands shall also be covered, unless permanently attached gloves are provided;
 - (iv) it is provided with arrangements to minimize or reduce free air in the legs of the suit;
 - (v) following a jump from a height of not less than 4.5 m into the water, there is no undue ingress of water into the suit.
- (b) An immersion suit which also complies with the requirements of regulation 24 may be classified as a lifejacket.
- (c) An immersion suit shall permit the person wearing it, and also wearing a lifejacket if the immersion suit is to be worn in conjunction with a lifejacket, to:

- (i) climb up and down a vertical ladder at least 5 m in length;
 - (ii) perform normal duties during abandonment;
 - (iii) jump from a height of not less than 4.5 m into the water without damaging or dislodging the immersion suit, or being injured;
 - (iv) swim a short distance through the water and board a survival craft.
 - (d) An immersion suit which has buoyancy and is designed to be worn without a lifejacket shall be fitted with a light complying with the requirements of regulation 24(3) and the whistle prescribed by regulation 24(1)(f).
 - (e) If the immersion suit is to be worn in conjunction with a lifejacket, the lifejacket shall be worn over the immersion suit. A person wearing such an immersion suit shall be able to don a lifejacket without assistance.
- (2) Thermal performance requirements for immersion suits
- (a) An immersion suit made of material which has no inherent insulation shall be:
 - (i) marked with instructions that it must be worn in conjunction with warm clothing;
 - (ii) so constructed that, when worn in conjunction with warm clothing and with a lifejacket if the immersion suit is to be worn with a lifejacket, the immersion suit continues to provide sufficient thermal protection following one jump by the wearer into the water from a height of 4.5 m to ensure that, when it is worn for a period of 1 h in calm circulating water at a temperature of 5°C, the wearer's body core temperature does not fall more than 2°C.
 - (b) An immersion suit made of material with inherent insulation when worn either on its own or with a lifejacket, if the immersion suit is to be worn in conjunction with a lifejacket, shall provide the wearer with sufficient thermal insulation following one jump into the water from a height of 4.5 m to ensure that the wearer's body core temperature does not fall more than 2°C after a period of 6 h immersion in calm circulating water at a temperature of between 0°C and 2°C.
 - (c) The immersion suit shall permit the person wearing it with hands covered to pick up a pencil and write after being immersed in water at 5°C for a period of 1 h.
- (3) Buoyancy requirements

A person in fresh water wearing either an immersion suit complying with the requirements of regulation 24 or an immersion suit with a lifejacket shall be able to turn from a face-down to a face-up position in not more than 5 s.

Regulation 26
Thermal protective aids

- (1) A thermal protective aid shall be made of waterproof material having a thermal conductivity of not more than 0.25 W/m.K and shall be so constructed that, when used to enclose a person, it shall reduce both the convective and evaporative heat loss from the wearer's body.
- (2) The thermal protective aid shall:
- (i) cover the whole body of a person wearing a lifejacket with the exception of the face. Hands shall also be covered, unless permanently attached gloves are provided;
 - (ii) be capable of being unpacked and easily donned without assistance in a survival craft or rescue boat;
 - (iii) permit the wearer to remove it in the water in not more than 2 min, if it impairs ability to swim.
- (3) The thermal protective aid shall function properly throughout an air temperature range -30°C to +20°C.

Regulation 27
Lifebuoys

- (1) Lifebuoy specification

Every lifebuoy shall:

- (i) have an outer diameter of not more than 800 mm and an inner diameter of not less than 400 mm;
- (ii) be constructed of inherently buoyant material; it shall not depend upon rushes, cork shavings or granulated cork, any other loose granulated material or any air compartment which depends on inflation for buoyancy;
- (iii) be capable of supporting not less than 14.5 kg of iron in fresh water for a period of 24 h;
- (iv) have a mass of not less than 2.5 kg;
- (v) not sustain burning or continue melting after being totally enveloped in a fire for a period of 2 s;
- (vi) be constructed to withstand a drop into the water from the height at which it is stowed above the waterline in the lightest seagoing condition or 30 m, whichever is the greater, without impairing either its operating capability or that of its attached components;
- (vii) if it is intended to operate the quick-release arrangement provided for the self-activated smoke signals and self-igniting lights, have a

mass sufficient to operate the quick-release arrangement or 4 kg, whichever is the greater;

- (viii) be fitted with a grabline not less than 9.5 mm in diameter and not less than four times the outside diameter of the body of the buoy in length. The grabline shall be secured at four equidistant points around the circumference of the buoy to form four equal loops.

(2) Lifebuoy self-igniting lights

Self-igniting lights required by regulation 10(2) shall:

- (i) be such that they cannot be extinguished by water;
- (ii) be capable of either burning continuously with a luminous intensity of not less than 2 cd in all directions of the upper hemisphere or flashing (discharge flashing) at a rate of not less than 50 flashes per minute with at least the corresponding effective luminous intensity;
- (iii) be provided with a source of energy capable of meeting the requirement of subparagraph (ii) for a period of at least 2 h;
- (iv) be capable of withstanding the drop test required by paragraph (1)(vi).

(3) Lifebuoy self-activating smoke signals

Self-activating smoke signals required by regulation 10(3) shall:

- (i) emit smoke of a highly visible colour at a uniform rate for a period of at least 15 min when floating in calm water;
- (ii) not ignite explosively or emit any flame during the entire smoke emission time of the signal;
- (iii) not be swamped in a seaway;
- (iv) continue to emit smoke when fully submerged in water for a period of at least 10 s;
- (v) be capable of withstanding the drop test required by paragraph (1)(vi).

(4) Buoyant lifelines

Buoyant lifelines required by regulation 10(4) shall;

- (i) be non-kinking;
- (ii) have a diameter of not less than 8 mm;
- (iii) have a breaking strength of not less than 5 kN.

Regulation 28
Line-throwing appliances

- (1) Every line-throwing appliance shall:
- (i) be capable of throwing a line with reasonable accuracy;
 - (ii) include not less than four projectiles each capable of carrying the line at least 230 m in calm weather;
 - (iii) include not less than four lines each having a breaking strength of not less than 2kN;
 - (iv) have brief instructions or diagrams clearly illustrating the use of the line-throwing appliance.
- (2) The rocket, in the case of a pistol-fired rocket, or the assembly, in the case of an integral rocket and line, shall be contained in a water-resistant casing. In addition, in the case of a pistol-fired rocket, the line and rockets together with the means of ignition shall be stowed in a container which provides protection from the weather.

Regulation 29
Rocket parachute flares

- (1) The rocket parachute flare shall:
- (i) be contained in a water-resistant casing;
 - (ii) have brief instructions or diagrams clearly illustrating the use of the rocket parachute flare printed on its casing;
 - (iii) have integral means of ignition;
 - (iv) be so designed as not to cause discomfort to the person holding the casing when used in accordance with the manufacturer's operating instructions.
- (2) The rocket shall, when fired vertically, reach an altitude of not less than 300 m. At or near the top of its trajectory, the rocket shall eject a parachute flare which shall:
- (i) burn with a bright red colour;
 - (ii) burn uniformly with an average luminous intensity of not less than 30,000 cd;
 - (iii) have a burning period of not less than 40 s;
 - (iv) have a rate of descent of not more than 5 m/s;
 - (v) not damage its parachute or attachments while burning.

Regulation 30
Hand flares

- (1) The hand flare shall:
 - (i) be contained in a water-resistant casing;
 - (ii) have brief instructions or diagrams clearly illustrating the use of the hand flare printed on its casing;
 - (iii) have a self-contained means of ignition;
 - (iv) be so designed as not to cause discomfort to the person holding the casing and not endanger the survival craft by burning or glowing residues when used in accordance with the manufacturer's operating instructions.
- (2) The hand flare shall:
 - (i) burn with a bright red colour;
 - (ii) burn uniformly with an average luminous intensity of not less than 15,000 cd;
 - (iii) have a burning period of not less than 1 min;
 - (iv) continue to burn after having been immersed for a period of 10 s under 100 mm of water.

Regulation 31
Buoyant smoke signals

- (1) The buoyant smoke signal shall:
 - (i) be contained in a water-resistant casing;
 - (ii) not ignite explosively when used in accordance with the manufacturer's operating instructions;
 - (iii) have brief instructions or diagrams clearly illustrating the use of the buoyant smoke signal printed on its casing.
- (2) The buoyant smoke signal shall:
 - (i) emit smoke of a highly visible colour at a uniform rate for a period of not less than 3 min when floating in calm water;
 - (ii) not emit any flame during the entire smoke emission time;
 - (iii) not be swamped in a seaway;
 - (iv) continue to emit smoke when submerged in water for a period of 10 s under 100 mm of water.

Regulation 32
Launching and embarkation appliances

(1) General requirements

- (a) Each launching appliance together with all its lowering and recovery gear shall be so arranged that the fully equipped survival craft or rescue boat it serves can be safely lowered against a trim of up to 10° and a list of up to 20° either way:
 - (i) when boarded by its full complement of persons;
 - (ii) without persons in the survival craft or rescue boat.
- (b) A launching appliance shall not depend on any means other than gravity or stored mechanical power which is independent of the vessel's power supplies to launch the survival craft or rescue boat it serves in the fully loaded and equipped condition and also in the light condition.
- (c) A launching mechanism shall be so arranged that it may be actuated by one person from a position on the vessel's deck, and from a position within the survival craft or rescue boat; the survival craft shall be visible to the person on deck operating the launching mechanism.
- (d) Each launching appliance shall be so constructed that a minimum amount of routine maintenance is necessary. All parts requiring regular maintenance by the vessel's crew shall be readily accessible and easily maintained.
- (e) The winch brakes of a launching appliance shall be of sufficient strength to withstand:
 - (i) a static test with a proof load of not less than 1.5 times the maximum working load; and
 - (ii) a dynamic test with a proof load of not less than 1.1 times the maximum working load at maximum lowering speed.
- (f) The launching appliance and its attachments other than winch brakes shall be of sufficient strength to withstand a static proof load on test of not less than 2.2 times the maximum working load.
- (g) Structural members and all blocks, falls, padeyes, links, fastenings and all other fittings used in connection with launching equipment shall be designed with not less than a minimum factor of safety on the basis of the maximum working load assigned and the ultimate strength of the material used for construction. A minimum factor of safety of 4.5 shall be applied to all davit and winch structural members, and a minimum factor of safety of 6 shall be applied to falls, suspension chains, links and blocks.
- (h) Each launching appliance shall, as far as practicable, remain effective under conditions of icing.

- (i) A lifeboat launching appliance shall be capable of recovering the lifeboat with its crew.
 - (j) The arrangements of the launching appliance shall be such as to enable safe boarding of the survival craft in accordance with the requirements of regulations 20(4)(b) and 17(3)(a).
- (2) Launching appliances using falls and a winch
- (a) Falls shall be of rotation-resistant and corrosion-resistant steel wire rope.
 - (b) In the case of a multiple drum winch, unless an efficient compensatory device is fitted, the falls shall be so arranged as to wind off the drums at the same rate when lowering, and to wind on to the drums evenly at the same rate when hoisting.
 - (c) Every rescue boat launching appliance shall be fitted with a powered winch motor of such capacity that the rescue boat can be raised from the water with its full complement of persons and equipment.
 - (d) An efficient hand gear shall be provided for recovery of each survival craft and rescue boat. Hand gear handles or wheels shall not be rotated by moving parts of the winch when the survival craft or rescue boat is being lowered or when it is being hoisted by power.
 - (e) Where davit arms are recovered by power, safety devices shall be fitted which will automatically cut off the power before the davit arms reach the stops in order to avoid overstressing the falls or davits, unless the motor is designed to prevent such overstressing.
 - (f) The speed at which the survival craft or rescue boat is lowered into the water shall be not less than that obtained from the formula:
$$S = 0.4 + 0.02H$$

where:

S =	speed of lowering, in metres per second; and
H =	height, in metres, from davit head to the waterline in the lightest seagoing condition.
 - (g) The maximum lowering speed shall be established by the Administration having regard to the design of the survival craft or rescue boat, the protection of its occupants from excessive forces, and the strength of the launching arrangements taking into account inertia forces during an emergency stop. Means shall be incorporated in the appliance to ensure that this speed is not exceeded.
 - (h) Every rescue boat launching appliance shall be capable of hoisting the rescue boat when loaded with its full rescue boat complement of persons and equipment at a rate of not less than 0.3 m/s.
 - (i) Every launching appliance shall be fitted with brakes capable of stopping the descent of the survival craft or rescue boat and holding it securely when

loaded with its full complement of persons and equipment; brake pads shall, where necessary, be protected from water and oil.

- (j) Manual brakes shall be so arranged that the brake is always applied, unless the operator, or a mechanism activated by the operator, holds the brake control in the "off" position.

(3) Float-free launching

Where a survival craft requires a launching appliance and is also designed to float free, the float-free release of the survival craft from its stowed position shall be automatic.

(4) Free-fall launching

Every free-fall launching appliance using an inclined plane shall, in addition to complying with the applicable requirements of paragraph (1), also comply with the following requirements:

- (i) the launching appliance shall be so arranged that excessive forces are not experienced by the occupants of the survival craft during launching;
- (ii) the launching appliance shall be a rigid structure with a ramp angle and length sufficient to ensure that the survival craft effectively clears the vessel;
- (iii) the launching appliance shall be efficiently protected against corrosion and be so constructed as to prevent incendive friction or impact sparking during the launching of the survival craft.

(5) Evacuation-slide launching and embarkation

Every evacuation-slide launching appliance shall, in addition to complying with the applicable requirements of paragraph (1), also comply with the following requirements:

- (i) the evacuation slide shall be capable of being deployed by one person at the embarkation station;
- (ii) the evacuation slide shall be capable of being used in high winds and in a seaway.

(6) Liferaft launching appliances

Every liferaft launching appliance shall comply with the requirements of paragraphs (1) and (2), except with regard to use of gravity for turning out the appliance, embarkation in the stowed position and recovery of the loaded liferaft. The launching appliance shall be so arranged as to prevent premature release during lowering and shall release the liferaft when waterborne.

(7) Embarkation ladders

- (a) Handholds shall be provided to ensure a safe passage from the deck to the head of the ladder and vice versa.

- (b) The steps of the ladder shall be:
 - (i) made of hardwood, free from knots or other irregularities, smoothly machined and free from sharp edges and splinters, or of suitable material of equivalent properties;
 - (ii) provided with an efficient non-slip surface either by longitudinal grooving or by the application of an approved non-slip coating;
 - (iii) not less than 480 mm long, 115 mm wide and 25 mm in depth, excluding any non-slip surface or coating;
 - (iv) equally spaced not less than 300 mm or more than 380 mm apart and secured in such a manner that they will remain horizontal.
- (c) The side ropes of the ladder shall consist of two uncovered manila ropes not less than 65 mm in circumference on each side. Each rope shall be continuous with no joints below the top step. Other materials may be used, provided the dimensions, breaking strain, weathering, stretching and gripping properties are at least equivalent to those of manila rope. All rope ends shall be secured to prevent unravelling.

CHAPTER VIII

EMERGENCY PROCEDURES, MUSTERS AND DRILLS

Regulation 1 **Application**

Regulations of this chapter shall apply to new and existing vessels of 24 m in length and over.

Regulation 2 **General emergency alarm system, muster list and emergency instructions**

- (1) The general emergency alarm system shall be capable of sounding the general alarm signal consisting of seven or more short blasts followed by one long blast on the vessel's whistle or siren and, additionally, on an electrically operated bell or klaxon or other equivalent warning system which shall be powered from the vessel's main supply and the emergency source of electrical power required by regulation IV/17.
- (2) All vessels shall be provided with clear instructions for each crew member, which shall be followed in case of emergency.
- (3) The muster list shall be posted up in several parts of the vessel and, in particular, in the wheelhouse, the engine-room and in the crew accommodation and shall include the information specified in the following paragraphs.
- (4) The muster list shall specify details of the general alarm signal prescribed by paragraph (1) and also the action to be taken by the crew when this alarm is sounded. The muster list shall also specify how the order to abandon ship will be given.

(5) The muster list shall show the duties assigned to the different members of the crew including:

- (a) closing of watertight doors, fire doors, valves, scuppers, overboard shoots, sidescuttles, skylights, portholes and other similar openings in the vessel;
- (b) equipping the survival craft and other life-saving appliances;
- (c) preparation and launching of survival craft;
- (d) general preparation of other life-saving appliances;
- (e) use of communication equipment; and
- (f) manning of fire parties assigned to deal with fires.

(6) In vessels of less than 45 m in length, the Administration may permit relaxation of the requirements of paragraph (5) if satisfied that, due to the small number of crew members, no muster list is necessary.

(7) The muster list shall specify which officers are assigned to ensure that the life-saving and fire appliances are maintained in good condition and are ready for immediate use.

(8) The muster list shall specify substitutes for key persons who may become disabled, taking into account that different emergencies may call for different actions.

(9) The muster list shall be prepared before the vessel proceeds to sea. After the muster list has been prepared, if any change takes place in the crew which necessitates an alteration in the muster list, the skipper shall either revise the list or prepare a new list.

Regulation 3 **Abandon ship training and drills**

(1) Practice musters and drills

- (a) Each member of the crew shall participate in at least one abandon ship drill and one fire drill every month. However, on vessels less than 45 m in length, the Administration may modify this requirement, provided that at least one abandon ship and one fire drill is held at least every three months. The drills of the crew shall take place within 24 h of the vessel leaving a port, if more than 25 per cent of the crew have not participated in abandon ship and fire drills on board that particular vessel in the previous muster. The Administration may accept other arrangements that are at least equivalent for those classes of vessel for which this is impracticable.
- (b) Each abandon ship drill shall include:
 - (i) summoning of crew to muster stations with the general emergency alarm and ensuring that they are made aware of the order to abandon ship specified in the muster list;
 - (ii) reporting to stations and preparing for the duties described in the muster list;

- (iii) checking that crew are suitably dressed;
 - (iv) checking that lifejackets are correctly donned;
 - (v) lowering of at least one lifeboat after any necessary preparation for launching;
 - (vi) starting and operating the lifeboat engine;
 - (vii) operation of davits used for launching liferafts.
- (c) Each fire drill shall include:
 - (i) reporting to stations and preparing for the duties described in the fire muster list;
 - (ii) starting of a fire pump, using at least the two required jets of water to show that the system is in proper working order;
 - (iii) checking of fireman's outfit and other personal rescue equipment;
 - (iv) checking of relevant communication equipment;
 - (v) checking the operation of watertight doors, fire doors, fire dampers and means of escape;
 - (vi) checking the necessary arrangements for subsequent abandoning of the vessel.
- (d) Different lifeboats shall, as far as practicable, be lowered in compliance with the requirements of subparagraph (b)(v) at successive drills.
- (e) Drills shall, as far as practicable, be conducted as if there were an actual emergency.
- (f) Each lifeboat shall be launched with its assigned operating crew aboard and manoeuvred in the water at least once every three months during an abandon ship drill.
- (g) As far as is reasonable and practicable, rescue boats other than lifeboats which are also rescue boats shall be launched each month with their assigned crew aboard and manoeuvred in the water. In all cases, this requirement shall be complied with at least once every three months.
- (h) If lifeboat and rescue boat launching drills are carried out with the vessel making headway, such drills shall, because of the dangers involved, be practised in sheltered waters only and under the supervision of an officer experienced in such drills.⁴³

⁴³ See the *Guidelines on training crews for the purpose of launching lifeboats and rescue boats from ships making headway through the water*, adopted by the Organization by resolution A.624(15).

- (i) Emergency lighting for mustering and abandonment shall be tested at each abandon ship drill.
 - (j) The drills may be adjusted according to the relevant equipment required by those regulations. However, if equipment is carried on a voluntary basis, it shall be used in the drills and the drills shall be adjusted accordingly.
- (2) On-board training and instructions
 - (a) Onboard training in the use of the vessel's life-saving appliances, including survival craft equipment, shall be given as soon as possible but not later than two weeks after a crew member joins the vessel. However, if the crew member is on a regularly scheduled rotating assignment to the vessel, such training shall be given not later than two weeks after the time of first joining the vessel.
 - (b) Instructions in the use of the vessel's life-saving appliances and in survival at sea shall be given at the same intervals as the drills. Individual instruction may cover different parts of the vessel's life-saving system, but all the vessel's life-saving equipment and appliances shall be covered within any period of two months. Each member of the crew shall be given instructions which shall include but not necessarily be limited to:
 - (i) operation and use of the vessel's inflatable liferafts, including precautions concerning nailed shoes and other sharp objects;
 - (ii) problems of hypothermia, first-aid treatment for hypothermia and other appropriate first-aid procedures;
 - (iii) special instructions necessary for use of the vessel's life-saving appliances in severe weather and severe sea conditions.
 - (c) Onboard training in the use of davit-launched liferafts shall take place at intervals of not more than four months on every vessel fitted with such appliances. Whenever practicable, this shall include the inflation and lowering of a liferaft. This liferaft may be a special liferaft intended for training purposes only, which is not part of the vessel's life-saving equipment; such a special liferaft shall be conspicuously marked.
- (3) Records

The date when musters are held, details of abandon ship drills and fire drills, drills of other life-saving appliances and onboard training shall be recorded in such log-book as may be prescribed by the Administration. If a full muster, drill or training session is not held at the appointed time, an entry shall be made in the log-book stating the circumstances and the extent of the muster, drill or training session held.
- (4) Training manual
 - (a) A training manual shall be provided in each crew mess room and recreation room or in each crew cabin. The training manual, which may comprise several volumes, shall contain instructions and information, in easily understood terms illustrated wherever possible, on the life-saving appliances provided in the vessel and on the best methods of survival.

Any part of such information may be provided in the form of audio-visual aids in lieu of the manual. The following shall be explained in detail:

- (i) donning of lifejackets and immersion suits, as appropriate;
 - (ii) muster at the assigned stations;
 - (iii) boarding, launching and clearing the survival craft and rescue boats;
 - (iv) method of launching from within the survival craft;
 - (v) release from launching appliances;
 - (vi) methods and use of devices for protection in launching areas, where appropriate;
 - (vii) illumination in launching areas;
 - (viii) use of all survival equipment;
 - (ix) use of all detection equipment;
 - (x) with the assistance of illustrations, the use of radio life-saving appliances;
 - (xi) use of drogues;
 - (xii) use of engine and accessories;
 - (xiii) recovery of survival craft and rescue boats, including stowage and securing;
 - (xiv) hazards of exposure and the need for warm clothing;
 - (xv) best use of the survival craft facilities in order to survive;⁴⁴
 - (xvi) methods of retrieval, including the use of helicopter rescue gear (slings, baskets, stretchers), breeches-buoy and shore life-saving apparatus and vessel's line-throwing apparatus;
 - (xvii) all other functions contained in the muster list and emergency instructions;
 - (xviii) instructions for emergency repair of the life-saving appliances.
- (b) On vessels of less than 45 m in length, the Administration may permit relaxation of the requirements of subparagraph (a). However, appropriate safety information shall be carried on board.

⁴⁴ See the *Instructions for action in survival craft*, adopted by the Organization by resolution A.657(16).

Regulation 4

Training in emergency procedures

The Administration shall take such measures as it may deem necessary to ensure that crews are adequately trained in their duties in the event of emergencies. Such training shall include, as appropriate:

- (a) types of emergencies which may occur, such as collisions, fire and foundering;
- (b) types of life-saving appliances normally carried on vessels;
- (c) need to adhere to the principles of survival;
- (d) value of training and drills;
- (e) need to be ready for any emergency and to be constantly aware of:
 - (i) the information in the muster list, in particular:
 - each crew member's specific duties in any emergency;
 - each crew member's own survival station; and
 - the signals calling the crew to their survival craft or fire stations;
 - (ii) location of each crew member's own lifejacket and spare lifejackets;
 - (iii) location of fire alarm controls;
 - (iv) means of escape;
 - (v) consequences of panic;
- (f) actions to be taken in respect to lifting persons from vessels and survival craft by helicopter;
- (g) actions to be taken when called to survival craft stations, including:
 - (i) putting on suitable clothing;
 - (ii) donning of lifejacket; and
 - (iii) collecting additional protection such as blankets, time permitting;
- (h) actions to be taken when required to abandon ship, such as:
 - (i) how to board survival craft from vessel and water; and
 - (ii) how to jump into the sea from a height and reduce the risk of injury when entering the water;

- (i) actions to be taken when in the water, such as:
 - (i) how to survive in circumstances of:
 - fire or oil on the water;
 - cold conditions; and
 - shark-infested waters;
 - (ii) how to right a capsized survival craft;
- (j) actions to be taken when aboard a survival craft, such as:
 - (i) getting the survival craft quickly clear of the vessel;
 - (ii) protection against cold or extreme heat;
 - (iii) using a drogue or sea-anchor;
 - (iv) keeping a look-out;
 - (v) recovering and caring for survivors;
 - (vi) facilitating detection by others;
 - (vii) checking equipment available for use in the survival craft and using it correctly; and
 - (viii) remaining, so far as possible, in the vicinity;
- (k) main dangers to survivors and the general principles of survival, including:
 - (i) precautions to be taken in cold climates;
 - (ii) precautions to be taken in tropical climates;
 - (iii) exposure to sun, wind, rain and sea;
 - (iv) importance of wearing suitable clothing;
 - (v) protective measures in survival craft;
 - (vi) effects of immersion in the water, and of hypothermia;
 - (vii) importance of preserving body fluids;
 - (viii) protection against seasickness;
 - (ix) proper use of fresh water and food;
 - (x) effects of drinking seawater;
 - (xi) means available for facilitating detection by others; and
 - (xii) importance of maintaining morale;

- (l) actions to be taken in respect to fire fighting:
 - (i) the use of fire hoses with different nozzles;
 - (ii) the use of fire extinguishers;
 - (iii) knowledge of the location of fire doors; and
 - (iv) the use of breathing apparatus.

CHAPTER IX

RADIOCOMMUNICATIONS

PART A

APPLICATION AND DEFINITIONS

Regulation 1

Application

(1) Unless expressly provided otherwise, this chapter shall apply to new and existing vessels of 45 m in length and over. However, for existing vessels, the Administration may defer the implementation of the requirements until 1 February 1999, or the date of entry into force of the Protocol, whichever occurs later.

(2) No provision in this chapter shall prevent the use by any vessel, survival craft or person in distress of any means at their disposal to attract attention, make known their position and obtain help. Notwithstanding the provisions of paragraph (1), the Administration may permit the existing radiocommunication system to continue to be used on board existing fishing vessels, providing the Administration is satisfied that it is equivalent to the requirements of this chapter.

Regulation 2

Terms and definitions

(1) For the purpose of this chapter, the following terms shall have the meanings defined below:

- (a) *Bridge-to-bridge communications* means safety communications between vessels from the position from which the vessels are normally navigated.
- (b) *Continuous watch* means that the radio watch concerned shall not be interrupted other than for brief intervals when the vessel's receiving capability is impaired or blocked by its own communications or when the facilities are under periodical maintenance or checks.
- (c) *Digital selective calling (DSC)* means a technique using digital codes which enables a radio station to establish contact with, and transfer information to, another station or group of stations, and complying with the relevant recommendations of the International Radio Consultative Committee (CCIR).

- (d) *Direct-printing telegraphy* means automated telegraphy techniques which comply with the relevant recommendations of the CCIR.
- (e) *General radiocommunications* means operational and public correspondence traffic, other than distress, urgency and safety messages, conducted by radio.
- (f) *Inmarsat* means the Organization established by the Convention on the International Maritime Satellite Organization adopted on 3 September 1976.
- (g) *International NAVTEX service* means the co-ordinated broadcast and automatic reception on 518 kHz of maritime safety information by means of narrow-band direct-printing telegraphy using the English language.⁴⁵
- (h) *Locating* means the finding of ships, vessels, aircraft, units or persons in distress.
- (i) *Maritime safety information* means navigational and meteorological warnings, meteorological forecasts and other urgent safety-related messages broadcast to vessels.
- (j) *Polar orbiting satellite service* means a service which is based on polar orbiting satellites which receive and relay distress alerts from satellite emergency position-indicating radio beacons (satellite EPIRBs) and which provides their position.
- (k) *Radio Regulations* means the Radio Regulations annexed to, or regarded as being annexed to, the most recent International Telecommunication Convention which is in force at any time.
- (l) *Sea area A1* means an area within the radiotelephone coverage of at least one VHF coast station in which continuous DSC alerting is available, as may be defined by a Party.⁴⁶
- (m) *Sea area A2* means an area, excluding sea area A1, within the radiotelephone coverage of at least one MF coast station in which continuous DSC alerting is available, as may be defined by a Party.⁴⁶
- (n) *Sea area A3* means an area, excluding sea areas A1 and A2, within the coverage of an Inmarsat geostationary satellite in which continuous alerting is available.
- (o) *Sea area A4* means an area outside sea areas A1, A2 and A3.

(2) All other terms and abbreviations which are used in this chapter and which are defined in the Radio Regulations shall have the meanings as defined in those Regulations.

⁴⁵ See the NAVTEX Manual, approved by the Organization (publication IMO-951E).

⁴⁶ See the *Provision of radio services for the Global Maritime Distress and Safety System (GMDSS)*, adopted by the Organization by resolution A.801(19), as amended by resolution MSC.199(80).

Regulation 3 Exemptions

(1) The Parties to the Protocol consider it highly desirable not to deviate from the requirements of this chapter; nevertheless, the Administration may grant partial or conditional exemptions to individual vessels from the requirements of regulations 6 to 10 and 14(7), provided:

- (a) such vessels comply with the functional requirements of regulation 4; and
- (b) the Administration has taken into account the effect such exemptions may have upon the general efficiency of the service for the safety of all ships and vessels.

(2) An exemption may be granted under paragraph (1) only:

- (a) if the conditions affecting safety are such as to render the full application of regulations 6 to 10 and 14(7) unreasonable or unnecessary; or
- (b) in exceptional circumstances, for a single voyage outside the sea area or sea areas for which the vessel is equipped; or
- (c) when the vessel will be taken permanently out of service within two years of the date of entry into force of the Protocol, or 1 February 1999, whichever occurs later,

for the application of a requirement of this chapter.

(3) Each Administration shall submit to the Organization, as soon as possible after the first of January in each year, a report showing all exemptions granted under paragraphs (1) and (2) during the previous calendar year and giving the reasons for granting such exemptions.

Regulation 4 Functional requirements

Every vessel, while at sea, shall be capable:

- (a) except as provided in regulations 7(1)(a) and 9(1)(d)(iii), of transmitting ship-to-shore distress alerts by at least two separate and independent means, each using a different radiocommunication service;
- (b) of receiving shore-to-ship distress alerts;
- (c) of transmitting and receiving ship-to-ship distress alerts;
- (d) of transmitting and receiving search and rescue co-ordinating communications;
- (e) of transmitting and receiving on-scene communications;

- (f) of transmitting and, as required by regulation X/3(6), receiving signals for locating;⁴⁷
- (g) of transmitting and receiving⁴⁸ maritime safety information;
- (h) of transmitting and receiving general radiocommunications to and from shore-based radio systems or networks subject to regulation 14(8); and
- (i) of transmitting and receiving bridge-to-bridge communications.

PART B SHIP REQUIREMENTS

Regulation 5 Radio installations

(1) Every vessel shall be provided with radio installations capable of complying with the functional requirements prescribed by regulation 4 throughout its intended voyage and, unless exempted under regulation 3, complying with the requirements of regulation 6 and, as appropriate for the sea area or areas through which it will pass during its intended voyage, the requirements of either regulation 7, 8, 9 or 10.

(2) Every radio installation shall:

- (a) be so located that no harmful interference of mechanical, electrical or other origin affects its proper use, and so as to ensure electromagnetic compatibility and avoidance of harmful interaction with other equipment and systems;
- (b) be so located as to ensure the greatest possible degree of safety and operational availability;
- (c) be protected against harmful effects of water, extremes of temperature and other adverse environmental conditions;
- (d) be provided with reliable, permanently arranged electrical lighting, independent of the main and emergency sources of electrical power, for the adequate illumination of the radio controls for operating the radio installation; and
- (e) be clearly marked with the call sign, the ship station identity and other codes as applicable for the use of the radio installation.

(3) Control of the VHF radiotelephone channels, required for navigational safety, shall be immediately available on the navigation bridge convenient to the conning position and, where necessary, facilities should be available to permit radiocommunications from the wings of the navigation bridge. Portable VHF equipment may be used to meet the latter provision.

⁴⁷ See *Carriage of radar operating in the frequency band 9,300–9,500 MHz*, adopted by the Organization by resolution A.614(15).

⁴⁸ It should be noted that vessels may have a need for reception of certain maritime safety information while in port.

Regulation 6
Radio equipment: General

- (1) Except as provided in regulation 9(4), every vessel shall be provided with:
- (a) a VHF radio installation capable of transmitting and receiving:
 - (i) DSC on the frequency 156.525 MHz (channel 70). It shall be possible to initiate the transmission of distress alerts on channel 70 from the position from which the vessel is normally navigated; and
 - (ii) radiotelephony on the frequencies 156.300 MHz (channel 6), 156.650 MHz (channel 13) and 156.800 MHz (channel 16);
 - (b) a radio installation capable of maintaining a continuous DSC watch on VHF channel 70 which may be separate from, or combined with, that required by subparagraph (a)(i);
 - (c) a radar transponder capable of operating in the 9 GHz band, which:
 - (i) shall be so stowed that it can be easily utilized; and
 - (ii) may be one of those required by regulation VII/14 for a survival craft;
 - (d) a receiver capable of receiving international NAVTEX service broadcasts if the vessel is engaged on voyages in any area in which an international NAVTEX service is provided;
 - (e) a radio facility for reception of maritime safety information by the Inmarsat enhanced group calling system, if the vessel is engaged on voyages in any area of Inmarsat coverage but in which an international NAVTEX service is not provided. However, vessels engaged exclusively on voyages in areas where an HF direct-printing telegraphy maritime safety information service is provided and fitted with equipment capable of receiving such service, may be exempted from this requirement;⁴⁹
 - (f) subject to the provisions of regulation 7(3), a satellite EPIRB⁵⁰ which shall be:
 - (i) capable of transmitting a distress alert either through the polar orbiting satellite service operating in the 406 MHz band or, if the vessel is engaged only on voyages within Inmarsat coverage, through the Inmarsat geostationary satellite service operating in the 1.6 GHz band;⁵¹
 - (ii) installed in an easily accessible position;
 - (iii) ready to be manually released and capable of being carried by one person into a survival craft;

⁴⁹ See *Promulgation of maritime safety information*, adopted by the Organization by resolution A.705(17), as amended by MSC.1/Circ.1287.

⁵⁰ See *Search and rescue homing capability*, adopted by the Organization by resolution A.616(15).

⁵¹ Subject to the availability of appropriate receiving and processing ground facilities for each ocean region covered by Inmarsat satellites.

- (iv) capable of floating free, if the vessel sinks, and of being automatically activated, when afloat; and
- (v) capable of being activated manually.

(2) Until 1 February 1999 or until such other date as may be determined by the Maritime Safety Committee of the Organization, every vessel shall, in addition, be fitted with a radio receiver capable of maintaining a radiotelephone distress frequency watch on 2,182 kHz.

(3) Until 1 February 1999 if the Protocol enters into force earlier than that date, every vessel shall, unless the vessel is engaged on voyages in sea area A1 only, be fitted with a device for generating the radiotelephone alarm signal on the frequency 2,182 kHz.

(4) The Administration may exempt vessels constructed on or after 1 February 1997 from the requirements prescribed by paragraphs (2) and (3).

Regulation 7 **Radio equipment: Sea area A1**

(1) In addition to meeting the requirements of regulation 6, every vessel engaged on voyages exclusively in sea area A1 shall be provided with a radio installation capable of initiating the transmission of ship-to-shore distress alerts from the position from which the vessel is normally navigated, operating either:

- (a) on VHF using DSC. This requirement may be fulfilled by the EPIRB prescribed by paragraph (3), either by installing the EPIRB close to, or by remote activation from, the position from which the vessel is normally navigated; or
- (b) through the polar orbiting satellite service on 406 MHz. This requirement may be fulfilled by the satellite EPIRB, required by regulation 6(1)(f), either by installing the satellite EPIRB close to, or by remote activation from, the position from which the vessel is normally navigated; or
- (c) if the vessel is engaged on voyages within coverage of MF coast stations equipped with DSC, on MF using DSC; or
- (d) on HF using DSC; or
- (e) through the Inmarsat geostationary satellite service. This requirement may be fulfilled by:
 - (i) an Inmarsat ship earth station;⁵² or
 - (ii) the satellite EPIRB, required by regulation 6(1)(f), either by installing the satellite EPIRB close to, or by remote activation from, the position from which the vessel is normally navigated.

(2) The VHF radio installation, required by regulation 6(1)(a), shall also be capable of transmitting and receiving general radiocommunications using radiotelephony.

⁵² This requirement can be met by Inmarsat ship-earth stations capable of two-way communications, such as Fleet-77 (resolutions A.808(19) and MSC.130(75)) or Inmarsat-C (resolution A.807(19), as amended) ship-earth stations. Unless otherwise specified, this footnote applies to all requirements for an Inmarsat ship-earth station prescribed by this chapter.

(3) Vessels engaged on voyages exclusively in sea area A1 may carry, in lieu of the satellite EPIRB required by regulation 6(1)(f), an EPIRB which shall be:

- (a) capable of transmitting a distress alert using DSC on VHF channel 70 and providing for locating by means of a radar transponder operating in the 9 GHz band;
- (b) installed in an easily accessible position;
- (c) ready to be manually released and capable of being carried by one person into a survival craft;
- (d) capable of floating free, if the vessel sinks, and being automatically activated, when afloat; and
- (e) capable of being activated manually.

Regulation 8
Radio equipment: Sea areas A1 and A2

(1) In addition to meeting the requirements of regulation 6, every vessel engaged on voyages beyond sea area A1, but remaining within sea area A2, shall be provided with:

- (a) an MF radio installation capable of transmitting and receiving, for distress and safety purposes, on the frequencies:
 - (i) 2,187.5 kHz using DSC; and
 - (ii) 2,182 kHz using radiotelephony;
- (b) a radio installation capable of maintaining a continuous DSC watch on the frequency 2,187.5 kHz which may be separate from, or combined with, that required by subparagraph (a)(i); and
- (c) means of initiating the transmission of ship-to-shore distress alerts by a radio service other than MF operating either:
 - (i) through the polar orbiting satellite service on 406 MHz. This requirement may be fulfilled by the satellite EPIRB, required by regulation 6(1)(f), either by installing the satellite EPIRB close to, or by remote activation from, the position from which the vessel is normally navigated; or
 - (ii) on HF using DSC; or
 - (iii) through the Inmarsat geostationary satellite service. This requirement may be fulfilled by an Inmarsat ship earth station, or by the satellite EPIRB, required by regulation 6 (1)(f), either by installing the satellite EPIRB close to, or by remote activation from, the position from which the vessel is normally navigated.

(2) It shall be possible to initiate transmission of distress alerts by the radio installations specified in paragraphs (1)(a) and (1)(c) from the position from which the vessel is normally navigated.

(3) The vessel shall, in addition, be capable of transmitting and receiving general radiocommunications using radiotelephony or direct-printing telegraphy by either:

- (a) a radio installation operating on working frequencies in the bands between 1,605 and 4,000 kHz or between 4,000 and 27,500 kHz. This requirement may be fulfilled by the addition of this capability in the equipment required by paragraph (1)(a); or
- (b) an Inmarsat ship earth station.

(4) The Administration may exempt vessels constructed before 1 February 1997, which are engaged exclusively on voyages within sea area A2, from the requirements of regulations 6(1)(a)(i) and 6(1)(b), provided such vessels maintain, when practicable, a continuous listening watch on VHF channel 16. This watch shall be kept at the position from which the vessel is normally navigated.

Regulation 9 **Radio equipment: Sea areas A1, A2 and A3**

(1) In addition to meeting the requirements of regulation 6, every vessel engaged on voyages beyond sea areas A1 and A2, but remaining within sea area A3, shall, if it does not comply with the requirements of paragraph (2), be provided with:

- (a) an Inmarsat ship earth station capable of:
 - (i) transmitting and receiving distress and safety communications using direct-printing telegraphy;
 - (ii) initiating and receiving distress priority calls;
 - (iii) maintaining watch for shore-to-ship distress alerts, including those directed to specifically defined geographical areas;
 - (iv) transmitting and receiving general radiocommunications, using either radiotelephony or direct-printing telegraphy; and
- (b) an MF radio installation capable of transmitting and receiving, for distress and safety purposes, on the frequencies:
 - (i) 2,187.5 kHz using DSC; and
 - (ii) 2,182 kHz using radiotelephony; and
- (c) a radio installation capable of maintaining a continuous DSC watch on the frequency 2,187.5 kHz which may be separate from, or combined with, that required by subparagraph (b)(i); and
- (d) means of initiating the transmission of ship-to-shore distress alerts by a radio service operating either:
 - (i) through the polar orbiting satellite service on 406 MHz. This requirement may be fulfilled by the satellite EPIRB, required by regulation 6(1)(f), either by installing the satellite EPIRB close to, or by remote activation from, the position from which the vessel is normally navigated; or

- (ii) on HF using DSC; or
- (iii) through the Inmarsat geostationary satellite service, by an additional ship earth station or by the satellite EPIRB required by regulation 6(1)(f), either by installing the satellite EPIRB close to, or by remote activation from, the position from which the vessel is normally navigated.

(2) In addition to meeting the requirements of regulation 6, every vessel engaged on voyages beyond sea areas A1 and A2, but remaining within sea area A3, shall, if it does not comply with the requirements of paragraph (1), be provided with:

- (a) an MF/HF radio installation capable of transmitting and receiving, for distress and safety purposes, on all distress and safety frequencies in the bands between 1,605 and 4,000 kHz and between 4,000 and 27,500 kHz:
 - (i) using DSC;
 - (ii) using radiotelephony; and
 - (iii) using direct-printing telegraphy; and
- (b) equipment capable of maintaining DSC watch on 2,187.5 kHz, 8,414.5 kHz and on at least one of the distress and safety DSC frequencies 4,207.5 kHz, 6,312 kHz, 12,577 kHz or 16,804.5 kHz; at any time, it shall be possible to select any of these DSC distress and safety frequencies. This equipment may be separate from, or combined with, the equipment required by subparagraph (a); and
- (c) means of initiating the transmission of ship-to-shore distress alerts by a radiocommunication service other than HF operating either:
 - (i) through the polar orbiting satellite service on 406 MHz. This requirement may be fulfilled by the satellite EPIRB, required by regulation 6(1)(f), either by installing the satellite EPIRB close to, or by remote activation from, the position from which the vessel is normally navigated; or
 - (ii) through the Inmarsat geostationary satellite service. This requirement may be fulfilled by an Inmarsat ship earth station or the satellite EPIRB, required by regulation 6(1)(f), either by installing the satellite EPIRB close to, or by remote activation from, the position from which the vessel is normally navigated; and
- (d) in addition, vessels shall be capable of transmitting and receiving general radiocommunications using radiotelephony or direct-printing telegraphy by an MF/HF radio installation operating on working frequencies in the bands between 1,605 and 4,000 kHz and between 4,000 and 27,500 kHz. This requirement may be fulfilled by the addition of this capability in the equipment required by subparagraph (a).

(3) It shall be possible to initiate transmission of distress alerts by the radio installations specified in paragraphs (1)(a), (1)(b), (1)(d), (2)(a) and (2)(c) from the position from which the vessel is normally navigated.

(4) The Administration may exempt vessels constructed before 1 February 1997 and engaged exclusively on voyages within sea areas A2 and A3 from the requirements of regulations 6(1)(a)(i) and 6(1)(b), provided such vessels maintain, when practicable, a continuous listening watch on VHF channel 16. This watch shall be kept at the position from which the vessel is normally navigated.

Regulation 10
Radio equipment: Sea areas A1, A2, A3 and A4

(1) In addition to meeting the requirements of regulation 6, vessels engaged on voyages in all sea areas shall be provided with the radio installations and equipment required by regulation 9(2), except that the equipment required by regulation 9(2)(c)(ii), shall not be accepted as an alternative to that required by regulation 9(2)(c)(i) which shall always be provided. In addition, vessels engaged on voyages in all sea areas shall comply with the requirements of regulation 9(3).

(2) The Administration may exempt vessels constructed before 1 February 1997 and engaged exclusively on voyages within sea areas A2, A3 and A4 from the requirements of regulations 6(1)(a)(i) and 6(1)(b), provided such vessels maintain, when practicable, a continuous listening watch on VHF channel 16. This watch shall be kept at the position from which the vessel is normally navigated.

Regulation 11
Watches

(1) Every vessel, while at sea, shall maintain a continuous watch:

- (a) on VHF DSC channel 70, if the vessel, in accordance with the requirements of regulation 6(1)(b), is fitted with a VHF radio installation;
- (b) on the distress and safety DSC frequency 2,187.5 kHz, if the vessel, in accordance with the requirements of regulation 8(1)(b) or 9(1)(c), is fitted with an MF radio installation;
- (c) on the distress and safety DSC frequencies 2,187.5 kHz and 8,414.5 kHz and also on at least one of the distress and safety DSC frequencies 4,207.5 kHz, 6,312 kHz, 12,577 kHz or 16,804.5 kHz, appropriate to the time of day and the geographical position of the vessel, if the vessel, in accordance with the requirements of regulation 9(2)(b) or 10(1), is fitted with an MF/HF radio installation. This watch may be kept by means of a scanning receiver;
- (d) for satellite shore-to-ship distress alerts, if the vessel, in accordance with the requirements of regulation 9(1)(a), is fitted with an Inmarsat ship earth station.

(2) Every vessel, while at sea, shall maintain a radio watch for broadcasts of maritime safety information on the appropriate frequency or frequencies on which such information is broadcast for the area in which the vessel is navigating.

(3) Until 1 February 1999 or until such other date as may be determined by the Maritime Safety Committee of the Organization, every vessel, while at sea, shall maintain, when practicable, a continuous listening watch on VHF channel 16. This watch shall be kept at the position from which the vessel is normally navigated.

(4) Until 1 February 1999 or until such other date as may be determined by the Maritime Safety Committee of the Organization, every vessel, while at sea, shall maintain, when practicable, a continuous watch on the radiotelephone distress frequency 2,182 kHz. This watch shall be kept at the position from which the vessel is normally navigated.

Regulation 12

Sources of energy

(1) There shall be available at all times, while the vessel is at sea, a supply of electrical energy sufficient to operate the radio installations and to charge any batteries used as part of a reserve source or sources of energy for the radio installations.

(2) A reserve source or sources of energy shall be provided on every vessel, to supply radio installations, for the purpose of conducting distress and safety radiocommunications, in the event of failure of the vessel's main and emergency sources of electrical power. The reserve source or sources of energy shall be capable of simultaneously operating the VHF radio installation required by regulation 6(1)(a) and, as appropriate for the sea area or sea areas for which the vessel is equipped, either the MF radio installation required by regulation 8(1)(a), the MF/HF radio installation required by regulation 9(2)(a) or 10(1), or the Inmarsat ship earth station required by regulation 9(1)(a) and any of the additional loads mentioned in paragraphs (4), (5) and (8) for a period of at least:

- (a) on new vessels:
 - (i) 3 h, or
 - (ii) 1 h, if the emergency source of electrical power complies fully with all relevant requirements of regulation IV/17 including the requirements to supply the radio installations and is capable of serving for a period of at least 6 h;
- (b) on existing vessels:
 - (i) 6 h, if the emergency source of electrical power is not provided or does not comply fully with all relevant requirements of regulation IV/17, including the requirements to supply the radio installations;⁵³ or
 - (ii) 3 h, if the emergency source of electrical power complies fully with all relevant requirements of regulation IV/17, including the requirements to supply the radio installations; or
 - (iii) 1 h, if the emergency source of electrical power complies fully with all relevant requirements of regulation IV/17, including the requirements to supply the radio installations and is capable of serving for a period of at least 6 h.

The reserve source or sources of energy need not supply independent HF and MF radio installations at the same time.

⁵³ For guidance, the following formula is recommended for determining the electrical load to be supplied by the reserve source of energy for each radio installation required for distress conditions: 1/2 of the current consumption necessary for transmission + the current consumption necessary for reception + current consumption of any additional loads.

(3) The reserve source or sources of energy shall be independent of the propelling power of the vessel and the vessel's electrical system.

(4) Where, in addition to the VHF radio installation, two or more of the other radio installations, referred to in paragraph (2), can be connected to the reserve source or sources of energy, they shall be capable of simultaneously supplying, for the period specified, as appropriate, in paragraph (2)(a) or (2)(b), the VHF radio installation and:

- (a) all other radio installations which can be connected to the reserve source or sources of energy at the same time; or
- (b) whichever of the other radio installations will consume the most power, if only one of the other radio installations can be connected to the reserve source or sources of energy at the same time as the VHF radio installation.

(5) The reserve source or sources of energy may be used to supply the electrical lighting required by regulation 5(2)(d).

(6) Where a reserve source of energy consists of a rechargeable accumulator battery or batteries:

- (a) a means of automatically charging such batteries shall be provided which shall be capable of recharging them to minimum capacity requirements within 10 h; and
- (b) the capacity of the battery or batteries shall be checked, using an appropriate method,⁵⁴ at intervals not exceeding 12 months, when the vessel is not at sea.

(7) The siting and installation of accumulator batteries which provide a reserve source of energy shall be such as to ensure:

- (a) the highest degree of service;
- (b) a reasonable lifetime;
- (c) reasonable safety;
- (d) that battery temperatures remain within the manufacturer's specifications whether under charge or idle; and
- (e) that, when fully charged, the batteries will provide at least the minimum required hours of operation under all weather conditions.

(8) If an uninterrupted input of information from the vessel's navigational or other equipment to a radio installation required by this chapter is needed to ensure its proper performance, means shall be provided to ensure the continuous supply of such information in the event of failure of the vessel's main or emergency source of electrical power.

⁵⁴ One method of checking the capacity of an accumulator battery is to fully discharge and recharge the battery, using normal operating current and period (e.g. 10 h). Assessment of the charge condition can be made at any time, but it should be done without significant discharge of the battery when the ship is at sea.

Regulation 13 Performance standards

(1) All equipment to which this chapter applies shall be of a type approved by the Administration. Subject to paragraph (2), such equipment shall conform to appropriate performance standards not inferior to those adopted by the Organization.⁵⁵

(2) Equipment installed prior to the dates of application prescribed by regulation 1 may be exempted from full compliance with the appropriate performance standards at the discretion of the Administration, provided that the equipment is compatible with equipment

⁵⁵ See the following resolutions adopted by the Assembly and the Maritime Safety Committee of the Organization:

- .1 Resolution A.525(13): *Performance standards for narrow-band direct-printing telegraph equipment for the reception of navigational and meteorological warnings and urgent information to ships*, as amended by resolution MSC.148(77).
- .2 Resolution A.694(17): *General requirements for shipborne radio equipment forming part of the Global Maritime Distress and Safety System (GMDSS) and for electronic navigational aids*.
- .3 Resolution A.808(19): *Performance standards for ship-earth stations capable of two-way communications*, as amended by resolution MSC.148(77); resolution A.570(14): *Type approval of ship-earth stations*; and resolution MSC.130(75): *Performance standards for Inmarsat ship-earth stations capable of two-way communications*.
- .4 Resolution A.803(19): *Performance standards for shipborne VHF radio installations capable of voice communication and digital selective calling*, as amended; and resolution MSC.68(68), annex 1 (valid for equipment installed on or after 1 January 2000).
- .5 Resolution A.804(19): *Performance standards for shipborne MF radio installations capable of voice communication and digital selective calling*, as amended; and resolution MSC.68(68), annex 2 (valid for equipment installed on or after 1 January 2000).
- .6 Resolution A.806(19): *Performance standards for shipborne MF/HF radio installations capable of voice communication, narrow-band direct-printing and digital selective calling*, as amended; and resolution MSC.68(68), annex 3 (valid for equipment installed on or after 1 January 2000).
- .7 Resolution A.810(19): *Performance standards for float-free satellite emergency position-indicating radio beacons (EPIRBs) operating on 406 MHz*; and resolution MSC.120(74): *Adoption of amendments to performance standards for float-free satellite emergency position-indicating radio beacons (EPIRBs) operating on 406 MHz* (resolution A.810(19)) (see also resolution A.696(17): *Type approval of satellite emergency position-indicating radio beacons (EPIRBs) operating in the COSPAS-SARSAT system*).
- .8 Resolution A.802(19): *Performance standards for survival craft radar transponders for use in search and rescue operations*, as amended by resolution MSC.297(83).
- .9 Resolution A.805(19): *Performance standards for float-free VHF emergency position-indicating radio beacons*.
- .10 Resolution A.807(19): *Performance standards for Inmarsat standard-C ship-earth stations capable of transmitting and receiving direct-printing communications*, as amended; resolution MSC.68(68), annex 3 (valid for equipment installed on or after 1 January 2000); and resolution A.570(14): *Type approval of ship-earth stations*.
- .11 Resolution MSC.306(87): *Performance standards for enhanced group call equipment*.
- .12 Resolution A.662(16): *Performance standards for float-free release and activation arrangements for emergency radio equipment*.
- .13 Resolution A.669(17): *System performance standard for the promulgation and coordinating of maritime safety information using high-frequency narrow-band direct printing*.
- .14 Resolution MSC.148(77): *Adoption of the revised performance standards for narrow-band direct-printing telegraph equipment for the reception of navigational and meteorological warnings and urgent information to ships (NAVTEX)*.
- .15 Resolution A.811(19): *Performance standards for a shipborne integrated radiocommunication system (IRCS) when used in the GMDSS*.
- .16 Resolution MSC.80(70), annex 1: *Performance standards for on-scene (aeronautical) two-way portable VHF radiotelephone apparatus*.

complying with the performance standards, having due regard to the criteria which the Organization may adopt in connection with such standards.

Regulation 14 **Maintenance requirements**

- (1) Equipment shall be so designed that the main units can be replaced readily, without elaborate recalibration or readjustment.
- (2) Where applicable, equipment shall be so constructed and installed that it is readily accessible for inspection and on-board maintenance purposes.
- (3) Adequate information shall be provided to enable the equipment to be properly operated and maintained taking into account the recommendations of the Organization.⁵⁶
- (4) Adequate tools and spares shall be provided to enable the equipment to be maintained.
- (5) The Administration shall ensure that radio equipment required by this chapter is maintained to provide the availability of the functional requirements specified in regulation 4 and to meet the recommended performance standards of such equipment.
- (6) On vessels engaged on voyages in sea areas A1 and A2, the availability shall be ensured by using such methods as duplication of equipment, shore-based maintenance or at-sea electronic maintenance capability, or a combination of these, as may be approved by the Administration.
- (7) On vessels engaged on voyages in sea areas A3 and A4, the availability shall be ensured by using a combination of at least two methods such as duplication of equipment, shore-based maintenance or at-sea electronic maintenance capability, as may be approved by the Administration, taking into account the recommendations of the Organization.⁵⁷ However, the Administration may exempt a vessel from the requirement of using two methods and allow the use of one method, taking account of the type of vessel and its mode of operation.
- (8) While all reasonable steps shall be taken to maintain the equipment in efficient working order to ensure compliance with all the functional requirements specified in regulation 4, malfunction of the equipment for providing the general radiocommunications required by regulation 4(h) shall not be considered as making a vessel unseaworthy or as a reason for delaying the vessel in ports where repair facilities are not readily available, provided the vessel is capable of performing all distress and safety functions.

⁵⁶ See the recommendation on *General requirements for shipborne radio equipment forming part of the Global Maritime Distress and Safety System (GMDSS) and for electronic navigational aids*, adopted by the Organization by resolution A.694(17); resolution A.813(19): *General requirements for electromagnetic compatibility (EMC) for all electrical and electronic ship's equipment*; and MSC/Circ.862: Clarification of certain requirements in IMO performance standards for GMDSS equipment.

⁵⁷ See the *Radio maintenance guidelines for the Global Maritime Distress and Safety System (GMDSS) related to sea areas A3 and A4*, adopted by the Organization by resolution A.702(17).

Regulation 15 Radio personnel

Every vessel shall carry personnel qualified for distress and safety radiocommunication purposes to the satisfaction of the Administration.⁵⁸ The personnel shall be holders of certificates specified in the Radio Regulations, as appropriate, any one of whom shall be designated to have primary responsibility for radiocommunications during distress incidents.

Regulation 16 Radio records

A record shall be kept, to the satisfaction of the Administration and as required by the Radio Regulations, of all incidents connected with the radiocommunication service which appear to be of importance to safety of life at sea.

CHAPTER X SHIPBORNE NAVIGATIONAL EQUIPMENT AND ARRANGEMENTS

Regulation 1 Application

Unless expressly provided otherwise, this chapter shall apply to new and existing vessels.

Regulation 2 Exemptions

The Administration may exempt any vessel from any of the requirements of this chapter where it considers that the nature of the voyage or the vessel's proximity to land does not warrant such requirements.

Regulation 3 Shipborne navigational equipment⁵⁹

- (1) (a) Vessels of 24 m in length and over shall be fitted with:
- (i) a standard magnetic compass, except as provided in subparagraph (d);
 - (ii) a steering magnetic compass, unless heading information provided by the standard compass required under (i) is made available and is clearly readable by the helmsman at the main steering position;
 - (iii) adequate means of communication between the standard compass position and the normal navigation control position to the satisfaction of the Administration; and

⁵⁸ See the 1995 STCW Code, chapter IV, section B-IV/2.

⁵⁹ See the *Recommendation on the carriage of electronic position-fixing equipment*, adopted by the Organization by resolution A.156(ES.IV) and the *World-wide radionavigation system*, adopted by the Organization by resolution A.666(16).

- (iv) means for taking bearings as nearly as practicable over an arc of the horizon of 360°.
 - (b) Each magnetic compass referred to in subparagraph (a) shall be properly adjusted and its table or curve of residual deviations shall be available at all times.
 - (c) A spare magnetic compass, interchangeable with the standard compass, shall be carried, unless the steering compass mentioned in subparagraph (a)(ii) or a gyro-compass is fitted.
 - (d) The Administration, if it considers it unreasonable or unnecessary to require a standard magnetic compass, may exempt individual vessels or classes of vessels from these requirements if the nature of the voyage, the vessel's proximity to land or the type of vessel does not warrant a standard compass, provided that a suitable steering compass is in all cases carried.
- (2) Vessels of less than 24 m in length shall, as far as the Administration considers it reasonable and practicable, be fitted with a steering compass and have means for taking bearings.
- (3) Vessels of 45 m in length and over constructed on or after 1 September 1984 shall be fitted with a gyro-compass complying with the following requirements:
- (a) the master gyro-compass or a gyro-repeater shall be clearly readable by the helmsman at the main steering position;
 - (b) on vessels of 75 m in length and over a gyro-repeater or gyro-repeaters shall be provided and shall be suitably placed for taking bearings as nearly as practicable over an arc of the horizon of 360°.
- (4) Vessels of 75 m in length and over constructed before 1 September 1984 shall be fitted with a gyro-compass complying with the requirements of paragraph (3).
- (5) Vessels with emergency steering positions shall at least be provided with a telephone or other means of communication for relaying heading information to such positions. In addition, vessels of 45 m in length and over constructed on or after 1 February 1992 shall be provided with arrangements for supplying visual compass readings to the emergency steering position.
- (6) Vessels of 45 m in length and over constructed on or after 1 September 1984 and vessels of 75 m in length and over constructed before 1 September 1984 shall be fitted with a radar installation. From 1 February 1995, the radar installation shall be capable of operating in the 9 GHz frequency band. In addition, after 1 February 1995, vessels of 35 m in length and over shall be fitted with a radar installation capable of operating in the 9 GHz frequency band. Vessels of 35 m in length and over but less than 45 m may be exempted from compliance with the requirements of paragraph (16) at the discretion of the Administration, provided that the equipment is fully compatible with the radar transponder for search and rescue.
- (7) In vessels of less than 35 m in length where radar is fitted, the installation shall be to the satisfaction of the Administration.

- (8) Facilities for plotting radar readings shall be provided on the navigation bridge of vessels required by paragraph (6) to be fitted with a radar installation. In vessels of 75 m in length and over constructed on or after 1 September 1984, the plotting facilities shall be at least as effective as a reflection plotter.
- (9) Vessels of 75 m in length and over constructed before 25 May 1980 and vessels of 45 m in length and over constructed on or after 25 May 1990 shall be fitted with an echo-sounding device.
- (10) Vessels of less than 45 m in length shall be provided with suitable means to the satisfaction of the Administration for determining the depth of water under the vessel.
- (11) Vessels of 45 m in length and over constructed on or after 1 September 1984 shall be fitted with a device to indicate speed and distance.
- (12) Vessels of 75 m in length and over constructed before 1 September 1984 and all vessels of 45 m in length and over constructed on or after 1 September 1984 shall be fitted with indicators showing the rudder angle, the rate of revolution of each propeller and, in addition, if fitted with variable pitch propellers or lateral thrust propellers, the pitch and operational mode of such propellers. All these indicators shall be readable from the conning position.
- (13) Except as provided in regulation I/6, while all reasonable steps shall be taken to maintain the apparatus referred to in paragraphs (1) to (12) in efficient working order, malfunctions of the equipment shall not be considered as making a vessel unseaworthy or as a reason for delaying the vessel in ports where repair facilities are not readily available.⁶⁰
- (14) Vessels of 75 m in length and over shall be fitted with a radio direction-finding apparatus. The Administration may exempt a vessel from this requirement if it considers it unreasonable or unnecessary for such apparatus to be carried or, if the vessel is provided with other radionavigation equipment suitable for use throughout its intended voyages.
- (15) Until 1 February 1999, vessels of 75 m in length and over constructed on or after 25 May 1980 and before 1 February 1995 shall be fitted with radio equipment for homing on the radiotelephone distress frequency.

⁶⁰ See *Recommendation on the use and testing of shipborne navigational equipment*, adopted by the Organization by resolution A.157(ES.IV).

(16) All equipment fitted in compliance with this regulation shall be of a type approved by the Administration. Equipment installed on board vessels on or after 1 September 1984 shall conform to appropriate performance standards not inferior to those adopted by the Organization.⁶¹ Equipment fitted prior to the adoption of related performance standards may be exempted from full compliance with those standards at the discretion of the Administration, having due regard to the recommended criteria which the Organization might adopt in connection with the standards concerned.

⁶¹ See the following resolutions adopted by the Organization:

- .1 Resolution A.694(17): Recommendation on *General requirements for shipborne radio equipment forming part of the GMDSS and for electronic navigational aids*.
- .2 Resolution A.424(XI): Recommendation on *Performance standards for gyro-compasses*.
- .3 Resolution MSC.64(67), annex 4: *Recommendation on performance standards for radar equipment*.
- .4 Resolution MSC.192(79): *Adoption of the Revised performance standards for radar equipment*.
- .5 Resolution A.823(19): *Performance standards for automatic radar plotting aids (ARPAs)*.
- .6 Resolution A.817(19): Recommendation on *Performance standards for electronic chart display and information systems (ECDIS)*, as amended by resolution MSC.64(67), annex 5, and resolution MSC.86(70), annex 4, as appropriate.
- .7 Resolution A.529(13): Recommendation on *Accuracy standards for navigation*.
- .8 Resolution A.818(19): Recommendation on *Performance standards for shipborne Loran-C and Chayka receivers*.
- .9 Resolution A.819(19): Recommendation on *Performance standards for shipborne global positioning system (GPS) receiver equipment*.
- .10 Resolution MSC.53(66): Recommendation on *Performance standards for shipborne GLONASS receiver equipment*, as amended by resolution MSC.133(73).
- .11 Resolution MSC.64(67), annex 2: *Recommendation on performance standards for shipborne DGPS and DGLONASS maritime radio beacon receiver equipment*, as amended by resolution MSC.114(73).
- .12 Resolution MSC.74(69), annex 1: *Recommendation on performance standards for combined GPS/GLONASS receiver equipment*, as amended by resolution MSC.115(73).
- .13 Resolution MSC.64(67), annex 3: *Recommendation on performance standards for heading control systems*.
- .14 Resolution MSC.74(69), annex 2: *Recommendation on performance standards for track control systems*.
- .15 Resolution MSC.74(69), annex 3: *Recommendation on performance standards for universal shipborne automatic identification systems (AIS)*; and circular MSC.1/Circ.1252: *Guidelines on annual testing of the automatic system (AIS)*.
- .16 Resolution A.224(VIII): Recommendation on *Performance standards for echo-sounding equipment*, as amended by resolution MSC.74(69), annex 4.
- .17 Resolution A.824(19): Recommendation on *Performance standards for devices to indicate speed and distance*, as amended by resolution MSC.96(72).
- .18 Resolution A.526(13): *Performance standards for rate-of-turn indicators*.
- .19 Resolution A.575(14): Recommendation on *Unification of performance standards for navigational equipment*.
- .20 Resolution A.343(IX): Recommendation on *methods of measuring noise levels at listening posts*.
- .21 Resolution A.384(X): Recommendation on *Performance standards for radar reflectors*, as amended by resolution MSC.164(78).
- .22 Resolution A.382(X): *Magnetic compasses carriage and performance standards*.
- .23 Resolution MSC.95(72): Recommendation on *Performance standards for daylight signalling lamps*.
- .24 Resolution MSC.86(70), annex 1: *Recommendation on performance standards for sound reception systems*.
- .25 Resolution MSC.86(70), annex 2: *Recommendation on performance standards for marine transmitting magnetic heading devices (TMHDs)*.
- .26 Resolution A.861(20): Recommendation on *Performance standards for shipborne voyage data recorders (VDRs)*.
- .27 Resolution MSC.116(73): Recommendations on *Performance standards for marine transmitting heading devices (THDs)*.

Regulation 4 **Nautical instruments and publications**

Suitable nautical instruments, adequate and up-to-date charts, sailing directions, lists of lights, notices to mariners, tide tables and all other nautical publications necessary for the intended voyage, to the satisfaction of the Administration, shall be carried on board.

Regulation 5 **Signalling equipment**

(1) A daylight signalling lamp shall be provided, the operation of which is not solely dependent upon the main source of electrical power. The power supply shall in any case include a portable battery.

(2) Vessels of 45 m in length and over shall be provided with a full complement of flags and pennants to enable communications to be sent using the International Code of Signals.

(3) All vessels which, in accordance with the present Protocol, are required to carry radio installations shall carry the International Code of Signals. This publication shall also be carried by any other vessel which, in the opinion of the Administration, has a need to use it.

Regulation 6 **Navigation bridge visibility**

(1) New vessels of 45 m in length and over shall meet the following requirements:

- (a) The view of the sea surface from the conning position shall not be obscured by more than two vessel lengths, or 500 m, whichever is less, forward of the bow to 10° on either side irrespective of the vessel's draught and trim.
- (b) No blind sector caused by fishing gear or other obstructions outside of the wheelhouse forward of the beam which obstructs the view of the sea surface as seen from the conning position, shall exceed 10°. The total arc of blind sectors shall not exceed 20°. The clear sectors between blind sectors shall be at least 5°. However, in the view described in subparagraph (a), each individual blind sector shall not exceed 5°.
- (c) The height of the lower edge of the navigation bridge front windows above the bridge deck shall be kept as low as possible. In no case shall the lower edge present an obstruction to the forward view as described in this regulation.
- (d) The upper edge of the navigating bridge front windows shall allow a forward view of the horizon for a person with a height of eye of 1,800 mm above the bridge deck at the conning position when the vessel is pitching in heavy seas. However, the Administration, being satisfied that a 1,800 mm height of eye is unreasonable and impractical, may reduce the height of eye but not to less than 1,600 mm.
- (e) The horizontal field of vision from the conning position shall extend over an arc of not less than 225°, that is from right ahead to not less than 22.5° abaft the beam on either side of the vessel.
- (f) From each bridge wing the horizontal field of vision shall extend over an arc of at least 225°, that is from at least 45° on the opposite bow through right

ahead and then from right ahead to right astern through 180° on the same side of the vessel.

- (g) From the main steering position the horizontal field of vision shall extend over an arc from right ahead to at least 60° on each side of the vessel.
- (h) The vessel's side shall be visible from the bridge wing.
- (i) Windows shall meet the following requirements:
 - (i) framing between navigation bridge windows shall be kept to a minimum and not be installed immediately forward of any workstation;
 - (ii) to help avoid reflections, the bridge front windows shall be inclined from the vertical plane top out, at an angle of not less than 10° and not more than 25°;
 - (iii) polarized and tinted windows shall not be fitted; and
 - (iv) a clear view through at least two of the navigation bridge front windows and depending on the bridge configuration, an additional number of clear view windows shall be provided at all times regardless of weather conditions.

(2) Existing vessels shall, where practicable, meet the requirements of paragraphs (1)(a) and (b). However, structural alterations or additional equipment need not be required.

(3) On vessels of unconventional design, which in the opinion of the Administration cannot comply with this regulation, arrangements shall be provided to achieve a level of visibility that is as near as practicable to that prescribed in this regulation.

Appendix

CERTIFICATES AND RECORD OF EQUIPMENT

1 Form of Safety Certificate for Fishing Vessels

INTERNATIONAL FISHING VESSEL SAFETY CERTIFICATE

This Certificate shall be supplemented by a
Record of Equipment

(Official seal)

(State)

Issued under the provisions of the Cape Town Agreement of 2012 on the Implementation of the
Provisions of the Torremolinos Protocol of 1993 relating to the
Torremolinos International Convention for the Safety of Fishing Vessels, 1977

under the authority of the Government of

(name of the State)

by

(person or organization authorized)

Particulars of vessel⁽¹⁾

Name of vessel

Distinctive number or letters

Port of registry

Length (L) (regulation I/2(5))/
Gross tonnage (regulation I/2(22))⁽²⁾

Sea areas in which vessel is certified to operate (regulation IX/2)

Date of building or major conversion contract

Date on which keel was laid or vessel was at a similar stage of construction in accordance with
regulation I/2(1)(c)(ii) or (1)(c)(iii)

Date of delivery or completion of major conversion

THIS IS TO CERTIFY:

(1) Alternatively, the particulars of the vessel may be placed horizontally in boxes.

(2) Delete as appropriate.

- 1.1 That the vessel has been surveyed in accordance with the requirements of regulations I/7, I/8 and I/9 of the Protocol.
- 1.2 That the vessel is/is not⁽²⁾ subject to annual surveys required in regulations I/7(1)(d) and I/9(1)(d) of the Protocol.
- 2 That the survey showed that:
- 2.1 the condition of the structure, machinery and equipment as defined in regulation I/9 was satisfactory and the vessel complied with the relevant requirements of chapters II, III, IV, V and VI of the Protocol (other than those relating to fire safety systems and appliances and fire control plans);
- 2.2 the last two inspections of the outside of the vessel's bottom took place on
..... and
(date) (date)
- 2.3 the vessel complied with the requirements of the Protocol as regards fire safety systems and appliances and fire control plans;
- 2.4 the life-saving appliances and the equipment of the lifeboats, liferafts and rescue boats were provided in accordance with the requirements of the Protocol;
- 2.5 the vessel was provided with a line-throwing appliance and radio installations used in life-saving appliances in accordance with the requirements of the Protocol;
- 2.6 the vessel complied with the requirements of the Protocol as regards radio installations;
- 2.7 the functioning of the radio installations used in life-saving appliances complied with the requirements of the Protocol;
- 2.8 the vessel complied with the requirements of the Protocol as regards shipborne navigational equipment, means of pilot transfer arrangements and nautical publications;
- 2.9 the vessel was provided with lights, shapes, means of making sound signals and distress signals in accordance with the requirements of the Protocol and the International Regulations for Preventing Collisions at Sea in force;
- 2.10 in all other respects the vessel complied with the relevant requirements of the Protocol.
- 3 That an International Fishing Vessel Exemption Certificate has/has not⁽²⁾ been issued.

⁽²⁾ Delete as appropriate.

This certificate is valid until⁽³⁾ subject to the annual, intermediate and periodical surveys and inspections of the outside of the vessel's bottom in accordance with regulations I/7, I/8 and I/9 of the Protocol.

Issued at
(Place of issue of certificate)

.....
(Date of issue)

.....
(Signature of authorized official issuing the certificate)

(Seal or stamp of the issuing authority, as appropriate)

⁽³⁾ Insert the date of expiry as specified by the Administration in accordance with regulation I/13(1) of the Protocol. The day and the month of this date correspond to the anniversary date as defined in regulation I/2(23), unless amended in accordance with regulation I/13(7).

Endorsement for annual and intermediate surveys relating to structure, machinery and equipment referred to in paragraph 2.1 of this certificate

THIS IS TO CERTIFY that, at a survey required by regulation I/9 of the Protocol, the vessel was found to comply with the relevant requirements of the Protocol.

Annual survey: Signed:
(Signature of authorized official)
Place:
Date:

(Seal or stamp of the authority, as appropriate)

Annual/Intermediate⁽²⁾ survey: Signed:
(Signature of authorized official)
Place:
Date:

(Seal or stamp of the authority, as appropriate)

Annual/Intermediate⁽²⁾ survey: Signed:
(Signature of authorized official)
Place:
Date:

(Seal or stamp of the authority, as appropriate)

Annual survey: Signed:
(Signature of authorized official)
Place:
Date:

(Seal or stamp of the authority, as appropriate)

Annual/intermediate survey in accordance with regulation I/13(7)(c)

THIS IS TO CERTIFY that, at an annual/intermediate⁽²⁾ survey in accordance with regulations I/9 and I/13(7)(c) of the Protocol, the vessel was found to comply with the relevant requirements of the Protocol.

Signed:
(Signature of authorized official)
Place:
Date:

(Seal or stamp of the authority, as appropriate)

⁽²⁾ Delete as appropriate.

Endorsement for inspections of the outside of the vessel's bottom⁽⁴⁾

THIS IS TO CERTIFY that, at an inspection required by regulation I/9 of the Protocol, the vessel was found to comply with the relevant requirements of the Protocol.

First inspection: Signed:
(Signature of authorized official)
Place:
Date:

(Seal or stamp of the authority, as appropriate)

Second inspection: Signed:
(Signature of authorized official)
Place:
Date:

(Seal or stamp of the authority, as appropriate)

Endorsement for annual and periodical surveys relating to life-saving appliances and other equipment referred to in paragraphs 2.3, 2.4, 2.5, 2.8 and 2.9 of this certificate

THIS IS TO CERTIFY that, at a survey required by regulation I/7 of the Protocol, the vessel was found to comply with the relevant requirements of the Protocol.

Annual survey: Signed:
(Signature of authorized official)
Place:
Date:

(Seal or stamp of the authority, as appropriate)

Annual/Periodical⁽²⁾ survey: Signed:
(Signature of authorized official)
Place:
Date:

(Seal or stamp of the authority, as appropriate)

Annual/Periodical⁽²⁾ survey: Signed:
(Signature of authorized official)
Place:
Date:

(Seal or stamp of the authority, as appropriate)

⁽⁴⁾ Provision may be made for additional inspections.
⁽²⁾ Delete as appropriate.

Annual survey: Signed:
(Signature of authorized official)
Place:
Date:

(Seal or stamp of the authority, as appropriate)

Annual/periodical survey in accordance with regulation I/13(7)(c)

THIS IS TO CERTIFY that, at an annual/periodical⁽²⁾ survey in accordance with regulations I/7 and I/13(7)(c) of the Protocol, the vessel was found to comply with the relevant requirements of the Protocol.

Signed:
(Signature of authorized official)
Place:
Date:

(Seal or stamp of the authority, as appropriate)

Endorsement for periodical surveys relating to radio installations referred to in paragraphs 2.6 and 2.7 of this certificate

THIS IS TO CERTIFY that, at a survey required by regulation I/8 of the Protocol, the vessel was found to comply with the relevant requirements of the Protocol.

Periodical survey: Signed:
(Signature of authorized official)
Place:
Date:

(Seal or stamp of the authority, as appropriate)

Periodical survey: Signed:
(Signature of authorized official)
Place:
Date:

(Seal or stamp of the authority, as appropriate)

Periodical survey: Signed:
(Signature of authorized official)
Place:
Date:

(Seal or stamp of the authority, as appropriate)

⁽²⁾ Delete as appropriate.

**Endorsement to extend the validity of the certificate until reaching the port of survey
or for a period of grace where regulation I/13(5) applies**

The certificate shall, in accordance with regulation I/13(5) of the Protocol, be accepted as
valid until

Signed:
(Signature of authorized official)
Place:
Date:

(Seal or stamp of the authority, as appropriate)

Endorsement for advancement of anniversary date where regulation I/13(7) applies

In accordance with regulation I/13(7) of the Protocol, the new anniversary date
is

Signed:
(Signature of authorized official)
Place:
Date:

(Seal or stamp of the authority, as appropriate)

In accordance with regulation I/13(7) of the Protocol, the new anniversary date
is

Signed:
(Signature of authorized official)
Place:
Date:

(Seal or stamp of the authority, as appropriate)

2 Form of Exemption Certificate

INTERNATIONAL FISHING VESSEL EXEMPTION CERTIFICATE

(Official seal)

(State)

Issued under the provisions of the
Cape Town Agreement of 2012 on the Implementation of the Provisions of the
Torremolinos Protocol of 1993 relating to the
Torremolinos International Convention for the Safety of Fishing Vessels, 1977

under the authority of the Government of

.....
(name of the State)

by

.....
(person or organization authorized)

Particulars of vessel⁽¹⁾

Name of vessel
Distinctive number or letters
Port of registry
Length (L) (regulation I/2(5))/
Gross tonnage (regulation I/2(22))⁽²⁾

THIS IS TO CERTIFY:

That the vessel is, under the authority conferred by regulation
exempted from the requirements of

Conditions, if any, on which the Exemption Certificate is granted:

This certificate is valid until subject
to the International Fishing Vessel Safety Certificate, to which this certificate is attached,
remaining valid.

Issued at
(Place of issue of certificate)

.....
(Date of issue)

.....
(Signature of authorized official
issuing the certificate)

(Seal or stamp of the issuing authority, as appropriate)

⁽¹⁾ Alternatively, the particulars of the ship may be placed horizontally in boxes.

⁽²⁾ Delete as appropriate.

Endorsement to extend the certificate if valid for less than 5 years where regulation I/13(3) applies

This certificate shall, in accordance with regulation I/13(3) of the Protocol, be accepted as valid until subject to the International Fishing Vessel Safety Certificate, to which this certificate is attached, remaining valid.

Signed:
(Signature of authorized official)
Place:
Date:

(Seal or stamp of the authority, as appropriate)

Endorsement where the renewal survey has been completed and regulation I/13(4) applies

This certificate shall, in accordance with regulation I/13(4) of the Protocol, be accepted as valid until subject to the International Fishing Vessel Safety Certificate, to which this certificate is attached, remaining valid.

Signed:
(Signature of authorized official)
Place:
Date:

(Seal or stamp of the authority, as appropriate)

Endorsement to extend the validity of the certificate until reaching the port of survey or for a period of grace where regulation I/13(5) applies

The certificate shall, in accordance with regulation I/13(5) of the Protocol, be accepted as valid until subject to the International Fishing Vessel Safety Certificate, to which this certificate is attached, remaining valid.

Signed:
(Signature of authorized official)
Place:
Date:

(Seal or stamp of the authority, as appropriate)

3 Form of Supplement to the International Fishing Vessel Safety Certificate

RECORD OF EQUIPMENT FOR THE INTERNATIONAL FISHING VESSEL SAFETY CERTIFICATE

This Record shall be permanently attached to the
International Fishing Vessel Safety Certificate.

RECORD OF EQUIPMENT FOR COMPLIANCE WITH THE
CAPE TOWN AGREEMENT OF 2012 ON THE IMPLEMENTATION OF THE PROVISIONS
OF THE TORREMOLINOS PROTOCOL OF 1993 RELATING TO THE TORREMOLINOS
INTERNATIONAL CONVENTION FOR THE SAFETY OF FISHING VESSELS, 1977

1 Particulars of vessel

Name of vessel

Distinctive number or letters

Port of registry

Length (L) (regulation I/2(5))/
Gross tonnage (regulation I/2(22))⁽²⁾

2 Details of life-saving appliances

1	Total number of persons for whom life-saving appliances are provided	.....	
		Port side	Starboard side
2	Total number of lifeboats	.....	.....
2.1	Total number of persons accommodated by them	.....	.....
2.2	Number of partially enclosed lifeboats (regulation VII/18)	.....	.....
2.3	Number of totally enclosed lifeboats (regulation VII/19)	.....	.....

⁽²⁾ Delete as appropriate.

3	Number of rescue boats	.....
3.1	Number of boats which are included in the total lifeboats shown above	.....
4	Liferafts	.....
4.1	Those for which approved launching appliances are required	.....
4.1.1	Number of liferafts	.....
4.1.2	Number of persons accommodated by them	.....
4.2	Those for which approved launching appliances are not required	.....
4.2.1	Number of liferafts	.....
4.2.2	Number of persons accommodated by them	.....
5	Number of lifebuoys	.....
6	Number of lifejackets	.....
7	Immersion suits	.....
7.1	Total number	.....
7.2	Number of suits complying with the requirements for lifejackets	.....
8	Number of thermal protective aids ⁽⁵⁾	
9	Radio installations used in life-saving appliances	.....
9.1	Number of radar transponders	.....
9.2	Number of two-way VHF radiotelephone apparatus	.....

⁽⁵⁾ Excluding those required by regulations VII/17(8)(xxi), VII/20(5)(a)(xxiv) and VII/23(2)(b)(xiii).

3 Details of radio facilities

	Item	Actual provision
1	Primary systems	
1.1	VHF radio installation:	
1.1.1	DSC encoder	.....
1.1.2	DSC watch receiver	.....
1.1.3	Radiotelephony	.....
1.2	MF radio installation:	
1.2.1	DSC encoder	.....
1.2.2	DSC watch receiver	.....
1.2.3	Radiotelephony	.....
1.3	MF/HF radio installation:	
1.3.1	DSC encoder	.....
1.3.2	DSC watch receiver	.....
1.3.3	Radiotelephony	.....
1.3.4	Direct-printing radiotelegraphy	.....
1.4	INMARSAT ship earth station	.....
2	Secondary means of alerting	.....
3	Facilities for reception of maritime safety information	
3.1	NAVTEX receiver	.....
3.2	EGC receiver	.....
3.3	HF direct-printing radiotelegraph receiver	.....
4	Satellite EPIRB	
4.1	COSPAS-SARSAT	.....
4.2	INMARSAT	.....
5	VHF EPIRB	.....
6	Vessel's radar transponder	.....

4 Methods used to ensure availability of radio facilities (regulation IX/14)

4.1	Duplication of equipment	.....
4.2	Shore-based maintenance	.....
4.3	At-sea maintenance capability	.....

THIS IS TO CERTIFY that this Record is correct in all respects

Issued at
(Place of issue of the Record)

.....
 (Date of issue) (Signature of duly authorized
 official issuing the Record)

(Seal or stamp of the issuing authority, as appropriate)

* * *

ATTACHMENT 1

ARTICLES OF THE CAPE TOWN AGREEMENT OF 2012 ON THE IMPLEMENTATION OF THE PROVISIONS OF THE TORREMOLINOS PROTOCOL OF 1993 RELATING TO THE INTERNATIONAL CONVENTION FOR THE SAFETY OF FISHING VESSELS, 1977

THE PARTIES TO THIS AGREEMENT,

RECOGNIZING the significant contribution to maritime safety in general and that of fishing vessels which can be made by implementation of the provisions of the Torremolinos Protocol of 1993 relating to the Torremolinos International Convention for the Safety of Fishing Vessels, 1977,

ACKNOWLEDGING, HOWEVER, that certain provisions of the Torremolinos Protocol of 1993 relating to the Torremolinos International Convention for the Safety of Fishing Vessels, 1977, have given rise to difficulties in their implementation by a number of States having substantial fishing fleets under their flags and that this has prevented the entry into force of that Protocol and, consequently, the implementation of the regulations contained therein,

DESIRING to establish by common agreement for the highest practicable standards for the safety of fishing vessels that can be implemented by all the States concerned,

CONSIDERING that this objective may best be achieved by the conclusion of an Agreement relating to the implementation of the provisions of the Torremolinos Protocol of 1993 relating to the Torremolinos International Convention for the Safety of Fishing Vessels, 1977,

HAVE AGREED as follows:

Article 1 General obligations

- (1) The Parties to this Agreement shall give effect to the provisions of:
 - (a) the articles of this Agreement; and
 - (b) the Torremolinos Protocol of 1993 relating to the Torremolinos International Convention for the Safety of Fishing Vessels, 1977 (hereinafter referred to as the "1993 Torremolinos Protocol"), with the exception of article 1, paragraphs (1)(a), (2) and (3), article 9 and article 10 of that Protocol, as modified by this Agreement.
- (2) The articles of this Agreement, articles 2 to 8 and 11 to 14 of the 1993 Torremolinos Protocol, the regulations in the annex to the 1993 Torremolinos Protocol, and the regulations in the annex to the Torremolinos International Convention for the Safety of Fishing Vessels, 1977 (hereinafter referred to as the "1977 Torremolinos Convention"), shall, subject to the modifications set out in this Agreement, be read and interpreted as a single instrument.
- (3) The annex to this Agreement shall constitute an integral part of the Agreement and a reference to this Agreement shall constitute at the same time a reference to the annex thereto.

Article 2
**Interpretation and application of the 1993 Torremolinos Protocol and
the 1977 Torremolinos Convention**

Articles 2 to 8 inclusive and articles 11 to 14 inclusive of the 1993 Torremolinos Protocol shall apply to this Agreement. In applying these articles, the regulations in the annex to the 1993 Torremolinos Protocol, and the regulations in the annex to the 1977 Torremolinos Convention, a reference to "the present Protocol", or to "the Convention", respectively, shall be deemed to mean a reference to this Agreement.

Article 3
Signature, ratification, acceptance, approval and accession

(1) This Agreement shall remain open for signature at the Headquarters of the Organization from 11 February 2013 to 10 February 2014 and shall thereafter remain open for accession.

(2) All States may become Parties to this Agreement by expressing their consent to be bound by the Agreement by:

- (a) signature without reservation as to ratification, acceptance or approval; or
- (b) signature subject to ratification, acceptance or approval followed by ratification, acceptance or approval; or
- (c) signature subject to the procedure set out in paragraph (4) of this article; or
- (d) accession.

(3) Ratification, acceptance, approval or accession shall be effected by the deposit of an instrument to that effect with the Secretary-General.

(4) A State which has deposited before the date of the adoption of this Agreement an instrument of ratification, acceptance, approval or accession to the 1993 Torremolinos Protocol and which has signed this Agreement in accordance with paragraph (2)(c) of this article shall be deemed to have expressed its consent to be bound by this Agreement 12 months after the date of the adoption of this Agreement unless that State notifies the depositary in writing before that date that it is not availing itself of the simplified procedure set out in this paragraph.

Article 4
Entry into force

(1) This Agreement shall enter into force 12 months after the date on which not less than 22 States the aggregate number of whose fishing vessels of 24 m in length and over operating on the high seas is not less than 3,600 have expressed their consent to be bound by it.

(2) For a State which deposits an instrument of ratification, acceptance, approval or accession in respect of this Agreement after the requirements for entry into force thereof have been met but prior to the date of entry into force, the ratification, acceptance, approval

or accession shall take effect on the date of entry into force of this Agreement or three months after the date of deposit of the instrument, whichever is the later date.

(3) For a State which deposits an instrument of ratification, acceptance, approval or accession in respect of this Agreement after the date on which it enters into force, this Agreement shall take effect three months after the date of deposit of the instrument.

(4) After the date on which an amendment to this Agreement is deemed to have been accepted under article 11 of the 1993 Torremolinos Protocol, as applied to this Agreement pursuant to article 2, any instrument of ratification, acceptance, approval or accession deposited shall apply to this Agreement as amended.

IN WITNESS WHEREOF the undersigned, being duly authorized by their respective Governments for that purpose, have signed this Agreement.

DONE AT CAPE TOWN this eleventh day of October two thousand and twelve.

* * *

ATTACHMENT 2

ARTICLES OF THE TORREMOLINOS PROTOCOL OF 1993 RELATING TO THE TORREMOLINOS INTERNATIONAL CONVENTION FOR THE SAFETY OF FISHING VESSELS, 1977

THE PARTIES TO THE PRESENT PROTOCOL,

RECOGNIZING the significant contribution which can be made by the Torremolinos International Convention for the Safety of Fishing Vessels, 1977, to the safety of ships in general and to the safety of fishing vessels in particular,

ACKNOWLEDGING HOWEVER that certain provisions of the Torremolinos International Convention for the Safety of Fishing Vessels, 1977, have given rise to difficulties in their implementation by a number of States with substantial fishing fleets under their flags and that this has prevented the entry into force of the Torremolinos International Convention for the Safety of Fishing Vessels, 1977, and consequently the implementation of the regulations contained therein,

DESIRING to establish in common agreement the highest practicable standards for the safety of fishing vessels which can be implemented by all States concerned,

CONSIDERING that this objective may best be achieved by the conclusion of a Protocol relating to the Torremolinos International Convention for the Safety of Fishing Vessels, 1977,

HAVE AGREED as follows:

Article 1 General obligations

- (1) The Parties to the present Protocol shall give effect to the provisions of:
 - (a) the articles of the present Protocol; and
 - (b) the regulations contained in the annex to the Torremolinos International Convention for the Safety of Fishing Vessels, 1977 (hereinafter referred to as "the Convention"), subject to the modifications set out in the annex to the present Protocol.
- (2) The articles of the present Protocol and the regulations of the annex to the Convention shall, subject to the modifications set out in the annex to the present Protocol, be read and interpreted as one single instrument.
- (3) The annex to the present Protocol shall constitute an integral part of the Protocol and a reference to the present Protocol shall constitute at the same time a reference to the annex hereto.

Article 2 Definitions

For the purpose of the present Protocol, unless expressly provided otherwise:

- (a) *Party* means a State for which the present Protocol has entered into force.
- (b) *Fishing vessel* or *vessel* means any vessel used commercially for catching fish, whales, seals, walrus or other living resources of the sea.

- (c) *Organization* means the International Maritime Organization.
- (d) *Secretary-General* means the Secretary-General of the Organization.
- (e) *Administration* means the Government of the State whose flag the vessel is entitled to fly.
- (f) *Regulations* means the regulations contained in the annex to the Convention as modified by the present Protocol.

Article 3

Application

- (1) The present Protocol shall apply to seagoing fishing vessels including vessels also processing their catch entitled to fly the flag of a Party.
- (2) The provisions of the annex shall not apply to vessels exclusively used:
 - (a) for sport or recreation;
 - (b) for processing fish or other living resources of the sea;
 - (c) for research and training; or
 - (d) as fish carriers.
- (3) Unless expressly provided otherwise, the provisions of the annex shall apply to fishing vessels of 24 metres in length and over.
- (4) In a case where a limit of the vessel's length is prescribed as greater than 24 metres in a chapter for the application of that chapter, the Administration shall determine which regulations of that chapter should apply, wholly or in part, to a fishing vessel of 24 metres in length and over but less than the length limit prescribed in that chapter and entitled to fly the flag of that State, having regard to the type, size and mode of operation of such a vessel.
- (5) Parties shall endeavour to establish, as a matter of high priority, uniform standards to be applied by Administrations to fishing vessels referred to in paragraph (4), which operate in the same region, taking into account the mode of operation, sheltered nature and climatic conditions in such region. Such uniform regional standards shall be communicated to the Organization for circulation to other Parties for information.

Article 4

Certification and port State control

- (1) Every vessel required to hold a certificate in accordance with the provisions of the regulations is subject, when in a port of another Party, to control by officers duly authorized by the Government of that Party in so far as this control is directed towards verifying that the certificate issued under the provisions of the relevant regulations is valid.
- (2) Such certificate, if valid, shall be accepted unless there are clear grounds for believing that the condition of the vessel or of its equipment does not correspond substantially with the particulars of that certificate or that the vessel and its equipment are not in compliance with the provisions of the relevant regulations.

(3) In the circumstances given in paragraph (2) or where a certificate has expired or ceased to be valid, the officer carrying out the control shall take steps to ensure that the vessel shall not sail until it can proceed to sea or leave the port for the purpose of proceeding to the appropriate repair yard without danger to the vessel or persons on board.

(4) In the event of this control giving rise to an intervention of any kind, the officer carrying out the control shall forthwith inform, in writing, the Consul or, in his absence, the nearest diplomatic representative of the State whose flag the vessel is entitled to fly, of all the circumstances in which intervention was deemed necessary. In addition, nominated surveyors or recognized organizations responsible for the issue of the certificates shall also be notified. The facts concerning the intervention shall be reported to the Organization.

(5) If the port State authority concerned is unable to take steps as specified in paragraph (3) or if the vessel has been allowed to proceed to the next port of call, the port State authority concerned shall notify all relevant information about the vessel to the Party mentioned in paragraph (4) and to the authorities of the next port of call.

(6) When exercising control under this article, all possible efforts shall be made to avoid a vessel being unduly detained or delayed. If a vessel is thereby unduly detained or delayed, it shall be entitled to compensation for any loss or damage suffered.

(7) With respect to vessels of non-Parties to the present Protocol, Parties shall apply the requirements of the present Protocol as may be necessary to ensure that no more favourable treatment is given to such vessels.

Article 5

Force majeure

(1) A vessel which is not subject to the provisions of the present Protocol or which is not required to hold a certificate in accordance with the provisions of the present Protocol at the time of its departure on any voyage shall not become subject to such provisions on account of any deviation from its intended voyage due to stress of weather or any other cause of *force majeure*.

(2) Persons who are on board a vessel by reason of *force majeure* or in consequence of the obligation to carry shipwrecked or other persons shall not be taken into account for the purpose of ascertaining the application to the vessel of any provisions of the present Protocol.

Article 6

Communication of information

(1) The Parties shall communicate to the Organization:

- (a) the text of laws, orders, decrees, regulations and other instruments which have been promulgated on the various matters within the scope of the present Protocol;
- (b) a list of non-governmental agencies which are authorized to act on their behalf in matters relating to the design, construction and equipment of vessels in accordance with the provisions of the present Protocol; and

- (c) a sufficient number of specimens of their certificates issued under the provisions of the present Protocol.

(2) The Organization shall notify all Parties of the receipt of any communication under paragraph (1)(a) and shall circulate to them any information communicated to it under paragraphs (1)(b) and (1)(c).

Article 7

Casualties to fishing vessels

(1) Each Party shall arrange for an investigation of any casualty occurring to any of its vessels subject to the provisions of the present Protocol, when it judges that such an investigation may assist in determining what changes in the present Protocol might be desirable.

(2) Each Party shall supply the Organization with pertinent information concerning the findings of such investigations for circulation to all Parties. No reports or recommendations of the Organization based upon such information shall disclose the identity or nationality of the vessels concerned or in any manner fix or imply responsibility upon any vessel or person.

Article 8

Other treaties and interpretation

Nothing in the present Protocol shall prejudice the present or future claims and legal views of any State concerning the law of the sea and the nature and extent of coastal and flag State jurisdiction.

Article 9

Signature, ratification, acceptance, approval and accession

(1) The present Protocol shall remain open for signature at the Headquarters of the Organization from 1 July 1993 until 30 June 1994 and shall thereafter remain open for accession. All States may become Parties to the present Protocol by:

- (a) signature without reservation as to ratification, acceptance or approval; or
- (b) signature subject to ratification, acceptance or approval, followed by ratification, acceptance or approval; or
- (c) accession.

(2) Ratification, acceptance, approval or accession shall be effected by the deposit of an instrument to that effect with the Secretary-General.

(3) Each State which has either signed the present Protocol without reservation as to ratification, acceptance or approval or has deposited the requisite instruments of ratification, acceptance, approval or accession in accordance with this article shall transmit to the Secretary-General, at the time of deposit of the above instrument and by the end of each year, information on the aggregate number of fishing vessels of 24 metres in length and over entitled to fly the flag of that State.

Article 10

Entry into force

- (1) The present Protocol shall enter into force 12 months after the date on which not less than 15 States have either signed it without reservation as to ratification, acceptance or approval or have deposited the requisite instruments of ratification, acceptance, approval or accession in accordance with article 9, the aggregate number of whose fishing vessels of 24 metres in length and over is not less than 14,000.
- (2) For States which have deposited an instrument of ratification, acceptance, approval or accession in respect of the present Protocol after the requirements for entry into force thereof have been met but prior to the date of entry into force, the ratification, acceptance, approval or accession shall take effect on the date of entry into force of the present Protocol or three months after the date of deposit of the instrument, whichever is the later date.
- (3) For States which have deposited an instrument of ratification, acceptance, approval or accession after the date on which the present Protocol entered into force, the present Protocol shall become effective three months after the date of deposit of the instrument.
- (4) After the date on which an amendment to the present Protocol is deemed to have been accepted under article 11, any instrument of ratification, acceptance, approval or accession deposited shall apply to the present Protocol as amended.

Article 11

Amendments

- (1) The present Protocol may be amended by either of the procedures specified in this article.
- (2) Amendment after consideration within the Organization:
 - (a) Any amendment proposed by a Party shall be submitted to the Secretary-General, who shall then circulate it to all Members of the Organization and to all the Parties at least six months prior to its consideration.
 - (b) Any amendment proposed and circulated as above shall be referred to the Maritime Safety Committee of the Organization for consideration.
 - (c) Parties whether or not Members of the Organization shall be entitled to participate in the proceedings of the Maritime Safety Committee for the consideration and adoption of amendments.
 - (d) Amendments shall be adopted by a two-thirds majority of the Parties present and voting in the Maritime Safety Committee expanded as provided for in paragraph (2)(c) (hereinafter referred to as "the expanded Maritime Safety Committee") on condition that at least one third of the Parties shall be present at the time of voting.
 - (e) Amendments adopted in accordance with paragraph (2)(d) shall be communicated by the Secretary-General to all the Parties.

- (f) (i) An amendment to an article shall be deemed to have been accepted on the date on which it is accepted by two thirds of the Parties.
- (ii) An amendment to the annex shall be deemed to have been accepted:
 - (aa) at the end of two years from the date of adoption; or
 - (bb) at the end of a different period, which shall not be less than one year, if so determined at the time of its adoption by a two-thirds majority of the Parties present and voting in the expanded Maritime Safety Committee.

However, if within the specified period either more than one third of the Parties or Parties the aggregate number of whose fishing vessels is not less than 65 per cent of the number of fishing vessels of 24 metres in length and over of all the Parties, notify the Secretary-General that they object to the amendment, it shall be deemed not to have been accepted.

- (g) (i) An amendment to an article shall enter into force, with respect to those Parties which have accepted it, six months after the date on which it is deemed to have been accepted and, with respect to each Party which accepts it after that date, six months after the date of that Party's acceptance.
- (ii) An amendment to the annex shall enter into force with respect to all Parties, except those which have objected to the amendment under paragraph (2)(f)(ii) and which have not withdrawn such objections, six months after the date on which it is deemed to have been accepted. However, before the date set for entry into force any Party may give notice to the Secretary-General that it exempts itself from giving effect to that amendment for a period not longer than one year from the date of its entry into force, or for such longer period as may be determined by a two-thirds majority of the Parties present and voting in the expanded Maritime Safety Committee at the time of the adoption of the amendment.

(3) Amendment by a Conference:

- (a) Upon the request of a Party concurred with by at least one third of the Parties, the Organization shall convene a conference of the Parties to consider amendments to the present Protocol.
- (b) Every amendment adopted by such a conference by a two-thirds majority of the Parties present and voting shall be communicated by the Secretary-General to all the Parties for acceptance.
- (c) Unless the Conference decides otherwise, the amendment shall be deemed to have been accepted and shall enter into force in accordance with the procedures specified in paragraphs (2)(f) and (2)(g) respectively, provided that references in those paragraphs to the expanded Maritime Safety Committee shall be taken to mean references to the Conference.

- (4) (a) A Party, which has accepted an amendment to the annex which has entered into force, shall not be obliged to extend the benefit of the present Protocol in respect of the certificates issued to a vessel entitled to fly the flag of a State the Government of which, pursuant to the provisions of paragraph (2)(f)(ii) of this article, has objected to the amendment and has not withdrawn such an objection, but only to the extent that such certificates relate to matters covered by the amendment in question.
- (b) A Party, which has accepted an amendment to the annex which has entered into force, shall extend the benefit of the present Protocol in respect of certificates issued to a vessel entitled to fly the flag of a State the Government of which, pursuant to the provisions of paragraph (2)(g)(ii) of this article, has notified the Secretary-General of the Organization that it exempts itself from giving effect to the amendment.
- (5) Unless expressly provided otherwise, any amendment to the present Protocol which relates to the structure of a vessel shall apply only to vessels for which, on or after the date of entry into force of the amendment:
- (a) the keel is laid; or
- (b) construction identifiable with a specific vessel begins; or
- (c) assembly has commenced comprising at least 50 tonnes or 1 per cent of the estimated mass of all structural material, whichever is less.
- (6) Any declaration of acceptance of, or objection to, an amendment or any notice given under paragraph (2)(g)(ii) shall be submitted in writing to the Secretary-General who shall inform all the Parties of any such submission and of the date of its receipt.
- (7) The Secretary-General shall inform all the Parties of any amendments which enter into force under this article together with the date on which each such amendment enters into force.

Article 12

Denunciation

- (1) The present Protocol may be denounced by any Party at any time after the expiry of five years from the date on which the present Protocol enters into force for that Party.
- (2) Denunciation shall be effected by notification in writing to the Secretary-General.
- (3) A denunciation shall take effect 12 months after receipt of the denunciation by the Secretary-General or after the expiry of any longer period which may be indicated in the notification.

Article 13

Depositary

- (1) The present Protocol shall be deposited with the Secretary-General of the Organization (hereinafter referred to as the "Depositary").

- (2) The Depositary shall:
- (a) inform the Governments of all States which have signed the present Protocol or acceded thereto of:
 - (i) each new signature or deposit of an instrument of ratification, acceptance, approval or accession, together with the date thereof;
 - (ii) the date of entry into force of the present Protocol;
 - (iii) the deposit of any instrument of denunciation of the present Protocol together with the date on which it was received and the date on which the denunciation takes effect;
 - (b) transmit certified true copies of the present Protocol to the Governments of all States which have signed the present Protocol or acceded thereto.
- (3) As soon as the present Protocol enters into force, a certified true copy thereof shall be transmitted by the Depositary to the Secretary-General of the United Nations for registration and publication in accordance with Article 102 of the Charter of the United Nations.

Article 14 **Languages**

The present Protocol is established in a single original in the Arabic, Chinese, English, French, Russian and Spanish languages, each text being equally authentic.

IN WITNESS WHEREOF the undersigned, being duly authorized by their respective Governments for that purpose, have signed the present Protocol.

DONE AT TORREMOLINOS this second day of April one thousand nine hundred and ninety-three.

* * *

ATTACHMENT 3

RECOMMENDATIONS OF THE INTERNATIONAL CONFERENCE ON SAFETY OF FISHING VESSELS, 1993

(References to regulations are references to regulations in the annex to the Torremolinos Protocol of 1993 relating to the Torremolinos International Convention for the Safety of Fishing Vessels, 1977)

1 Guidance on a method of calculation of the effect of water on deck (regulation III/6)

(1) The ability of the vessel to withstand the heeling effect due to the presence of water on deck should be demonstrated by a quasi-static method, with reference to figure 1, when the following condition is satisfied with the vessel in the worst operating condition:

$$\text{Ratio } C_{\text{wod}} = \frac{\text{area a}}{\text{area b}} \text{ should not be less than unity.}$$

(2) The angle which limits area b should be equal to the flooding angle Θ_f or 40° whichever is the less.

(3) The value of the heeling moment M_{wod} (or the corresponding heeling arm) due to the presence of water on deck should be determined assuming that the deck well is filled to the top of the bulwark at its lowest point and the vessel heeled up to the angle at which this point is immersed. For the determination of M_{wod} the following formula should be used:

$$M_{\text{wod}} = K M_w$$

where:

M_w = static heeling moment due to water on deck

K = coefficient

(a) If M_{wod} is determined by a static approach, $K = 1$ may be applied.

(b) If M_{wod} is determined by a quasi-static approach, K may take into account the rolling period of the vessel and the dynamic effect of the water flow, including the effect of the disposition and configuration of deck wells and deckhouses. The value of K should be satisfactory, taking into account the type of vessel, area of operation, etc. For vessels, where the angle of deck edge immersion Θ_D is less than 10° to 15° , or the angle of bulwark top immersion Θ_B is less than 20° to 25° , a value for K greater than 1 may be applied. When Θ_D is greater than 20° or Θ_B greater than 30° , a value for K less than 1 may be applied.

(4) When calculating M_w the following assumptions should be made:

(a) at the beginning the vessel is in the upright condition;

(b) during heeling, trim and displacement are constant and equal to the values for the vessel without the water on deck;

(c) the effect of freeing ports should be ignored.

(5) The above provisions may be adjusted, taking into account the seasonal weather conditions and sea states in the areas in which the vessel will operate, the type of vessel and its mode of operation.

(6) Other methods for the calculation of the effect of water on deck using the dynamic approach may be adopted.

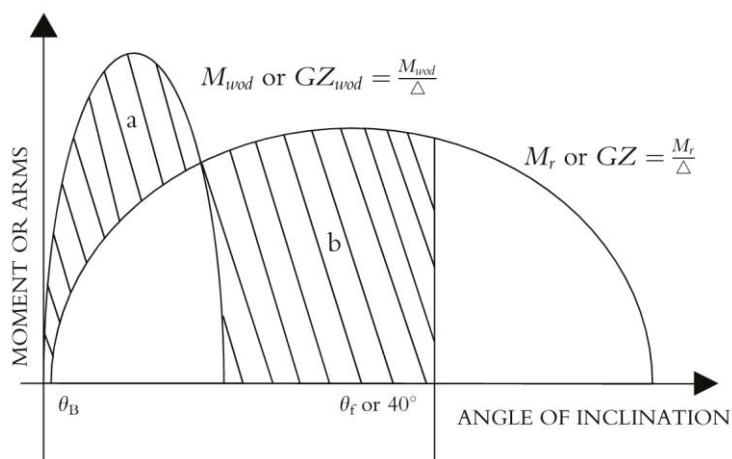


Figure 1 – Water on deck

2 Guidance relating to ice accretion (regulation III/8)

In the application of regulation III/8, the following icing areas should apply:

- (1) (a) The area north of latitude 65°30'N, between longitude 28°W and the west coast of Iceland; north of the north coast of Iceland; north of the rhumb line running from latitude 66°N, longitude 15°W to latitude 73°30'N, longitude 15°E, north of latitude 73°30'N between longitude 15°E and 35°E, and east of longitude 35°E, as well as north of latitude 56°N in the Baltic Sea.
- (b) The area north of latitude 43°N bounded in the west by the North American coast and the east by the rhumb line running from latitude 43°N longitude 48°W to latitude 63°N longitude 28°W and thence along longitude 28°W.
- (c) All sea areas north of the North American continent, west of the areas defined in subparagraphs (a) and (b) of this paragraph.
- (d) The Bering and Okhotsk Seas and the Tartary Strait during the icing season.
- (e) South of latitude 60°S.

A chart to illustrate the areas is attached.

(2) For vessels operating in areas where ice accretion may be expected:

- (a) Within the areas defined in paragraph (1)(a), (c), (d) and (e) known to having icing conditions significantly different from those in regulation III/8(1), ice accretion requirements of one-half to twice the required allowance may be applied.

- (b) Within the area defined in paragraph (1)(b) where ice accretion in excess of twice the allowance required by regulation III/8(1) may be expected, more severe requirements than those given in that paragraph may be applied.

3 Guidance on stability information (regulation III/10)

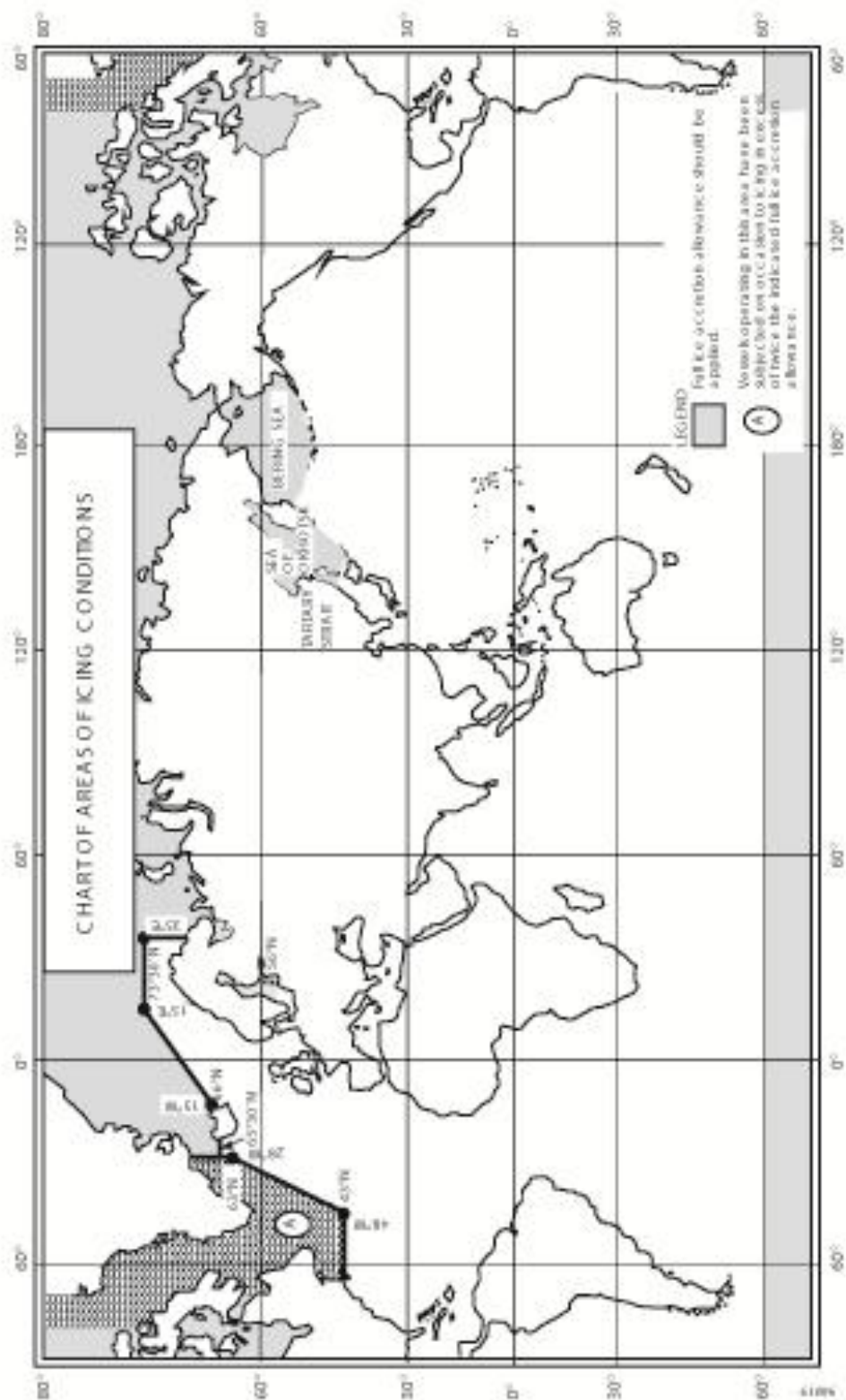
Stability information provided for the vessel should include:

- (1)
 - (a) stability calculations including GZ curves of operating conditions required by regulation III/7;
 - (b) instructions warning of conditions critical from a stability standpoint. As an example, instructions to keep the ballast tanks full when necessary for adequate stability;
 - (c) maximum permissible operating draught associated with each operating condition; and
 - (d) when appropriate, minimum required operating draught.
- (2) Information as required by the following alternatives having regard to the type of vessel, intended service, etc.:
 - (a) If GZ calculations are intended:
 - (i) information for determination of weights, positions of centres of gravity, the free surface effects of tanks⁶², fish-holds and pounds;
 - (ii) information relating to form stability and hydrostatic parameters; and
 - (iii) displacement and disposition of centre of gravity of light ship condition, with regard to permanent ballast.
 - (b) When rolling tests are used:
 - (i) information for the determination of metacentric height GM_0 by means of a rolling test⁶³; and
 - (ii) information giving required minimum metacentric height GM_0 for the practical range of draughts.
 - (c) Simplified information:

Supplementary or alternative information which permits safe operation without recourse to calculations or rolling tests.

⁶² See appendix I(13) of the *Recommendation on Intact Stability of Fishing Vessels*, adopted by the Organization by resolution A.168(ES.IV).

⁶³ See appendix IV of the *Recommendation on Intact Stability of Fishing Vessels*, adopted by the Organization by resolution A.168(ES.IV).



- (3)
 - (a) Instructions for filling and emptying of tanks with free liquid surfaces;
 - (b) information on the proper use and control of any antirolling devices; and
 - (c) information on the weight and arrangement of permanent ballast.
- (4) For vessels to which regulation III/14 applies:
 - (a) information on the use of ballast and other liquid systems to correct heel and trim;
 - (b) forms for recording daily tank statements; and
 - (c) instructions for loading in order to maintain the vessel afloat after flooding.

4 Guidance on a method of calculation of bow height (regulation III/12)

- (1) *The bow height* is defined as the minimum vertical distance from the deepest waterline to the top of the highest exposed deck measured at the forward perpendicular.
- (2) The determination of the bow height (H_B) required may be based upon the following formula:

$$H_B = K_1 L \left(1 + \frac{L}{K_2} \right)$$

where:

L is the length of the vessel in metres as defined in regulation I/2(5); and

K_1 and K_2 are the coefficients depending upon areas of operation and L as follows:

Area of operation	L	K_1	K_2
Extreme conditions with significant wave height of up to and including 8 m	$24 \text{ m} \leq L < 110 \text{ m}$	0.09	-270
	$L \geq 110 \text{ m}$	$4.959/L$	600
Extreme conditions with significant wave height above 8 m	$24 \text{ m} \leq L < 110 \text{ m}$	0.117	-220
	$L \geq 110 \text{ m}$	$5.991/L$	1,484

The Administration should stipulate either of the above or other standard, considering expected sea and weather conditions in particular fishing areas.

- (3) Where the bow height required is obtained by sheer, this should extend from the stem for a length of at least $0.15L$ abaft of the forward perpendicular. Where it is obtained by fitting a forecastle, such forecastle should extend from the stem at least $0.07L$ abaft the forward perpendicular. However, where the length of the forecastle exceeds $0.15L$ due consideration should be given to the fitting of a bulkhead with adequate closing appliances. If no such bulkhead is fitted, adequate arrangements should be provided for removing water from the open forecastle.

(4) Where a bulwark is fitted, this may be taken into account for a height of 1 m, provided that the bulwark extends from the stem to a point at least 0.15L abaft the forward perpendicular.

(5) When a vessel is always trimmed by the stern in service conditions, the minimum trim may be allowed in the calculation of the bow height.

5 Guidance on subdivision and damage stability calculations (regulation III/14)

(1) Conditions of equilibrium

- (a) The final waterline after damage to any one compartment should be either:
 - (i) to the line of openings at which progressive flooding to spaces below would occur and to the requirements of the Administration; or
 - (ii) to the after end of the top of the poop superstructure deck at the centreline, subject to paragraph (3)(a) below.
- (b) Unsymmetrical flooding shall be kept to a minimum consistent with efficient arrangements. Where it is necessary to correct large angles of heel, the means adopted shall, where practicable, be self-acting.

(2) Damage assumptions

The following assumed damage should apply:

- (a) The vertical extent of damage in all cases is assumed to be from the base line upwards without limit.
- (b) The transverse extent of damage is equal to $B/5$ m, measured inboard from the side of the vessel perpendicularly to the centreline at the level of the deepest operating waterline, where B (in metres) is as defined in regulation I/2(7).
- (c) If damage of a lesser extent than specified in subparagraphs (a) and (b) above results in a more severe condition, such lesser extent should be assumed.
- (d) The flooding should be restricted to any single compartment between adjacent transverse bulkheads. If there are steps or recesses in a transverse bulkhead of not more than 3.05 m in length located within the transverse extent of assumed damage as defined in subparagraph (b) above, such transverse bulkhead may be considered intact and the adjacent compartments may be floodable singly. Where there exists a step or recess within the transverse extent of assumed damage of more than 3.05 m in length in a transverse bulkhead, the two compartments adjacent to this bulkhead should be considered as flooded. The step formed at the junction of the afterpeak bulkhead and the afterpeak tank top should not be regarded as a step.
- (e) Where a main transverse bulkhead is situated within the transverse extent of assumed damage and is stepped in way of a double bottom or side tank by more than 3.05 m, the double bottom or side tanks adjacent to the

stepped portion of the main transverse bulkhead should be considered as flooded simultaneously.

- (f) Main transverse watertight bulkheads should be spaced at least $(1/3)L^{2/3}$ m apart, where L (in metres) is as defined in regulation 1/2(5). Where transverse bulkheads are spaced at a lesser distance, one or more of these bulkheads should be assumed as non-existent in order to achieve the minimum spacing between bulkheads.
- (g) If pipes, ducts or tunnels are situated within the assumed extent of damage penetration as defined in subparagraph (b) above, arrangements are to be made so that progressive flooding cannot thereby extend to compartments other than those assumed to be floodable in the calculation for each case of damage.
- (h) Where operating experience has shown that other values for subparagraphs (b) and (f) above are more appropriate, those values should be used.

(3) Survival assumptions

The vessel is considered to survive the conditions of damage specified in paragraph (2) above, provided the vessel remains afloat in a condition of stable equilibrium and satisfies the following stability criteria:

- (a) The stability in the final condition of flooding may be regarded as sufficient if the righting lever curve has a minimum range of 20° beyond the position of equilibrium in association with a residual righting lever of at least 100 mm. The area under the righting lever curve within this range should be not less than 0.0175 m-rad. Consideration should be given to the potential hazard presented by protected or unprotected openings which may become temporarily immersed within the range of residual stability. The unflooded volume of the poop superstructure around the machinery space casing, provided the machinery casing is watertight at this level, may be taken into consideration in which case the damage waterline should not be above the after end of the top of the poop superstructure deck at the centreline.
- (b) The angle of heel in the final condition of flooding should not exceed 20°.
- (c) The initial metacentric height of the damaged vessel in the final condition of flooding for the upright position should be positive and not less than 50 mm.
- (d) Relaxation from the damage stability requirements should be permitted only if the proportions, arrangements and other characteristics of the vessel are more favourable to stability after damage.

(4) Permeabilities

The permeabilities employed are to be those as calculated or estimated for the individual spaces in question.

(5) Initial condition of loading

The subdivision and stability calculation should be carried out in the worst operating condition in respect of the residual buoyancy and stability in the non-icing condition.

6 Guidance for precautions against freezing of fire mains (part B and part C of chapter V)

In considering the problem of the freezing of fire mains in vessels, the possible solutions of the problem are:

- (a) the recirculation of a sufficient quantity of water, if necessary from a heated reservoir;
- (b) the use of a dry system of fire main such that there is no water in the line until a control valve in an accessible space protected from frost (on the rising main) is opened;
- (c) the use of a leak-off system in which a sufficient quantity of water is allowed to escape from the ends of the fire main; and
- (d) the use of a heating system whereby steam, electrical or hot water heating is used to maintain the water in the fire main in a liquid state. The use of insulation may be incorporated in this system in order to avoid heat loss. Heating may also be effective in reducing the quantity of circulating water referred to in paragraphs (a) and (c) of this recommendation.

In any case, the provisions of effective drainage to the fire main and the proper use of the drains by the crew is imperative if freezing of the fire main is to be avoided in low ambient temperatures.

7 Guidance concerning the use of certain plastic materials (regulations V/11 and V/31)

In considering the problem concerning the use of certain plastic materials, particularly in accommodation and service spaces and control stations, the Administration should note that such materials are flammable and may produce excessive amounts of smoke and other toxic products under fire conditions.

8 Guidance on a method of calculation of the minimum distance from the deepest operating waterline to the lowest point of the top of the bulwark or to the edge of the working deck (regulation VI/3)

- (1) The minimum vertical distance from the deepest operating waterline to the lowest point of the top of the bulwark or to the edge of the working deck if guard rails are fitted, referred to in regulation VI/3, should be determined for each vessel, taking into account the probability of shipping water on the deck when the vessel is in moderate beam seas when fishing. This probability should not be greater than 5 per cent. The calculations should take account of the damping coefficient associated with the presence of bilge keels or any other roll damping arrangements.

(2) Where no national practice exists, this distance may be determined by means of the following formulae, based upon the regression analysis of results of the calculations of the probability of shipping water on deck, which is assumed to be 5 per cent when the vessel is fishing in beam seas with the significant wave heights of about 2.9 m and about 1.4 m respectively:

$$H = 0.53 + 0.11B + 0.32 \left(2.6 - \frac{B}{d} + 0.85(C_B - 0.6) + 0.61 \right) GM - 0.7 \text{ metres}$$

for vessels which are intended to stop their fishing operations at the significant wave heights of more than 2.9 m, and

$$H = 0.8 + 0.23 \left(2.6 - \frac{B}{d} + 0.52(C_B - 0.6) + 0.62 \right) GM - 0.7 \text{ metres}$$

for vessels which are intended to stop their fishing operations at the significant wave heights of 1.4 m; if the significant wave heights are between 2.9 m and 1.4 m, the values of H should be determined by linear interpolation. In the above formulae:

B = maximum breadth of the vessel, measured amidships to the moulded line of the frame in a vessel with a metal shell and to the outer surface of the hull in a vessel with a shell of any other material (metres)

d = maximum permissible moulded draught (metres)

C_B = block coefficient

GM = initial metacentric height (metres)

All dimensions correspond to the deepest operating waterline.

ANNEX 31

DRAFT MSC RESOLUTION

REQUIREMENTS FOR PERIODIC SERVICING AND MAINTENANCE OF LIFEBOATS AND RESCUE BOATS, LAUNCHING APPLIANCES AND RELEASE GEAR

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO the Measures to prevent accidents with lifeboats (MSC.1/Circ.1206/Rev.1) and the Interim recommendation on conditions for authorization of service providers for lifeboats, launching appliances and on-load release gear (MSC.1/Circ.1277) approved by it,

RECOGNIZING the need to establish a uniform, safe and documented standard for periodic servicing and maintenance of lifeboats (including free-fall lifeboats) and rescue boats (including fast rescue boats), launching appliances and release gear,

ANNEX 26

DRAFT ASSEMBLY RESOLUTION

**NOTIFICATION AND CIRCULATION THROUGH THE
GLOBAL INTEGRATED SHIPPING INFORMATION SYSTEM (GISIS)**

THE ASSEMBLY,

RECALLING article 15(j) of the Convention on the International Maritime Organization concerning the functions of the Assembly in relation to regulations and guidelines concerning maritime safety and the prevention and control of marine pollution from ships,

RECALLING ALSO that one of the goals of the Organization is to ensure the consistent and effective implementation of IMO instruments globally and compliance with their requirements,

RECALLING FURTHER that, since 2004, the Strategic Plan for the Organization has promoted the effective use of information and communication technology and the availability of, and access to, information relating to ship safety and security and environmental protection (i.e. transparency),

RECALLING IN PARTICULAR that, by resolution A.1029(26) on the *Global Integrated Shipping Information System (GISIS)*, it recognized that GISIS aims at facilitating, inter alia, Member States' compliance with reporting requirements, and urged Member States specifically to use GISIS reporting facilities to sustain and enhance compliance with mandatory reporting requirements, as contained in those mandatory instruments to which they are Parties, thereby potentially assisting them in the context of the Voluntary IMO Member State Audit Scheme,

NOTING WITH SATISFACTION that GISIS has been continuously developed and additional modules have been released since its launch in 2005 in order to allow a wider coverage of direct reporting by Member States in compliance with existing requirements,

RECOGNIZING that, to promote the implementation of mandatory IMO instruments, the effective use of information and communication technology would contribute significantly to all Member States fulfilling their obligations of mandatory reporting and the circulation of any such notification by the Organization could be achieved through the GISIS system,

RECOGNIZING ALSO the important role the system could play in respect of enhancing the rate of notification and potentially reducing the administrative burden for the Contracting Governments or Parties,

RECOGNIZING FURTHER the fact that, once the Organization has been notified through GISIS by a Contracting Government or Party, the related mandatory report would also become accessible to other Contracting Governments or Parties through GISIS, and the administrative burden of the Organization could be reduced,

HAVING CONSIDERED the recommendation made by the Facilitation Committee, at its thirty-eighth session, the Marine Environment Protection Committee, at its sixty-fifth session, and the Maritime Safety Committee, at its ninety-second session,

1. AGREES that notification through GISIS should be considered as one effective way for Contracting Governments or Parties to IMO instruments to fulfil their reporting obligations under the various mandatory IMO instruments;
2. FURTHER AGREES that once Contracting Governments or Parties have notified through GISIS in respect of a reporting requirement to the Organization, the requirement for the Organization to circulate any such notification under the IMO instrument concerned would have been met;
3. URGES Member States to use the reporting facilities available through GISIS to fulfil their reporting obligations under the various IMO instruments and to work towards the improvement of the quality of the data being collected through GISIS by implementing comprehensive validation processes when entering data into the system;
4. REQUESTS the Secretary-General to continue developing the system, particularly its modules related to mandatory reporting requirements, in close cooperation with Member States, IMO organs, international organizations and all other stakeholders of the global maritime community, as appropriate.

ANNEX 27

DRAFT ASSEMBLY RESOLUTION

**GUIDELINES TO ASSIST INVESTIGATORS IN THE IMPLEMENTATION
OF THE CASUALTY INVESTIGATION CODE
(RESOLUTION MSC.255(84))**

THE ASSEMBLY,

RECALLING Article 15(j) of the Convention on the International Maritime Organization concerning the functions of the Assembly in relation to regulations and guidelines concerning maritime safety and the prevention and control of marine pollution from ships,

NOTING WITH CONCERN that, despite the best endeavours of the Organization, casualties and incidents resulting in loss of life, loss of ships and pollution of the marine environment continue to occur,

NOTING ALSO that the safety of seafarers and passengers and the protection of the marine environment can be enhanced by timely and accurate reports identifying the circumstances and causes of marine casualties and incidents,

NOTING FURTHER the rights and obligations of coastal and flag States under the provisions of articles 2 and 94 of the United Nations Convention on the Law of the Sea (UNCLOS),

NOTING IN ADDITION the responsibilities of flag States under the provisions of the International Convention for the Safety of Life at Sea (SOLAS, regulation I/21), the International Convention on Load Lines, 1966 (article 23) and the International Convention for the Prevention of Pollution from Ships (MARPOL, article 12), to conduct casualty investigations and to supply the Organization with relevant findings,

CONSIDERING that each Administration shall conduct investigations of marine casualties and incidents, in accordance with SOLAS regulation XI-1/6, as supplemented by the provisions of the *Code of the international standards and recommended practices for a safety investigation into a marine casualty or marine incident (Casualty Investigation Code)* adopted by resolution MSC.255(84),

ACKNOWLEDGING that the investigation and proper analysis of marine casualties and incidents can lead to greater awareness of casualty causation and result in remedial measures, including better training, for the purpose of enhancing safety of life at sea and protection of the marine environment,

RECOGNIZING the need for *Guidelines to assist investigators in the implementation of the Casualty Investigation Code* (resolution MSC.255(84)) to provide, as far as national laws allow, a common approach for States to adopt in the conduct of marine safety investigations into marine casualties and marine incidents,

RECOGNIZING ALSO the international nature of shipping and the need for cooperation between Governments having a substantial interest in a marine casualty or incident for the purpose of determining the circumstances and causes thereof,

HAVING CONSIDERED the recommendations made by the Maritime Safety Committee, at its ninety-second session, and by the Marine Environment Protection Committee, at its sixty-fifth session:

1. ADOPTS the *Guidelines to assist investigators in the implementation of the Casualty Investigation Code* (resolution MSC.255(84)), as set out in the annex to the present resolution;
2. INVITES all Governments concerned to take appropriate measures to give effect to the Guidelines as soon as possible in order to allow effective analysis when conducting a marine safety investigation and taking preventive actions;
3. REVOKES resolutions A.849(20) and A.884(21).

* * *

ANNEX

GUIDELINES TO ASSIST INVESTIGATORS IN THE IMPLEMENTATION OF THE CASUALTY INVESTIGATION CODE (RESOLUTION MSC.255(84))

1 INTRODUCTION

1.1 The purpose of these Guidelines is to provide practical advice for the systematic investigation of marine casualties and incidents and to allow the development of effective analysis and preventive action. The overall objective is to prevent similar casualties and incidents in the future.

1.2 The ultimate purpose of a marine safety investigation is to advance maritime safety and protection of the marine environment. In the context of these Guidelines, this goal is achieved by identifying safety deficiencies through a systematic safety investigation of marine casualties and incidents, and then recommending or effecting change in the maritime system to correct these deficiencies. It is not the purpose of a safety investigation to determine liability or apportion blame.

1.3 These Guidelines should result in an increased awareness by all involved in the marine industry of the human, organizational, environmental, technical and external factors that may be involved in marine casualties and incidents. This awareness should lead to proactive measures by the maritime community which in turn should result in the saving of lives, ships, cargo and the protection of the marine environment, improvements to the lives of marine personnel, and safer shipping operations.

1.4 These Guidelines apply, as far as national laws allow, to the investigation of marine casualties or incidents in which either one or more States have a substantial interest because the casualty or incident involves a ship under or within their jurisdiction.

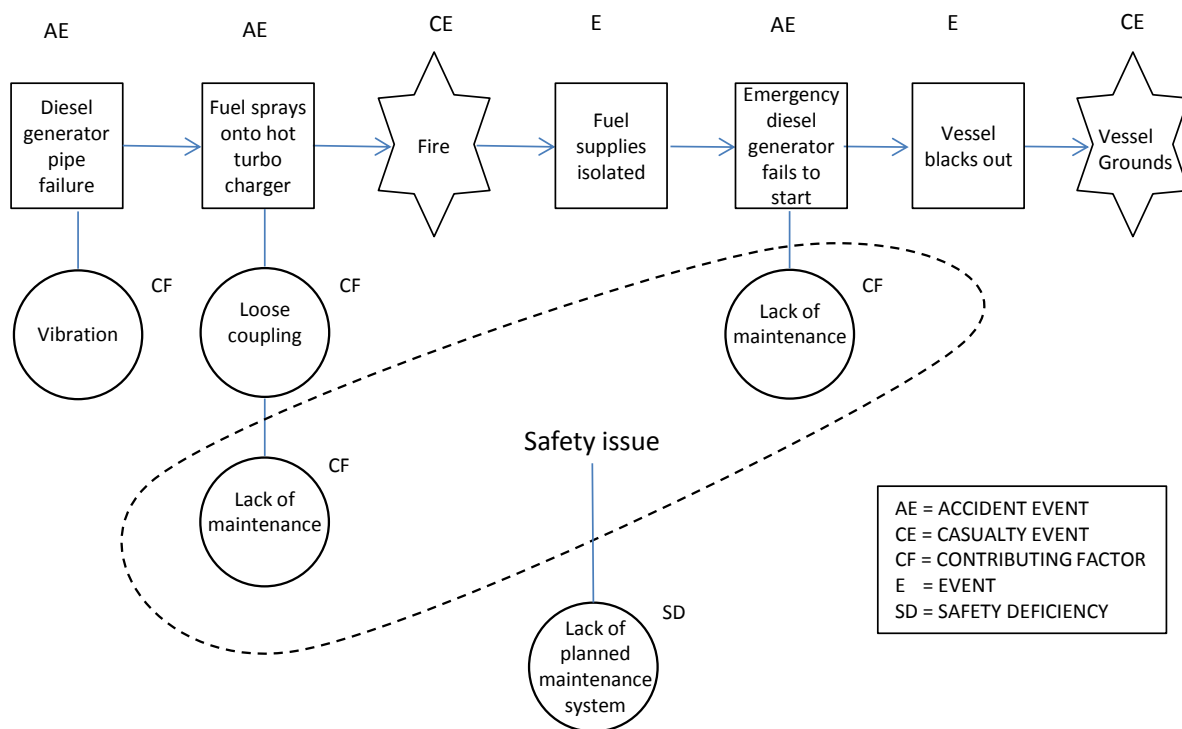
2 DEFINITIONS

2.1 Table of definitions

See chapter 2 of the Casualty Investigation Code (resolution MSC.255(84)) for terms not defined in these Guidelines.

Event	An action, omission or other happening.
Casualty event	The marine casualty or marine incident, or one of a number of connected marine casualties and/or marine incidents forming the overall occurrence. (e.g. a fire leading to a loss of propulsion leading to a grounding).
Accident event	An event that is assessed to be inappropriate and significant in the sequence of events that led to the marine casualty or marine incident. (e.g. human erroneous action, equipment failure, etc.).
Contributing factor	A condition that may have contributed to an accident event or worsened its consequence. (e.g. man/machine interaction, inadequate illumination, etc.).
Safety issue	An issue that encompasses one or more contributing factors and/or other unsafe conditions.
Safety deficiency	A safety issue with risks for which existing defences aimed at preventing an accident event, and/or those aimed at eliminating or reducing its consequences, are assessed to be either inadequate or missing.

2.2 The following diagram illustrates how a sequence of events leading to a casualty occurrence would be classified using the above terms.



3 QUALIFICATIONS AND TRAINING OF INVESTIGATORS

3.1 To achieve a systematic and effective safety investigation the appointed investigators need to have expertise in marine casualty investigation and be knowledgeable in matters relating to the marine casualty or incident. Areas of expertise need to include evidence collection techniques, interview techniques, analysis techniques and the identification of human and organizational factors in marine casualties and incidents.

3.2 All investigators attending a marine casualty site should have sufficient knowledge in personal safety, taking particular note that the hazards present at a casualty site may well be beyond those encountered in normal ship operations.

3.3 A Marine Safety Investigation Authority should consider developing a formal training programme to ensure that its investigators acquire the necessary knowledge, understanding and proficiency in marine safety investigation.

4 NOTIFICATION AND COOPERATION

4.1 Notification of a marine casualty or incident is to be provided to all affected parties as soon as reasonably practicable. Notification includes informing the parties involved in the casualty or incident according to chapter 20 of the Code, as well as any substantially interested State in accordance with chapter 5 of the Code. Notification should preferably be in a format that ensures a prompt acknowledgement from the addressee.

4.2 If the casualty or incident involves substantial interests of more than one State, the States should quickly reach an agreement on cooperation in accordance with chapter 7 of the Code. This agreement may include, but not be limited to:

- .1 ensuring that the objectives of each participating State is in accordance with the IMO Casualty Investigation Code;
- .2 which State will lead the investigation;
- .3 the possibilities to share casualty information, and draft safety investigation reports in accordance with chapter 13 of the Code, with regard to national legislation on confidentiality as well as the potential risk of safety investigation findings being used in criminal and civil lawsuits; and
- .4 distribution of costs related to the investigation.

4.3 If an agreement in accordance with the Code, chapter 7, cannot be made, the involved States should seek to share factual information to the greatest extent possible, being guided by the recommended practice in the Code.

5 INVESTIGATION

5.1 Extent of investigation

5.1.1 Marine casualties and incidents can have many causal factors and the underlying safety issues often exist remote from the casualty site. Proper identification of such issues requires timely and methodical investigation, going far beyond the immediate evidence in search for conditions which may cause future occurrences. Marine casualty or incident safety investigations should therefore be seen as a means of identifying not only the accident events, but also safety deficiencies in the overall management of the operation from policy through to its implementation, as well as in regulation, survey and inspection. For this reason safety investigations should be broad enough to meet these overriding criteria.

5.1.2 The extent of any safety investigation can be divided into five areas:

- .1 people;
- .2 environment;
- .3 equipment;
- .4 processes and procedures; and
- .5 organization and external influences.

5.2 Initial response

An investigation should be carried out as soon as possible after an occurrence so as to limit the loss of perishable evidence including the degradation of witness memory. To be able to start promptly it is essential that the investigating State has a preparedness plan in place which among other things, will facilitate:

- .1 the ready availability of trained investigators;
- .2 the availability of specialist help, including human and organizational factors experts;
- .3 ready access to 24-hour contact points for other Marine Safety Investigation Authorities; and
- .4 the availability of the necessary predictable resources.

5.3 Site management

5.3.1 Site management generally starts even before the investigator deploys to the casualty site. The pre-planning will often need to include:

- .1 identification of competencies needed at the casualty site;
- .2 identification of hazards and risks that the team may encounter at the casualty site, and the precautions that need to be taken, as well as the personal protective equipment (PPE) that needs to be carried;
- .3 identification of particularly vulnerable evidence that needs to be secured as soon as possible including VDR information, documentation of sites that for some reasons cannot be left unchanged until the team arrives, and repatriation of crew members; and
- .4 a draft interview schedule taking into account repatriation of seamen as well as the fact that persons involved can suffer from trauma.

5.3.2 There can be many different stakeholders involved in the aftermath of a marine casualty or incident, each with their own legitimate interests and responsibilities. Coordination at the casualty site is vital to make the evidence collection successful.

5.3.3 When arriving at the casualty site the hazard and risk assessment should be reviewed to identify any additional risks for the team and to put in place any necessary remedial action before the team starts its work.

5.4 Start-up meeting

In safety investigations involving more than one State it is generally wise to set up a meeting with representatives of the other substantially interested States at an early stage. The purpose of the start-up meeting is, among other things, to facilitate:

- .1 the sharing of knowledge of what is known about the marine casualty or incident;
- .2 the development of an investigation plan;
- .3 the delegation of investigation tasks (international coordination); and
- .4 the identification of additional help in the form of specialists and/or technical expert examination.

5.5 Collection of evidence

5.5.1 During the safety investigation, investigators should aim to gather and record all the evidence and factual data which may be of interest within the scope of the investigation. Physical and documentary evidence and witness statements should be gathered not only at the casualty site, but from all sources required to fully explain the accident events and their contributing factors to the accident (e.g. operation, management, inspection and regulation).

5.5.2 Evidence collection also needs to be broad enough to cover the human, organizational and environmental factors in relation to the casualty or incident. If a human and organizational factor specialist is required, it is essential to include this expert as early as possible in the investigation team.

5.5.3 To facilitate a comprehensive evidence collection it is often wise to:

- .1 refer to generic checklists but remain flexible as evidence once collected will often point out new areas of inquiry; and
- .2 use a system to register the evidence collected (Evidence log). This is particularly valuable in complex investigations or when more than one State is involved.

5.5.4 It is recommended that the fact-finding stage of the investigation process itself be kept separate from the complete analysis of the collected evidence leading to conclusions and recommendations. Fact finding usually includes, but is not necessarily limited to the areas covered in sections 5.6 to 5.10.

5.6 Inspection of casualty site

5.6.1 Inspection and documentation of the casualty site and/or places of interest for the investigation can include inspection of the ship/ships involved, a fairway where the casualty or incident occurred, and underwater survey and filming of the wreckage of a ship.

5.6.2 The collection of evidence that can deteriorate or disappear over time will always be the first priority in evidence collection when the investigator(s) arrives at the casualty site. Photo and/or video documentation of the site in general and in detail, and before any removal of evidence, is generally also of a high priority.

5.6.3 Where there is perishable evidence and the investigator(s) may be delayed in arriving at the casualty site, there may be a need to give instructions for the evidence to be preserved.

5.7 Gathering or recording physical evidence

5.7.1 Physical evidence can include data from VDR and other electronic devices on board like electronic charting systems, central fire alarm units, as well as nautical charts, weather forecasts obtained on board, and logbooks. Physical evidence can also include technical samples of oil, paint, or fire residues, and pieces of broken machinery or other broken parts.

5.7.2 It is essential that the person who collects electronic, documentary or material evidence is skilled in applicable techniques for both collection and storage of that type of evidence to prevent contamination, further deterioration or loss.

5.7.3 Some information of great value can also be obtained from external sources such as CCTV, shore radar and radio surveillance systems and Marine Rescue Coordination Centres. VTS centres may also be able to provide valuable information, including recordings of radio traffic and AIS information.

5.8 Witness information

5.8.1 Witness interviews should be performed by persons skilled in interviewing techniques to reveal information the witness may be able to provide. The planning of the interview is essential for a successful outcome. Things to be considered include:

- .1 time and location;
- .2 any need of interpreters;

- .3 make-up of the interview team and the roles of the team members;
- .4 the particular needs of the witness; and
- .5 the topic areas to be explored with the witness.

5.8.2 The interviewed person should be informed, before the interview starts, about the purpose of the investigation and the conditions under which he/she will be providing information. The witness should generally be interviewed singly, or accompanied by someone nominated by the witness. The nominated individual should, however, not be allowed to interfere with the interview. The witness should under all circumstances be allowed access to legal advice if he/she wants it (see chapter 12 of the Code).

5.8.3 The interview might be recorded or a written record could be made of the interview. A written record should be discussed with the witness to clarify any anomalies. Witness information should be verified wherever possible. Statements made by different witnesses may conflict and further supporting evidence may be needed.

5.9 Reviewing of documents, procedures and records

5.9.1 Documents to be reviewed can include personal and ship-related certificates, reports from the ship's classification society, maintenance records, the Master's standing orders, etc. An assessment may also be made of the company's Safety Management System from its safety policy through to its implementation within the organization.

5.9.2 Government agencies, such as customs, quarantine and State Authorities may have useful information relating to crew lists, the general condition of the ship, ship certificates, etc. Coroners and medical records can provide valuable information. Port authorities and independent surveyors can also hold information of use to an investigation. Applicable regulations may also need to be examined.

5.9.3 A good investigation explores the extent of correlation between the documents and reality at all appropriate levels: this will generally require some specialist skills.

5.10 Conducting specialized studies (as required)

5.10.1 It can sometimes be necessary to conduct specialized studies to establish how a casualty or incident happened. This can include, for example, metallurgic specialist studies of broken machinery parts, analysis of oil or paint residues, calculation and reconstruction of a ship's stability features, lashing calculations, specialist analysis of weather and sea conditions at the time and place of the casualty or incident, and the use of simulators to reconstruct and analyse a sequence of events.

5.10.2 Where a proposed testing of physical evidence is likely to change its state, other interested parties who may be relying on that evidence should be consulted.

5.11 Reconstruction and analysis

5.11.1 There are several different methods of organizing evidence to support reconstruction and analysis in safety investigation, each having its own benefits and drawbacks. To ensure that a casualty or incident is thoroughly examined from a safety point of view, it is essential that the investigation is done with a systemic perspective. A systemic perspective involves going beyond determining "who did what?" and to look for the conditions that influenced different relevant events, even when these conditions are to be

found remote from the casualty site. A systemic perspective also puts human factors into context and includes the interactions between man, machine and the organization.

5.11.2 The analysis methods used will help the investigator to think in a structured way but will also have an effect on where the investigator will put his/her focus. Some methods focus on human factors; some support the understanding of the sequence of events; others are more supportive in complex safety analysis or in understanding technical failures. Analysis methods should therefore rather be seen as tools in a tool box. A good investigation will choose the optimal set of analysis tools to meet the characteristics of that particular casualty or incident. However, the method or the combination of methods used in each investigation should as a minimum requirement support:

- .1 reconstruction of the casualty or incident as a sequence of events;
- .2 identification of linked accident events and contributing factors at all appropriate levels; and
- .3 safety analysis and development of recommendations.

5.12 Reconstruction of the casualty events and their linked conditions

5.12.1 The first step in analysis is to review the factual information to clarify what is relevant and what is not, and to ensure the information is as complete as possible or practicable. This stage of the analysis should aim at determining how the marine casualty or incident occurred. The reconstruction is preferably done by using a method that enables a graphical description of the sequence of events. This is beneficial since it allows the investigator to discuss and present the case, and in particular to:

- .1 identify gaps in the information;
- .2 identify any conflicts in evidence;
- .3 provide a graphical description of how different events are related; and
- .4 identify contributing factors and their relation to different accident events.

5.12.2 Marine casualty or incident investigation is an iterative process and the reconstruction phase generally identifies a need to make a revision of the evidence collection plan.

5.13 Safety analysis

The purpose of a safety analysis is to get a more thorough understanding of the underlying safety issues that can cause or contribute to a casualty or incident. Some investigation analysis methods combine casualty reconstruction and safety analysis into one. Some basic analysis methods can be directly linked to the reconstruction of events, while other safety analysis tools can be derived from different accident causational models and are better used as stand-alone methods. Efficient safety analysis tools:

- .1 encourage different perspectives of casualty or incident causation;
- .2 support communication and deeper questioning;

- .3 enable the identification of safety issues and safety deficiencies, including those remote from the casualty site; and
- .4 enhance the development of effective remedial actions at all appropriate levels.

6 REPORTING

6.1 Reporting requirements

6.1.1 MSC-MEPC.3/Circ.[4] requires particular marine casualty data to be entered into the GISIS marine casualties and incidents module, together with the final version of a marine safety investigation report.

6.2 Final report

6.2.1 To facilitate the flow of information, the final report of the safety investigation should be well structured and cover what is listed in paragraph 2.12 of the Code. The report should, within its different parts, clearly distinguish between facts and analysis.

6.2.2 The singleness of purpose to enhance maritime safety and protection of the marine environment should be reflected in the non-judgmental language used in the report. Witnesses' names and personal information which may identify them should remain confidential.

6.2.3 In normal investigation practice, gaps in information that cannot be resolved are usually filled by logical extrapolation and reasonable assumptions. Such extrapolation and assumptions should be identified and a statement of the measure of certainty provided. Despite best efforts, analysis may not lead to firm conclusions. In these cases, the more likely hypotheses should be presented.

6.2.4 If safety recommendations are issued these should be addressed to those that are best placed to implement them, such as shipowners, managers, recognized organizations, maritime authorities, vessel traffic services, emergency bodies, and international and regional maritime organizations and institutions. Safety recommendations should always be supported by the facts and analysis of the safety investigation. To gain acceptance, recommendations need to be practical, necessary and likely to be effective.

6.2.5 Where it becomes apparent during an investigation that there is a safety deficiency that presents a serious potential risk to lives, ships or the environment, action should be taken to inform the people or organization responsible for managing the risk. This may take the form of an interim safety recommendation or some other means of correspondence. It is important not to delay action to address such safety risks until the completion of the investigation.

6.3 Consultation

6.3.1 In accordance with paragraphs 25.2 and 25.3 of the Code, where it is practicable, the investigator should send a copy of a draft marine safety investigation report for comment to the interested parties as defined in paragraph 2.7 of the Code. This allows a process for correcting matters of fact within a report and the consideration of alternative hypotheses or opinions in relation to the analysis. In addition, it allows responsible parties, e.g. the ship operator, to indicate what safety action may have been taken in relation to a safety issue. Any such action taken should be included in the final report.

6.3.2 The investigator should consider the comments before preparing the final marine safety investigation report, being guided by paragraph 25.3 of the Code.

6.4 Publication

6.4.1 The final report should be made available to the public and the shipping industry in accordance with paragraph 14.4 of the Code. The Internet is a valuable tool for making a report available to the public.

6.4.2 A summary of the marine safety investigation report and any safety recommendations, translated into English and/or other major languages, will enable a global public to gain important safety information from the investigation.

6.5 Follow-up on safety recommendations

6.5.1 Every recommendation addressed to an individual or specific organization should be followed up within a reasonable period following the release of a final safety investigation report with a view to promoting safety action. It is also good practice to reinforce positive safety action to address a recommendation by making it public. Similarly, the fact that no action has been taken by those responsible for implementing a recommendation should also be published.

* * *

Appendix 1

AREAS OF HUMAN AND ORGANIZATIONAL FACTORS INQUIRY

The areas of inquiry set out in this appendix can be used in planning the investigation of human and organizational factors during a maritime safety investigation. Some areas of inquiry overlap or indeed incorporate multiple interactions. The guidance is not meant to be exhaustive, nor is it intended to be a checklist where each point must be investigated every time. Some areas may not be relevant in the investigation of a particular occurrence, while other areas may require deeper investigation. As new human and organizational factors/issues emerge, new areas of inquiry will need to be explored by investigators.

Skilful interviewing can help the investigator eliminate irrelevant lines of inquiry and focus on areas of greater potential significance. The order and manner in which questions are asked will depend on who is being interviewed and on his or her willingness and ability to recall and describe personal behaviour and personal impressions. Training in cognitive interviewing techniques will assist investigators in eliciting accurate information from interviewees, and is highly recommended. Further, because human interactions, including interviews, are subject to misunderstanding, it will normally be necessary to verify, cross-check or augment information received from one person by interviewing others on the same subjects.

While important human and organizational factors/information can be gained through interview, investigators must ensure that they also seek additional information through other means. Examination of rosters, procedures, personnel records, safety occurrence reporting records and risk assessment protocols (for example) may provide critical insights into practices, norms and attitudes potentially affecting safety.

SHIPBOARD ISSUES

1 Training and experience

- Position or rank held.
- Certificate held; length of time the certificate has been held; where trained.
- Experience in the position; both on this ship and over career.
- Length of time on this contract and overall on board the ship.
- Experience on other ships; both with this company and other companies.

2 Shipboard organizational structure and processes

- The management/department structure on board the ship.
- The individual's position within the on board structure; who they work for, who they work with, who they report to and who they assign duties to.
- Normal day-to-day responsibilities, tasks and duties.
- Description of any interworking with personnel ashore.

3 Nature of tasks

- Specifics of the task(s) being undertaken at the time of the occurrence, including location.
- Differences between the task at that time and normal operations.
- Description of the social dynamics of the working environment (e.g. alone/pair/team).
- Understanding of the task.
- Familiarity with the task; last time it was performed, etc.
- Available discretion relating to how the task was to be accomplished.
- Training provided for the task; what was the training.
- Procedures, documents and guidance for the task.
- Equipment used for the task; reliability, previous failures, problems and were the crew familiar with it.
- Physical environment; heat, humidity, noise, confined space, exposure to chemicals, etc.
- Workload and/or effort required for the task:
 - To what extent was it within their capability at the time.
 - Were there any tasks that they did not do because of the workload on this task.
 - Physical effort involved; pushing, pulling, lifting, etc.
 - Mental effort involved; thinking, deciding, calculating, remembering, looking, searching, etc.
 - Time pressure involved; adequacy of time allocated to the task.
 - Use of scaling questions may assist here. (e.g. "on a scale of 1 to 10, where 1 is very easy and 10 is extremely difficult, how (physically) difficult was this task ...").

4 Activities prior to occurrence

- Actions and/or activities before coming on watch or reporting for duty.
- Individual's role in the operation being conducted by the ship at the time of the occurrence.
- Individual's location on board at the time of the occurrence.
- What was being observed immediately prior to the occurrence; what was seen, heard, felt, smelled, and thought about.

5 Work-period/rest-period/recreation pattern

- Description of normal duty schedule (e.g. day worker or watchkeeper).
- Description of duty schedule on the day of the occurrence; the day before and during the week before the occurrence.
- Length of time awake and/or on duty at the time of the occurrence.
- Overtime worked on the day of the occurrence; the day before and during the week before the occurrence.
- Usual sleep/rest routine (What time to sleep and awake).
- Sleep/rest routine in the three days (72 hours minimum) leading up to the occurrence:
 - 72-hour history of time to bed/time to sleep/duty times/nap times.
 - If there is an indication of reduced sleep beyond 72 hours, collect sleep information beyond 72 hours (as a guide, back to two good nights' rest prior to the occurrence).
 - Quality of sleep; disturbances, light sleep, waking, how refreshed when waking.
 - Time of day when sleep is taken (impact on quality).
 - Last extended period of off-duty time.

6 Living conditions and shipboard environment

- Description of the adequacy of personal facilities; individual, shared or communal; noisy, cramped, vibrations, temperature, ship's motion, etc.
- Availability and consumption of alcohol and/or non-prescribed medications.

7 Physical health

- Symptoms of illness experienced within the 72 hours before the occurrence.
- Medications taken (prescription, non-prescription).
- Description of the last meal consumed prior to the occurrence; what and when.
- Description of existence and regularity of exercise routine.
- Details of any recent medical examinations, illnesses or injuries.
- Details of any regular or irregular medication, both prescribed and non-prescribed.
- Description of quality of vision (corrective lenses, etc.).
- Description of quality of hearing (hearing aids, etc.).
- Name and contact details of personal physician.

8 Mental health

- Length of time spent away from family or loved ones.
- Extreme emotions at any time in the days before the occurrence; e.g. feelings of extreme sadness, anger, worry, fear (use scaling questions (1 to 10) to determine level).
- Important and/or difficult personal decisions made recently; e.g. financial or family worries.
- Recent work performance; any concerns from others.
- Stress and/or difficult situations whilst on board and how these were being managed.
- Difficulties with concentration.
- Any mental health issues recently and/or in the past.
- Medications taken (prescription, non-prescription).

9 Working relationships

- Friendships and/or support from other crew members.
- Conflicts and/or clashes with other crew members or supervisors.
- Trust in other crew members.
- Language barriers interfering with work performance.
- Clarity of roles and responsibilities with other crew members.

10 Employment conditions

- Contractual arrangements.
- Complaints or industrial action and systems for resolution of these.
- Recent changes to employment conditions.

11 Safety policy

- Awareness of the company's safety policy.
- Ship's procedures for dealing with safety issues; methods of reporting and addressing safety concerns.
- Safety training; type, nature and frequency.
- Emergency drills; type, nature of and frequency.
- Personal protective equipment (PPE) provided.
- Records and/or knowledge of personal accidents or injuries prior to the occurrence.

12 Staffing levels

- Sufficiency of staffing/crew levels on board.
- Appropriate allocation of crew members to duties.
- Changes to normal staffing/crew levels.

13 Standing orders

- Master's standing orders; for all or part of the crew.
- How are the orders communicated.
- Are the orders in accordance with the company policies.

14 Level of automation and reliability of equipment

- Complexity of machinery and automated systems.
- Training provided for systems.
- Competency of crew in using the systems.
- Reliability of systems; any earlier failures.
- Maintenance of systems.
- Are the systems integrated with each other and the task needs.

15 Ship design, motion/cargo characteristics

- Ship design, motion or cargo characteristics; any features which interfere with human performance (e.g. obstructed watchkeeper vision).

SHORESIDE MANAGEMENT ISSUES

16 Management policies and procedures

- Existence and opinion of the effectiveness of the safety management system, including auditing, analysis, reporting and occurrence investigation.
- Existence and opinion of the effectiveness of risk assessment and management policies and procedures relating to ships, personnel and the environment.
- Existence and opinion of the effectiveness of the role of the Designated Person Ashore (DPA).

17 Scheduling of work and rest periods

- The company's work schedule, relief policy and fatigue risk management policy.
- Adherence to these policies.
- Recent changes to these policies.

18 Staffing levels

- The company's policies and practices for determining staffing/crew levels on board ships.
- The effectiveness of these policies and practices.

19 Assignment of duties

- The company's policies for determining watchkeeping practices and other duties on board the ship.
- The actual watchkeeping practices.

20 Shore-ship-shore support and communications

- Means and level of support for the ship's master in conduct of operations.
- The master's reporting requirements.

21 Voyage planning and port call schedules

- Policies, procedures and guidelines provided to the master to enable voyage planning
- Actual practices for voyage planning.

22 Recreational facilities

- The company's policies and practices for the provision of welfare and recreational services on board.

23 Contractual and/or industrial arrangements and agreements

- Contractual arrangements for all crew members.
- Complaints or industrial action in the last year.

24 National/international requirements

- Appropriateness of the applicable international conventions and flag State regulations.
- Effectiveness of the flag State's implementation of the requirements and recommendations of the applicable international conventions.
- Compliance with the requirements and recommendations of the applicable international conventions and flag State regulations.

ANNEX 28

DRAFT ASSEMBLY RESOLUTION

**AMENDMENTS TO THE SURVEY GUIDELINES UNDER THE HARMONIZED
SYSTEM OF SURVEY AND CERTIFICATION (HSSC), 2011**

THE ASSEMBLY,

RECALLING Article 15(j) of the Convention on the International Maritime Organization concerning the functions of the Assembly in relation to regulations and guidelines regarding maritime safety and the prevention and control of marine pollution from ships,

RECALLING ALSO the adoption by:

- (a) the International Conference on the Harmonized System of Survey and Certification, 1988, of the Protocol of 1988 relating to the International Convention for the Safety of Life at Sea, 1974 and of the Protocol of 1988 relating to the International Convention on Load Lines, 1966, which, inter alia, introduced the harmonized system of survey and certification into the International Convention for the Safety of Life at Sea, 1974 and the International Convention on Load Lines, 1966, respectively;
- (b) resolution MEPC.39(29) of amendments to introduce the harmonized system of survey and certification into the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the 1978 Protocol relating thereto (MARPOL);
- (c) resolution MEPC.132(53) of amendments to introduce the harmonized system of survey and certification into MARPOL Annex VI; and
- (d) the resolutions given below of amendments to introduce the harmonized system of survey and certification into:
 - (i) the *International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code)* (resolutions MEPC.40(29) and MSC.16(58));
 - (ii) the *International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (IGC Code)* (resolution MSC.17(58)); and
 - (iii) the *Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (BCH Code)* (resolutions MEPC.41(29) and MSC.18(58)),

RECALLING ALSO that, by resolution A.1053(27), it adopted the *Survey Guidelines under the Harmonized System of Survey and Certification (HSSC), 2011* (hereinafter referred to as "the Survey Guidelines") with a view to assisting Governments in implementing the requirements of the aforementioned instruments,

RECOGNIZING the need for the Survey Guidelines to be further revised to take account of the amendments to the IMO instruments referred to above, which have entered into force or become effective since the adoption of resolution A.1053(27),

HAVING CONSIDERED the recommendations made by the Marine Environment Protection Committee, at its sixty-fifth session, and the Maritime Safety Committee, at its ninety-second session,

1. ADOPTS the amendments to the *Survey Guidelines under the Harmonized System of Survey and Certification (HSSC), 2011*, as set out in the annex to the present resolution;
2. INVITES Governments carrying out surveys required by the relevant IMO instruments to apply the provisions of the annexed Survey Guidelines;
3. REQUESTS the Maritime Safety Committee and the Marine Environment Protection Committee to keep the Survey Guidelines under review and amend them as necessary.

* * *

ANNEX

**AMENDMENTS TO THE SURVEY GUIDELINES UNDER
THE HARMONIZED SYSTEM OF SURVEY AND CERTIFICATION, 2011
(RESOLUTION A.1053(27))**

Note: *The struck-out text indicates deletions and the underlined text shows additions or changes to the Survey Guidelines.*

1 Amendments to General – 1 Introduction:

1.2 These Guidelines take into account amendments to statutory instruments which have entered into force up to and including 31 December ~~2011~~2013 (see appendix 1) and contain the following:

2 Amendments to General – 3 Application and Arrangement of the Guidelines

3.4 When appropriate, the detailed requirements for the various surveys contain a section that is applicable to all cargo ships followed by a section that only applies to ~~oil tankers~~ specific ship types.

3.8bis For the application of these Guidelines, the following guidance on terms used in the survey requirements is provided:

.1 "Examining" except where used in "examining the plans" or "examining the design" should be understood as a thorough examination, using appropriate techniques, of the components, system or appliance in question for satisfactory provision, arrangement and condition and for any signs of defects, deterioration or damage;

.2 "Testing" should be understood as a functional test of the system or appliance in question, to confirm its satisfactory operation and performance for its intended use.

3 Amendments to annex 1 – Survey Guidelines under the 1974 SOLAS Convention as modified by the 1988 Protocol relating thereto – (E) 1 Guidelines for Surveys for the Cargo Ship Safety Equipment Certificate:

(EI) 1.1.1.1 examining the plans for the fire pumps including the emergency fire pump¹, if applicable, fire mains, hydrants, hoses and nozzles and the international shore connection (SOLAS 74/00 regs.II-2/10.2 and 10.4.4 and FSSC chs.2 and 12)

(EI) 1.1.1.6 checking the provision of a fixed fire detection and fire alarm system for machinery spaces including periodically unattended machinery spaces and enclosed spaces containing incinerators (SOLAS 74/00/10 regs.II-2/7.2, 7.3 and 7.4; FSSC ch.9) (SOLAS 74/88 regs.II-2/13 and 14);

¹ Refer to the unified interpretation of chapter 12 of the FSS Code, MSC.1/Circ.1388.

- (EI) 1.1.1.14 examining the plans for the special arrangements for the carriage of dangerous goods, when appropriate, including water supplies, electrical equipment and wiring, fire detection including sample extraction smoke detection systems, where applicable, ventilation, bilge pumping, personnel protection and any water spray system (SOLAS 74/00 reg.II-2/19 (except 19.3.8, 19.3.10 and 19.4); FSSC chs.9 and 10) (SOLAS 74/88 reg.II-2/54);
- (EI) 1.1.1.16 examining, where applicable, the approved documentation for the alternative design and arrangements (SOLAS 00/06 regs. II-2/17 and III/38);
- (EI) 1.1.1.17 examining the design of the survival craft, including their construction equipment, fittings, release mechanisms launching and recovery appliances and embarkation and launching arrangements (SOLAS 74/96/06/11 regs.III/ 4,16, 31, 32 to 33; LSAC sections. 3.2, 4.1 to 4.9, 6.1 and 6.2);
- (EI) 1.1.1.30 checking the plans provision and specification of for the pilot transfer arrangement, the pilot ladders, the combination arrangements, where applicable, the access to the ship's deck and the associated equipment and lighting and hoists/pilot transfer arrangements(SOLAS 74/88/10 reg.V/23);
- (EI) 1.1.2 For the examination of plans and designs of the life-saving appliances and the other equipment of cargo ships the additional requirements for oil-tankers should consist of:
- (EI) 1.1.2.1 examining the plans for the cargo tank protection (SOLAS 74/00 regs.II-2/4.5.3, 4.5.5, 4.5.6, ~~4.5.7~~ and 10.8; FSSC chs.14 and 15) (SOLAS 74/88 regs.II-2/60 and 62); and
- (EI) 1.1.2.1bis examining the plans for gas measurement in double-hull spaces and double bottom spaces, including the fitting of permanent gas sampling lines, where appropriate (SOLAS 10 reg.II-2/4.5.7.2)
- (EI) 1.1.2.1ter examining, for oil tankers of 20,000 tonnes deadweight and above, the plans for the fixed hydrocarbon gas detection system for measuring hydrocarbon gas concentrations in all ballast tanks and void spaces of double-hull and double-bottom spaces adjacent to the cargo tanks, including the forepeak tank and any other tanks and spaces under the bulkhead deck adjacent to cargo tanks (SOLAS 10 reg.II-2/4.5.7.3 and FSSC ch.16);
- (EI) 1.1.3.1 examining the fire pumps and fire main and the disposition of the hydrants, hoses and nozzles and the international shore connection and checking that each fire pump, including the emergency fire pump, can be operated separately so that two jets of water are produced simultaneously from different hydrants at any part of the ship whilst the required pressure is maintained in the fire main; and testing that the emergency fire pump has the required capacity, and if the emergency fire pump is the main supply of water for any fixed fire-extinguishing system, checking that that the emergency fire pump has the capacity

- for this system^{Error! Bookmark not defined.} (SOLAS 74/00 reg.II-2/10.2; FSSC chs.2 and 12) (SOLAS 74/88 regs.II-2/4 and 19);
- (EI) 1.1.3.8 examining any fire detection and alarm system and any automatic sprinkler, fire detection and fire alarm system, and any sample extraction smoke detection system and confirming that installation tests have been satisfactorily completed (SOLAS 74/00/10 regs.II-2/7.2, 7.3, 7.4, 7.5.1, 7.5.5, 19.3.3 and 20.4; FSSC chs.9 and 10) (SOLAS 74/88 regs.II-2/11, 13, 14, 53 and 54);
- (EI) 1.1.3.11bis examining, where applicable, the alternative design and arrangements for fire safety or life-saving appliances and arrangements, in accordance with the test and inspection requirements, if any, specified in the approved documentation (SOLAS 00/06 regs. II-2/17 and III/38);
- (EI) 1.1.3.35 checking the provision of the pilot transfer arrangement, the access to the ship's deck and the associated equipment and lighting, checking the and, as appropriate, the deployment or operation of the pilot ladders and hoists/pilot transfer the combination arrangements (SOLAS 74/00/10 reg.V/23);
- (EI) 1.1.4 For the life-saving appliances and the other equipment of cargo ships for the additional requirements for oil tankers the survey during construction and after installation should consist of:
- (EI) 1.1.4.5 examining, for all tankers, the arrangements for cargo tank protection, (SOLAS 74/00/10 regs. II-2/4.5.3, 4.5.6, and 10.8; FSSC chs. 14 and 15) (SOLAS 74/88 regs II-2/60 and 62);
- (EI) 1.1.4.6 checking, for all tankers, the provision of at least one portable instrument for measuring oxygen and one for measuring flammable vapour concentrations, together with a sufficient set of spares, and suitable means for the calibration of these instruments (SOLAS 10 reg. II-2/4.5.7.1);
- (EI) 1.1.4.7 examining the arrangements for gas measurement in double-hull spaces and double bottom spaces, including the fitting of permanent gas sampling lines, where appropriate (SOLAS 10 reg. II-2/4.5.7.2)
- (EI) 1.1.4.8 examining, for oil tankers of 20,000 tonnes deadweight and above, the fixed hydrocarbon gas detection system for measuring hydrocarbon gas concentrations in all ballast tanks and void spaces of double-hull and double-bottom spaces adjacent to the cargo tanks, including the forepeak tank and any other tanks and spaces under the bulkhead deck adjacent to cargo tanks, and confirming that the installation tests have been satisfactorily completed (SOLAS 10 reg. II-2/4.5.7.3 and FSSC ch.16);
- (EI) 1.1.5.3bis confirming that, where applicable, the approved documentation for the alternative design and arrangement is on board (SOLAS 00/06 regs.II-2/17 and III/38);
- (EI) 1.1.5.9bis checking that records are provided, identifying any pilot ladders placed into service (SOLAS 10 reg.V/23.2.4);

- (EI) 1.1.5.11 checking that the International Code of Signals and an up-to-date copy of Volume III of the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual have been provided. (SOLAS 74/00/02 reg.V/21);
- (EI) 1.1.6 For the life-saving appliances and the other equipment of cargo ships, concerning the additional requirements for ~~oil~~-tankers the check that the required documentation has been placed on board should consist of:
- (EI) 1.1.6.2 confirming that the operating and maintenance instructions for the fixed hydrocarbon gas detection system are provided (SOLAS 10 reg. II-2/4.5.7.3 and FSSC ch. 16),
- (EA) 1.2.1.11bis confirming when appropriate, the validity of the International Energy Efficiency Certificate (MARPOL Annex VI reg.6.4 and 6.5);
- (EA) 1.2.1.15 confirming that, where applicable, the approved documentation for the alternative design and arrangements is on board (SOLAS 00/06 regs. II-2/17 and III/38);
- (EA) 1.2.1.23bis confirming that, where applicable, a factual statement has been provided onboard by the lifeboat release and retrieval system manufacturer or one of their representatives, that confirms the successful completion of the overhaul examination of an existing lifeboat release and retrieval system found to be compliant with paragraphs 4.4.7.6.4 to 4.4.7.6.6 of the LSA Code, or, alternatively, that a statement of acceptance of the installation of a replacement release and retrieval system to an existing lifeboat is available (SOLAS 11 reg. III/1.5; LSAC section 4.4.7.6)
- (EA) 1.2.1.30 checking that the International Code of Signals and an up-to-date copy of Volume III of the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual have been provided. (SOLAS 74/00/02 reg.V/21);
- (EA) 1.2.1.30bis checking that records are maintained identifying any pilot ladders placed into service and any repair effected (SOLAS 10 reg. V/23.2.4);
- (EA) 1.2.1.32 checking that records of navigational activities and daily reporting have been maintained (SOLAS 74/00/04-03 reg.V/28);
- (EA) 1.2.2.8 examining, as far as possible, and testing, as feasible, any fire detection and alarm system and any sample extraction smoke detection system (SOLAS 74/00/10 regs.II-2/7.2, 7.3, 7.4, 7.5.1, 7.5.5, 19.3.3 and 20.4; FSSC chs.9 and 10) (SOLAS 74/88 regs.II-2/11, 13, 14, 53 and 54);
- (EA) 1.2.2.13bis examining, where applicable, the alternative design and arrangements for fire safety or life-saving appliances and arrangements, in accordance with the test, inspection and maintenance requirements, if any, specified in the approved documentation (SOLAS 00/06 regs. II-2/17 and III/38);

- (EA) 1.2.2.17 examining each survival craft, including its equipment and, when fitted, the on-load release mechanism and hydrostatic lock and, for inflatable liferafts, the hydrostatic release unit and float-free arrangements. Checking that the hand-held flares are not out of date (SOLAS 74/00 regs.III/16, 20 and 31; LSAC sections 2.5, 3.1 to 3.3, 4.1.5, 4.4.7 and 4.4.8);
- (EA) 1.2.2.35 checking the provision, and operation and the annual test has been carried out for of the automatic identification system, where fitted, and whether the annual test has been carried out and a copy of the test report is on board (SOLAS 74/00/04/10 regs.V/18.9 and 19);
- (EA) 1.2.2.37 checking the provision and specification of the pilot ladders and ~~hoists~~/pilot transfer arrangements (SOLAS 74/00/10 reg.V/23);
- (EA) 1.2.3 For the life-saving appliances and the other equipment of cargo ships, concerning the additional requirements for ~~oil~~-tankers the annual survey should consist of:
- (EA) 1.2.3.4bis checking for all tankers, the provision of at least one portable instrument for measuring oxygen and one for measuring flammable vapour concentrations, together with a sufficient set of spares, and suitable means for the calibration of these instruments (SOLAS 10 reg. II-2/4.5.7.1);
- (EA) 1.2.3.4ter examining the arrangements for gas measurement in double-hull spaces and double bottom spaces, including the fitting of permanent gas sampling lines, where appropriate (SOLAS 10 reg. II-2/4.5.7.2)
- (EA) 1.2.3.4quad examining, as far as possible and testing the fixed hydrocarbon gas detection system (SOLAS 10 reg. II-2/4.5.7.3 and FSSC ch. 16);
- (EP) 1.3.2.4 testing any fire detection and alarm system and any sample extraction smoke detection system (SOLAS 74/00/10 regs.II-2/7.2, 7.3, 7.4, 7.5.5, 19.3.3 and 20.4; FSSC chs.9 and 10) (SOLAS 74/88 regs.II-2/11, 13, 14, 53 and 54);
- (EP) 1.3.3 for the life-saving appliances and the other equipment for the additional requirements for ~~oil~~-tankers the periodical survey should consist of:
- (ER) 1.4.3 for the life-saving appliances and the other equipment of cargo ships, concerning the additional requirements for ~~oil~~-tankers the renewal survey should consist of:

4 Amendments to annex 1 – Survey Guidelines under the 1974 SOLAS Convention as modified by the 1988 Protocol relating thereto – (C) 2 Guidelines for Surveys for the Cargo Ship Safety Construction Certificate:

- (CI) 2.1.1.1bis examining plans to verify that bulk carriers of 150 m in length and above, where appropriate, meet the applicable structural requirements of an organization recognized by the Administration, or national standards of the Administration, conforming to the functional requirements of the Goal-based Ship Construction Standards for Bulk Carriers and Oil Tankers (SOLAS 10 reg. II-1/3-10);

- (CI) 2.1.1.6 examining, where applicable, the approved documentation for the alternative design and arrangements (SOLAS 00/06 regs.II-1/55 and II-2/17);
- (CI) 2.1.2.8 examining plans to verify that oil tankers of 150 m in length and above, where appropriate, meet the applicable structural requirements of an organization recognized by the Administration, conforming to the functional requirements of the Goal-based Ship Construction Standards for Bulk Carriers and Oil Tankers (SOLAS 10 reg.II-1/3-10);
- (CI) 2.1.3.1bis confirming in accordance with the survey plan, that bulk carriers of 150 m in length and above, where appropriate, meet the applicable structural requirements of an organization recognized by the Administration, or national standards of the Administration, conforming to the functional requirements of the Goal-based Ship Construction Standards for Bulk Carriers and Oil Tankers (SOLAS 10 reg. II-1/3.10);
- (CI) 2.1.3.17 confirming and recording the ability of the machinery to reverse the direction of the thrust of the propeller in sufficient time and to bring the ship to rest within a reasonable distance, including the effectiveness of any supplementary means of manoeuvring or stopping the ship² (SOLAS 74/88 reg.II-1/28);
- (CI) 2.1.3.18 confirming that the main and auxiliary steering gear are so arranged that the failure of one of them does not render the other inoperative³ (SOLAS 74/88 reg.II-1/29);
- (CI) 2.1.3.21 confirming that the main steering gear is capable of steering the ship at maximum ahead service speed and is capable of putting the rudder over from 35° on one side to 35° on the other side with the ship at its deepest seagoing draught³ and running ahead at maximum ahead service speed and, under the same conditions, from 35° on either side to 30° on the other side in not more than 28s^{Error! Bookmark not defined.} (SOLAS 74/88 reg.II-1/29);
- (CI) 2.1.3.22 confirming that the auxiliary steering gear is capable of steering the ship at navigable speed and of being brought speedily into action in an emergency and that it is capable of putting the rudder over from 15° on one side to 15° on the other side in not more than 60 s with the ship at its deepest seagoing draught and running ahead at one half of the maximum ahead service speed or 7 knots, whichever is the greater^{Error! Bookmark not defined.} (SOLAS 74/88 reg.II-1/29);
- (CI) 2.1.3.24 confirming that, where the main steering gear comprises two or more identical power units and an auxiliary steering gear is not fitted, a defect can be isolated so that steering capability can be maintained or speedily regained after a single failure in its piping system or in one of the power units^{Error! Bookmark not defined.} (SOLAS 74/88 reg.II-1/29);

² For ships fitted with alternative propulsion and steering arrangements other than traditional arrangement, such as but not limited to, azimuthing propulsors or water jet propulsion systems, refer to MSC.1/Circ.1416.

³ For trials with the ship not at the deepest sea going draught, refer to MSC.1/Circ.1425.

- (CI) 2.1.3.53bis examining, where applicable, the alternative design and arrangements for machinery or electrical installations, or fire safety, in accordance with the test and inspection requirements, if any, specified in the approved documentation (SOLAS 00/06 regs. II-1/55 and II-2/17);
- (CI) 2.1.3.60 confirming that installed materials do not contain asbestos⁴ (SOLAS 74/00/09 reg.II-1/3-5);
- (CI) 2.1.3.62bis prior to the review of the coating technical file:
- (CI) 2.1.3.62bis.1 checking that the Technical Data Sheet and Statement of Compliance or Type Approval Certificate comply with the Standard;
- (CI) 2.1.3.62bis.2 checking that the coating identification on representative containers is consistent with the coating identified in the Technical Data Sheet;
- (CI) 2.1.3.62bis.3 checking that the inspector is qualified in accordance with the qualification standards;
- (CI) 2.1.3.62bis.4 checking that the inspector's reports of surface preparation and the coating's application indicate compliance with the manufacturer's Technical Data Sheet and Statement of Compliance or Type Approval Certificate; and
- (CI) 2.1.3.62bis.5 monitoring the implementation of the coating inspection requirements.
- (CI) 2.1.3.62ter reviewing the Coating Technical File (SOLAS 74/00/06/10 regs. II-1/3-2 and II-1/3-11; MSC.215(87) and MSC.288(87));
- (CI) 2.1.3.63 confirming for oil tankers and bulk carriers, when appropriate, the provision of means of access to cargo and other spaces in accordance with the arrangements in the Ship Structures Access Manual (SOLAS 74/00/02/04 reg. II-1/3-6, SOLAS 10 regs. II-1/3-10 and MSC.287(87));
- (CI) 2.1.4.1bis confirming in accordance with the survey plan, that oil tankers of 150 m in length and above, where appropriate, meet the applicable structural requirements of an organization recognized by the Administration, or national standards of the Administration, conforming to the functional requirements of the Goal-based Ship Construction Standards for Bulk Carriers and Oil Tankers (SOLAS 10 reg. II-1/3-10);
- (CI) 2.1.4.9 confirming that all cargo oil tanks in crude oil tankers have either:
- (CI) 2.1.4.9.1 been coated in accordance with MSC.288(87); or
- (CI) 2.1.4.9.2 been protected by alternative means of corrosion protection or utilization of approved corrosion resistance material (steel) in accordance with MSC.289(87) (SOLAS 10 reg. II-1/3-11).

⁴ Guidance on the means to verify that installed materials do not contain asbestos is contained in MSC.1/Circ.1426 on Unified interpretation on the implementation of SOLAS regulation II-1/3-5 and MSC.1/Circ.1379.

- (CI) 2.1.5.1 the provisions of (CI) 2.1.4 except (CI) 2.1.4.1bis.
- (CI) 2.1.6.1 confirming that the stability information and the damage control plans and damage control booklets have been provided (SOLAS 74/88 regs.II-1/22 and 23-1) (SOLAS 06 regs.II-1/5-1 and 19);
- (CI) 2.1.6.3 confirming that the approved Cargo Securing Manual for ships carrying cargo units including containers is provided on board (SOLAS 74/94 98 reg.VI/5.6);
- (CI) 2.1.6.6 confirming when appropriate that a coating technical file reviewed by the Administration has been provided on board (SOLAS 74/00/06/10 regs.II-1/3-2 and 3-11);
- (CI) 2.1.6.7bis confirming, for oil tankers and bulk carriers of 150 m in length and above, that the Ship Construction File has been provided (SOLAS 10 reg. II-1/3-10 and MSC.290(87));
- (CI) 2.1.6.7ter confirming, when appropriate, that a technical file verified by the Administration has been provided on board (SOLAS 10 reg. II-1/3-11 and MSC.289(87));
- (CA) 2.2.1.11bis confirming when appropriate, the validity of the International Energy Efficiency Certificate (MARPOL Annex VI regs.6.4 and 6.5);
- (CA) 2.2.1.17 confirming that the stability information, including damage stability, where applicable, and the damage control plans and damage control booklets are on board (SOLAS 74/88 regs.II-1/22, 23 and 25) (SOLAS 06 reg.II-1/5-1 and 19);
- (CA) 2.2.1.26 confirming approved Cargo Securing Manual for ships carrying cargo units including containers is on board (SOLAS 74/94 98 reg.VI/5.6);
- (CA) 2.2.1.30 confirming when appropriate that the coating technical file is available on board and maintained (SOLAS 74/00/06/10 regs.II-1/3-2 and 3-11);
- (CA) 2.2.1.31bis confirming, where appropriate, for crude oil tankers, that a technical file verified by the Administration has been provided on board (SOLAS 10 reg.II-1/3-11 and MSC.289(87));
- (CA) 2.2.1.31ter confirming, for oil tankers and bulk carriers of 150 m in length and above, that the Ship Construction File is available (SOLAS 10 reg. II-1/3-10 and MSC.287(87));
- (CA) 2.2.2.2bis examining, for bulk carriers of 150 m and above, where appropriate, the ship's structure in accordance with the Ship Construction File, taking into account identified areas that need special attention (SOLAS 10 reg. II-1/3-10 and MSC.287(87));
- (CA) 2.2.2.24bis examining, where applicable, the alternative design and arrangements for machinery or electrical installations, or fire safety, in accordance with the test, inspection and maintenance requirements, if any, specified in the approved documentation (SOLAS 00/06 regs.II-1/55 and II-2/17);

- (CA) 2.2.2.30 confirming that no new materials containing asbestos were installed on board⁴ (SOLAS 74/00/04/09 reg.II-1/3-5);
- (CA) 2.2.3.15bis confirming that the coating system in cargo oil tanks of crude oil tankers, when appropriate, is maintained and that in-service maintenance and repair activities are recorded in the coating technical file (SOLAS 10 reg. II-1/3-11 and MSC.288(87));
- (CA) 2.2.3.17 examining, for oil tankers of 150 m in length and above, where appropriate, the ship's structure in accordance with the Ship Construction File, taking into account identified areas that need special attention (SOLAS reg. II-1/3-10 and MSC.287(87));
- (CA) 2.2.4.1 the provisions of (CA) 2.2.3 except (CA) 2.2.3.15bis and (CA) 2.2.3.17.
- (CIn) 2.3.4.1 the provisions of (CA) 2.2.3 except (CA) 2.2.3.15bis and (CA) 2.2.3.17.
- (CR) 2.4.4.1 the provisions of (CA) 2.2.3 except (CA) 2.2.3.15bis and (CA) 2.2.3.17.

5 Amendments to annex 1 – Survey Guidelines under the 1974 SOLAS Convention as modified by the 1988 Protocol relating thereto – (R) 4 Guidelines for Surveys for the Cargo Ship Safety Radio Certificate:

- (RI) 4.1.2.16.4 checking that the unique beacon identification code ~~EPIRB ID~~ is clearly marked on the outside of the equipment and, where possible, decoding the unique beacon identification code ~~EPIRB identity number~~ confirming it is correct;
- (RI) 4.1.2.16.4bis checking that the unique beacon identification code programmed in the EPIRB corresponds with the unique beacon identification code assigned by or on behalf of the Administration;
- (RI) 4.1.2.16.4ter checking that the MMSI number if encoded in the beacon corresponds with the MMSI number assigned to the ship;
- (RP) 4.2.1.11bis confirming when appropriate, the validity of the International Energy Efficiency Certificate (MARPOL Annex VI regs 6.4 and 6.5);

6 Amendments to annex 1 – Survey Guidelines under the 1974 SOLAS Convention as modified by the 1988 Protocol relating thereto – (P) 5 Guidelines for Surveys for the Passenger Ship Safety Certificate:

- (PI) 5.1.1.12 examining the plans for the fire pumps, including the emergency fire pump^{Error! Bookmark not defined.} if applicable, fire mains, hydrants, hoses and nozzles and the international shore connection (SOLAS 74/88 reg.II-1/39 and SOLAS 74/00 reg.II-2/10.2; FSSC chs.2 and 12) (SOLAS 74/88 reg.II-1/39 and regs.II-2/4 and 19);
- (PI) 5.1.1.19 examining the plans for the protection of special category spaces and other cargo spaces (SOLAS 74/88 regs.II-2/37, 38 and 39) (SOLAS 74/00/06/10 regs.II-2/ 7.6, 9 and 20; FSSC chs. 9 and 10);

- (PI) 5.1.1.20 examining the plans for the fixed fire detection and alarm system, the crew alarm and the public address system or other effective means of communication, and any automatic sprinkler, fire detection and fire alarm system, as applicable, in machinery spaces, including enclosed spaces containing incinerators, accommodation and service spaces and control spaces (SOLAS 74/00/06/10 reg. II-2/7 (except 7.5.5, 7.6 and 7.9); FSSC chs. 8, 9 and 10) (SOLAS 74/88 reg.II-2/40) (SOLAS 74/00/06 regs.II-2/7 and 12) (SOLAS 74/88 reg.II-2/40);
- (PI) 5.1.1.20bis examining the plans for the crew alarm and the public address system or other effective means of communication (SOLAS 74/00/06 regs.II-2/7.9; FSSC ch. 9; LSAC ch.7) (SOLAS 74/88 reg.II-2/40);
- (PI) 5.1.1.21 examining the plans for the special arrangements for the carriage of dangerous goods, when appropriate, including water supplies, electrical equipment and wiring, fire detection sample extraction smoke detection system, bilge pumping and personnel protection (SOLAS 74/88 regs.II-2/41 and 54) (SOLAS 74/00/08 reg.II-2/19; FSSC chs. 9 and 10);
- (PI) 5.1.1.23 examining the design of the survival craft, including their construction, equipment, fittings, release mechanisms launching and recovery appliances and embarkation and launching arrangements (SOLAS 74/88/06 regs.III/4, 20 to 24, 36, 38 to 44 and 48) (SOLAS 06 reg.III/4) (LSAC sections 3.2, 4.1 to 4.6, 6.1 to 6.2);
- (PI) 5.1.1.35 checking the plans provision and specification of the pilot transfer arrangement, the pilot ladders, the combination arrangements, where applicable, the access to the ship's deck and the associated equipment and lighting and hoists/pilot transfer arrangements (SOLAS 74/00/10 reg.V/23);
- (PI) 5.1.2.12 confirming the arrangements for closing sidescuttles and their deadlights, also scuppers, sanitary discharges and similar openings and other inlets and discharges in the shell plating below the bulkhead deck (SOLAS 06 reg.I-1/13-15);
- (PI) 5.1.2.30 confirming and recording the ability of the machinery to reverse the direction of the thrust of the propeller in sufficient time and to bring the ship to rest within a reasonable distance, including the effectiveness of any supplementary means of manoeuvring or stopping the ship^{Error!}
Bookmark not defined. (SOLAS 74/88 reg.II-1/28);
- (PI) 5.1.2.31 confirming that the main and auxiliary steering gear are so arranged that the failure of one of them does not render the other inoperative^{Error!}
Bookmark not defined. (SOLAS 74/88 reg.II-1/29);
- (PI) 5.1.2.34 confirming that the main steering gear is capable of steering the ship at maximum ahead service speed and is capable of putting the rudder over from 35 degrees on one side to 35 degrees on the other side with the ship at its deepest seagoing draught³ and running ahead at maximum ahead service speed and, under the same conditions, from 35 degrees on either side to 30 degrees on the other side in not more than 28 seconds^{Error!}
Bookmark not defined. (SOLAS 74/88 reg.II-1/29);

- (PI) 5.1.2.35 confirming that the auxiliary steering gear is capable of steering the ship at navigable speed and of being brought speedily into action in an emergency and that it is capable of putting the rudder over from 15 degrees on one side to 15 degrees on the other side in not more than 60 seconds with the ship at its deepest seagoing draught and running ahead at one half of the maximum ahead service speed or 7 knots, whichever is the greater^{Error! Bookmark not defined.} (SOLAS 74/88 reg.II-1/29);
- (PI) 5.1.2.37 confirming that, where the main steering gear comprises two or more identical power units and an auxiliary steering gear is not fitted, a defect can be isolated so that steering capability can be maintained or speedily regained after a single failure in its piping system or in one of the power units^{Error! Bookmark not defined.} (SOLAS 74/88 reg.II-1/29)
- (PI) 5.1.2.65.1 for passenger ships, constructed on or after 1 July 2010¹⁰, confirming provision of supplementary lighting in all cabins, and checking that such lighting automatically illuminates and remains on for a minimum of 30 min when power to the normal cabin lighting is lost (SOLAS 06/10 reg.II-1/41.6);

¹⁰ Refer to Guidance for application of SOLAS II-1/41.6 (MSC.1/Circ.1372)

- (PI) 5.1.2.67bis examining, where applicable, the alternative design and arrangements for machinery or electrical installations, fire safety, or life-saving appliances and arrangements, in accordance with the test and inspection requirements, if any, specified in the approved documentation (SOLAS 00/06 regs.II-1/55, II-2/17 and III/38);
- (PI) 5.1.2.68 examining the fire pumps and fire main and the disposition of the hydrants, hoses and nozzles and the international shore connection and checking that each fire pump, including the emergency fire pump, can be operated separately so that two jets of water are produced simultaneously from different hydrants at any part of the ship whilst the required pressure is maintained in the fire main and testing that the emergency fire pump, if applicable, has the required capacity, and if the emergency fire pump is the main supply of water for any fixed fire-extinguishing system, checking that the emergency fire pump has the capacity for this system^{Error! Bookmark not defined.} (SOLAS 74/88 regs.II-2/4 and 19, FSSC chs. 2 and 12);
- (PI) 5.1.2.83 confirming the fire protection arrangements, including fire detection and sample extraction smoke detection systems for special category spaces and other cargo spaces for cargo and dangerous goods and testing, as appropriate, the operation of the means for closing the various openings (SOLAS 74/88 regs.II-2/37, 38 and 39) (SOLAS 74/00 regs.II-2/7.6 and 10.7; FSSC chs. 5, 9 and 10);
- (PI) 5.1.2.83bis confirming the fire protection arrangements, including fire detection and sample extraction smoke detection systems, where applicable for vehicle, special category and ro-ro spaces and testing, as appropriate, the operation of the means for closing the various openings (SOLAS 74/88 regs.II-2/37, and 38) (SOLAS 74/00 reg.II-2/20 (except 20.5); FSSC chs. 5, 6, 7, 9, 10);

- (PI) 5.1.2.84 ~~confirming and testing, as appropriate, the any fixed fire detection and alarm system, the special alarm and the public address system or other effective means of communication and any automatic sprinkler, fire detection and fire alarm system, as applicable, in machinery spaces, including enclosed spaces containing incinerators, accommodation, service and control spaces (SOLAS 74/88 reg.II-2/40) (SOLAS 74/00/06/10 regs II-2/7 (except 7.5.5, 7.6 and 7.9); FSSC chs. 8 and 9) (SOLAS 74/88 reg.II-2/40)(SOLAS 74/00/06 regs.II-2/7 and 12);;~~
- (PI) 5.1.2.84bis confirming and testing the special alarm and the public address system or other effective means of communication (SOLAS 74/88 reg.II-2/40) (SOLAS 74/00/06/10 reg.II-2/12; LSAC ch. 7);
- (PI) 5.1.2.86 examining, when appropriate, the special arrangements for carrying dangerous goods, including checking the electrical equipment and wiring, fire detection, ventilation and boundary insulation, the provision of protective clothing and portable appliances and the testing of the water supply, bilge pumping and any water spray system (SOLAS 74/88 regs.II-2/41 and 54) (SOLAS 74/00/08 reg.II-2/19);
- (PI) 5.1.2.88 examining each survival craft, including its equipment, and that the required number of search and rescue locating devices are fitted in liferafts and those liferafts are clearly marked (SOLAS 74/88/00/02/08 regs.III/20, 21 and 26; LSAC sections 2.3 to 2.5, 3.2 and 4.1 to 4.6);
- (PI) 5.1.2.90 deployment of 50% of the MES after installation (~~LSAC section 5.1 and MSC/Circ.809~~ LSAC paragraph 6.2.2.2);
- (PI) 5.1.2.102 checking that a decision support system is provided for the Master (SOLAS 74/00 reg.III/29; SOLAS 06 regs. II-2/21 and 22);
- (PI) 5.1.2.109 checking that the International Code of Signals and an up-to-date copy of Volume III of the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual have been provided. (SOLAS 74/00/02 reg.V/21);
- (PI) 5.1.2.110 checking the provision of the pilot transfer arrangement, the access to the ship's deck and the associated equipment and lighting, checking the and, as appropriate, the deployment or operation of the pilot ladders and hoists/pilot transfer combination arrangements, where applicable (SOLAS 74/00/10 reg.V/23);
- (PI) 5.1.2.126.4 checking that the unique beacon identification code ~~EPIRB ID~~ is clearly marked on the outside of the equipment and, where possible, decoding the unique beacon identification code ~~EPIRB identity number~~ confirming it is correct;
- (PI) 5.1.2.126.4bis checking that the unique beacon identification code programmed in the EPIRB corresponds with the unique beacon identification code assigned by or on behalf of the Administration;
- (PI) 5.1.2.126.4ter checking that the MMSI number if encoded in the beacon corresponds with the MMSI number assigned to the ship;

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- (PI) 5.1.2.135 checking ~~that~~ the provision, and, operation ~~and the annual test has been carried out for of~~ the automatic identification system (SOLAS 74/00/04 reg.V/19);
- (PI) 5.1.2.137 confirming that installed materials do not contain asbestos⁴ (SOLAS 09 reg.II-1/3-5);
- (PI) 5.1.3.1 confirming that the stability information and damage control plans and damage control booklets have been provided (SOLAS 74/88 regs.II-1/22 and 23) (SOLAS 06 regs.II-1/5-1 and 19);
- (PI) 5.1.3.10 confirming that emergency instructions are available for each person on board, that the muster list is posted in conspicuous places, and that they are in a language understood by the persons on board (SOLAS 74/00 regs.III/8 and ~~53~~ 37);
- (PI) 5.1.3.16bis checking that records are provided, identifying any pilot ladders placed into service (SOLAS 10 reg.V/23.2.4);
- (PR) 5.2.1.8bis confirming when appropriate, the validity of the International Energy Efficiency Certificate (MARPOL Annex VI regs. 6.4 and 6.5);
- (PR) 5.2.1.17 confirming that the stability information and damage control plans and damage control booklets are readily available (SOLAS 74/88 regs.II-1/22 and 23) (SOLAS 06 regs.II-1/5-1 and 19);
- (PR) 5.2.1.27bis confirming that, if applicable, a factual statement issued by the manufacturer of the lifeboat release mechanism is available, confirming the successful overhaul examination of a mechanism compliant with paragraphs 4.4.7.6.4 to 4.4.7.6.6 of the LSA Code, or, alternatively, that a statement of acceptance of the installation of a replacement release and retrieval system to an existing lifeboat is available (SOLAS 11 reg.III/1.5; LSAC section 4.4.7.6);
- (PR) 5.2.1.35bis checking that records are maintained identifying any pilot ladders placed into service and any repair effected (SOLAS 10 reg.V/23.2.4);
- (PR) 5.2.1.38 confirming the provisions of (PI) 5.1.3.14 to (PI) 5.1.3.19 except (PI) 5.1.3.16bis;
- (PR) 5.2.2.31 confirming that the main and auxiliary steering gear are being properly maintained, are arranged so that the failure of one does not render the other inoperative and that the auxiliary steering gear is capable of being brought speedily into action in an emergency^{Error! Bookmark not defined.} (SOLAS 74/88 reg.II-1/29);
- (PR) 5.2.2.62bis examining, where applicable, the alternative design and arrangements for machinery or electrical installations, fire safety, or life-saving appliances and arrangements, in accordance with the test, inspection and maintenance requirements, if any, specified in the approved documentation (SOLAS 00/06 regs.II-1/55, II-2/17 and III/38);
- (PR) 5.2.2.72 examining and testing, as far as practicable, any fire detection and fire alarm arrangements in machinery spaces, including enclosed spaces
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- containing incinerators, if applicable, accommodation and service spaces and control spaces (SOLAS 74/00/10 reg.II-2/7 (except 7.5.5, 7.6 and 7.9); FSSC chs. 8 and 9) (SOLAS 74/88 regs.II-2/11, 12, 13, 13-1, 14, 36 and 41);
- (PR) 5.2.2.82 examining the fire-extinguishing arrangements, examining and testing the fire detection and alarm systems, the sample extraction smoke detection systems, where applicable including fire detection in cargo spaces for general cargo and dangerous goods and testing, as far as practicable and as appropriate, the operation of the means for closing the various openings (SOLAS 74/00 regs.II-2/7.6 and 10.7; FSSC chs.5, 9 and 10) (SOLAS 74/88 reg.II-2/39);
- (PR) 5.2.2.83 examining the fire-extinguishing arrangements including fire detection examining and testing the fire detection and alarm system, the sample extraction smoke detection system, where applicable, in vehicle, special category and ro-ro spaces and testing, as far as practicable and as appropriate, the operation of the means for closing the various openings (SOLAS 74/00 reg.II-2/20 (except 20.5); FSSC chs.5, 6, 7, 9 and 10) (SOLAS 74/88 regs.II-2/37, 38 and 38-1);
- (PR) 5.2.2.85 examining, when appropriate, the special arrangements for carrying dangerous goods, including checking the electrical equipment and wiring, fire detection, ventilation, the provision of personnel protection clothing and portable appliances, testing any fire detection and alarm system and any sample extraction smoke detection system and testing, as far as practicable, the water supply, bilge pumping and any water spray system (SOLAS 74/00/08 reg.II-2/19 (except 19.3.8, 19.3.10 and 19.4); FSSC chs.3, 4, 7, 9 and 10) (SOLAS 74/88 regs.II-2/41 and 54);
- (PR) 5.2.2.92 examining each survival craft, including its equipment and, when fitted, the on-load release mechanism and hydrostatic lock, and for inflatable liferafts the hydrostatic release unit and float free arrangements, including the date of servicing or replacement. Checking that the hand-flares are not out of date and that the required number of search and rescue locating devices are fitted in liferafts and those liferafts are clearly marked (SOLAS 74/96/00/02/08 regs.III/20, 21, 23, 24 and 26; LSAC sections 2.3 to 2.5, 3.2 and 4.1 to 4.6);
- (PR) 5.2.2.101 confirming that a decision support system is provided for the Master (SOLAS 74/88 reg.III/29) (SOLAS 06 regs. II-2/21 and 22);
- (PR) 5.2.2.111 checking that the International Code of Signals and an up-to-date copy of Volume III of the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual have been provided. (SOLAS 74/00/02 reg.V/21);
- (PR) 5.2.2.113 checking the provision, and operation of and that the annual test has been carried out for the automatic identification system, where fitted, and whether the annual test has been carried out and a copy of the test report is on board (SOLAS 74/00/04/10 regs.V/18.9 and 19);
- (PR) 5.2.2.114 checking the provision and specification of the pilot ladders and ~~hoists~~/pilot transfer arrangements (SOLAS 74/00/10 reg.V/1723);

- (PR) 5.2.2.116 confirming that no new materials containing asbestos were installed on board (SOLAS 74/00/05/09 reg.II-1/3-5)⁴

7 Amendments to annex 2 – Survey Guidelines under the 1966 Load Line Convention as modified by the 1988 Protocol relating thereto – (L) 1 Guidelines for surveys for the International Load Line Certificate or International Load Line Exemption Certificate:

- (LI) 1.1.2.14 examining the special requirements for ships permitted to sail with type "A" or type "B-minus" freeboards (LLC 66/88/03 regs.26 and 27);

- (LA) 1.2.1.11bis confirming when appropriate, the validity of the International Energy Efficiency Certificate (MARPOL Annex VI, regs. 6.4 and 6.5)

8 Amendments to annex 3 – Survey Guidelines under the MARPOL Convention – (O) 1 Guidelines for Surveys for the International Oil Pollution Prevention Certificate:

- (OI) 1.1.2.11 examining, for oil tanker of 5,000 tonnes deadweight and above delivered on or after 1 February 2002, the intact stability (MARPOL 90/04 Annex I reg.27);

- (OA) 1.2.1.9bis confirming when appropriate, the validity of the International Energy Efficiency Certificate (MARPOL Annex VI, regs. 6.4 and 6.5);

9 Amendments to annex 3 – Survey Guidelines under the MARPOL Convention – (N) 2 Guidelines for Surveys for the International Pollution Prevention Certificate for the Carriage of Noxious Liquid Substances in Bulk:

- (NI) 2.1.2.10 confirming if applicable the construction and arrangements of a ship certified to carry individually identified vegetable oils under exemption from the carriage requirements (MARPOL 90/04 Annex II reg.4.3 4.1.3).

- (NI) 2.1.3.3 confirming that the shipboard marine pollution emergency plan is provided (MARPOL ~~90/04~~ Annex II reg.17).

- (NA) 2.2.1.7bis confirming when appropriate, the validity of the International Energy Efficiency Certificate (MARPOL Annex VI, regs. 6.4 and 6.5);

10 Amendments to annex 3 – Survey Guidelines under the MARPOL Convention – (S) 3 Guidelines for Surveys for the International Sewage Pollution Prevention Certificate:

- (SI) 3.1.1.2 if a sewage treatment plant is fitted, checking that it is type approved by the Administration in accordance with the appropriate resolution (MARPOL Annex IV regs.9.1.1 and 9.2.1);

- (SI) 3.1.1.3 if a sewage comminuting and disinfecting system is fitted, checking that it is approved by the Administration and that facilities for the temporary storage of sewage are provided (MARPOL Annex IV reg.9.1.2);

- (SI) 3.1.1.4 if a sewage holding tank is fitted, checking its capacity having regard to the number of persons on board (MARPOL Annex IV regs.9.1.3 and 9.2.2);

- (SI) 3.1.2.1 checking externally, as applicable, the sewage treatment plant or the sewage comminuting and disinfecting system, and confirming their operation (MARPOL Annex IV regs.4.1.1 and 9.1.1, 9.1.2 and 9.2.1);
- (SI) 3.1.2.2 if a sewage holding tank is fitted, checking that it has been constructed in a satisfactory manner, and checking that the holding tank has a means to indicate visually the amount of its contents (MARPOL Annex IV regs.9.1.3 and 9.2.2);
- (SR) 3.2.1.4bis confirming when appropriate, the validity of the International Energy Efficiency Certificate (MARPOL Annex VI regs. 6.4 and 6.5);
- (SR) 3.2.2.2 examining externally the sewage pollution prevention system and confirming, as far as practicable its satisfactory operation (MARPOL Annex IV, reg.9);
- (SR) 3.2.2.4 confirming, for ships where a sewage holding tank is fitted as a sewage system, that an approval for the rate of discharge is available (MARPOL IV, regs. 9.1.3 and 11.1.1)

11 Amendments to annex 3 – Survey Guidelines under the MARPOL Convention – (A)
4 Guidelines for Surveys for the International Air Pollution Prevention Certificate and the NO_x Technical Code:

- (AI) 4.1.2.2.1.4 for marine diesel engines of an output more than 5,000 kW and a per cylinder displacement at or above 90 litres/cylinder installed on ships constructed between 1 January 1990 and 31 December 1999, check whether:
- .1 an approved method exists;
 - .2 an approved method is not commercially available; or
 - .3 that an approved method is installed and where this is the case, that there is an approved method file,

and apply the verification procedures as given in the approved method file;

- .4 or that the engine has been certified, confirming that it operates within the limits set forth for Tier I, Tier II or Tier III (MARPOL Annex VI, reg. 13.7.3);

- (AI) 4.1.2.3.1 confirming, if appropriate, that:
- .1 satisfactory arrangements are in place for using compliant fuel as required; or
 - .2 satisfactory installation and operation of the fuel switching arrangements are in place when tanks are provided for different grades of fuel , and that a written procedure showing how the fuel oil changeover is done, is available; or

(AA) 4.2.1.4**bis** checking when appropriate, the validity of the International Pollution Prevention Certificate for the Carriage of Noxious Liquid Substances in Bulk;

(AA) 4.2.1.4**ter** checking when appropriate, the validity of the International Sewage Pollution Prevention Certificate;

(AA) 4.2.1.4**quad** confirming when appropriate, the validity of the International Energy Efficiency Certificate (MARPOL Annex VI, regs. 6.4 and 6.5)

(AA) 4.2.2.4.6 for a marine diesel engine with an output of more than 5,000 kW and a per cylinder displacement at or above 90 litres/cylinder installed on ships constructed between 1 January 1990 and 31 December 1999, check whether:

- .1 an approved method exists;
- .2 an approved method is not commercially available; or
- .3 that an approved method is installed and where this is the case, that there is an approved method file,

and apply the verification procedures as given in the approved method file;

- .4 or that the engine has been certified, confirming that it operates within the limits set forth for Tier I, Tier II or Tier III (MARPOL Annex VI reg. 13.7.3);

(AR) 4.4.2.2.1 confirming, if necessary by simulated test or equivalent, the satisfactory operation of the ~~following~~ alarms and safety devices.

12 Amendments to annex 4 – Survey Guidelines under mandatory Codes – *Guidelines for Surveys for the International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk* and the Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk:

(DA) 1.2.1.9**bis** confirming when appropriate, the validity of the International Energy Efficiency Certificate (MARPOL Annex VI, regs. 6.4 and 6.5);

(DA) 1.2.1.20 confirming that the Shipboard marine pollution emergency plan is on board (MARPOL ~~73/78/02~~ 04 Annex II reg. ~~16~~ 17);

(DA) 1.2.1.21 confirming that the Cargo Record Book is on board and being correctly used (MARPOL ~~73/78/91/97/02~~ 04 Annex II reg. ~~9~~ 15);

13 Amendments to annex 4 – Survey Guidelines under mandatory Codes – *Guidelines for Surveys for the International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk*:

(GA) 2.2.1.9**bis** confirming when appropriate, the validity of the International Energy Efficiency Certificate (MARPOL Annex VI, regs. 6.4 and 6.5.);

14 Amendments to appendix 1 Summary of Amendments to Mandatory Instruments reflected in the Survey Guidelines under the HSSC:

SOLAS 1974 up to and including the ~~2009—~~ 2011 amendments, (resolution MSC.~~282(86)~~ 317(89))

SOLAS PROT 1988 up to and including the ~~2009—~~ 2010 amendments (resolution MSC.~~283(86)~~ 309(88))

MARPOL up to and including the ~~2010—~~ 2012 amendments (resolution MEPC.~~190(60)~~ 217(63))

NO_x Technical Code up to and including the ~~2008—~~ 2012 amendments (resolution MEPC.~~177(58)~~ 217(63))

ANNEX 29

DRAFT ASSEMBLY RESOLUTION

**2013 NON-EXHAUSTIVE LIST OF OBLIGATIONS UNDER INSTRUMENTS
RELEVANT TO THE IMO INSTRUMENTS IMPLEMENTATION CODE**

THE ASSEMBLY,

RECALLING Article 15(j) of the Convention on the International Maritime Organization concerning the functions of the Assembly in relation to regulations and guidelines regarding maritime safety and the prevention and control of marine pollution from ships,

RECALLING ALSO that, by resolution A.1054(27), it adopted the *Code for the Implementation of Mandatory IMO Instruments, 2011*, annexes to which, provide a non-exhaustive list of instruments and obligations for guidance on the implementation and enforcement of IMO instruments, in particular concerning the identification of the auditable areas relevant to Voluntary IMO Member State Audit Scheme,

RECOGNIZING the need for the annexes to above-mentioned Code to be further revised to take account of the amendments to the IMO instruments referred to in the Code which have entered into force or become effective since the adoption of resolution A.1054(27),

RECOGNIZING FURTHER that parties to the relevant international conventions have, as part of the ratification process, accepted to fully meet their responsibilities and to discharge their obligations under the conventions and other instruments to which they are party,

REAFFIRMING that States have the primary responsibility to have in place an adequate and effective system to exercise control over ships entitled to fly their flag, and to ensure that they comply with relevant international rules and regulations in respect of maritime safety, security and protection of the marine environment,

REAFFIRMING FURTHER that States, in their capacity as flag, port and coastal States, have other obligations and responsibilities under applicable international law in respect of maritime safety, security and protection of the marine environment,

NOTING that, while States may realize certain benefits by becoming party to instruments aiming at promoting maritime safety, security and protection of the marine environment, these benefits can only be fully realized when all parties carry out their obligations as required by the instruments concerned,

NOTING ALSO that the ultimate effectiveness of any instrument depends, inter alia, upon all States:

- (a) becoming party to all instruments related to maritime safety, security and pollution prevention and control;
- (b) implementing and enforcing such instruments fully and effectively;
- (c) reporting to the Organization, as required,

NOTING ALSO resolution [A....(28)] by which it adopted the IMO Instruments Implementation Code (III Code) [revoking resolution A.1054(27) on the Code for the Implementation of Mandatory IMO Instruments, 2011],

NOTING ALSO resolution A.[...](28) by which it adopted amendments to the International Convention on Load Lines, 1966, the International Convention on Tonnage Measurement of Ships, 1969 and the Convention on the International Regulation for Preventing Collisions at Sea, 1972, to make the III Code mandatory under these Conventions,

NOTING FURTHER that the Marine Environment Protection Committee and the Maritime Safety Committee have developed requirements for adoption by Contracting Governments to the International Convention for the Safety of Life at Sea, 1974, and the Protocol of 1988 relating to the International Convention on Load Lines, 1966, the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto, the Protocol of 1997 to amend the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto, and the International Convention on Standards of Training, Certification and Watchkeeping, 1978, as amended, respectively, to make the III Code mandatory under these instruments,

HAVING CONSIDERED the recommendations made by the Marine Environment Protection Committee, at its sixty-fifth session, and the Maritime Safety Committee, at its ninety-second session,

1. ADOPTS the 2013 non-exhaustive list of obligations under instruments relevant to the III Code, as set out in the annex to the present resolution;
2. URGES Governments of all States, in their capacity as flag, port and coastal States, to make as much use as possible of the list in the implementation of IMO instruments on a national basis;
3. REQUESTS the Maritime Safety Committee and the Marine Environment Protection Committee to keep the list under review and, under the coordination of the Council, to propose amendments thereto to the Assembly.

* * *

ANNEX

**2013 NON-EXHAUSTIVE LIST OF OBLIGATIONS UNDER INSTRUMENTS
RELEVANT TO THE IMO INSTRUMENTS IMPLEMENTATION CODE**

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ANNEX 1

OBLIGATIONS OF CONTRACTING GOVERNMENTS/PARTIES

The following table contains a non-exhaustive list of obligations, including those obligations imposed when a right is exercised.

	OBLIGATIONS OF CONTRACTING GOVERNMENTS/PARTIES	
SOURCE	SUMMARY DESCRIPTION	COMMENTS
TONNAGE 69		
Art. 1	General obligation under the Convention	
Art. 5(2)	Force majeure	
Art. 8	Issue of a certificate by another Government	
Art. 10	Cancellation of certificate	
Art. 11	Acceptance of certificates	
Art. 15	Communication of information	
LL 66 and LL PROT 88¹		
Art. 1	General obligation under the Convention	
	General obligations	LL PROT 88 only (Art. I)
Art. 7(2)	Force majeure	
Art. 17	Issue or endorsement of certificates by another Government	amended by LL PROT 88
Art. 20	Acceptance of certificates	
Art. 25	Special rules drawn up by agreement	
Art. 26	Communication of information	
	Communication of information	LL PROT 88 only (Art. III)

¹ When the obligation does not derive from the International Convention on Load Lines, 1966, but solely from the Protocol of 1988 relating thereto, this is indicated in the "Comments" column.

	OBLIGATIONS OF CONTRACTING GOVERNMENTS/PARTIES	
SOURCE	SUMMARY DESCRIPTION	COMMENTS
COLREG 72 Art. I	General obligations	
STCW 78 Art. I Art. IV Art. XI(1) Reg. I/2.12 Reg. I/2.14 Reg. I/2.15 and 2.16 Reg. I/3 Reg. I/5 Reg. I/6.1 Reg. I/6.2 Reg. I/7 Reg. I/8.1 and 8.2 Reg. I/8.3 Reg. I/9.1 and 9.2	General obligations under the Convention Communication of information Promotion of technical co-operation Issuance of certificates of competency Maintenance of a register or registers of all certificates and endorsements Availability of information on the status of certificates of competency, endorsements and dispensations (as of 1 January 2017, available in English through electronic means) Principles governing near-coastal voyages, communication of information and incorporation of limits in the endorsements National provisions – impartial investigation, enforcement measures including penalties or disciplinary measures and cooperation Training and assessment – Administration, supervision and monitoring Qualification of those responsible for training and assessment Communication of the information as referred to in article IV of the STCW 78 Convention and A-I/7 of the STCW Code Quality standards system and periodical independent evaluation Communication of a report Medical standards, procedures for issuance of medical certificates, and recognition of medical practitioners	

	OBLIGATIONS OF CONTRACTING GOVERNMENTS/PARTIES	
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Reg. I/9.6	Procedures for governing the validity of a medical certificate which expires in the course of a voyage	
Reg. I/11.4 and 11.5	Comparison of standards of competence – determination of need for appropriate refresher and updating training or assessment and formulation or promotion of the formulation of a structure of refresher and updating courses	
Reg. II/5.3	Comparison of standards of competence – determination of the need to update qualifications for able seamen to whom certificates are issued before 1 January 2012	
Reg. III/5.3	Comparison of standards of competence – determination of the need to update qualifications for ratings in engine department to whom certificates are issued before 1 January 2012	
Reg. III/6.3	Comparison of standards of competence – determination of the need to update qualifications for electro-technical officers to whom certificates are issued before 1 January 2012	
Reg. III/7.3	Comparison of standards of competence – determination of the need to update qualifications for electro-technical officers to whom certificates are issued before 1 January 2012	
Reg. VII/3.1	Principles governing the issue of alternative certificates	
SOLAS 74		
Art. I	General obligations under the Convention	in SOLAS PROT 78 and SOLAS PROT 88
Art. III	Communication of information	in SOLAS PROT 78 and SOLAS PROT 88
Art. V(c)	Carriage of persons in emergencies – reporting	
Art. VII	Special rules drawn up by agreement	

	OBLIGATIONS OF CONTRACTING GOVERNMENTS/PARTIES	
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Art. XI	Denunciation	in SOLAS PROT 88 (Art. VII)
Reg. I/13	Issue or endorsement of certificates by another Government	in SOLAS PROT 88
Reg. I/17	Acceptance of certificates	also reg. I/19(b)
Reg. I/21(b)	Casualties – reporting	
Reg. IV/5	Provision of radiocommunication services and communication of information on such provision	
Reg. IV/5-1	Global maritime distress and safety system identities – ensuring suitable arrangements	
Reg. V/5	Meteorological services and warnings	
Reg. V/6	Ice Patrol Service	
Reg. V/10	Ships' routeing	
Reg. V/11	Ship reporting systems	
Reg. V/12	Vessel traffic services	
Reg. V/13	Establishment and operation of aids to navigation	
Reg. V/31.2	Danger messages – bring to the knowledge of those concerned and communicate to other interested Governments	
Reg. V/33.1-1	Distress situations: obligations and procedures – coordination and cooperation	
Reg. VI/1.2	Appropriate information on safe carriage of cargoes	
Reg. VII/2.4	Issue of instructions on emergency response, etc.	
Reg. VII/7-1	Issue of instructions on emergency response, etc.	

	OBLIGATIONS OF CONTRACTING GOVERNMENTS/PARTIES	
SOURCE	SUMMARY DESCRIPTION	COMMENTS
MARPOL		
Art. 1	General obligations under the Convention	and Art. I of MARPOL PROT 78
Art. 4(2) and (4)	Violation	
Art. 5(1)	Certificates and special rules on inspection of ships – acceptance of certificates	
Art. 5(4)	Certificates and special rules on inspection of ships – no more favourable treatment	
Art. 6(1)	Detection of violations and enforcement of the Convention – cooperation	
Art. 6(3)	Detection of violations and enforcement of the Convention – furnishing evidence	
Art. 7	Undue delay to ships	
Art. 8	Reports on incidents involving harmful substances	
Art. 11	Communication of information	
Art. 12(2)	Casualties to ships – information to IMO	
Art. 17	Promotion of technical co-operation	
Annex I		
Reg. 8	Issue or endorsement of a certificate by another Government	
Reg. 15.7	Control of discharge of oil – investigations (Machinery spaces)	
Reg. 34.7	Control of discharge of oil – investigations (Cargo area)	
Reg. 38.3 <i>bis</i> and 38.4 <i>bis</i>	Consultation with IMO for circulation of information regarding reception facilities by Parties participating in regional arrangements	

	OBLIGATIONS OF CONTRACTING GOVERNMENTS/PARTIES	
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Annex II		
Reg. 6.3	Categorization and listing of noxious liquid substances and other substances – establish and agree on provisional assessment and notify IMO	
Reg. 9.3.1, 9.3.2, 9.3.3 and 9.3.4	Issue or endorsement of a certificate by another Government	
Reg. 13.4	Control of discharges of residues – exemption for a pre-wash	
Reg. 18.2 <i>bis</i> and 18.2 <i>ter</i>	Consultation with IMO for circulation of information regarding reception facilities by Parties participating in regional arrangements	
Reg. 18.3	Reception facilities and cargo unloading terminal arrangements – agree and establish a date, notify IMO	
Annex III		
Reg. 1(3)	Application – issue detailed requirements	
Annex IV		
Reg. 6	Issue or endorsement of a certificate by another Government	
Reg. 12.1 <i>bis</i>	Consultation with IMO for circulation of information regarding reception facilities by Parties participating in regional arrangements	
Annex V		
Reg. 8.2 <i>bis</i>	Consultation with IMO for circulation of information regarding reception facilities by Parties participating in regional arrangements	
Annex VI		
Reg. 7	Issue or endorsement of a certificate by another Government	Addition related to IECC by MEPC.203(62)
Regs. 9.9.3 and 9.11.2	Transfer of flag – transmitting copies of the certificate and the relevant survey report	

	OBLIGATIONS OF CONTRACTING GOVERNMENTS/PARTIES	
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Reg. 11.1	Detection of violations and enforcement – cooperation	
Reg. 11.2	Inspection report in case of detection of violations	
Reg. 11.3	Detection of violations and enforcement – information to flag State and master on violations detected	
Reg. 11.5	Transmission of report to requesting Party	
Reg. 13.7.1	Certification of an Approved Method and communication to IMO	
Reg.17.1	Adequate Reception Facilities	
Reg. 17.1 <i>bis</i>	Consultation with IMO for circulation of information regarding reception facilities by Parties participating in regional arrangement	
Reg. 17.3	Reception Facilities unavailable or inadequate – communication to IMO	
Reg. 18.1	Availability of fuel oils and communication to IMO	
Reg. 18.2.1	Ship not compliant with fuel oil standards	
Reg. 18.2.3	Action taken, including not taking control measures	
Reg. 18.2.5	Evidence of the non-availability of compliant fuel oil – communication to IMO	
Reg. 18.9	Authorities designated for register of local suppliers, bunker delivery note and sample, fuel oil quality, actions against fuel oil suppliers of non-compliance, informing the Administration of any ship receiving non-compliant fuel oil and communication to IMO of non-compliant fuel oil suppliers as referred to in the paragraph	
ISM Code Para 14.3	Extension of validity of Interim SMC by another Contracting Government	

	OBLIGATIONS OF CONTRACTING GOVERNMENTS/PARTIES	
SOURCE	SUMMARY DESCRIPTION	COMMENTS
1994 HSC Code		
Para 1.8.2	Issue of certificates by another Government	
Para 14.2.1.12	Definition of "sea area A1"	as may be defined
Para 14.2.1.13	Definition of "sea area A2"	as may be defined
2000 HSC Code		
Para 1.8.2	Issue of certificates by another Government	
Para 14.2.1.13	Definition of "sea area A1"	as may be defined
Para 14.2.1.14	Definition of "sea area A2"	as may be defined
IMDG Code		
Section 1.3.1	Training of shoreside personnel – establishment of period for keeping records of training	
Section 1.5.2	Radiation protection programme – role of Competent Authority	
Section 1.5.3	Quality assurance programmes – role of Competent Authority	
Chapter 3.3	Approval of metal hydride storage system(s) installed in conveyances or in completed conveyance components or intended to be installed in conveyances	
Chapter 4.1	Approval of packagings as referred to in the Chapter – role of Competent Authority	
Section 5.1.5	General provisions for class 7 – role of Competent Authority	
Chapter 5.5	Determining the period between fumigant application and loading of fumigated cargo transport unit on board the ship	
Chapter 6.2	Approval of pressure receptacles, aerosol dispensers, small receptacles containing gas and fuel cell cartridges containing liquefied flammable gas – role of Competent Authority	

	OBLIGATIONS OF CONTRACTING GOVERNMENTS/PARTIES	
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Section 6.2.2.6.2	General provisions – role of Competent Authority	
Section 6.3.2	Quality assurance programme – role of Competent Authority	
Section 6.3.5	Procedures for performance and frequency of tests – role of Competent Authority	
Chapter 6.4	Approval of package design and materials for class 7 – role of Competent Authority	
Section 6.5.4	Testing, certification and inspection – role of Competent Authority	
Chapter 6.6	Provisions for the construction and testing of large packagings – role of Competent Authority	
Chapter 6.7	Provisions for the design, construction, inspection and testing of portable tanks and multiple-element gas containers – role of Competent Authority	
Chapter 6.8	Provisions for road tank vehicles – role of Competent Authority	
Section 7.1.14	Stowage of goods of class 7 – role of Competent Authority	
Chapter 7.9	Exemptions, approvals and certificates – notification to IMO and recognition of approvals and certificates	
Casualty Investigation Code		
Para 4/4.1	Detailed contact information of the marine safety investigation Authority(ies) to IMO	
Paras 5/5.1 and 5.2	Notification of a marine casualty	
Paras 7/7.1 and 7.2	Agreement to conduct a marine safety investigation	
Para 8/8.1	Powers provided for investigator(s)	
Para 9/9.2	Coordination for parallel investigations	

	OBLIGATIONS OF CONTRACTING GOVERNMENTS/PARTIES	
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Para 10/10.1	Cooperation in investigating	
Para 11/11.1	Investigation not to be subject to external direction	
Paras 13/13.1,13.4 and 13.5	Draft marine safety investigation reports	
Paras 14/14.1 and 14.2	Marine safety investigation reports – communication to IMO	
Para 14/14.4	Marine safety investigation reports – available to public and shipping industry	
IBC Code		
Para 1.5.3	Maintenance of conditions after survey	
Para 1.5.5.1	Issue or endorsement of International Certificate of Fitness by another Government	
BCH Code		
Para 1.6.4.1	Issue or endorsement of certificate by another Government	
IGC Code		
Para 1.5.5.1	Issue or endorsement of certificate by another Government	
STCW Code, part A		
Section A-I/6.1	Training and assessment of seafarers for certification	
Section A-I/6.3	Qualifications of instructors, supervisors and assessors	
Section A-I/6.7	Training and assessment within an institution	
Section A-I/7.2	Communication of information – initial communication (within one year of entry into force of regulation I/7)	

	OBLIGATIONS OF CONTRACTING GOVERNMENTS/PARTIES	
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Section A-I/7.3, 7.4 and 7.5	Communication of information – subsequent reports (within the periods as referred to in paragraphs 7.3, 7.4 and 7.5)	
Section A-I/8.1 and 8.3	National objectives and quality standards	
Section A-I/9.1	Medical standards – eyesight standards, physical and medical fitness	
Section A-I/9.4	Provisions for recognizing medical practitioners and maintenance of a register of recognized medical practitioners	
Section A-I/9.5 and 9.6	Guidance, processes and procedures for the conduct of medical fitness examinations and issuance of medical certificates	
Section A-I/12.1	General performance standards for simulators used in training	
Section A-I/12.2	General performance standards for simulators used in assessment of competence	
Section A-I/12.6	Simulator training objectives	
Section A-I/12.9	Qualification of instructors and assessors	
Section A.VIII/2.9	Watchkeeping at sea – directing the attention of companies, masters, chief engineer officers and watchkeeping personnel to observe principles in parts 4-1 and 4-2	

* * *

ANNEX 2

SPECIFIC FLAG STATE OBLIGATIONS

The following table contains a non-exhaustive list of obligations, including those obligations imposed when a right is exercised.

SPECIFIC FLAG STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
TONNAGE 69		
Art. 6	Determination of tonnages	
Art. 7(2)	Issue of certificates	
Annex I, reg. 1(3)	Novel types of craft – determination of tonnage and communication to IMO on method used	
Annex I, reg. 5(3)(b)	Change of net tonnage – Alterations or modifications deemed by the Administration to be of a major character	
Annex I, reg. 7	Measurement and calculation	
LL 66 and LL PROT 88²		
	Existing certificates	LL PROT 88 only (Art.II-2)
Art. 6(3)	Exemptions – reporting	
Art. 8(2)	Equivalents – reporting	
Art. 9(2)	Approvals for experimental purposes – reporting	
Art. 13	Surveys and marking	amended by LL PROT 88
Art. 14	Initial, renewal and annual survey	amended by LL PROT 88
Art. 16(3)	Issue of certificates	
Art. 19	Duration and validity of certificate	amended by LL PROT 88
Art. 23	Casualties	

² When the obligation does not derive from the International Convention on Load Lines, 1966, but solely from the Protocol of 1988 relating thereto, this is indicated in the "Comments" column.

SPECIFIC FLAG STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Annex I, reg. 1	Strength of hull	
	Strength and intact stability of ships	LL PROT 88 only (Annex I, reg. 1)
Annex I, reg. 2	Application – Assignment of freeboard	amended by LL PROT 88
	Authorization of recognized organizations	LL PROT 88 only (Annex I, reg. 2-1)
Annex I, reg. 8	Details of marking	
Annex I, reg. 10	Stability information – approval	amended by LL PROT 88
Annex I, reg. 12	Doors	amended by LL PROT 88
Annex I, reg. 14	Cargo and other hatchways	amended by LL PROT 88
Annex I, reg. 15	Hatchways closed by portable covers and secured weather tight by tarpaulins and battering devices	amended by LL PROT 88
Annex I, reg. 16(1)	Hatchway coamings – reduced heights	amended by LL PROT 88 (Annex I, reg. 14-1(2))
Annex I, reg. 16(4)	Securing arrangements	amended by LL PROT 88 (Annex I, reg. 16(6))
	Machinery space openings	LL PROT 88 only (Annex I, reg. 17(4))
Annex I, reg. 19	Ventilators	amended by LL PROT 88
Annex I, reg. 20	Air pipes	amended by LL PROT 88
	Cargo ports and other similar openings – applicable national standards	LL PROT 88 only (Annex I, reg. 21(5))
Annex I, reg. 22	Scuppers, inlets and discharges	amended by LL PROT 88
Annex I, reg. 25	Protection of the crew	amended by LL PROT 88
Annex I, reg. 27	Freeboards – Types of ships	amended by LL PROT 88
Annex I, reg. 28	Freeboard tables	amended by LL PROT 88
Annex I, reg. 39	Minimum bow height and reserve buoyancy	amended by LL PROT 88
	Lashing system	LL PROT 88 only (Annex I, reg. 44(6))

SPECIFIC FLAG STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
COLREG 72		
Annex I, paragraph 14	Approval of construction of lights and shapes and the installation of lights on board	
Annex III, paragraph 3	Approval of construction, performance and installation of sound signal appliances on board	
STCW 78		
Art. VI	Certificates	
Art. VIII(3)	Dispensation – reporting	
Art. IX(2)	Equivalents – reporting	
Reg. I/2.1, 2.2, 2.7 and 2.8	Issuance and endorsements of certificate of competency	
Reg. I/10.1 and 10.2	Recognition of certificates and seafarer's knowledge of the maritime legislation	
Reg. I/11.6	Availability – recent changes in national and international regulations	
Reg. I/13.3	Conduct of trials – safety, security and pollution prevention	
Reg. I/13.5 and 13.8.1	Results of trials – Communication	
Reg. I/13.7	Respect objections to particular trials	
Reg. I/13.8	Respect objections by other Parties when authorizing ships to continue to operate with the system under trial	
Reg. I/14.1	Responsibilities of companies	
Reg. IV/1.2	Application – appropriate certificates for radio operators	

SPECIFIC FLAG STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Reg. V/1.7	Mandatory minimum requirements for the training and qualification of masters, officers and ratings on oil and chemical tankers	
Reg. V/1-2.5	Mandatory minimum requirements for the training and qualification of masters, officers and ratings on liquefied gas tankers	
Reg. V/2.1	Applicability of the requirements on domestic voyages	
Reg. V/2.8	Mandatory minimum requirements for the training and qualification of masters, officers, ratings and other personnel on passenger ships	
Reg. VIII/1.1 and 1.2	Fitness for duty – preventing fatigue and preventing drug and alcohol abuse	
Reg. VIII/2.1 and 2.2	Watchkeeping arrangements and principles – direction and requirements	
SOLAS 74		
Reg. I/4(b)	Exemptions – reporting	in SOLAS PROT 78 and SOLAS PROT 88
Reg. I/5(b)	Equivalents – reporting	
Reg. I/6	Inspection and survey	
Reg. I/7	Survey of passenger ships	
Reg. I/8	Survey of life-saving appliances and other equipment of cargo ships	
Reg. I/9	Survey of radio installations of cargo ships	
Reg. I/10	Survey of structure, machinery and equipment of cargo ships	
Reg. I/12	Issue of certificates	
	Issue and endorsement of certificates	
Reg. I/14	Duration and validity of certificates	
Reg. I/15	Forms of certificates and records of equipment	in SOLAS PROT 88

SPECIFIC FLAG STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Reg. I/18	Qualification of certificates	revised SOLAS chapter II-1 adopted by MSC 80 and MSC 82
Reg. I/21	Casualties	
Reg. II-1/1.2	Compliance with earlier requirements	
Reg. II-1/3-2	Approval of corrosion prevention systems of seawater ballast tanks	
Reg. II-1/3-2.4	Maintenance of the protective coating	
Reg. II-1/3-3.2	Approval of means of access to tanker bows	
Reg. II-1/3-4.1.2.2 and 3-4.1.3	Approval of emergency towing arrangements on tankers	
Reg. II-1/3-6.2.3	Means of access to cargo and other spaces – satisfaction of the Administration as well as survey	
Reg. II-1/3-6.4.1	Approval of Ship Structure Access Manual	
Reg. II-1/3-8.3	Appropriate requirements for towing and mooring equipment	
Reg. II-1/3-9.1	Means of embarkation and disembarkation	
Reg. II-1/4.2	Alternative methodologies – communication to IMO	
Reg. II-1/4.4	Beneficial or adverse effects of fitting structures as defined by the regulation	
Reg. II-1/5-1.1	Stability information to the Administration	
Reg. II-1/7-2.5	Acceptance to equalization devices and their control	
Reg. II-1/13.9.2	Number and arrangements of doors with a device preventing unauthorized opening	
Reg. II-1/13.11.2	Special consideration for tunnels piercing watertight bulkheads	

SPECIFIC FLAG STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Reg. II-1/15.2	Arrangement and efficiency of the means for closing any opening in the shell plating	
Reg. II-1/15.6	Special sanction for automatic ventilating sidescuttles	
Reg. II-1/15.8.5	Material of pipes as referred to in the regulation	
Reg. II-1/16.1.1	Construction and initial tests of watertight doors, sidescuttles, etc.	
Reg. II-1/16-1.1	Construction and initial tests of watertight decks, trunks, etc.	
Reg. II-1/17-1.2	Indicators for closing appliances that could lead to flooding of a special category space or ro-ro space	
Reg. II-1/19.3 and 19.4	Damage control information – General and specific precautions	
Reg. II-1/22.4	Determination for watertight doors permitted to remain open	
Reg. II-1/26.2	Consideration of reliability of single essential propulsion components	
Reg. II-1/29.1, .2.1 and .6.3	Steering gear	
Reg. II-1/29.17.2	Adoption of regulations on rudder actuators for tankers, chemical tankers and gas carriers	
Reg. II-1/35-1.3.7.2 and 3.9	Bilge pumping arrangements	
Reg. II-1/40.2	Electrical installations – ensuring uniformity	
Reg. II-1/42.1.3	Emergency source of electrical power in passenger ships	
Reg. II-1/43.1.3	Emergency source of electrical power in cargo ships	
Reg. II-1/44.2	Approval of automatically starting emergency generating sets	

SPECIFIC FLAG STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Reg. II-1/45.3.3, 45.5.3, 45.5.4, 45.9.3, 45.10, and 45.11	Precautions against shock, fire and other hazards of electrical origin	
Reg. II-1/46.2 and .3	Additional requirements for periodically unattended machinery space	
Reg. II-1/53.1	Special requirements for machinery, boiler and electrical installations	
Reg. II-1/55.3, 55.4.1 and 55.6	Evaluation of the alternative design and arrangements and re-evaluation due to change of conditions	
Reg. II-1/55.5	Alternative design and arrangements – communication to IMO	
Reg. II-2/1.2.1	Approval of fire protection arrangements in existing ships	
Reg. II-2/1.6.2.1.2 and 1.6.6	Application of requirements for tankers	
Reg. II-2/4.2.2.5.1	Approval of material for oil fuel pipes and their valves and fittings	
Reg. II-2/4.3	Approval of gaseous fuel systems used for domestic purposes	
Reg. II-2/4.5.1.4.4	Installation of cargo oil lines where cargo wing tanks are provided	
Reg. II-2/4.5.3.3	Requirements for safety devices in venting systems	
Reg. II-2/4.5.5.2.1	Requirements for inert gas system on chemical tankers	
Reg. II-2/4.5.6.3	Arrangements for inerting, purging or gas-freeing	see reg. II-2/4.5.5.3.1
Reg. II-2/5.2.2.5	Positioning of controls for any required fire-extinguishing system in passenger ships	see reg. II-2/8.3.3 and II-2/9.5.2.3
Reg. II-2/5.2.3.1	Special consideration to maintaining the fire integrity of periodically unattended machinery spaces	

SPECIFIC FLAG STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Reg. II-2/7.3.2	Initial and periodical tests	see reg. II-2/11.2
Reg. II-2/7.6	Protection of cargo spaces in passenger ships	
Reg. II-2/8.3.4	Release of smoke from machinery spaces – passenger ships	
Reg. II-2/9.2.2.1.5.1	Approval of equivalent means of controlling and limiting a fire on ships designed for special purposes	
Reg. II-2/9.2.2.3.1	Fire integrity of bulkheads and decks in ships carrying more than 36 passengers	
Reg. II-2/9.2.2.4.4, 9.2.3.3.4 and 9.2.4.2.4	Fire integrity of bulkheads and decks	
Reg. II-2/9.3.4	Approval of structural fire protection details, taking into account the risk of heat transmission	
Reg. II-2/9.5.2.4	Protection of openings in machinery space boundaries	
Reg. II-2/10.2.1.2.1.3	Provisions for fixed water fire-extinguishing arrangements for periodically unattended machinery spaces	
Reg. II-2/10.2.1.2.2.1	Ready availability of water supply	
Reg. II-2/10.2.3.1.1	Approval of non-perishable material for fire hoses	
Reg. II-2/10.2.3.2.1	Number and diameter of fire hoses	
Reg. II-2/10.3.2.1	Arrangement of fire extinguishers	
Reg. II-2/10.6.1.1	Type approval of automatic sprinkler, fire detection and fire alarm system	
Reg. II-2/10.6.3.2	Approval of fire-extinguishing arrangement for flammable liquid lockers	
Reg. II-2/10.7.1.2	Fixed gas fire-extinguishing systems for general cargo	

SPECIFIC FLAG STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Reg. II-2/10.7.1.4	Issue of an Exemption Certificate	
Reg. II-2/13.3.1.4	Provision of means of escape from, or access to, radiotelegraph stations	
Reg. II-2/13.3.2.5.1	Lighting or photoluminescent equipment to be evaluated, tested and applied in accordance with the FSS Code	
Reg. II-2/13.3.2.6.2	Normally locked doors that form part of an escape route – Quick release mechanisms	
Reg. II-2/13.5.1	Means of escape on passenger ships from special category and open ro-ro spaces to which any passengers carried can have access	
Reg. II-2/17.4.1 and 17.6	Evaluation and approval of the engineering analysis for alternative design and arrangements for fire safety	
Reg. II-2/17.5	Alternative design and arrangements for fire safety – communication of information to IMO	
Reg. II-2/19.4	Provision of document of compliance	
Reg. II-2/20.4.1	Provision and approval of fixed fire detection and fire alarm systems	
Reg. II-2/20.6.1.4.2	Adverse effect as referred to in the regulation – Approval of stability information	
Reg. II-2/21.5.2	Alternate space for medical care	
Reg. III/4	Evaluation, testing and approval of life-saving appliances and arrangements	
Reg. III/5	Production tests for life-saving appliances	
Reg. III/20.8.1.2	Approval of servicing stations	
Reg. III/20.8.5	Extension of liferaft service intervals – notification to IMO	

SPECIFIC FLAG STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Reg. III/20.11.1 and 20.11.2	Periodic servicing of launching appliances and on-load release gear – thorough examination at the annual surveys	
Reg. III/26.2.4	Approval of liferafts on ro-ro passenger ships	
Reg. III/26.3.1 and 26.3.2	Approval of fast rescue boats and their launching appliances on ro-ro passenger ships	
Reg. III/28	Approval of helicopter landing and pick-up areas on ro-ro passenger ships	
Reg. III/38.3, 38.4.1 and 38.6	Evaluation of the alternative design and arrangements and re-evaluation due to change of conditions	
Reg. III/38.5	Alternative design and arrangements – communication to IMO	
Reg. IV/3.3	Exemptions – reporting to IMO	
Reg. IV/14.1	Type approval of radio equipment	
Reg. IV/15.5	Ensure radio equipment is maintained	
Reg. IV/16.1	Radio personnel	
Reg. IV/17	Radio records	
Reg. V/3.3	Exemptions and equivalents – reporting to IMO	
Reg. V/14	Ships' manning	
Reg. V/16	Maintenance of equipment	
Reg. V/17	Electromagnetic compatibility	
Reg. V/18.1	Type approval of navigational systems and equipment and voyage data recorder	
Reg. V/18.5	Requirement for quality control system at manufacturers	
Reg. V/23.3.3.1.3	Pilot transfer arrangements	
Reg. V/23.6.1	Type approval of mechanical pilot hoists	

SPECIFIC FLAG STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Reg. VI/3.1 and 3.2	Provision of equipment for oxygen analysis and gas detection and training of crews in their use	
Reg. VI/5.6	Approval of Cargo Securing Manual	
Reg. VI/6	Acceptability for shipment	
Reg. VI/9.2	Grain loading information	
Reg. VII/5	Approval of Cargo Securing Manual	
Reg. VII/15.2	Warships – INF cargo	
Reg. VIII/4	Approval of design, construction and standards of inspection and assembly of reactor installations	
Reg. VIII/6	Ensure radiation safety	
Reg. VIII/7(a)	Approval of safety assessment	
Reg. VIII/8	Approval of operating manual	
Reg. VIII/10(f)	Issue of certificates	
Reg. IX/4.1	Issue of Document of Compliance (DOC)	
Reg. IX/4.3	Issue of Safety Management Certificate (SMC)	
Reg. IX/6.1	Periodical verification of the safety management system	
Reg. XI-1/1	Authorization of recognized organizations	
Reg. XI-1/2	Enhanced surveys	
Reg. XI-1/3.5.4	Ship identification number – approval of method of marking	
Reg. XI-1/3-1.2	Registered owner identification number	
Reg. XI-1/5.3	Issue of Continuous Synopsis Record (CSR)	
Reg. XI-1/5.4.2	Amendments to CSR	
Reg. XI-1/5.4.3	Authorize and require changes to be made to CSR	

SPECIFIC FLAG STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Reg. XI-1/5.8	Former flag State to send CSR to new flag State	
Reg. XI-1/5.9	Append previous CSR to new CSR	
Reg. XI-1/6	Investigations of marine casualties and incidents	
Reg. XII/8.1	Endorsement of booklet required by reg. VI/7.2	
Reg. XII/9.2	Approval of bilge well high water level alarms	
Reg. XII/11.3	Loading instrument – approval of software for stability calculations	
MARPOL		
Art. 4(1) and (3)	Violation	
Art. 6(4)	Detection of violations and enforcement of the Convention – investigations	
Art. 12(1)	Casualties to ships – investigations	
Annex I		
Reg. 2.6.2	Application – an oil tanker delivered on or before 1 June 1982 engaged in specific trades: agreement with port States	
Reg. 3.3	Exemptions and waivers – reporting	
Reg. 4.3	Exceptions – discharge of substances containing oil for the purpose of combating pollution incidents	
Reg. 5.2	Equivalents – reporting	
Reg. 6	Surveys	
Reg. 7	Issue or endorsement of certificate	
Reg. 10.9.3	Transfer of flag	

SPECIFIC FLAG STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Reg. 12A.12	Oil fuel tank protection – approval of the design and construction of ships	
Reg. 14.3	Oil filtering equipment – volume of oil bilge holding tank	
Reg. 14.4	Oil filtering equipment – ships of less than 400 gross tonnage	
Reg. 14.6 and 14.7	Oil filtering equipment – approval	
Reg. 15.6.2	Control of discharge of oil – ships of less than 400 gross tonnage: design approval	
Reg. 18.8.2, 18.8.3 and 18.8.4	Requirements for product carriers of 40,000 tonnes deadweight and above – arrangement and operation, approval of oil content meter, clean ballast tank operational manual	
Reg. 18.10.1.1	Segregated ballast tanks – oil tanker delivered on or before 1 June 1982 having special ballast arrangements: approval	
Reg. 18.10.1.2	Segregated ballast tanks – oil tanker delivered on or before 1 June 1982 having special ballast arrangements: agreement with port States	
Reg. 18.10.3	Segregated ballast tanks – oil tanker delivered on or before 1 June 1982 having special ballast arrangements: communication to IMO	
Reg. 20.8.1	Double hull and double bottom requirements for oil tankers delivered before 6 July 1996 – communication to IMO	
Reg. 21.8.1	Prevention of oil pollution from oil tankers carrying heavy grade oil as cargo – communication to IMO	
Reg. 23.3.1	Accidental oil outflow performance – Calculation of mean oil outflow parameter	
Reg. 25.5	Hypothetical outflow of oil – information to IMO on accepted arrangements	

SPECIFIC FLAG STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Reg. 27.3	Intact stability – approval of written procedures for liquid transfer operation	
Reg. 28.3.4	Subdivision and damage stability – sufficient stability during flooding	
Reg. 29.2.1	Slop tanks – approval	
Reg. 30.6.5.2	Pumping, piping and discharge arrangement – establishment of requirements	
Reg. 30.7	Pumping, piping and discharge arrangement – positive means of loading, transporting or discharging cargo	
Reg. 31.2 and 31.4	Oil discharge monitoring and control system – approval	
Reg. 32	Oil/water interface detector – approval	
Reg. 33.1	Crude oil washing requirement – compliance with requirement	
Reg. 33.2	Crude oil washing requirements – establishment of requirements	
Reg. 35.1	Crude oil washing operations – Operations and Equipment Manual	
Reg. 36.9	Oil Record Book, Part II – development of oil record book for ships of less than 150 gross tonnage	
Reg. 37.1	Shipboard oil pollution emergency plan – approval	
Reg. 38.7.2	Reception facilities within special areas: Antarctic area – sufficient capacity	
Reg. 38.8	Reception facilities – Notification on alleged inadequacies of port reception facilities	
Reg. 39.2.2	Special requirements for fixed or floating platforms – approval of record form	

SPECIFIC FLAG STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Reg. 41.1	Oil tankers Ship to Ship (STS) operations Plan to be approved	
Annex II		
Reg. 3.1.3	Exceptions – approval of discharge of NLS for the purpose of combating pollution incidents	
Reg. 4.1.2	Exemptions – communication to IMO on relaxations	
Reg. 4.3.4	Exemptions – communication to IMO	
Reg. 4.4.5	Exemptions – communication to IMO	
Reg. 5.1	Equivalents – substitution of operational method	
Reg. 5.2	Equivalents – communication to IMO on alternatives	
Reg. 5.3.4 and 5.3.5	Equivalents – pumping and piping arrangement, approval of manual	
Reg. 6.3	Establishment of Tripartite Agreements – Notification to IMO	
Reg. 8	Surveys	
Reg. 9	Issue or endorsement of certificates	
Reg. 10.7	Expiry date of existing certificate	
Reg. 10.9.3	Transfer of flag	
Reg. 11.2	Design, construction, equipment and operations – establishment of appropriate measures	
Reg. 12.5	Pumping, piping, unloading arrangements and slop tanks – approval of pumping performance test	
Reg. 13.3	Control of discharges of residues of NLS – approval of ventilation procedure	

SPECIFIC FLAG STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Reg. 13.5	Control of discharges of residues of NLS – approval of tank washing procedure	
Reg. 14.1	Procedures and arrangements manual – approval	
Reg. 17.1	Shipboard marine pollution emergency plan for NLS – approval	
Reg. 18.5	Notification on alleged inadequacies of port reception facilities	
Annex IV		
Reg. 4	Surveys	
Reg. 5	Issue or endorsement of certificates	
Reg. 8.8.2	Transfer of flag	
Reg. 9.1	Approval of sewage systems	
Reg. 9.2	Approval of sewage systems (passenger ships operating in special areas)	
Reg. 11.1.1	Approval of rate of discharge	
Reg. 12.2	Notification on alleged inadequacies of port reception facilities	
Annex V		
Reg. 6.3.2	Sufficient capacity for the retention of all garbage on board ships before entering the Antarctic area	
Reg. 8.2	Notification on alleged inadequacies of port reception facilities	
Annex VI		
Reg. 3.2 and 3.3.2	Exceptions and exemptions	
Reg. 4.2 and 4.4	Equivalents and communication to IMO	
Reg. 5	Surveys and certification	Addition related to IEEC MEPC.203(62)

SPECIFIC FLAG STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Reg. 6	Issue or endorsement of Certificate	Addition related to IEEC by MEPC.203(62) Addition related to IEEC by MEPC.203(62)
Reg. 9.1 and 9.10	Duration and validity of certificate	
Reg. 9.9.3	Transfer of flag	
Reg. 11.4	Detection of violations and enforcement – investigations and communication to the Party and IMO	
Reg. 12.6	Ozone Depleting Substances Record Book – approval of alternative forms of record keeping	
Reg. 13.1.1.2 and 13.1.2.2)	Nitrogen oxides – Acceptance of identical replacement and alternative control measures	
Reg. 13.2.2	Acceptance of installation of Tier II engine in lieu of Tier III where Tier III engine could not be accommodated	
Reg. 13.5.2.2	Combined nameplate diesel engine – application as referred to in the paragraph	
Reg. 13.7.2	Approved method not commercially available	
Reg. 14.6	Sulphur oxides – prescription of logbook	
Reg. 15.5	Volatile organic compounds – approval of vapour collection systems	
Reg. 15.6	VOC Management Plan – approval	
Reg. 16.6.1	Shipboard incineration – approvals	
Reg. 19.6	Information regarding application, suspension, withdrawal or declining of waiving the requirements of Reg. 20 (in accordance with Reg.19.4) – communication to the Organization	Refer to Reg. 19.4
Reg. 23	Cooperation with other parties – promotion of development – transfer of technology, exchange of information relating to the improvement of energy efficiency of ships	

SPECIFIC FLAG STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Appendix IV, para 1	Type approval as referred to in the paragraph	
Appendix VI, para 1.2, para 2.1 and para 3.1	Fuel verification procedure – management and sample delivery	
Res. MSC.133(76), as amended	Technical provisions for means of access for inspections	
Para 3.7	Vertical or spiral ladders – acceptance	
Para 3.9.7	Other means of access – approval and acceptance	
Res. A.739(18), as amended	Guidelines for the authorization of organizations acting on behalf of the Administration	
Para 2	Assignment of authority	
Para 3	Verification and monitoring	
ISM Code		
Para 13.2	Issue of DOC	
Para 13.4	Annual verification (DOC)	
Para 13.5	Withdrawal of DOC	
Para 13.7	Issue of SMC	
Para 13.8	Intermediate verification (SMC)	
Para 13.9	Withdrawal of SMC	
Para 14.1	Issue of Interim DOC	
Para 14.2	Issue of Interim SMC	
Para 14.4	Verification required for issuance of an Interim SMC	
Para 15.1	Verification – acceptance of procedures	
Para 16	Forms of certificates	

SPECIFIC FLAG STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
INF Code		
Para 1.3.2	Issue of certificate	
Para 2.1	Damage stability (INF.1 ship)	
Para 3.1	Fire safety measures (INF.1 cargo)	
Para 4.1.3	Temperature control of cargo spaces (INF.1, 2 and 3 ship)	
Para 6.2	Safe stowage and securing – approval of principles	
Para 7.1	Electrical power supplies (INF.1 ship)	
Chapter 8	Radiological protection	
Chapter 9	Management and training	
Para 10.2	Shipboard emergency plan – approval	
FSS Code		
Para 1/4	Use of toxic extinguishing media	
Para 4/2	Type approval of fire extinguishers	
Para 4/3.1.1.2	Determine equivalents of fire extinguishers	
Para 4/3.2.2.2	Approval of foam concentrate	
Para 5/2.1.1.4	Containers for the storage of fire-extinguishing medium, etc.	
Para 5/2.1.2.1	System flow calculations	
Para 5/2.1.2.3	Spare parts	
Para 5/2.3	Steam systems	
Para 5/2.5	Equivalent systems – approval	
Paras 6/2.2.1.1 and 6/2.3.1.1	Foam concentrates – approval	

SPECIFIC FLAG STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Para 7/2.1	Fixed pressure water-spraying fire-extinguishing systems – approval	
Para 7/2.2	Equivalent systems – approval	
Para 7/2.3	Fixed pressure water-spraying fire-extinguishing systems for cabin balconies – approval	
Para 8/2.1.2	Equivalent sprinkler systems – approval	
Para 9/2.3.1.2	Sensitivity limits of smoke detectors in other spaces	
Para 9/2.3.1.3	Heat detectors temperature limits	
Para 9/2.3.1.7	Fixed fire detection and fire alarm systems for cabin balconies – approval	
Para 9/2.4.1.3	Limiting the number of enclosed spaces included in each section	
Para 9/2.5.2	Testing on ships with self-diagnostic system – determination of requirements	
Para 10/2.1.2	Sequential scanning – overall response time	
Para 10/2.2.2	Extractor fans – overall response time	
Para 10/2.3.1.1	Means to isolate smoke accumulators	
Para 11/2.1	Low-location lighting – approval	
Para 14/2.2.1.2	Medium expansion ratio foam – application rate, etc.	
Para 15/2.1.2	Inert gas systems – approval	
Para 15/2.2.4.6	Adequate reserve of water	
2010 FTP Code		
Para 4.2	Recognition of testing laboratories	
Para 5.1.1 and 5.1.2	Approval of products in accordance with established approval procedures or authorization of competent authorities to issue approvals	

SPECIFIC FLAG STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Para 5.2.2	Requirements for manufacturers – quality control system audited by a competent authority – or alternatively use of final product verification procedures as referred to in the paragraph	
Para 7.2	Use of equivalents and modern technology – communication of information to the Organization	
Annex 1, part 3/3.3	Structural core of a material other than steel or aluminium alloy – decision on limits for rise in temperature	
Annex 1, part 3 appendix 1, para 2.3.2.9	Insulation system of 'A' class door – approval to the same standard as the door	
LSA Code		
Para 1.2.3	Determine the period of acceptability of LSAs subject to deterioration with age	
Para 4.4.1.2	Endorsement of lifeboat affixed approval plate	
Para 4.5.4	Fixed two-way VHF radiotelephone apparatus – sheltered space	
Para 5.1.1.4	Rescue boats – combination of rigid and inflatable construction	
Para 5.1.3.8	Rubbing strips on inflated rescue boats	
Paras 6.1.2.9 and 6.1.2.10	Lowering speed of a fully equipped liferaft	
Para 6.2.1.2	MES – strength and construction of passage and platform	
Para 7.2.2.1	Broadcast of messages from other places on board	
1994 HSC Code		
Para 1.3.5	Verification	
Para 1.4.29	Determination of "maximum operational weight"	

SPECIFIC FLAG STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Para 1.5.1.2	Specifying intervals for renewal surveys	
Para 1.5.4	Inspection and survey	
Para 1.5.5	Recognized organizations and nominated surveyors	
Para 1.5.7	Completeness of survey and inspection	
Para 1.8.1	Issue/endorsement of certificate	
Para 1.9.2	Issue of permit to operate	
Para 1.11.2	Equivalents – reporting	
Para 1.12.1	Adequate information and guidance provided to the craft by the company	
Paras 1.13.2 and 1.13.3	Novel designs	
Para 1.14.1	Investigation reports to IMO	
Paras 2.7.4 and 2.14.2	Inclining and stability information – approval	
Para 3.4	Determination of service life	
Para 3.5	Design criteria	
Para 4.8.3	Documentation and verification of evacuation time	
Para 7.5.6.3	Safe outlets for exhaust fans in fuel tank spaces	
Para 7.7.2.3.2	Sensitivity limits of smoke detectors	
Para 7.7.6.1.5	Additional quantity of fire-extinguishing medium	
Para 7.7.6.1.12	Containers for the storage of fire-extinguishing medium, etc. – design	
Para 7.7.8.5	Maximum length of fire hoses	
Para 8.1	Approval and acceptance of LSA and arrangements	

SPECIFIC FLAG STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Para 8.9.1.2	Approval of novel life-saving appliances or arrangements	
Para 8.9.1.3	Notification to the Organization	
Para 8.9.7.1.2	Approval of servicing stations	
Para 8.9.7.2	Deployment intervals of MES	
Para 8.9.11	Novel life-saving appliances or arrangements	
Para 8.9.12	Notification to the Organization	
Para 10.2.4.9	Flexible oil fuel pipes	
Para 10.3.7	Internal diameters of suction branches	
Para 12.6.2	Specified voltages to earth	
Para 13.1.2	Navigational equipment and its installation	
Para 13.13	Approval of systems, equipment and performance standards	
Para 14.3.3	Exemptions – reporting	
Para 14.13.1	Type approval	
Para 14.14.5	Ensuring maintenance	
Para 14.15	Radio personnel	
Para 14.16	Radio records	
Para 15.3.1	Operating station – field of vision	
Para 15.7.2	Ensuring clear view through windows	
Para 17.8	Acceleration and deceleration	
Para 18.1.4	Determining maximum allowable distance from a base port or place of refuge	
Para 18.2	Craft documentation	

SPECIFIC FLAG STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Paras 18.3.1 to 18.3.7	Training and qualifications	
Chapter 19	Inspection and maintenance requirements	
2000 HSC Code		
Para 1.3.7	Verification	
Para 1.4.37	Determination of "maximum operational weight"	
Para 1.5.1.2	Specifying intervals for renewal surveys	
Para 1.5.4	Inspection and survey	
Para 1.5.5	Recognized organizations and nominated surveyors	
Para 1.5.7	Completeness of survey and inspection	
Para 1.7.3	Investigation to determine the need of survey	
Para 1.8.1	Issue/endorsement of certificate	
Para 1.9.1.1.4	Transit voyage – satisfied with the arrangement	
Para 1.9.2	Issue of permit to operate	
Para 1.9.7	The worst intended conditions and the operational limitations	
Para 1.11.2	Equivalents – reporting	
Para 1.12.1	Adequate information and guidance provided to the craft by the company	
Paras 1.13.2 and 1.13.3	Novel designs	
Para 1.14.1	Investigation reports to IMO	
Para 2.9.3	Verification of load line marks	
Paras 2.7.5 and 2.14.2	Inclining and stability information – approval	

SPECIFIC FLAG STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Para 3.4	Determination of service life	
Para 3.5	Design criteria	
Para 4.2.2	Approval of public address system	
Para 4.8.3	Documentation and verification of evacuation time	
Para 4.8.10	Evacuation demonstration	
Para 7.3.3	Approval of structural fire protection details	
Para 7.5.6.3	Safe outlets for exhaust fans in fuel tank spaces	
Para 7.7.1.1.8	Limitation of number of enclosed spaces in each section	
Para 7.7.1.3.2	Sensitivity limits of smoke detectors	
Para 7.7.3.3.6	Additional quantity of fire-extinguishing medium	
Para 7.17.1	Reduced requirements for cargo craft of less than 500 GT	
Para 7.17.3.1.5	Water spray system – approval	
Para 7.17.3.3	Smoke detection systems – equivalent protection	
Para 7.17.4	Issue of Document of Compliance for craft carrying dangerous goods	
Para 8.1	Approval and acceptance of LSA and arrangements	
Para 8.9.7.1.2	Approval of servicing stations	
Para 8.9.8	Rotational deployment of marine evacuation systems	
Para 8.9.11	Extension of liferaft service intervals – notification	
Para 8.11	Helicopter pick-up areas – approval	

SPECIFIC FLAG STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Para 10.2.4.9	Flexible oil fuel pipes	
Para 10.3.7	Internal diameters of suction branches	
Para 12.6.2	Specified voltages to earth	
Para 13.1.2	Shipborne navigational system and equipment and voyage data recorder and their installation	
Para 13.17	Type approval	
Para 14.3.3	Exemptions – reporting	
Para 14.4.2	GMDSS Identities – suitable arrangements	
Para 14.14.1	Type approval	
Para 14.15.5	Ensuring maintenance	
Para 14.16	Radio personnel	
Para 14.17	Radio records	
Para 15.3.1	Operating station – field of vision	
Para 15.7.2	Ensuring clear view through windows	
Para 17.8	Acceleration and deceleration	
Para 18.1.4	Determining maximum allowable distance from a base port or place of refuge	
Para 18.2	Craft documentation	
Paras 18.3.1 to 18.3.7	Training and qualifications	
Chapter 19	Inspection and maintenance requirements	

SPECIFIC FLAG STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Res. A.744(18), as amended	Guidelines on the enhanced programme of inspections during surveys of bulk carriers and oil tankers	
Annex A – Bulk carriers		
Part A – Single-side skin bulk carriers		
Para 1.3.1	Repair of damage affecting the ship's structural, watertight or weathertight integrity	
Para 1.3.2	Corrosion or structural defects impairing the ship's fitness	
Para 3.3.4	Repairs of cargo hatch securing system	
Para 5.1.1	Survey programme	
Para 5.1.4	Maximum acceptable structural corrosion diminution levels	
Para 5.2.1.1	Provisions for proper and safe access	
Para 6.2.2	Survey report file	
Para 8.1.2	Evaluation of survey report	
Para 8.2.3	Condition evaluation report	
Annex 4B, para 1	Survey planning questionnaire	
Annex 5, para 3.1	Certification of thickness measurement	
Annex 9, para 2.3	Technical assessment in conjunction with the planning of enhanced surveys for bulk carriers	
Annex 13, para 3	Cargo hatch cover securing arrangements	
Part B – Double-side skin bulk carriers		
Para 1.3.1	Repair of damage affecting the ship's structural, watertight or weathertight integrity	

SPECIFIC FLAG STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Para 1.3.2	Corrosion or structural defects impairing the ship's fitness	
Para 3.3.4	Cargo hatch cover securing system	
Para 5.1.1	Survey programme	
Para 5.1.5	Maximum acceptable structural corrosion diminution levels	
Para 5.2.2	Provisions for proper and safe access	
Para 6.2.2	Survey report file retained in the Administration	
Paras 8.1.2 and 8.2.3	Evaluation of survey report	
Annex 4B	Survey planning questionnaire	
Annex 5, para 3.1	Certification of a company engaged in thickness measurement	
Annex 9, para 2.3	Technical assessment in conjunction with the planning of enhanced surveys for bulk carriers	
Annex 11, para 3	Materials and welding	
Annex B – Oil tankers		
Part A – Double hull oil tankers		
Para 1.3.1	Repair of damage affecting the ship's structural, watertight or weathertight integrity	
Para 1.3.2	Corrosion or structural defects impairing the ship's fitness	
Para 2.4.3.2	Approval of corrosion prevention system	
Para 5.1.1	Survey programme	
Para 5.1.4	Maximum acceptable structural corrosion diminution levels	

SPECIFIC FLAG STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Para 5.2.1.1	Provisions for proper and safe access	
Para 6.2.2	Survey report file	
Para 8.1.3	Evaluation of survey report	
Para 8.2.3	Condition evaluation report	
Annex 6B	Survey planning questionnaire	
Annex 7, para 3.1	Certification of thickness measurement	
Annex 9	Diminution limits of structural members	
Annex 11, para 2.3	Technical assessment in conjunction with the planning of enhanced surveys for oil tankers	
Annex 12	Criteria for longitudinal strength of hull girder for oil tankers	
Part B – Oil tankers other than double hull oil tankers		
Para 1.3.1	Repair of damage affecting the ship's structural, watertight or weathertight integrity	
Para 1.3.2	Corrosion or structural defects impairing the ship's fitness	
Para 2.4.3.2	Approval of corrosion prevention system	
Para 5.1.1	Survey programme	
Para 5.1.4	Maximum acceptable structural corrosion diminution levels	
Para 5.2.1.1	Provisions for proper and safe access	
Para 6.2.2	Survey report file	
Para 8.1.3	Evaluation of survey report	
Para 8.2.3	Condition evaluation report	
Annex 6B	Survey planning questionnaire	

SPECIFIC FLAG STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Annex 7, para 3.1	Certification of thickness measurement	
Annex 9	Diminution limits of structural members	
Annex 11, para 2.3	Technical assessment in conjunction with the planning of enhanced surveys for oil tankers	
Annex 12	Criteria for longitudinal strength of hull girder for oil tankers	
Res. 4 of the 1997 SOLAS Conference		
Section 5	Dimension and selection of weld connections and materials	
Res. MSC.168(79)	Standards and criteria for side structures of bulk carriers of single-side skin construction	
Para 2.1	Applicable national standards	
Para 4.4	Applicable national standards	
Para 4.5	Applicable national standards	
NO_x Technical Code 2008		
Chapter 1	Assumption of full responsibility for the approval of documentation as required by the Code together with the acceptance of procedures and alternatives as permitted by the Code	
Chapter 2	Issue of the Engine International Air Pollution Prevention Certificate, arrangements for the Parent Engine test and pre-certification of engines, usage of the Engine Family/Engine Group concepts and approval of the Technical File and any subsequent amendments	
Chapter 2 para 2.2.5.1	Approval and pre-certification in the case referred to in the paragraph	
Chapter 3	Acceptance of modification of engine speed at E2 test cycle 25% power mode point	

SPECIFIC FLAG STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Chapter 4	Assignment of Engine Family/Engine Group status, as applicable, and selection of associated Parent Engine. Acceptance of conformity of production arrangements. Adjustment of Parent Engine relative to Engine Group reference values	
Chapter 5	Ensuring that the Parent Engine test and subsequent calculations are undertaken in accordance with Code requirements and that, where alternatives are applied, these meet the Code's equivalency requirements and any deviations are within the permitted margins. Filing of Parent Engine test report	
Chapter 6	Onboard NO _x Verification Procedures are in accordance with the provisions of the Code and are adequate to provide verification that an engine, as so surveyed, will be in accordance with the applicable Annex VI requirements. Acceptance of aspects within Onboard NO _x Verification Procedure – Simplified Measurement Method if applicable. Approval of aspects within Onboard NO _x Verification Procedure – Direct Measurement and Monitoring Method including the Onboard Monitoring Manual, if applicable	
Chapter 7	Installation of Approved method – amendment of IAPP Certificate	
Appendix IV	Verification that the calibration of all necessary measurement equipment meets Code requirements	
Appendix VII	Aspects to be included within Onboard NO _x Verification Procedure – Parameter Check Method	
Appendix VIII	Approval of alternative exhaust gas measurement principles	

SPECIFIC FLAG STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
IBC CODE		
Para 1.1.6	Prescribe preliminary suitable conditions for carriage of products not listed in chapter 17 or 18	
Para 1.4.2	Equivalents – communication to IMO	
Section 1.5	Survey and certification	
Para 2.2.2	Intact stability in all seagoing conditions	
Para 2.2.3	Free surface effect in undamaged compartments	
Para 2.4	Conditions of loading	
Para 2.8.1.6	Standard of damage	
Para 2.8.2	Standard of damage – alternative measures	
Para 2.9.2.3	Residual stability during intermediate stages of flooding	
Para 3.4.4	Access to spaces in the cargo area	
Para 3.7.3.5	Alternative arrangements for draining the piping	
Para 3.7.4	Relaxation for small ships	
Para 5.1.6.4	Dimensions for flanges not complying with the standards	
Para 5.2.2	Piping fabrication and joining details	
Para 7.1.1	Cargo temperature control – general	
Para 8.3.6	Devices to prevent the passage of flames into cargo tanks – requirements for the design, testing and locating	
Para 10.1.3	Electrical installations – appropriate steps for uniform implementation	
Para 10.1.4	Electric equipment, cables and wiring which do not conform to the standard	

SPECIFIC FLAG STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Para 10.1.5	Electrical equipment in hazardous locations	
Para 11.2.2	Approval of an appropriate fire-extinguishing system	
Para 11.3.2	Cargo area – additional arrangements	
Para 11.3.5.3	Cargo area – minimum capacity of monitor	
Para 11.3.7	Minimum capacity of foam monitor for ships less than 4,000 tonnes deadweight	
Para 11.3.13	Alternative provisions to deck foam system	
Para 13.2.3	Exemption of toxic vapour detection equipment	
Para 14.1.2	Protective equipment	
Chapter 15	Approval of special requirements for specific chemicals	
Para 16.2.2	Cargo information – independent expert	
Para 16.5.1	Stowage of cargo samples – approval	
Para 18.2	Safety requirements – list of products to which the Code does not apply	
BCH CODE		
Para 1.5.2	Equivalents – communication to IMO	
Section 1.6	Survey requirements	
Section 1.8	New products – establishing suitable conditions – notification to IMO	
Para 2.2.4	Determination of the ability to survive flooding of the machinery space in Type 3 below 125 m in length	
Para 2.2.5	Nature of alternative measures prescribed for small ships – duly noted on certificate	

SPECIFIC FLAG STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Para 2.9.5	Access to void spaces, cargo tanks, etc. – approval of smaller dimensions in special circumstances	
Section 2.10	Cargo piping systems – setting standards	
Section 2.12	Cargo hoses – setting standards	
Para 2.14.2	High-velocity vent valves – type approval	
Para 2.15.1	Cargo heating and cooling systems	
Para 3.1.2(f)	Ventilation fans – approval	
Para 3.14.1	Alternative provisions for ships dedicated to the carriage of specific cargoes	
Para 3.14.2	Additional arrangements when foam is not effective or is incompatible	
Para 3.14.7	Foam monitors on ships of less than 4,000 tonnes deadweight – minimum capacity	
Para 3.15.2	Protection of cargo pump-rooms with fire-extinguishing systems – approval	
Para 3.15.5	Products evolving flammable vapours – fire-extinguishing systems – approval	
Chapter IV	Approval of special requirements for specific chemicals	
IGC CODE		
Para 1.1.6	Establishment of preliminary suitable conditions of carriage and notification	
Para 1.4.2	Equivalents – reporting	
Section 1.5	Surveys and certification	
Para 2.2.2	Stability standard – acceptance	
Para 2.2.3	Method to calculate free surface effect – acceptance	
Para 2.3.3	Automatic non-return valves – acceptance	
Para 2.4	Damage survival capability investigation	

SPECIFIC FLAG STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Para 2.8.2	Alternative measures – approval	
Para 2.9.1.3	Residual stability during intermediate stages of flooding	
Para 3.5.3.2	Decreased clear opening in the cargo area	
Section 3.8	Bow or stern loading and unloading arrangements – approval	
Para 4.2.7	Design temperature	
Paras 4.4.2.5 and 4.4.4.1	Structural analysis of the hull	
Paras 4.4.6.1.1, 4.4.6.2.1 and 4.4.6.3.2	Setting standards	
Para 4.4.7.2.1	Three-dimensional structural analysis	
Para 4.4.7.3	Analysis	
Para 4.5.1.11	Allowable stresses – approval	
Para 4.7.3	Secondary barriers for non-basic tank types	
Para 4.7.7	Checking method – approval	
Para 4.8.4.4	Design and construction of the heating system	
Para 4.9.8	Insulation materials	
Para 4.10.1.2.2	Bevel preparation, etc. – acceptance and approval	
Para 4.10.2	Workmanship	
Para 4.10.5.2	Quality control specifications	
Para 4.10.6	Integral tank-testing	
Para 4.10.8.3	Tightness test	
Para 4.10.9	Type C independent tanks – inspection and NDT	
Para 4.10.10.3.7	Consideration of pneumatic testing	

SPECIFIC FLAG STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Para 4.11.1	Soaking temperature and holding times	
Para 4.11.2	Alternative to heat treatment – approval	
Paras 5.2.4.4 and 5.2.4.5	Flanges, valves and other fittings	
Para 5.4.2.2	Dimensions	
Para 5.4.2.3	Screwed couplings – acceptance	
Para 5.5.2	Cargo and process piping – alternative testing approval	
Para 6.1.5	Tensile strength, yield stress and elongation	
Para 6.3.7.4	Schedule for inspection and NDT	
Section 7.1	Cargo pressure/temperature control	
Paras 8.2.2, 8.2.5 and 8.2.7	Pressure relief devices	
Para 9.5.2	A means of preventing the backflow of cargo	
Para 10.1.5	Electrical equipment installation	
Para 11.4.1	Dry chemical powder fire-extinguishing system	
Para 11.5.2	Approval of appropriate fire-extinguishing system for cargo compressor and pump-rooms	
Para 13.5.4	Number and position of temperature indicating devices	
Para 13.6.1	Gas detector equipment	
Para 13.6.13	Portable gas detection equipment	
Para 14.4.5	Provision of space to protect personnel	
Section 15.2	Maximum allowable loading limits – approval of list	
Para 16.5.2	Forced draught system for boilers	
Para 16.5.6	Purging of combustion chambers of boilers	

SPECIFIC FLAG STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Para 17.14.2.1	Non-acceptance of cargo discharge compressors on board	
Para 17.20.3.1	Valves, flanges, fittings and accessory equipment material – acceptance	
Para 17.20.13.2	Cargo handling plans – approval	
Para 17.20.14	Maximum allowable tank filling limits – approval of list	
STCW Code, part A		
Section A-I/10.2	Withdrawal of endorsement of recognition – communication to the Party that issued the certificate	
Section A-II/4.4	Determining the requirements of training, assessment and certification where there are no tables of competence for the support level	
Section A-III/4.4	Determining the requirements of training, assessment and certification where there are no tables of competence – for the support level	
Section A-VIII/1.1	Fitness of duty – consideration of the danger posed by fatigue of seafarers	
Section A-VIII/1.5	Requirements of watch schedules to be posted in a standardized form	
Section A-VIII/1.7	Requirements of maintaining records of daily hours of rest of seafarers	
Section A-VIII/1.10	Establishment of a limit of alcohol concentration for personnel performing designated duties	
Section A-VIII/2.84	Principles to be observed in keeping radio watch – directing the attention of companies, masters, radio watchkeeping personnel to comply with provisions in part 4-3 to ensure that and adequate safety radio watch is maintained when the ship is at sea	

SPECIFIC FLAG STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Res. MEPC.94(46), as amended	Condition assessment scheme	
Para 4.1	Issue instructions to the recognized organization (RO) for Condition Assessment Scheme (CAS) survey	
Para 4.3	Require oil tankers to remain out of service until Statement of Compliance is issued	
Para 7.1.3	CAS surveyors' requirements	
Para 11	Verification of CAS	
Para 12	Reassessment of ships that have failed	
Para 13	Issue, suspension or withdrawal of Statement of Compliance	
Para 14	Communication to IMO	
Res. MSC.215(82)	Performance standard for protective coatings for dedicated seawater ballast tanks in all types of ships and double-side skin spaces of bulk carriers	
Para 3.2	Inspection of surface preparation and coating processes	
Para 3.4.1	Coating technical file	
Para 4.4.3	The Technical Data Sheet and Statement of Compliance or Type Approval Certificate – verification	
Section 5	Coating system approval	
Para 6.1.1	Verification of equivalent qualification of coating inspector	
Section 7	Verification requirements	

SPECIFIC FLAG STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Res. MSC.288(87)	Performance standard for protective coatings for cargo oil tanks of crude oil tankers	
Para 3.2	Inspection of surface preparation and coating processes – review	
Para 4.6.3	Verification of the Technical Data Sheet and Statement of Compliance or Type Approval Certificate for the protective coating system	
Para 6.1.1	Equivalent to NACE Coating Inspector Level 2 and FROSIO Inspector Level III – verification	
Para 7	Coating verification requirement as referred to in paragraph 7	
Res. MSC.289(87)	Performance standard for alternative means of corrosion protection for cargo oil tanks of crude oil tankers	
Para 2.2	Verification of Technical File	
Para 4.2	Issuance of Type Approval Certificate for corrosion resistant steel	
Para 5	Survey(s) during the construction process to verify that approved corrosion-resistant steel has been applied to the area required	
Casualty Investigation Code		
Para 1/1.3	Qualified person (s) for investigation	
Para 6/6.2	Investigation into a very serious marine casualty	
IS Code, 2008	International Code on Intact Stability, 2008	
Part A, Ch. 1.2	Criteria demonstrating sufficient ship stability in critical stability situation in waves	
Part A, Ch. 2.1.3	Stability criteria where anti-rolling devices are installed	
Part A, Ch. 2.3	Severe wind and stability criterion	
Part A, Ch. 3	Special criteria for certain types of ships	

SPECIFIC FLAG STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
IMSBC Code	International Maritime Solid Bulk Cargoes Code	
Section 1.3	Conditions for the carriage of cargoes not listed in the Code	
Section 1.5	Exemptions	
Para. 7.3.2.2	Approval of specially constructed cargo ships	
Para. 7.3.2.3	Approval of plan of special arrangements and details of the stability conditions on which the design has been based	
Appendix 1, Schedule for Aluminium Ferrosilicon Powder, UN 1395 and Aluminium Silicon Powder, Uncoated, UN 1398	Inspection and approval of gastight bulkheads between cargo spaces and engine-room	
Appendix 1, Schedule for Ferrosilicon, UN 1408, and Ferrosilicon	Inspection and approval of gastight bulkheads between cargo spaces and engine-room and approval of safety of bilge pumping arrangement	

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ANNEX 3

SPECIFIC COASTAL STATE OBLIGATIONS

The following table contains a non-exhaustive list of obligations, including those obligations imposed when a right is exercised.

SPECIFIC COASTAL STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
SOLAS 74		
Reg. V/4	Navigation warnings	
Reg. V/7.1	Search and rescue services – necessary arrangements	
Reg. V/7.2	Search and rescue services – information to IMO	
Reg. V/8	Life-saving signals	
Reg. V/9	Hydrographic services	
Reg. VII/6.1 and 7-4.1	Reporting of incidents involving dangerous goods	
MARPOL		
Annex I		
Reg. 4.3	Exceptions – discharge of substances containing oil for the purpose of combating pollution incidents	
Annex II		
Reg. 3.1.3	Exceptions – approval of discharge of NLS for the purpose of combating pollution incidents	
Reg. 13.2.3	Control of discharges of residues of NLS – agreement and communication to IMO	

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ANNEX 4

SPECIFIC PORT STATE OBLIGATIONS

The following table contains a non-exhaustive list of obligations, including those obligations imposed when a right is exercised.

SPECIFIC PORT STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
TONNAGE 69		
Art. 12	Inspection	
LL 66 AND LL PROT 88		
Art. 21	Control	amended by LL PROT 88
STCW 78		
Art. X	Control	
Reg. I/4	Control procedures	
SOLAS 74		
Reg. I/6(c)	Ships not allowed to sail	
Reg. I/19	Control	
Reg. VII/7-2.2	Documents relating to carriage of dangerous goods in solid form	
Reg. VIII/11	Special control for nuclear ships	
Reg. XI-1/4	Port State control on operational requirements	
MARPOL		
Art. 5(2)	Certificates and special rules on inspection of ships – port State control	
Art. 5(3)	Certificates and special rules on inspection of ships – denial of entry	
Art. 6(2)	Detection of violations and enforcement of the Convention – inspection	

SPECIFIC PORT STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Art. 6(5)	Detection of violations and enforcement of the Convention – inspection upon request – reporting	
Annex I		
Reg. 2.6.2	Application – an oil tanker delivered on or before 1 June 1982 engaged in specific trades: agreement with flag States	
Reg. 2.6.3	Application – an oil tanker delivered on or before 1 June 1982, engaged in specific trades: approval by port States	
Reg. 11	Port State control on operational requirements	
Reg. 17.7	Oil Record Book, Part I – inspection without undue delay	
Reg. 18.10.1.2	Segregated ballast tanks – oil tanker delivered on or before 1 June 1982 having special ballast arrangements: agreement with flag States	
Reg. 20.8.2	Denial of entry – communication to IMO	
Reg. 21.8.2	Denial of entry – communication to IMO	
Reg. 36.8	Oil Record Book, Part II – inspection without undue delay	
Reg. 38.1, 38.2 and 38.3	Reception facilities outside special areas	
Reg. 38.4 and 38.5	Reception facilities within special areas	
Reg. 38.6	Reception facilities within special areas – notification to IMO	
Reg. 38.7.1	Reception facilities within special areas: "Antarctic area"	
Annex II		
Reg. 4.3.3	Exemptions – approval of adequacy of reception facilities	
Reg. 13.6.1	Control of discharges of residues – endorsement of cargo record book	
Reg. 15.6	Cargo record book – inspection without undue delay	

SPECIFIC PORT STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Reg. 16.1	Measures of control	
Reg. 16.6 and 16.7	Measures of control – exemption granted (endorsement of cargo record book)	
Reg. 16.9	Port State control on operational requirement	
Reg. 18.1 and 18.2	Reception facilities and cargo unloading terminal arrangements	
Reg. 18.4	Cargo unloading terminal arrangements	
Annex III		
Reg. 8	Port State control on operational requirements	
Annex IV		
Reg.12.1	Provision of reception facilities	
Reg.12bis.1	Provision of reception facilities for passenger ships in special areas	
Reg.12bis.2	Measures taken regarding reception facilities for passenger ships in Special Areas – notification to the Organization	
Reg. 13	Port State control on operational requirements	
Annex V		
Reg. 6.3.1	Provision of reception facilities – all garbage from all ships departing on route or arriving from the Antarctic area	
Reg. 8.1	Reception facilities	
Reg. 8.3.1	Reception facilities within special areas	
Reg. 8.3.2	Measures taken regarding provision of reception facilities – notification to the Organization	
Reg. 9	Port State control on operational requirements	
Reg.10.5	Inspection of Garbage Record Book or ship's official logbook	

SPECIFIC PORT STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
Annex VI		
Reg. 5.3.3	Necessary assistance to the surveyor as referred to in the paragraph	
Reg. 10	Port State control on operational requirements – for chapter 4, limitation to verification of the availability of a valid International Energy Efficiency Certificate on board	
Reg. 15.2 and 15.3	Volatile organic compounds – approvals of vapour emission control systems and notification to IMO	
Reg. 17.2	Reception facilities as referred to in the paragraph – communication to IMO	
Reg. 18.10	Fuel oil quality – Communication to Party or non-Parties and remedial action	
IBC Code		
Para 15.8.25.3	Certification verifying that the required piping separation	
1994 HSC Code		
Para 1.3.5	Acceptance of the Code	
Para 1.5.6	Provide assistance for surveyors	
Para 1.6	Design approval	
Para 1.9.3	Operational conditions – Permit to Operate	
Para 1.9.4	Port State control	
Para 18.3.8	Training and qualifications	
2000 HSC Code		
Para 1.3.7	Acceptance of the Code	
Para 1.5.6	Provide assistance for surveyors	
Para 1.6	Design approval	
Para 1.9.3	Operational conditions – Permit to Operate	
Para 1.9.4	Port State control	
Para 18.3.8	Training and qualifications	

SPECIFIC PORT STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
GRAIN Code		
Para 3.4	Document of authorization	
Para 3.5	Document of authorization	
Para 5	Exemptions for certain voyages	
Para 7.2	Stability requirements	
IMSBC Code	International Maritime Solid Bulk Cargoes Code	
Section 1.3	Conditions for the carriage of cargoes not listed in the Code	
Section 1.5	Exemptions	

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ANNEX 5

INSTRUMENTS MADE MANDATORY UNDER IMO CONVENTIONS

SOLAS 74	Res. MSC.215(82)	reg. II-1/3-2.2
	Res. MSC.133(76), as amended	reg. II-1/3-6.2.1
	Res. MSC.287(87)	reg. II-1/3-10.3
	Res. MSC.288(87)	reg. II-1/3-11.1
	Res. MSC.289(87)	reg. II-1/3-11.2
	2008 IS Code, part A	reg. II-1/5.1
	FSS Code	reg. II-2/3.22
	2010 FTP Code	reg. II-2/3.23
	LSA Code	reg. III/3.10
	IMSBC Code	reg. VI/1-2
	CSS Code, sub-chapter 1.9	reg. VI/2.1
	Grain Code	reg. VI/8.1
	IMDG Code	reg. VII/1.1
	IBC Code	reg. VII/8.1
	IGC Code	reg. VII/11.1
	INF Code	reg. VII/14.1
	ISM Code	reg. IX/1.1
	1994 HSC Code	reg. X/1.1
	2000 HSC Code	reg. X/1.2
	Res. A.739(18), as amended	reg. XI-1/1
	Res. A.789(19)	reg. XI-1/1
	Res. A.744(18), as amended	reg. XI-1/2
	Casualty Investigation Code, parts I and II	reg. XI-1/6
	Res. 4 of the 1997 SOLAS Conf.	reg. XII/1.7
	Res. MSC.169(79)	reg. XII/7.2
	Res. MSC.168(79)	reg. XII/14
MARPOL	Res. MEPC.94(46), as amended	Annex I, reg. 20.6
	IBC Code	Annex II, reg. 1.4
	BCH Code	Annex II, reg. 1.4
	NO _x Technical Code 2008	Annex VI, reg. 5.3.2
STCW 78	STCW Code, part A	reg. I/1.2.3
LL PROT 1988	2008 IS Code	Annex 1, reg. 1

* * *

ANNEX 6

**SUMMARY OF AMENDMENTS TO MANDATORY INSTRUMENTS
REFLECTED IN THE NON-EXHAUSTIVE LIST OF OBLIGATIONS
(ANNEXES 1 TO 4)**

The amendments to mandatory instruments reflected in annexes 1 to 4 are summarized below to facilitate the amendment of corresponding tables in the future.

SOLAS 1974	up to and including 2011 amendments (res. MSC.317(89)), except chapter XI-2, regulation V/19-1 and ISPS Code)
Res. MSC.215(82)	as adopted
Res. MSC.133(76), as amended	up to and including the 2004 amendments (res. MSC.158(78))
Res. MSC.287(87)	as adopted
Res. MSC.288(87)	as adopted
Res. MSC.289(87)	as adopted
2008 IS Code	Up to res. MSC.319(89)(part B only)
FSS Code	up to and including the 2011 amendments (res. MSC.311(88))
2010 FTP Code	up to and including the 2010 amendments (res. MSC.307(88))
LSA Code	Up to res. MSC.320(89)
IMSBC Code	up to and including the 2011 amendments (res. MSC. 318(89))
CSS Code, sub-chapter 1.9	up to and including the 2002 amendments (MSC/Circ.1026)
GRAIN Code	up to and including the 1991 amendments (res. MSC.23(59))
IMDG Code	up to and including the 2010 amendments (res. MSC. 294(87))
IBC Code	up to and including the 2006 amendments (res. MSC.219(82) and res. MEPC.166(56))
IGC Code	up to and including the 2006 amendments (res. MSC.220(82))
INF Code	up to and including the 2007 amendments (res. MSC.241(83))
ISM Code	up to and including the 2008 amendments (res. MSC.273(85))
1994 HSC Code	up to and including the 2008 amendments (res. MSC.259(84))
2000 HSC Code	up to and including the 2008 amendments (res. MSC.271(85))
Res. A.739(18)	up to and including 2006 amendments (res. MSC.208(81))
Res. A.789(19)	no amendments yet adopted

Res. A.744(18), amended	up to and including the 2008 amendments (res. MSC.261(84))
Casualty Investigation Code	res. MSC.255(84)
Res. 4 of the 1997 SOLAS Conf.	no amendments yet adopted
Res. MSC.169(79)	no amendments yet adopted
Res. MSC.168(79)	no amendments yet adopted
SOLAS PROT 1978	up to and including the 1988 amendments (resolution of the 1988 GMDSS-P Conference)
SOLAS PROT 1988	up to and including the 2010 amendments (res. MSC.309 (88))
MARPOL	up to and including the 2012 (res. MEPC.217(63)) amendments
Res. MEPC.94(46), as amended	up to and including the 2006 amendments (res. MEPC.155(55))
IBC Code	up to and including the 2006 amendments (res. MEPC.166(56) and res. MSC.219(82))
BCH Code	up to and including the 2006 amendments (res. MEPC.144(54) and res. MSC.212(81))
NO _x Technical Code 2008	up to and including the 2012 amendments (res. MEPC. 217(63))
STCW 1978	up to and including the Manila amendments (STCW/Conf.2/res.1), except regulations VI/5.2, 6.3 and 6.6
STCW Code, part A	up to and including the Manila amendments (STCW/Conf.2/res.2)
LL 1966	up to and including the 2005 amendments (res. A.972(24))
LL PROT 1988	up to and including the 2008 amendments (res. MSC.270(85))
TONNAGE 1969	no amendments yet adopted
COLREG 1972	up to and including the 2001 amendments (res. A.910(22))

* * *

ANNEX 7

**AMENDMENTS³ TO IMO INSTRUMENTS EXPECTED TO BE ACCEPTED
AND TO ENTER INTO FORCE BETWEEN 1 JANUARY 2014 AND 1 JULY 2014**

The following tables contain non-exhaustive lists of obligations, including those obligations imposed when a right is exercised.

OBLIGATIONS OF CONTRACTING GOVERNMENTS/PARTIES		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
MARPOL <u>Annex III, reg. 1.3</u>	<u>Application – issue detailed requirements on packing, marking, labelling, documentation, stowage, quantity limitations and exceptions for preventing or minimizing pollution of the marine environment by harmful substances</u>	<u>In force 1.1.2014 by MEPC.193(61)</u>
IMDG Code <u>Ch 3.3 SP356</u>	<u>Approval of metal hydride storage systems installed in vehicles, vessels or aircrafts or in completed components or intended to be installed in vehicles, vessels or aircrafts</u>	<u>In force 1/1/2014 by MSC.328(90)</u>
<u>Section 5.4.1</u>	<u>Information required in addition to the dangerous goods description – role of the competent authority</u>	<u>In force 1/1/2014 by MSC.328(90)</u>
<u>Section 6.2.3</u>	<u>The marking of salvage pressure receptacles – determination by the competent authority</u>	<u>In force 1/1/2014 by MSC.328(90)</u>
<u>Section ~~7.1.14~~ 7.1.4.5</u>	<u>Stowage of goods of class 7 – role of competent authority</u>	<u>In force 1/1/2014 by MSC.328(90)</u>

³ The struck-out text indicates deletions and the underlined text shows additions or changes, to the non-exhaustive list of obligations.

SPECIFIC FLAG STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
SOLAS <u>Reg. V/14.2</u>	<u>Establishing appropriate minimum safe manning following a transparent procedure and issuing an appropriate minimum safe manning document or equivalent</u>	<u>In force 1/1/2014 by MSC.325(90)</u>
<u>2011 ESP Code⁴</u> <u>Annex A, part A</u> <u>3.3.4</u>	<u>Supervision on repair of cargo hatch securing system</u>	<u>In force 1/1/2014 by A.1049(27)</u>
<u>5.1.1</u>	<u>Cooperation on development of a specific survey programme</u>	<u>In force 1/1/2014 by A.1049(27)</u>
<u>5.1.4</u>	<u>Advice on the maximum acceptable structural diminution levels</u>	<u>In force 1/1/2014 by A.1049(27)</u>
<u>5.2.2</u>	<u>Agreement on provisions for proper and safe access</u>	<u>In force 1/1/2014 by A.1049(27)</u>
<u>8.1.2</u>	<u>Evaluation of survey report</u>	<u>In force 1/1/2014 by A.1049(27)</u>
<u>8.2.3</u>	<u>Endorsement on condition evaluation report</u>	<u>In force 1/1/2014 by A.1049(27)</u>
<u>Annex 4B, para 1</u>	<u>Cooperation on development of a survey programme</u>	<u>In force 1/1/2014 by A.1049(27)</u>
<u>Annex 5, para 3.1</u>	<u>Certification of a company engaged in thickness measurement</u>	<u>In force 1/1/2014 by A.1049(27)</u>
<u>Annex A, part B</u> <u>3.3.4</u>	<u>Supervision on repair of cargo hatch securing system</u>	<u>In force 1/1/2014 by A.1049(27)</u>
<u>5.1.1</u>	<u>Cooperation on development of a specific survey programme</u>	<u>In force 1/1/2014 by A.1049(27)</u>
<u>5.1.4</u>	<u>Advice on the maximum acceptable structural diminution levels</u>	<u>In force 1/1/2014 by A.1049(27)</u>
<u>5.2.2</u>	<u>Agreement on provisions for proper and safe access</u>	<u>In force 1/1/2014 by A.1049(27)</u>

⁴ All items under resolution A.744(18) are deleted.

SPECIFIC FLAG STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
<u>8.1.2</u>	<u>Evaluation of survey report</u>	In force 1/1/2014 by <u>A.1049(27)</u>
<u>8.2.3</u>	<u>Endorsement on condition evaluation report</u>	In force 1/1/2014 by <u>A.1049(27)</u>
<u>Annex 4B, para 1</u>	<u>Cooperation on development of a survey programme</u>	In force 1/1/2014 by <u>A.1049(27)</u>
<u>Annex 5, para 3.1</u>	<u>Certification of a company engaged in thickness measurement</u>	In force 1/1/2014 by <u>A.1049(27)</u>
<u>Annex B, part A</u>		
<u>5.1.1</u>	<u>Cooperation on development of a specific survey programme</u>	In force 1/1/2014 by <u>A.1049(27)</u>
<u>5.1.4</u>	<u>Advice on the maximum acceptable structural diminution levels</u>	In force 1/1/2014 by <u>A.1049(27)</u>
<u>5.2.1.1</u>	<u>Agreement on provisions for proper and safe access</u>	In force 1/1/2014 by <u>A.1049(27)</u>
<u>8.1.3</u>	<u>Evaluation of survey report</u>	In force 1/1/2014 by <u>A.1049(27)</u>
<u>8.2.3</u>	<u>Endorsement on condition evaluation report</u>	In force 1/1/2014 by <u>A.1049(27)</u>
<u>Annex 6B</u>	<u>Cooperation on development of a survey programme</u>	In force 1/1/2014 by <u>A.1049(27)</u>
<u>Annex 7, para 3.1</u>	<u>Certification of a company engaged in thickness measurement</u>	In force 1/1/2014 by <u>A.1049(27)</u>
<u>Annex B, part B</u>		
<u>5.1.1</u>	<u>Cooperation on development of a specific survey programme</u>	In force 1/1/2014 by <u>A.1049(27)</u>
<u>5.1.4</u>	<u>Advice on the maximum acceptable structural diminution levels</u>	In force 1/1/2014 by <u>A.1049(27)</u>
<u>5.2.1.1</u>	<u>Agreement on provisions for proper and safe access</u>	In force 1/1/2014 by <u>A.1049(27)</u>
<u>8.1.3</u>	<u>Evaluation of survey report</u>	In force 1/1/2014 by <u>A.1049(27)</u>
<u>8.2.3</u>	<u>Endorsement on condition evaluation report</u>	In force 1/1/2014 by <u>A.1049(27)</u>

SPECIFIC FLAG STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
<u>Annex 6B</u>	<u>Cooperation on development of a survey programme</u>	In force 1/1/2014 by <u>A.1049(27)</u>
<u>Annex 7, para 3.1</u>	<u>Certification of a company engaged in thickness measurement</u>	In force 1/1/2014 by <u>A.1049(27)</u>
FSS Code		
<u>Para 6/3.1.2</u>	<u>Foam concentrates of high-expansion foam fire-extinguishing systems – approval</u>	In force 1/1/2014 by <u>MSC.327(90)</u>
<u>Para 6/4.1</u>	<u>Foam concentrates of low-expansion foam fire-extinguishing systems – approval</u>	In force 1/1/2014 by <u>MSC.327(90)</u>
<u>Para 5/2.54</u>	Equivalent systems – approval	In force 1/7/2014 by <u>MSC.339(91)</u>
<u>Para 7/2.4</u>	<u>Fixed water-based fire-fighting system for ro-ro spaces, vehicle spaces and special category spaces – approval</u>	In force 1/7/2014 by <u>MSC.339(91)</u>
<u>Para 14/2.2.1.2</u>	<u>Medium expansion ratio foam – application rate, etc.</u>	Chapter 14 replaced by <u>MSC.339(91)</u>
<u>Para 14/2.2.1.4</u>	<u>Foam concentrate supplied on board for cargoes intended to be carried – approval</u>	In force 1/7/2014 by <u>MSC.339(91)</u>
Noise Code		
<u>Para 3.3.9</u>	<u>Operating conditions at sea trials for ships with dynamic positioning (DP)</u>	Mandatory under <u>SOLAS II-1/3-12 (in force 1/7/2014 by MSC.338(91))</u> In force 1/7/2014 by <u>MSC.337(91)</u>

SPECIFIC PORT STATE OBLIGATIONS		
SOURCE	SUMMARY DESCRIPTION	COMMENTS
MARPOL <u>Annex III, reg. 8</u>	<u>Port State control on operational requirements</u>	In force 1/1/2014 by <u>MEPC.193(61)</u>

ANNEX 30

DRAFT ASSEMBLY RESOLUTION

IMO SHIP IDENTIFICATION NUMBER SCHEME

THE ASSEMBLY,

RECALLING Article 15(j) of the Convention on the International Maritime Organization concerning the functions of the Assembly in relation to regulations and guidelines concerning maritime safety and the prevention and control of marine pollution from ships,

BELIEVING that the enhancement of maritime safety and pollution prevention and the prevention of maritime fraud could be facilitated if a permanent identification number were assigned to a ship which would remain unchanged upon transfer of its flag and would be inserted on ships' certificates,

RECALLING ALSO that, by resolution A.600(15), it adopted the *IMO Ship Identification Number Scheme*,

RECOGNIZING the need for the IMO Ship Identification Number Scheme to be revised to allow its voluntary application to ships of 100 gross tonnage and above, including fishing vessels,

HAVING CONSIDERED the recommendation made by the Maritime Safety Committee, at its ninety-second session,

1. ADOPTS the IMO Ship Identification Number Scheme, for implementation on a voluntary basis, as set out in the annex to the present resolution;
2. INVITES Governments concerned to implement the scheme as far as it is practicable, and to inform IMO of measures taken in this respect;
3. REQUESTS the Maritime Safety Committee to keep the scheme under review for further improvement as may be necessary;
4. REVOKES resolution A.600(15).

* * *

ANNEX

IMO SHIP IDENTIFICATION NUMBER SCHEME

Introduction

1 The purpose of the scheme is to enhance maritime safety and pollution prevention and to facilitate the prevention of maritime fraud. It is not intend to prejudice matters of liability, civil law or other commercial considerations in the operation of a ship. The scheme may be applied by Administrations on a voluntary basis for new and existing ships, under their flag, engaged in international voyages. Administrations may also wish to assign the IMO numbers to ships engaged solely on domestic voyages and to insert the number in the national certificates.

Application

2 The scheme applies to seagoing ships of 100 gross tonnage and above, with the exception of the following:

- ships without mechanical means of propulsion;
- pleasure yachts;
- ships engaged on special service¹;
- hopper barges;
- hydrofoils, hovercraft;
- floating docks and structures classified in a similar manner;
- ships of war and troop ships; and
- wooden ships in general.

Assignment of IMO number

3 The IMO number is a number, allocated by IHS-Fairplay (IHS-F) at the time of build or when a ship is first included in the register, with the prefix IMO (e.g. 8712345). Administrations which have decided to implement the scheme are invited to assign all appropriate ships flying their flags, or cause them to be assigned, the IMO numbers and to insert them on ships' certificates.

4 For new ships, the assignment to the IMO number should be made when the ship is registered. For existing ships, the assignment of the IMO number should be made at an early convenient date, such as when the renewal survey is completed or new certificates are issued.

5 Administrations implementing the scheme are invited to inform the Organization accordingly, for circulation to other Governments.

¹ For example, lightships, floating radio stations, search and rescue vessels.

6 Official publications and other information from IHS-Fairplay (IHS-F) are sources for referencing the identification number. If the particulars of a ship do not correspond to those shown in the Register of Ships and its supplement because, for example, the ship had changed its name, or the port State control officer had doubts as to whether the numbers given on the certificates were genuine, further clarification may be sought from IHS-Fairplay (IHS-F), the IMO Secretariat or the flag State.

Certificates on which the IMO number is to be inserted

7 The IMO number should be inserted on a ship's Certificate of Registry which includes the particulars identifying the ship, and on all certificates issued under IMO Conventions when and where appropriate. It is recommended that the IMO number also be inserted in other certificates, such as classification certificates, when and where appropriate. The IMO number should preferably be included in the box headed "Distinctive number or letters" in addition to the call sign.

How to obtain the IMO number

8 For obtaining IMO number for both new and existing ships and making ad hoc enquiries, please contact the following website www.imonumbers.lrfairplay.com or requests can be sent to the IHS-F Service at the following address:

IHS Fairplay
Lombard House
3 Princess Way
Redhill
Surrey
RH1 1UP
United Kingdom
Tel: +441737379054
Fax: +441737379040
E-mail: ship.imo@ihs.com

New ships (on order and under construction)

9 The IMO number can be obtained by one of the following methods:

- .1 inquiries should be addressed to IHS-Fairplay by telephone, e-mail or facsimile. In making such inquiry particulars of the ships, should be presented².

Based on the above information, IHS-Fairplay will provide the necessary IMO number free of charge. If there are no data in the IHS-Fairplay new construction file on the ship concerning which the inquiry is made, a new record on that ship will be created and the IHS-Fairplay number will be assigned.

- .2 online access to the new construction file through Sea-web (IMO has access to this system).

² List of particulars can be found in the form annexed to circular letters on the *IMO Ship Identification Number Scheme* (e.g. Circular letter No.1886/Rev.4).

- .3 application through IHS-Fairplay which will provide a service of regular listings of the order book with selected data items, produced for a client's specification.

Existing ships

- 10 For existing ships, IHS Fairplay is prepared to answer ad hoc requests free of charge up to a reasonable point of acceptability.

Inquiry to the IMO Secretariat

- 11 The IMO number may also be obtained free of charge from the IMO Secretariat (Maritime Safety Division – facsimile: +44(0)20 7587 3210) which has access to the Sea-web system. In making such an inquiry to the IMO Secretariat, information on particulars of the ship (as in paragraph 9.1) should be provided. The quickest route for issuance of a number is to contact IHS Fairplay direct at the address in paragraph 8.
-

ANNEX 31

DRAFT MSC RESOLUTION

REQUIREMENTS FOR PERIODIC SERVICING AND MAINTENANCE OF LIFEBOATS AND RESCUE BOATS, LAUNCHING APPLIANCES AND RELEASE GEAR

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO the Measures to prevent accidents with lifeboats (MSC.1/Circ.1206/Rev.1) and the Interim recommendation on conditions for authorization of service providers for lifeboats, launching appliances and on-load release gear (MSC.1/Circ.1277) approved by it,

RECOGNIZING the need to establish a uniform, safe and documented standard for periodic servicing and maintenance of lifeboats (including free-fall lifeboats) and rescue boats (including fast rescue boats), launching appliances and release gear,

NOTING that, by resolution MSC.[...(...)], it adopted amendments to regulations III/3 and III/20 of the International Convention for the Safety of Life at Sea (SOLAS), 1974, as amended (hereinafter referred to as "the Convention"), concerning periodic servicing of lifeboats and rescue boats, launching appliances and release gear,

NOTING ALSO that the aforementioned regulation III/20 of the Convention provides that the periodic servicing and maintenance shall be carried out in accordance with the Requirements for periodic servicing and maintenance of lifeboats and rescue boats, launching appliances and release gear (hereinafter referred to as "the Requirements"),

HAVING CONSIDERED, at its [ninety-third] session, the recommendation made by the Sub-Committee on Ship Design and Equipment, at its fifty-seventh session,

1. ADOPTS the Requirements for periodic servicing and maintenance of lifeboats and rescue boats, launching appliances and release gear, the text of which is set out in the annex to the present resolution;
2. INVITES Contracting Governments to the Convention to note that the Requirements will take effect on [date] upon entry into force of the associated amendments to regulations III/3 and III/20 of the Convention;
3. ALSO INVITES Contracting Governments to the Convention to take measures they consider appropriate to ensure that national manufacturers of equipment certified under chapter III of the Convention for installation and use on board ships undertake to ensure that equipment, instructions, specialized tools, spare parts, training and accessories, as required, are available to independent service providers in a timely and cost-effective manner;
4. REQUESTS the Secretary-General to transmit certified copies of this resolution and the text of the Requirements, contained in the annex, to all Contracting Governments to the Convention;
5. ALSO REQUESTS the Secretary-General to transmit copies of this resolution and the annex to all Members of the Organization which are not Contracting Governments to the Convention.

REQUIREMENTS FOR PERIODIC SERVICING AND MAINTENANCE OF LIFEBOATS AND RESCUE BOATS, LAUNCHING APPLIANCES AND RELEASE GEAR

1 GENERAL

1.1 The objective of these Requirements for periodic servicing and maintenance of lifeboats and rescue boats, launching appliances and release gear (the Requirements) is to establish a uniform, safe and documented standard for periodic servicing and maintenance of the equipment specified in paragraph 2.1.

1.2 The detailed procedures covered by these Requirements are provided in section 6.

1.3 These Requirements relate to the following regulations:

- .1 SOLAS regulation III/20 – Operational readiness, maintenance and inspections; and
- .2 SOLAS regulation III/36 – Instructions for onboard maintenance.

1.4 The Company¹ shall ensure that servicing and maintenance on board its ships is conducted in accordance with SOLAS regulation III/20 and shall establish and implement health, safety and environment (HSE) procedures covering all activities during servicing and maintenance.

1.5 The personnel carrying out servicing and maintenance as described in paragraph 4.2 shall be certified in accordance with the requirements specified in section 8 and shall comply with health, safety and environment (HSE) instructions and procedures of the Company.

2 APPLICATION

2.1 These Requirements shall apply to the periodic servicing and maintenance of:

- .1 lifeboats (including free-fall lifeboats), rescue boats and fast rescue boats; and
- .2 launching appliances and on-load and off-load release gear for lifeboats (including primary and secondary means of launching appliances for free-fall lifeboats), rescue boats, fast rescue boats and davit launched liferafts.

2.2 For the purpose of these Requirements:

- .1 *Equipment* means the aforementioned equipment to which the Requirements apply.
- .2 *Off-load release mechanism* means a release mechanism which releases the life/rescue boat when it is waterborne or when there is no load on the hooks.
- .3 *On-load release mechanism* means a release mechanism which releases the lifeboat with load on the hooks.

¹ For the purpose of these Requirements, Company is as defined in SOLAS regulation IX/1.2.

3 AUTHORIZATION

3.1 Administrations shall ensure that the thorough examination, operational testing, repair and overhaul of equipment shall be carried out in accordance with SOLAS regulation III/20 by service providers authorized by them that are qualified in these operations for each make and type of equipment for which they provide the service.

3.2 Service providers carrying out the thorough examination, operational testing, repair and overhaul of equipment shall be authorized for each make and type of equipment in accordance with section 7.

4 QUALIFICATION LEVELS AND CERTIFICATION

4.1 Weekly and monthly inspections and routine maintenance as specified in the equipment maintenance manual(s), may be carried out by the shipboard personnel and shall be conducted under the direct supervision of a senior ship's officer in accordance with the maintenance manual(s).

4.2 All other inspections, servicing and repair shall be conducted by personnel appropriately trained and certified for the work to be done in accordance with section 8.

4.3 Where these Requirements call for certification of servicing personnel, such certification shall be issued by the service provider in accordance with an established system for training and certification in accordance with paragraph 8.

5 REPORTS AND RECORDS

5.1 All reports and checklists shall be correctly filled out and signed by the person who carries out the inspection and maintenance work and shall also be signed by the company's representative or the ship's master.

5.2 Records of inspections, servicing, repairs and maintenance shall be updated and filed on board the ship.

5.3 When repairs, thorough examinations and annual servicing are completed, a statement confirming that the lifeboat arrangements remain fit for purpose shall be promptly issued by the service provider who performed the work.

6 SPECIFIC PROCEDURES FOR MAINTENANCE AND SERVICING

6.1 General

6.1.1 Any inspection, servicing and repair shall be carried out according to the maintenance manuals and associated technical documentation developed by the manufacturer or an alternative body authorized in accordance with section 7.

6.1.2 A full set of maintenance manuals and associated technical documentation as specified in paragraph 6.1.1 shall be available on board for use in all operations involved in the inspection, maintenance, adjustment and re-setting of the lifeboat and associated equipment, such as davits and release gear.

6.1.3 The maintenance manuals and associated technical documentation as specified in paragraph 6.1.1 shall include the items listed in sections 6.2 to 6.4 as a minimum and shall be periodically reviewed and updated as necessary.

6.2 Annual thorough examination

6.2.1 All items listed in checklists for the weekly/monthly inspections also form the first part of the annual thorough examination; when carrying out this examination, the inspection of these items shall be performed by the ship's crew in the presence of the manufacturer's representative or other person appropriately trained and certified for the work to be done in accordance with section 8.

6.2.2 Inspection and maintenance records of inspections and routine maintenance carried out by the ship's crew and the applicable certificates for the launching appliances and equipment shall be available.

6.2.3 For lifeboats (including free-fall lifeboats), rescue boats and fast rescue boats, the following items shall be examined and checked for satisfactory condition and operation:

- .1 condition of the boat structure including fixed and loose equipment (including a visual examination of the external boundaries of the void spaces, as far as practicable);
- .2 engine and propulsion system;
- .3 sprinkler system, where fitted;
- .4 air supply system, where fitted;
- .5 manoeuvring system;
- .6 power supply system;
- .7 bailing system;
- .8 fender/skate arrangements; and
- .9 rescue boat righting system, where fitted.

6.2.4 For release gear of lifeboats (including free-fall lifeboats), rescue boats, fast rescue boats and liferafts, the following shall be examined for satisfactory condition² and operation after the annual winch brake test with the empty boat or equivalent load, as required by paragraph 6.3.1:

- .1 operation of devices for activation of release gear;
- .2 excessive free play (tolerances);
- .3 hydrostatic interlock system, where fitted;
- .4 cables for control and release; and
- .5 hook fastening.

² Hanging-off pennants may be used for this purpose but should not remain connected at other times, such as when the lifeboat is normally stowed and during training exercises. The release gear is to be examined prior to its operational test. The release gear is to be re-examined after its operational test and the dynamic winch brake test. Special consideration shall be given to ensure that no damage has occurred during the winch brake test, especially to the hook fastening.

- Notes:**
- 1 The setting and maintenance of release gear are critical operations with regard to maintaining the safe operation of lifeboats (including free-fall lifeboats), rescue boats, fast rescue boats and davit launched liferafts. Utmost care shall be taken when carrying out all inspection and maintenance operations on the equipment.
 - 2 No maintenance or adjustment of the release gear shall be undertaken while the hooks are under load.

6.2.5 The operational test of davit-launched lifeboats' and rescue boats' on-load release function shall be carried out as follows:

- .1 position the boat partially in the water such that the mass of the boat is substantially supported by the falls and the hydrostatic interlock system, where fitted, is not triggered;
- .2 operate the on-load release gear;
- .3 reset the on-load release gear; and
- .4 examine the release gear and hook fastening to ensure that the hook is completely reset and no damage has occurred.

6.2.6 The operational test of davit-launched lifeboats' and rescue boats' off-load release function shall be carried out as follows:

- .1 position the boat so that it is fully waterborne;
- .2 operate the off-load release gear;
- .3 reset the off-load release gear; and
- .4 recover the boat to the stowed position and prepare for operational readiness.

During the test, prior to hoisting, it shall be checked that the release gear is completely and properly reset. The final turning-in of the boat shall be done without any persons on board.

6.2.7 The operational test of the free-fall lifeboat release function shall be carried out as follows:

- .1 engage the arrangements for the test without launching the lifeboat, required by paragraph 4.7.6.4 of the LSA Code, as specified in the manufacturer's operating instructions;
- .2 ensure that the operator is properly seated and secured in the seat location from which the release mechanism is to be operated;
- .3 operate the release mechanism to release the lifeboat;
- .4 reset the lifeboat in the stowed configuration;
- .5 repeat the procedures referred to in .2 to .4 above, using the back-up release mechanism, if applicable;

- .6 remove the arrangements for the test without launching the lifeboat, required by paragraph 4.7.6.4 of the LSA Code; and
- .7 verify that the lifeboat is in the ready to launch stowed configuration.

6.2.8 The operational test of the davit-launched liferaft automatic release function shall be carried out as follows:

- .1 manually release the hook with a load of 150 kg on the hook;
- .2 automatically release the hook with a dummy weight of 200 kg on the hook when it is lowered to the ground; and
- .3 examine the release hook and hook fastening to ensure that the hook is completely reset and no damage has occurred.

If a raft is used for the test instead of a dummy weight, the automatic release function shall release the raft when waterborne.

6.2.9 For davits for lifeboats (including free-fall lifeboats), rescue boats, fast rescue boats and liferafts, the following items shall be examined for satisfactory condition and operation:

- .1 davit structure, in particular with regard to corrosion, misalignments, deformation and excessive free play;
- .2 wires and sheaves, possible damages such as kinks and corrosion;
- .3 lubrication of wires, sheaves and moving parts; and
- .4 if applicable:
 - .1 functioning of limit switches;
 - .2 stored power systems; and
 - .3 hydraulic systems.

6.2.10 For winches for lifeboats (including free-fall lifeboats), rescue boats, fast rescue boats and liferafts, the following items shall be examined for satisfactory condition and operation:

- .1 inspecting brake system and opening the brake where possible;
- .2 replacing brake pads, if necessary;
- .3 winch foundation; and
- .4 if applicable:
 - .1 remote control system; and
 - .2 power supply system.

6.3 Dynamic brake test of winches for lifeboats (including free-fall lifeboats), rescue boats, fast rescue boats and liferafts

6.3.1 Annual operational testing shall be done by lowering the empty craft or equivalent load. When the craft has reached its maximum lowering speed and before the craft enters the water, the brake shall be abruptly applied.

6.3.2 The five-year operational test shall be done by lowering the craft loaded to a proof load equal to 1.1 times the weight of the craft and its full complement of persons and equipment, or equivalent load. When the craft has reached its maximum lowering speed and before the craft enters the water, the brake shall be abruptly applied.

6.3.3 Following these tests, the stressed structural parts shall be re-inspected³ where possible.

6.4 Overhaul of release gear for lifeboats (including free-fall lifeboats), rescue boats, fast rescue boats and liferafts

The overhaul of release gear shall include:

- .1 dismantling of hook release units;
- .2 examinations with regard to tolerances and design requirements;
- .3 adjustment of release gear system after assembly;
- .4 operational tests as per above and with a load according to SOLAS regulations III/20.11.2.3 and III/20.11.3.3; and
- .5 examinations of vital parts with regard to defects and cracks⁴.

7 CONDITIONS FOR AUTHORIZATION OF SERVICE PROVIDERS FOR LIFEBOATS (INCLUDING FREE-FALL LIFEBOATS), RESCUE BOATS AND FAST RESCUE BOATS, LAUNCHING APPLIANCES AND RELEASE GEAR

7.1 Authorization as required by paragraph 3.2 shall include, as a minimum:

- .1 employment and documentation of personnel certified in accordance with a recognized national, international or industry standard as applicable, or an equipment manufacturer's established certification programme. In either case, the certification programme shall comply with section 8 for each make and type of equipment for which service is to be provided;
- .2 availability of sufficient tools, and in particular any specialized tools specified in the equipment manufacturer's instructions, including portable tools as needed for work to be carried out on board ship;
- .3 access to appropriate parts and accessories as specified for repairing lifeboats (including free-fall lifeboats), rescue boats and fast rescue boats, launching appliances and release gear, as applicable;

³ In loading the craft for this test, precautions should be taken to ensure that the stability of the craft is not adversely affected by free surface effects or the raising of the centre of gravity.

⁴ Non-destructive examination (NDE) techniques, such as dye penetrants (DPE), may be suitable.

- .4 for servicing and repair work involving disassembly or adjustment of on-load release mechanisms and davit's winch, availability of the equipment manufacturer's instructions; and
- .5 a documented and duly certified quality system, which covers at least the following:
 - .1 code of conduct for personnel involved in the relevant activity;
 - .2 maintenance and calibration of equipment;
 - .3 training programmes for personnel;
 - .4 supervision and verification to ensure compliance with operational procedures;
 - .5 recording and reporting of information;
 - .6 quality management of subsidiaries and agents;
 - .7 job preparation; and
 - .8 periodic review of work process procedures, complaints, corrective actions and issuance, maintenance and control of documents.

Note: A documented quality system complying with the most current version of the ISO 9000 series and including the above items would be considered acceptable.

7.2 Administrations shall arrange for regular inspections of service providers to ensure that work continues to be carried out based on these Requirements, and shall withdraw the authorization of service providers who are not in compliance. For service providers situated in other countries, the Administration may accept or recognize service providers authorized, checked or inspected by surveyors nominated for the purpose or by recognized organizations or by other SOLAS Contracting Governments.

7.3 Administrations shall ensure that information regarding authorized service providers for equipment is made available to mariners.

7.4 Administrations may authorize service providers other than equipment manufacturers on the basis of prior authorization for the equipment and/or demonstrated expertise as an authorized service provider.

7.5 The requirements in this section shall apply equally to manufacturers when they are acting as service providers.

8 REQUIREMENTS FOR CERTIFICATION OF PERSONNEL FOR SERVICING AND MAINTENANCE OF LIFEBOATS (INCLUDING FREE-FALL LIFEBOATS), RESCUE BOATS AND FAST RESCUE BOATS, LAUNCHING APPLIANCES AND RELEASE GEAR

8.1 Personnel for the work specified in paragraph 4.2 shall be certified by a service provider in accordance with a certification programme in accordance with the following provisions.

8.2 Education and training

8.2.1 Education and training for initial certification of personnel shall be issued only to personnel having a qualification or demonstrated expertise. The specific training shall address, as a minimum:

- .1 relevant rules and regulations, including international conventions;
- .2 design and construction of lifeboats (including free-fall lifeboats), rescue boats and fast rescue boats, including on-load release gear and launching appliances;
- .3 causes of lifeboat and rescue boat accidents;
- .4 education and practical training in the procedures specified in section 6 for which certification is sought;
- .5 detailed procedures for thorough examination, operational testing, repair and overhaul of lifeboat (including free-fall lifeboats), rescue boats and fast rescue boats, launching appliances and on-load release gear, as applicable;
- .6 procedures for issuing a report of service and statement of fitness for purpose based on paragraph 5.3; and
- .7 work, health and safety issues while conducting activities on board.

8.2.2 The education and training for the personnel shall include practical technical training on actual inspection and maintenance using the equipment for which the personnel are to be certified. The technical training shall include disassembly, reassembly, correct operation and adjustment of the equipment. Classroom training shall be supplemented by field experience in the operations for which certification is sought, under the supervision of an experienced senior certified person.

8.2.3 Prior to issuance of certification, a competency assessment shall be satisfactorily completed, using the equipment for which the personnel are to be certified.

8.3 Terms of validity of certificates and update training

8.3.1 Upon completion of training and competency assessment, a certificate shall be issued defining the level of qualification and the scope of the certification (e.g. makes and types of equipment). The expiry date shall clearly be written on the certificate. The expiry date shall be within three years from the date of issuance of the certificate.

8.3.2 A competency assessment, and refresher training as appropriate, on the basis of that assessment, shall be conducted to renew the certification.

ANNEX 32

DRAFT AMENDMENTS TO SOLAS CHAPTER III

Regulation 3 – Definitions

- 1 The following new paragraph 25 is added after the existing paragraph 24:

"25 *Requirements for periodic servicing and maintenance* means the Requirements for periodic servicing and maintenance of lifeboats and rescue boats, launching appliances and release gear, adopted by the Maritime Safety Committee of the Organization by resolution MSC.[...(...)], as may be amended by the Organization, provided that such amendments are adopted, brought into force and take effect in accordance with the provisions of article VIII of the present Convention concerning the amendment procedures applicable to the annex other than chapter I."

Regulation 20 – Operational readiness, maintenance and inspections

- 2 In paragraph 3.1, the words "based on the guidelines developed by the Organization and" are deleted.

- 3 The heading of paragraph 11 is replaced by the following:

"11 Periodic servicing of lifeboats, rescue boats and fast rescue boats, launching appliances and release gear"

- 4 Paragraph 11.2 is replaced by the following:

"11.2 Lifeboat or rescue boat release gear, including fast rescue boat release gear and free-fall lifeboat release systems, shall be:

- .1 maintained in accordance with instructions for on-board maintenance as required by regulation 36;
- .2 subject to a thorough examination and operational test during the annual surveys required by regulations I/7 and I/8 by properly trained personnel familiar with the system;
- .3 in case of on-load release gear, operationally tested under a load of 1.1 times the total mass of the boat when loaded with its full complement of persons and equipment whenever the release gear is overhauled. Such overhauling and test shall be carried out at least once every five years¹; and

¹ Refer to the Recommendation on *Testing of life-saving appliances*, adopted by the Organization by resolution A.689(17). For life-saving appliances installed on board on or after 1 July 1999, refer to the *Revised recommendation on testing of life-saving appliances*, adopted by the Organization by resolution MSC.81(70).

- .4 notwithstanding subparagraph .3 above, the operational testing of free-fall lifeboat release systems shall be performed either by free-fall launch with only the operating crew on board or by a simulated launching carried out based on guidelines developed by the Organization²."

5 The following new paragraphs 11.4 and 11.5 are added after existing paragraph 11.3:

"11.4 Lifeboats or rescue boats, including fast rescue boats, shall be:

- .1 maintained in accordance with instructions for onboard maintenance as required by regulation 36; and
- .2 subject to a thorough examination and operational test during the annual surveys required by regulations I/7 and I/8 by properly trained personnel familiar with the appliance.

11.5 The periodic servicing and maintenance required by paragraphs 11.1 to 11.4, other than weekly and monthly inspection required by paragraphs 6 and 7 of this regulation, shall be carried out in accordance with the Requirements for periodic servicing and maintenance."

² Refer to the *Guidelines on safety during abandon ship drills using lifeboats* (MSC.1/Circ...).

ANNEX 33

DRAFT AMENDMENTS TO THE LIFE-SAVING APPLIANCE (LSA) CODE

Chapter II – Personal life-saving appliances

Section 2.2 – Lifejackets

1 Paragraph 2.2.1.6 is amended to read as follows:

"2.2.1.6 When tested according to the recommendations of the Organization on at least 12 persons, adult lifejackets shall have sufficient buoyancy and stability in calm fresh water to:

- .1 lift the mouth of exhausted or unconscious persons by an average height of not less than the average provided by the adult RTD minus 10 mm;
- .2 turn the body of unconscious, face down persons in the water to a position where the mouth is clear of the water in an average time not exceeding that of the RTD plus 1 s, with the number of persons not turned by the lifejacket no greater than that of the RTD;
- .3 incline the body backwards from the vertical position for an average torso angle of not less than that of the RTD minus 10°;
- .4 lift the head above horizontal for an average faceplane angle of not less than that of the RTD minus 10°; and
- .5 return at least as many wearers to a stable face-up position after being destabilized when floating in the flexed foetal position as with the RTD when tested on the wearers in the same manner."

2 The following new paragraphs 2.2.1.8.4, 2.2.1.8.5 and 2.2.1.8.6 are added after existing paragraph 2.2.1.8.3 and the "and" at the end of paragraph 2.2.1.8.2 is deleted:

- "4 for infants the jump and drop tests shall be exempted;
- .5 for children, five of the nine subjects shall perform the jump and drop tests; and
- .6 in lieu of paragraph 2.2.1.8.5, manikins may be substituted for human test subjects."

ANNEX 34

DRAFT AMENDMENTS TO THE REVISED RECOMMENDATION ON TESTING OF LIFE-SAVING APPLIANCES (RESOLUTION MSC.81(70))

Part 1 – Prototype tests for life-saving appliances

Section 2 – Lifejackets

- 1 In paragraph 2.6, the first sentence is replaced with the following:

"The tests specified in 2.6.1 to 2.6.7 should be carried out on eight specimens of each lifejacket-buoyancy material. A further four specimens of each lifejacket-buoyancy material should be prepared for the test specified in 2.6.8."
- 2 Paragraph 2.7.2.3 is amended to read as follows:

".3 at least one male should be from the lowest and highest weight group and one female should be from the lowest weight group and one female should be more than 80 kg and 1.8 m;"
- 3 The following sentence is added at the end of paragraph 2.8.1:

"Each test for a candidate lifejacket and the relevant RTD should be conducted on the same day."
- 4 In paragraph 2.8.4, the following sentence is added after the second sentence:

"Prior to taking the measurements in 2.8 and 2.9, the proper fit, donning, and fastening of the RTD on the subject should be checked and corrected as necessary."
- 5 In paragraph 2.8.7.1, the words "plus 1 s" are added after the words "the average time in the RTD".
- 6 In paragraph 2.8.7.2, the words "minus 10 mm" are added at the end.
- 7 In paragraph 2.8.7.3, the words "minus 5°" are replaced with the words "minus 10°".
- 8 In paragraph 2.8.7.4, the word "(head)" is deleted and the words "minus 5°" are replaced with the words "minus 10°".
- 9 Paragraph 2.8.9.1 is amended to read as follows:

".1 surface the test subject in a face up position with an average freeboard for all the subjects of not less than the average determined for the RTD after the turning test in accordance with 2.8.6 minus 15 mm;"
- 10 The following sentence is added at the end of paragraph 2.9:

"The tests may be modified for child test subjects under 12 years of age who are not comfortable in water, so as to ensure their safety and cooperation."

- 11 In paragraph 2.9.1.5, the words "infant lifejacket" are deleted.
- 12 In paragraph 2.9.2.1, the words "plus 1 s" are added at the end.
- 13 In paragraph 2.9.2.2, the words "minus 10 mm" are added at the end.
- 14 In paragraph 2.9.2.4, the word "(head)" is deleted.
- 15 The chapeau of paragraph 2.9.3 is replaced with the following:
- "Infant lifejackets should meet the requirements of 2.9.2.1 and 2.9.2.2, however, the requirements for torso angle, faceplane and mobility may be relaxed if necessary in order to:"

Annex 1

Adult reference test device (RTD) design and construction

- 16 Annex 1 is replaced with the following:

"1 General

The RTD is intended for use only as a test reference standard to represent the desired level of in-water performance of a lifejacket required by the Convention, and is not considered representative of any other required lifejacket performance. The adult RTD is designed to fit persons from a chest size of 700 mm to 1350 mm and to be comfortable to wear as a non-reversible device such that it would be obvious to the wearer as to which is the inside and outside of the device, even under reduced lighting conditions. The adult RTD is made with two types of buoyant foam in a vest style using a heavy nylon cover fabric shell secured to the body with 25 mm webbing, closures and adjustments. The shell is made with slide fasteners (zippers) in place of closing seams to hold the foam within, in order that the foam inserts can be easily removed to check their buoyancy and renew or supplement them if they are out of tolerance. Hook and loop fasteners are used on the interior foam retainers to position and prevent shifting of the foam panels.

2 Materials

All materials used shall comply with ISO 12402-7.

2.1 Foam requirements

The performance of the RTD is dependent on using plastic foam of the proper stiffness, shape and buoyancy.

2.1.1 Stiffness

Two different stiffness foams are used: one is a soft foam and the other is a stiff foam. A bridge deflection test is provided to determine acceptability for the intended application. Figure A.20 provides the setup details and table A.1 provides the specific measured values. For selecting the type of foam for the specific insert, see tables A.2 and A.3. To measure the centre deflection of a foam panel of the specified cross-section ($a \times b$) and 110 mm wide, place the foam panel centred across the two equal height, parallel horizontal surfaces separated by the specified distance (c), and then load with a mass of the specified width. Note the length of the load should be at least 110 mm, such that when placed on the foam

panel it will extend the full width of the foam panel. It is acceptable for the load to extend beyond the width of the foam panel provided that it is centred over the panel with equal amounts extending over the sides of the foam panel. Measure the deflection at the bottom centre location of the foam panel 30 s after placing the load on the panel.

2.1.2 Shape

The shape of each foam insert is specified in figures A.27 to A.30. For dimensions see tables A.2 and A.4.

2.1.3 Buoyancy

The total design buoyancy of the foam inserts is 149 N. Table A.3 specifies the foam characteristics, the buoyancy for each insert and its tolerances and the overall buoyancy distribution to be verified with using the RTD for certification testing.

2.2 Other component requirements

See table A.2.

3 Construction

The construction and assembly of the device should be in accordance with tables A.2 to A.5, figures A.1 to A.19 and figures A.21 to A.36. A tolerance of ± 6 mm is used throughout for fabric cutting and stitching assembly. A tolerance of ± 6 mm is also used for foam cutting, however, the buoyancy requirements of table A.3 should be met.

3.1 Seams

3.1.1 The seam allowances are 13 mm, unless otherwise specified. All structural seams use a lock type stitch so that the seam will not unravel when a force is applied in the direction of the seam on any of the threads forming the stitch. Stitching should have a density of 7 to 12 stitches per 25 mm of stitch length. The box-x stitching on the webbing is 15 mm $\times$ 18 mm, unless otherwise specified. The bar-tack stitching on the webbing is 15 mm $\times$ 2 mm.

3.1.2 On the closing seam of the back section of the outer and inside cover, the cut ends of the fabric are turned under and stitched so that the fabric will not ravel. The cut ends of webbing should be heat-sealed.

3.1.3 Tabs on the ends of the waist belt are formed by turning under 40 mm of material twice and stitching 19 mm from the end of the folds with box-x or bar tack stitching.

3.1.4 The zippers are set to the fabric by turning under the raw edge of the fabric 13 mm, aligning the fold with the centre of the closed zipper, and topstitching through both layers of fabric and the zipper tape. The stitch line should be far enough from the zipper teeth or coil so as not to interfere with the operation of the zipper.

3.2 Assembling the fabric cover

The fabric cover is assembled as described below, with the dimensions described in figures A.31 through A.33 and table A.4.

3.2.1 *Assembling the inside cover*

3.2.1.1 Attach the interior fabric retainers for foam inserts 1 (component 1.7) to the "wrong" (interior) side on each lobe of the inside cover fabric (component 1.3).

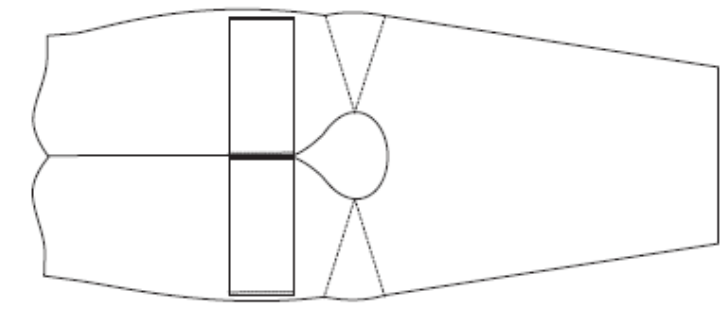


Figure A.1 – Location of Interior fabric retainers

3.2.1.2 Sew the hook and loop fasteners (component 4) to opposing sides of the interior fabric retainers for foam inserts 2 (component 1.8) as shown in figure A.2.

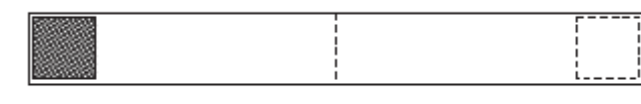


Figure A.2 – Orientation of hook and loop fasteners

3.2.1.3 Fold the interior fabric retainers for foam inserts 2 (component 1.8) in half and sew to the inside edge seam allowance of the "wrong" (interior) side of the inside cover fabric (component 1.3). Sew one fabric retainer to each lobe of the front cover fabric with the hook and loop fasteners (component 4) facing upward and oriented toward the outer edge of the inside cover fabric. Turn the bottom edge of the back cover up 13 mm and topstitch.

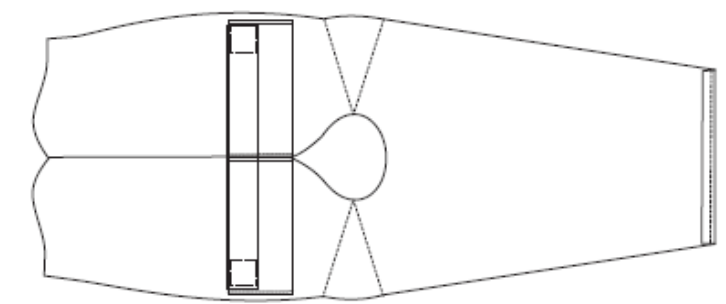


Figure A.3 – Location of fabric retainers

3.2.1.4 Attach one 89 mm black belt-loop webbing (component 3.5) to each lobe of the "right" (exterior) side of the inside cover fabric. Join the shoulder darts.

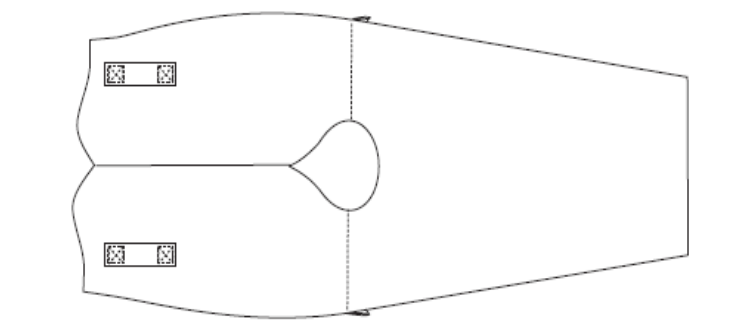


Figure A.4 – Completed inside cover

3.2.2 *Assembling the collar cover*

3.2.2.1 Attach the yellow collar attachment webbing (component 3.6) to the inside collar cover (component 1.5), placing one reinforcement patch (component 1.6) under the fabric, with a tack on each side, as in figure A.5. The webbing should be centred on the fabric, creating a 254 mm loop measured from the edge of one tack to the edge of the other.

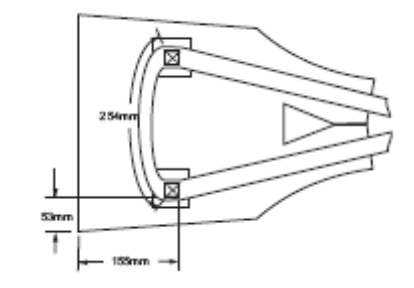


Figure A.5 – Collar attachment on collar cover

3.2.2.2 Sew the 280 mm zipper (component 6.5) to the inside and outer collar cover fabric (component 1.5) as in figure A.6.

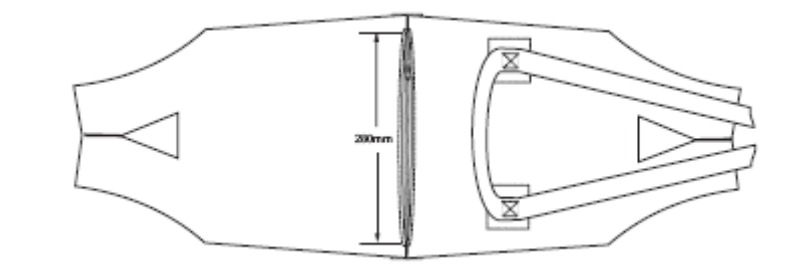


Figure A.6 – Joining the inside and outer collar cover

3.2.2.3 With the "right" (exterior) sides of the fabric together, join the sides of the inside and outer collar cover fabric (component 1.5) at the sides and around the neck opening. To allow access to the collar foam insert, do not join the fabric at the ends of the zipper. Turn the collar cover right side out.

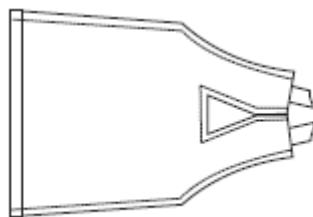


Figure A.7 – Completed collar cover

3.2.3 *Assembling the outer cover*

3.2.3.1 Attach one 76 mm black belt-loop webbing (component 3.4) to each shoulder on the "right" (exterior) side of the front outer cover fabric (component 1.1) using double bar tack stitches on each end, creating a 40 mm loop opening.

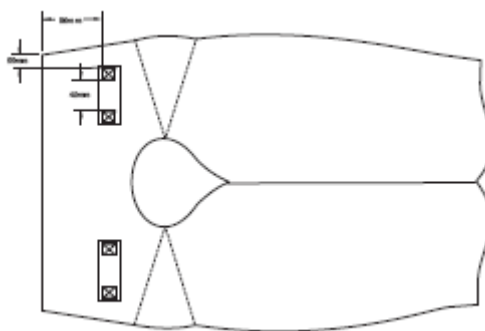


Figure A.8 – Attaching the shoulder loops

3.2.3.2 Sew the 370 mm zipper (component 6.6) to the back outer cover (component 1.2) and front outer cover (component 1.1) as shown in figure A.9. Turn the bottom edge of the back cover up 13 mm and topstitch.

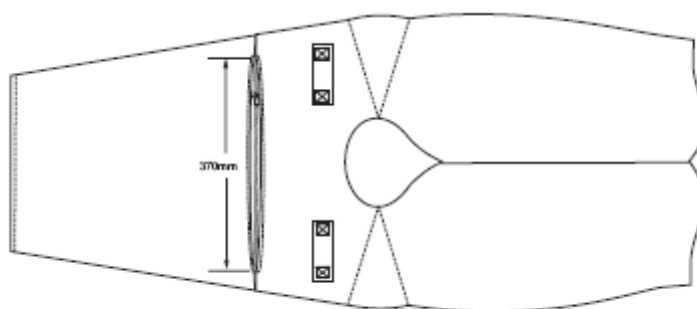


Figure A.9 – Completed outer cover

3.2.4 Joining the collar to the front outer cover

Join the shoulder darts on the front outer cover (component 1.1). Lace the yellow collar attachment webbing (component 3.6) through the black shoulder straps (component 3.4) with the collar loop facing toward the cover fabric. Stitch the collar cover fabric tabs to the neck seam.

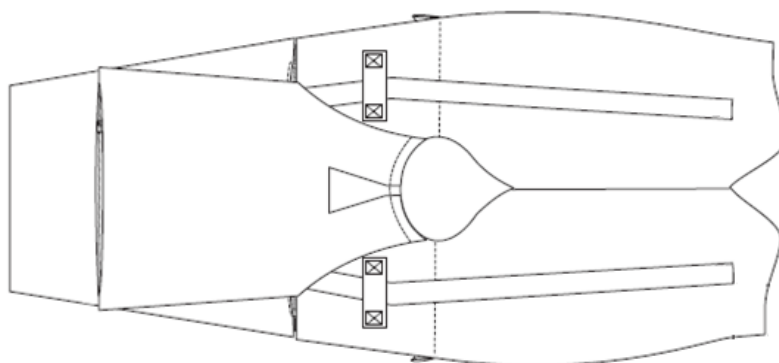
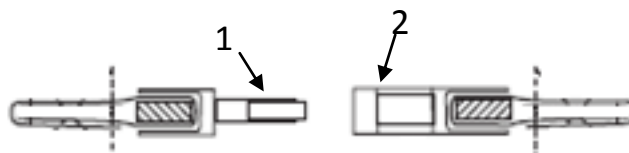


Figure A.10 – Joining the collar to the front outer cover

3.2.5 Assembling and attaching the hardware assemblies

3.2.5.1 Construct the chest strap buckle assemblies by lacing the 127 mm black chest strap webbing (component 3.1) through the male and female buckles (component 6.1) and stitching, as shown in figure A.11.

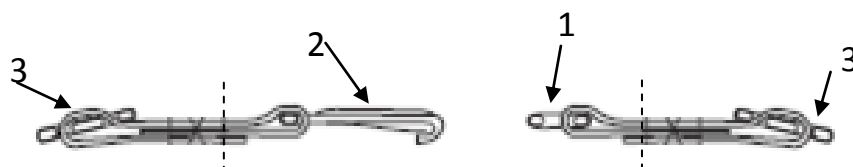


Key

- 1 Male buckle
- 2 Female buckle

Figure A.11 – Chest strap buckle assembly

3.2.5.2 Construct the waist belt assemblies by lacing the 203 mm black waist belt webbing (component 3.3) through the slide adjusters (component 6.2), snap hook (component 6.3), and D-ring (component 6.4), and stitching as shown in figure A.12.



Key

- 1 D-Ring
- 2 Snap hook
- 3 Slide adjuster

Figure A.12 – Waist belt assembly

3.2.5.3 Lace the left side yellow collar attachment webbing (component 3.6) through the male chest strap buckle assembly. With one fabric reinforcement (component 1.6) positioned on the "wrong" (interior) side of the front outer cover fabric (component 1.1), attach the chest strap buckle assembly to the yellow collar attachment webbing and cover fabric with a box-X stitch. Repeat on the right side with the female chest strap buckle assembly.

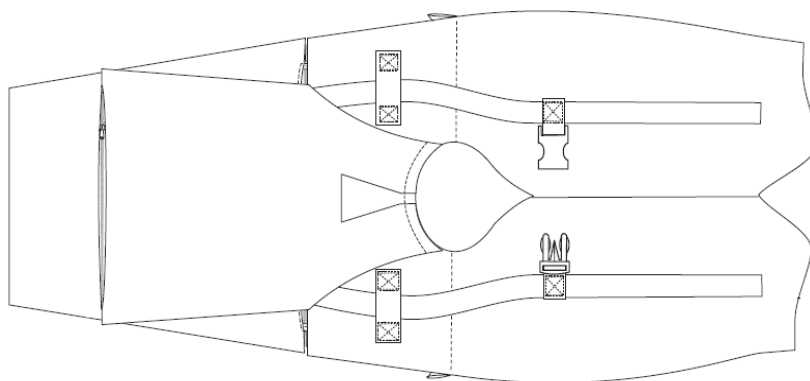


Figure A.13 – Attachment of chest strap buckle assembly

3.2.5.4 Lace the left side yellow collar attachment webbing (component 3.6) through the snap hook waist belt assembly. Attach the waist belt assembly to the yellow collar attachment webbing and the front outer cover fabric (component 1.1) with a box-X stitch. Repeat on the right side with the D-ring waist belt assembly.

3.2.5.5 Stitch the yellow collar attachment webbing to cover front, between the two buckle assemblies on each front forming a rectangle.

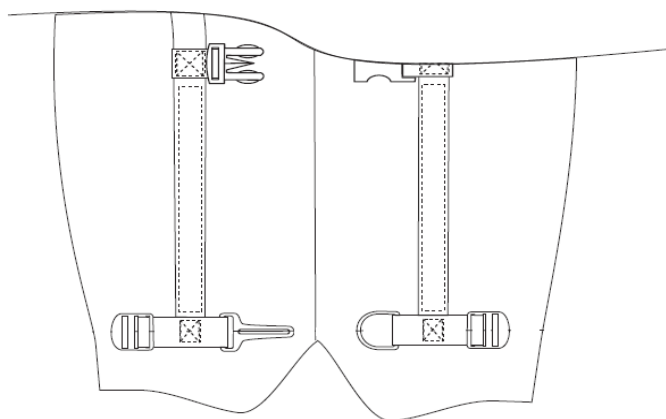


Figure A.14 – Chest and waist belt attachments

3.2.6 *Joining the inside and outer covers*

3.2.6.1 Join the inside cover fabric (component 1.3) to the front and back outer cover fabric (components 1.1 and 1.2) at the sides by sewing a 440 mm zipper (component 6.7) on the outside edge of each front.

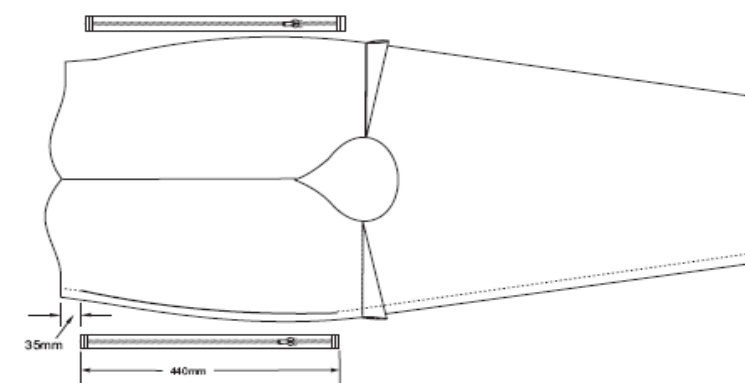


Figure A.15 – Joining the inside and outer cover fabric

3.2.6.2 Join a centre gusset (component 1.4) to the left and right lobes of the outer cover fabric, then join to the inside cover. The seam created by joining the outside edges should be centred on the end of the gusset with the taper of the gusset forming a point as it approaches the neck curve, as shown in figure A.16.

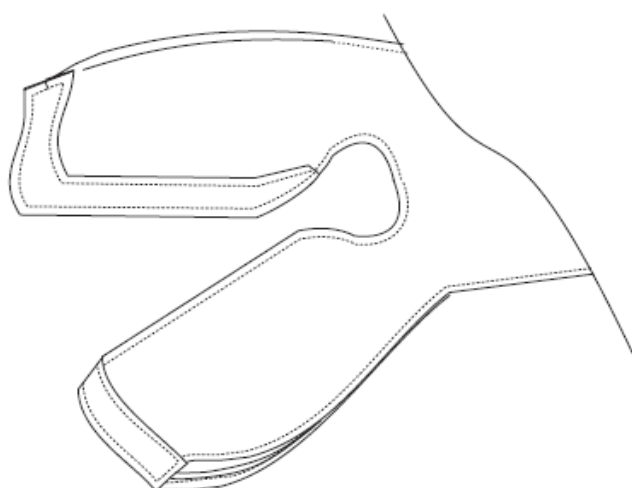


Figure A.16 – Joining the inside and outer over with the centre gusset

3.2.7 *Finishing*

3.2.7.1 Turn the cover right-side out. Attach the 1867 mm black waist belt webbing (component 3.3) to the back cover with three tacks, one centred on the fabric and one on each corner of the fabric. Tack the free ends of the webbing with a box-X with ends double folded. Top stitch through the inside and back outer covers, 80 mm from the foam access zipper (component 6.6).

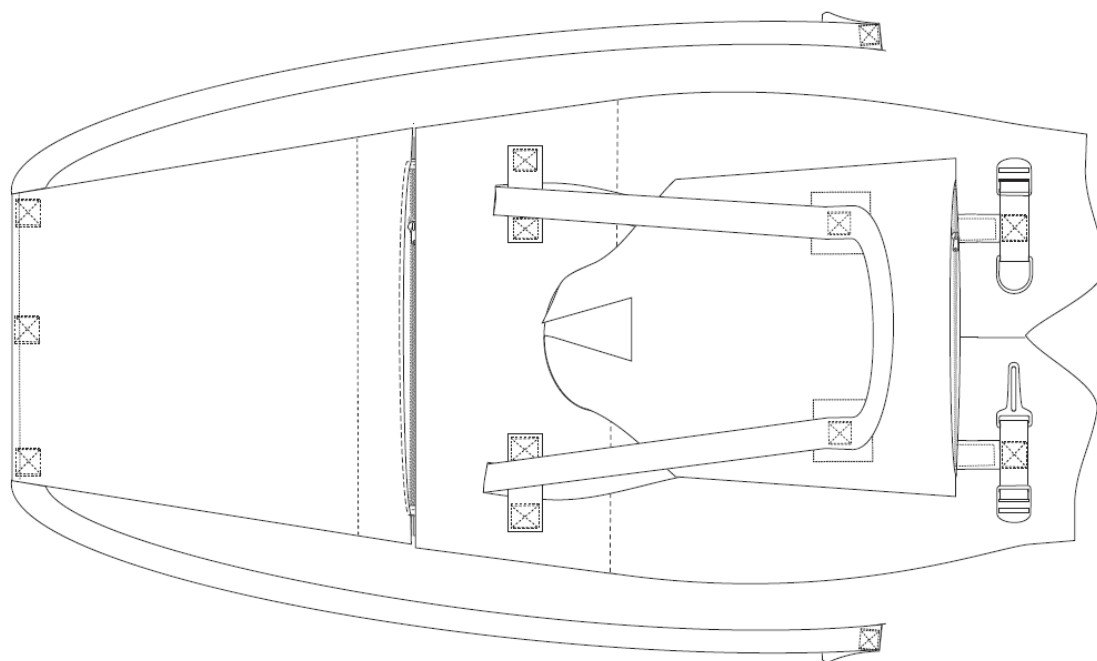


Figure A.17 – Attaching the waist belt

3.2.7.2 Lace the 1867 mm black waist belt webbing (component 3.3) through the slide adjusters (component 6.2) on each waist belt assembly.

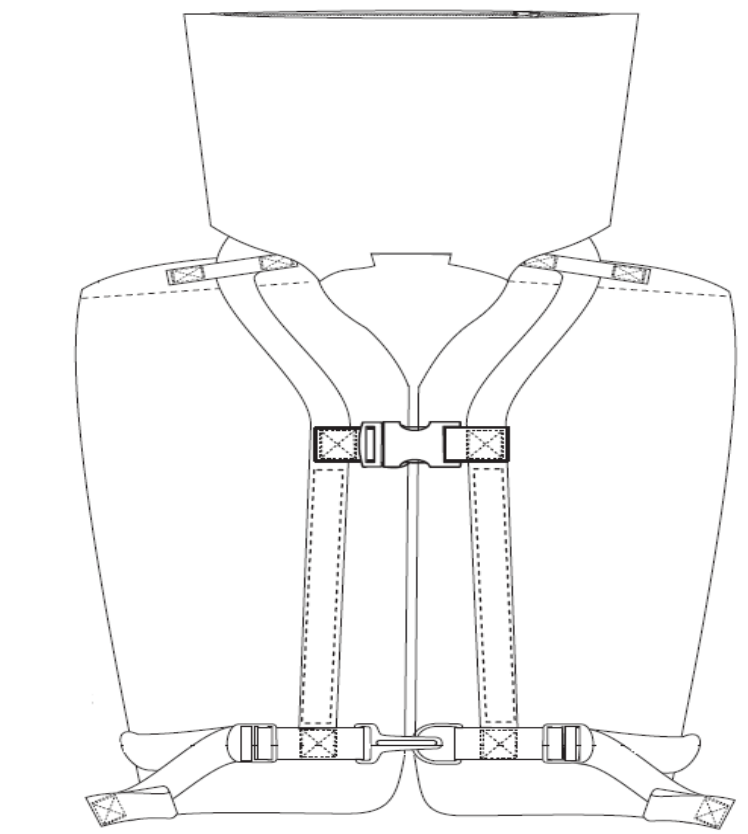
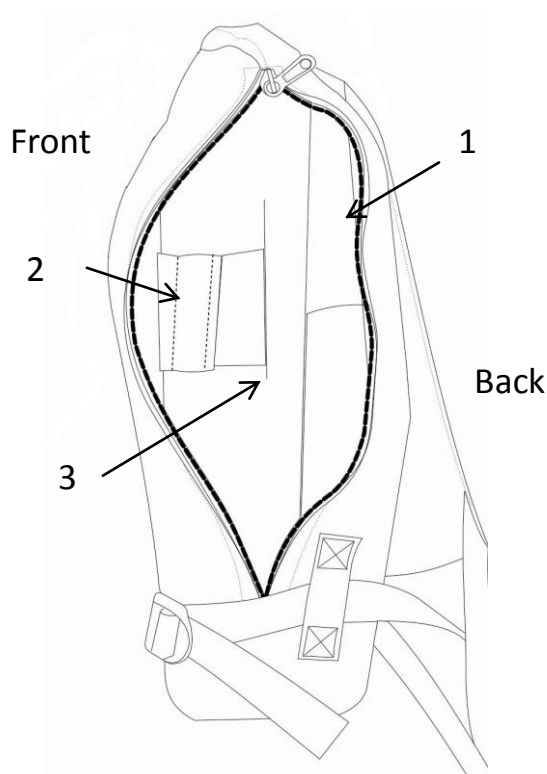


Figure A.18 – Completed RTD cover and hardware

3.3 Inserting the front foam

Slide the front foam inserts (components 2.2.1 and 2.2.2) under the interior fabric retainers for foam inserts 1 (component 1.7). Slide the interior fabric retainers for foam inserts 2 (component 1.8) through the slot in the front foam inserts (components 2.1.1 and 2.1.2). Wrap the interior fabric retainer for foam inserts around the foam insert so that the retainer passes around the front of the RTD as shown in figure A.19. Close the hook and loop fastener. Close the zipper (component 6.7).



Key

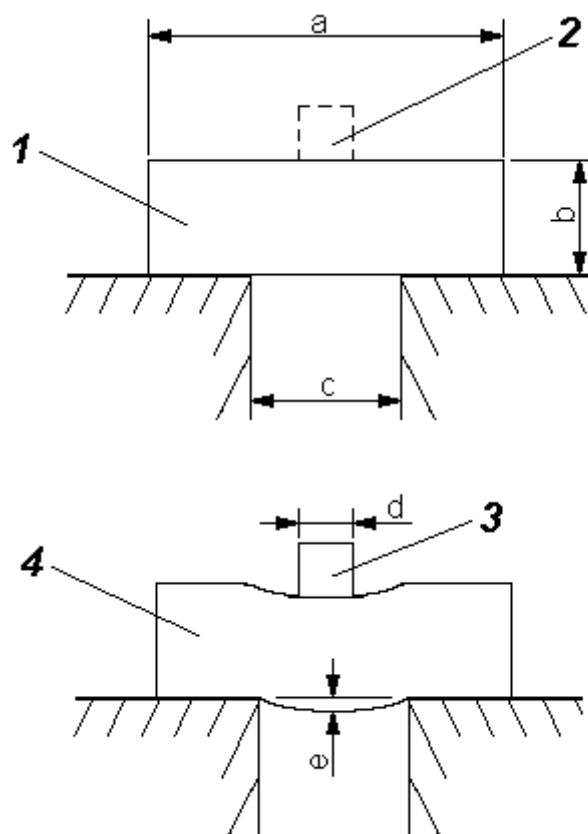
- 1 Interior fabric retainers for foam inserts 1 (component 1.7)
- 2 Interior fabric retainers for foam inserts 2 (component 1.8)
- 3 Slot (cut through foam)

Figure A.19 – Inserting the front foam

3.4 Validation

The proper assembly of the RTD should be verified according to the Guidelines developed by the Organization*.

* Refer to the *Guidelines for the validation of completed adult lifejacket reference test devices (RTDs)* (MSC.1/Circ...).



Key:	1	Foam at initial setup
	2	Centre load
	3	Load
	4	Foam bridge deflection after 30 s

Figure A.20 – Foam bridge deflection test

Table A.1 – Specifications for the foam bridge deflection test

	Dimension shown in figure A.20						Load mass
Foam type	a (Length) mm	(Not shown) (Width) mm	b (Thickness) mm	c (Span) mm	d (Load width) mm	e (Deflection) mm	kg
Stiff	394	110	83	300	120	< 20	8.6
Soft	394	110	45	150	30	≥ 25	0.75

Table A.2 – Parts, quantity and assembly

Component	Description	Quantity	See Figure	Construction notes
1 Cover fabric	420 denier nylon, with ravel resistant coating, orange			
1.1 Front outer cover		1	A.21	
1.2 Back outer cover		1	A.21	
1.3 Inside cover		1	A.22	
1.4 Centre gusset		2	A.23	
1.5 Collar, outer and inside cover		2	A.24	
1.6 Fabric reinforcement		4	A.25 A.33	Attach to inside of collar cover, as attachment 1, for reinforcement at webbing attachment (see figure A.33).
1.7 Interior fabric retainers for foam inserts 1		2	A.26 A.1	Attach to inside of front cover, as attachment 3, stitch to cover at each side to form a foam retainer for inside front foam insert components 2.2.1 and 2.2.2 (see figure A.1).
1.8 Interior fabric retainers for foam inserts 2		2	A.26 A.3	Attach hoop and loop fasteners to the ends and stitch at centre to the inside of front cover, as attachment 4, to form a foam retainer for front foam insert components 2.1.1 and 2.1.2 (see figure A.3).
2 Foam				
2.1 Stiff	See tables A.1 and A.3			
2.1.1 Front foam insert, right side	81 mm thick	1	A.27	
2.1.2 Front foam insert, left side	81 mm thick	1	A.27	
2.1.3 Collar foam insert	56 mm thick	1	A.29	
2.2 Soft	See tables A.1 and A.3			
2.2.1 Inside front foam insert, right side	46 mm thick	1	A.28	
2.2.2 Inside front foam insert, left side	46 mm thick	1	A.28	
2.2.3 Back foam insert	<u>25</u> mm thick	1	A.30	

Table A.2 (continued)

Component	Description	Quantity	See Figure	Construction notes
3 Webbing	25 mm, polypropylene, with easy adjustment and no significant slippage when used with the specified hardware.			
3.1 Chest strap	127 mm, black	2	A.11 A.31	On left side of front cover, attach webbing with male buckle. On right side of front cover attach webbing with female buckle. The free ends of the chest strap are folded under the yellow webbing (collar attachment webbing), with reinforcing fabric (see figure A.25) on inside of cover fabric. A box-x stitch is used to attach the chest strap to the front cover.
3.2 Waist belt	203 mm, black	2	A.12 A.31	On left side attach waist belt with slide and buckle clip waist belt. On right side attach bottom belt with D-ring and slide.
3.3 Waist belt	1,867 mm, black	1	A.31 A.32 A.17	Form 40 mm tab on each end. Attach to back cover using three box-x stitches (after front and back covers are assembled).
3.4 Belt-loop on front cover	76 mm, black	2	A.31 A.8	Attach webbing to front outer cover and form a belt-loop (one on each side) by two sets of double bar tack stitches.
3.5 Belt-loop on inside cover	89 mm, black	2	A.32 A.4	Attach webbing to inside cover and form a belt-loop (one on each side) by two box-x stitches.
3.6 Collar attachment	1,384 mm, yellow	1	A.14 A.6 A.31 A.33	Attach webbing to collar and reinforcing fabric, in two places using box-x stitch.
4 Hook and loop fastener	50 mm × 70 mm, black generic	2	A.2 A.26	Hook and loop fasteners are attached to the ends of interior fabric retainer for foam insert.
5 Thread	Generic synthetic	AR		
6 Hardware				
6.1 Buckle	Male and female 25 mm, plastic	1		Chest strap
6.2 Slide	Adjuster 25 mm, plastic	2		Waist belt
6.3 Snap hook	25 mm, SS, 1,600 N single-end strength	1		Waist belt
6.4 D-ring	25 mm, SS, 1,600 N single-end strength	2		Waist belt
6.5 Zipper	280 mm, open-ended, plastic (zipper chain and pulls)	1	A.6 A.33	Foam access for collar cover
6.6 Zipper	370 mm, plastic (zipper chain and pulls)	1	A.9 A.31	Foam access for back cover
6.7 Zipper	440 mm, plastic (zipper chain and pulls)	2	A.15 A.31 A.32	Foam access for front cover

Table A.3 – Foam insert specifications

Values in Newton (N)						
	Front right	Front left	Inside front right	Inside front left	Back	Collar
Foam type ^a	Stiff	Stiff	Soft	Soft	Soft	Stiff
Buoyancy ^b	34 ± 1,1	34 ± 1,1	17,75 ± 0,65	17,75 ± 0,65	18,5 ± 0,7	28 ± 0,8
^a The buoyancy of most foams will change over time with the greatest change occurring in the first several months after manufacture. The exact kind of foam selected will need to be evaluated to determine the amount of additional buoyancy needed at the time of manufacture to maintain the values specified. ^b Buoyancy distribution: 69% front ± 1.5 percentage points						

Table A.4 — List of dimensions shown in figures A.21 to A.33

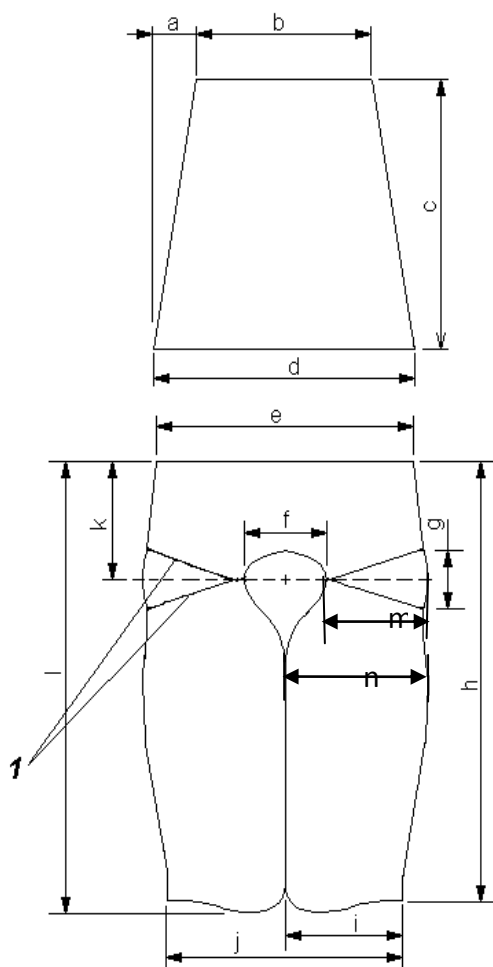
Dimensions in millimetres												
Letter	Figure											
	A.21	A.22	A.23	A.24	A.25 A.26	A.27	A.28	A.29	A.30	A.31	A.32	A.33
<i>a</i>	66	298	23	308	73	198	76	20	188	120	138	19
<i>b</i>	298	100	497	75	73	46	46	56	274	18	18	155
<i>c</i>	427	1106	586	10	130	76	394	51	414	35	35	53
<i>d</i>	430	199	102	288	205	84	38	216	343	55	295	25
<i>e</i>	423	398		342	72	76	51	229	147	95	55	45
<i>f</i>	141	597		396	470	157	165	259	223	320		
<i>g</i>	100	1124		65		394		45		90		
<i>R</i>							51	70				
<i>h</i>	705	141				46				40		
<i>i</i>	199					8				55		
<i>j</i>	398					20				225		
<i>k</i>	197					20				80		
<i>l</i>	723					76						
<i>m</i>	176					46						
<i>n</i>	245					38						
<i>o</i>						165						
<i>p</i>						25						

Table A.5 — List of dimensions shown in figures A.35 and A.36

Dimensions in millimetres

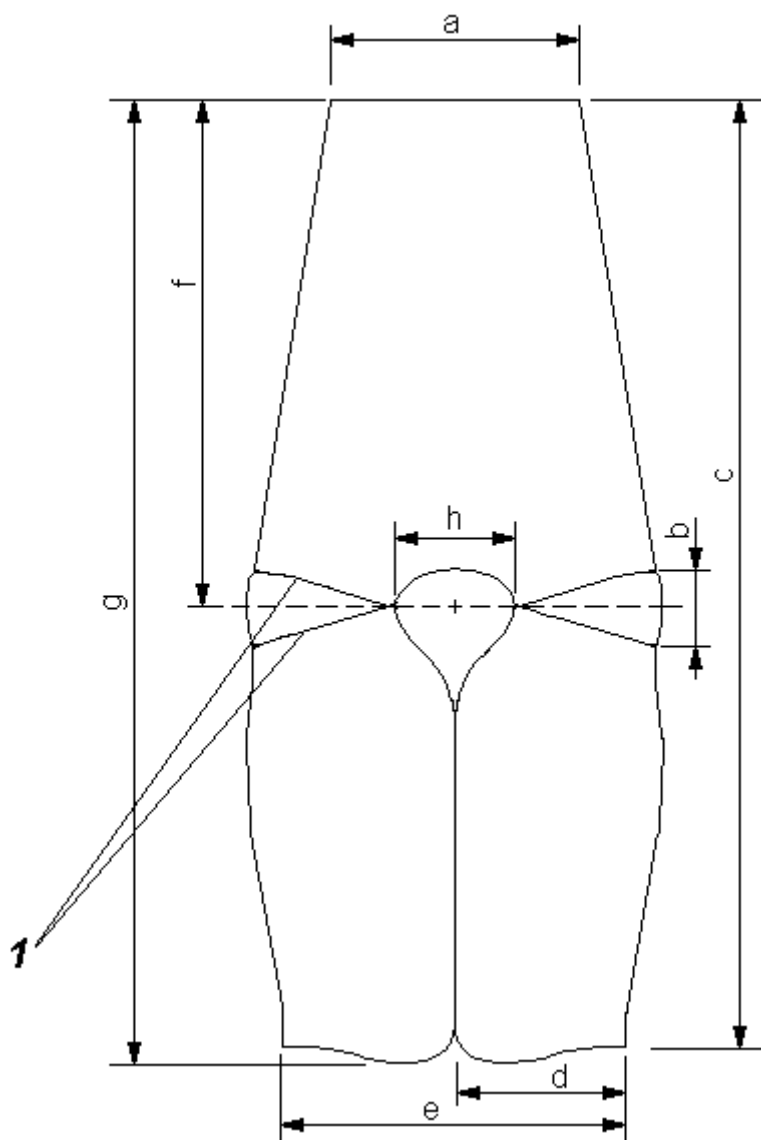
Figure	Dimension											
	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>	<i>f</i>	<i>g</i>	<i>h</i>	<i>i</i>	<i>j</i>	<i>k</i>	<i>l</i>
A.35	450	530	980 ^a	90	60	340	20	310	70	50	60	260
A.36	260	340	230	120	215	210	60	290				
	<i>m</i>	<i>n</i>	<i>o</i>	<i>p</i>	<i>q</i>	<i>r</i>						
A.35	240	270	130	80	70	30						
A.36												

^a Dimension *c* in figure A.16 = dimensions *a* + *b* (i.e. dart closed).



Key:
1 Dart

Figure A.11 – Outer cover, front and back sections



Key:

1 Dart

Figure A.22 – Inside cover

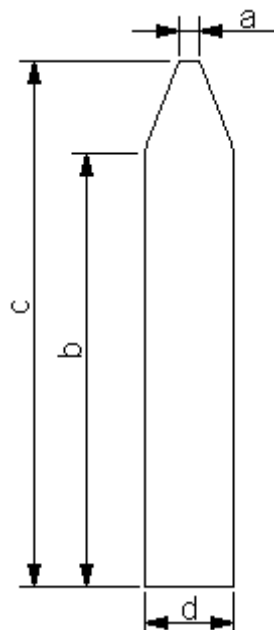


Figure A.23 – Centre gusset

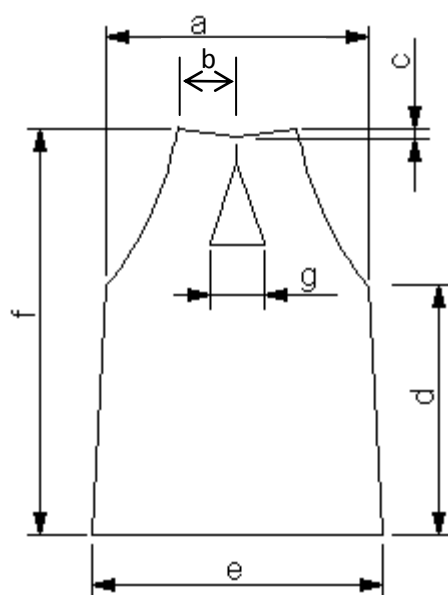


Figure A.24 – Outer and inside cover, collar

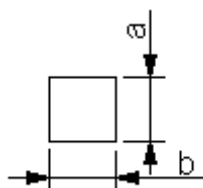
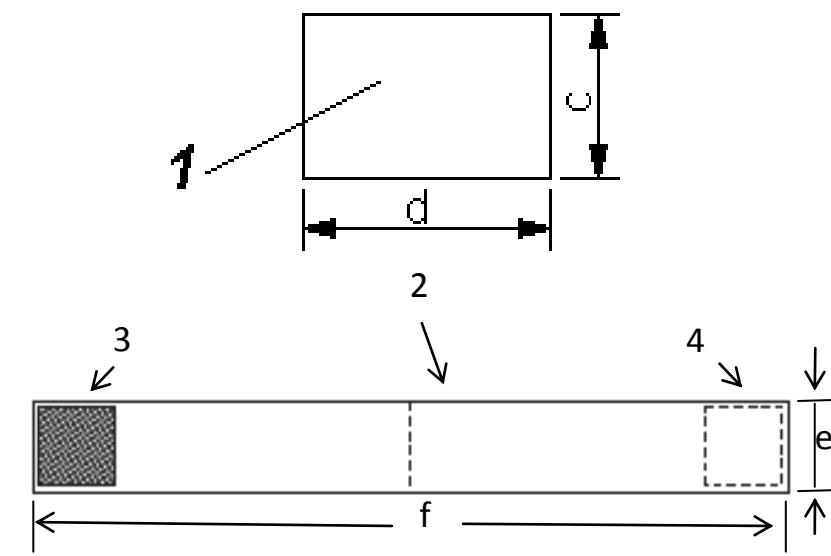
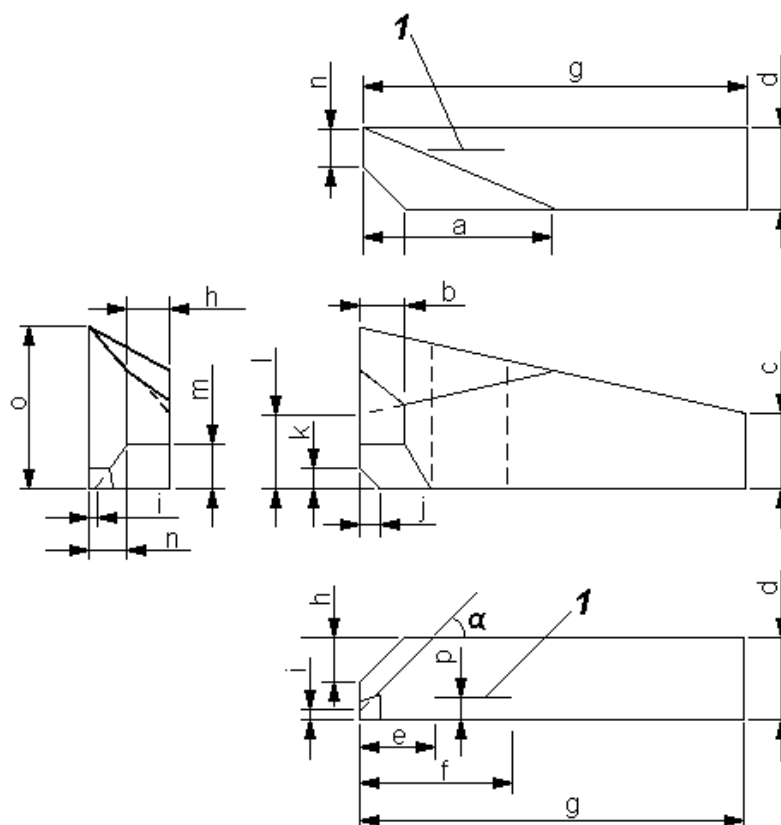


Figure A.25 – Fabric reinforcement



- Key:**
- 1 Fabric retainer for the front soft foam insert
 - 2 Fabric retainer for the soft and stiff foam inserts
 - 3 Hook and loop fastener (hook portion)
 - 4 Hook and loop fastener (loop portion)

Figure A.26 – Interior foam retainer



- Key:**
- 1 Slot (cut through foam insert)
 - α 45°

Figure A.27 – Front foam insert

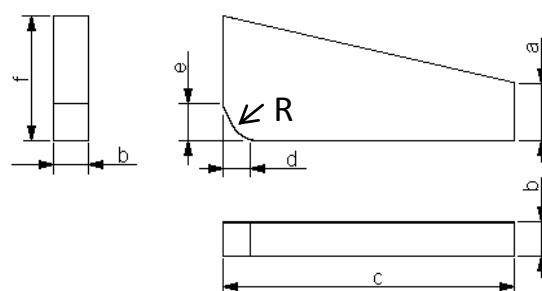
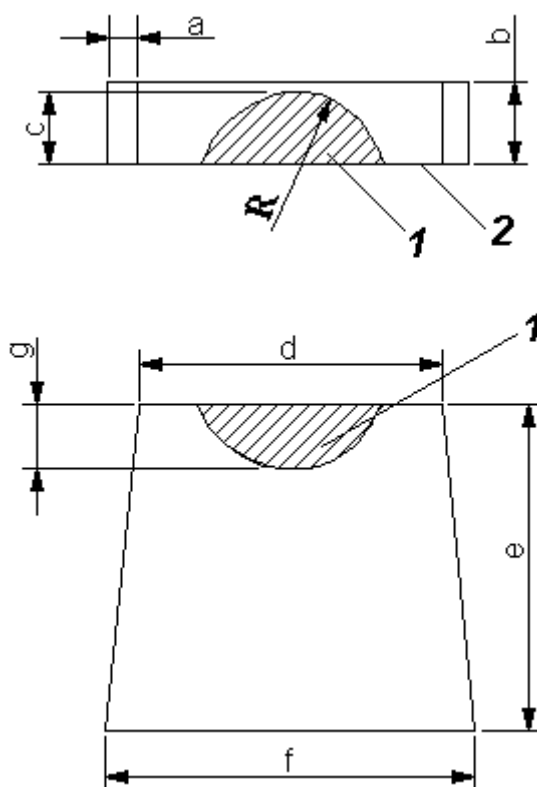


Figure A.28 – Inside front foam insert



Key:
1 Skive
2 Side towards body

Figure A.29 – Collar foam insert

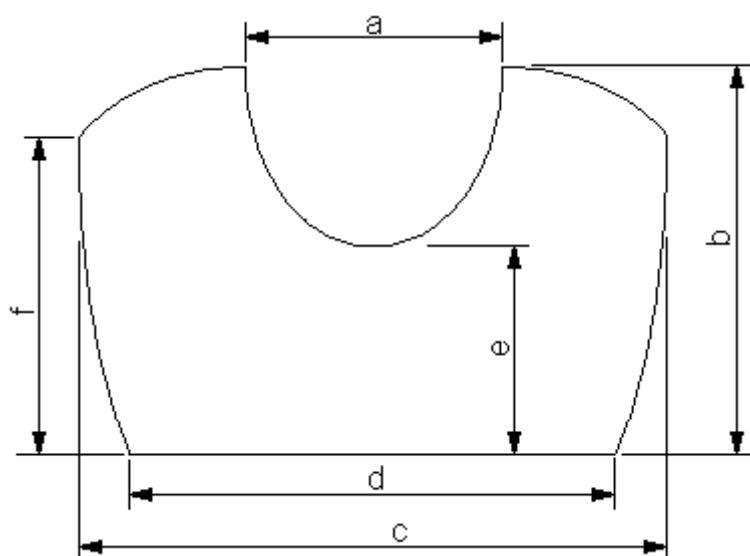
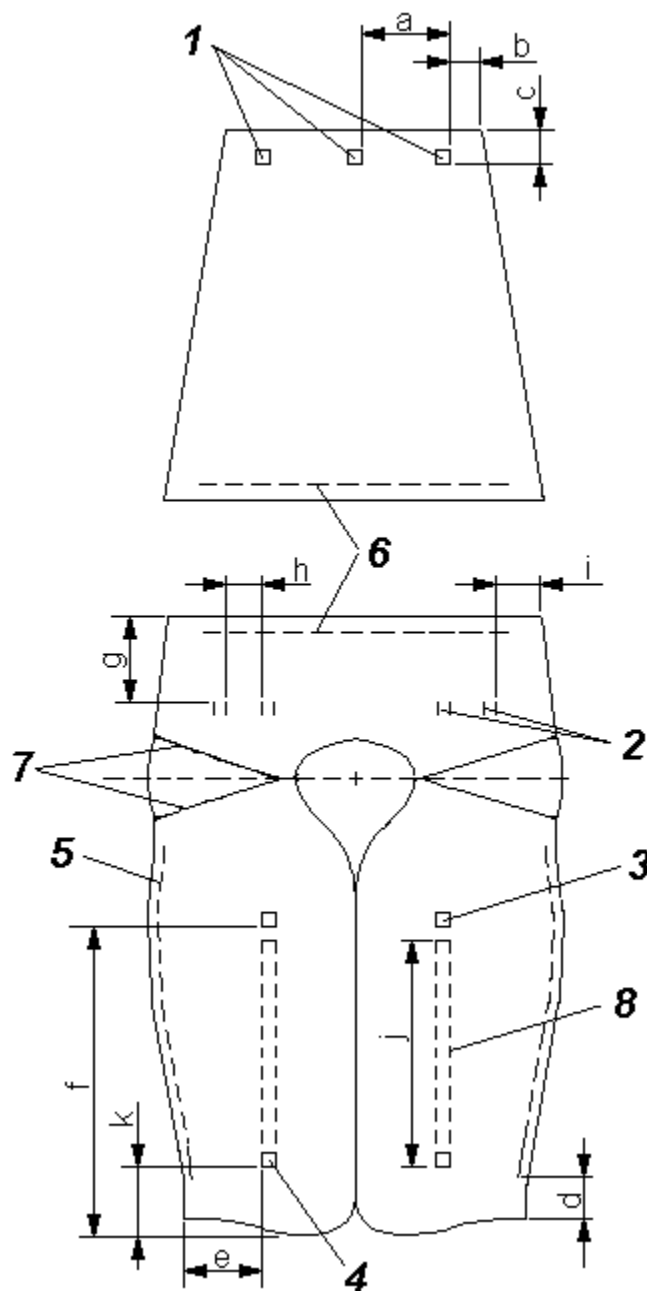


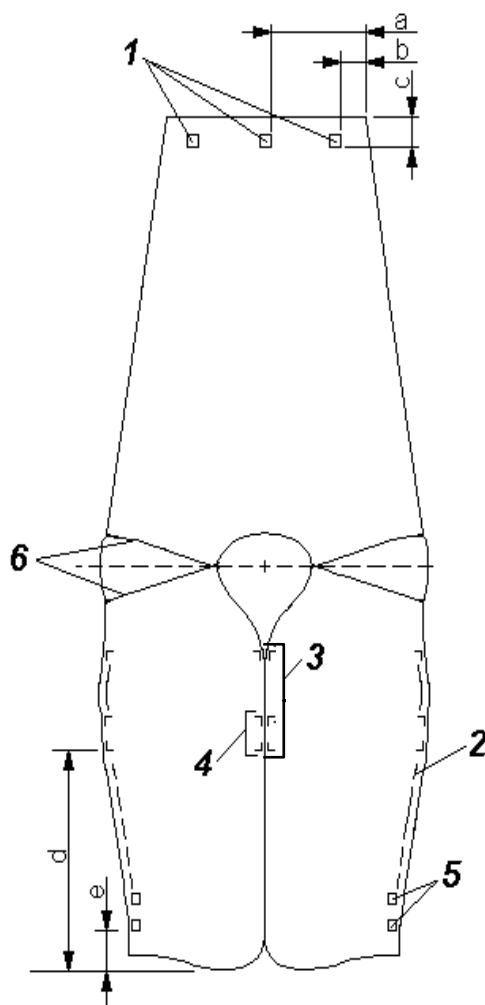
Figure A.30 – Back foam insert



Key:

- 1 Waist belt (1,867 mm) attachment to outside of back cover
- 2 Belt loop webbing (76 mm) attachment to outside of front cover
- 3 Chest strap (webbing (127 mm)) attachment to outside of front cover
- 4 Waist belt (203 mm) attachment to outside of front cover
- 5 Zipper (440 mm) attachment to front
- 6 Zipper (370 mm) attachment to the front and back covers
- 7 Dart
- 8 Collar webbing (1,384 mm) attachment to outside of front cover

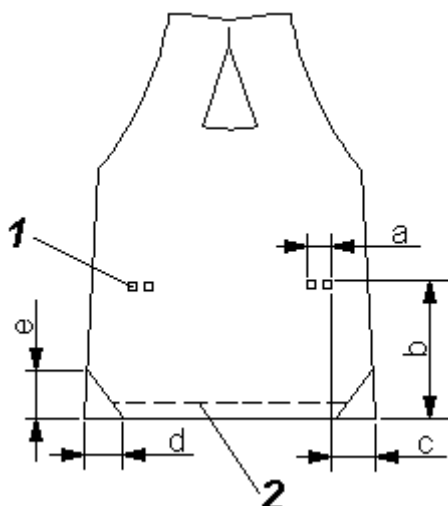
**Figure A.31 – Attachments to front and back cover
(dimensions on pattern, before sewing)**



Key:

- 1 Waist belt (1,867 mm) attachment to outside of back cover and inside cover (see figure A.31)
- 2 Zipper (440 mm) attachment
- 3 Interior fabric retainer attachment to inside front cover
- 4 Interior fabric retainer attachment to centre of inside front cover
- 5 Belt loop webbing (89 mm) attachment to outside of cover
- 6 Dart

**Figure A.32 – Attachments to inside cover
(dimensions on pattern, before sewing)**



Key:

- 1 Collar webbing (1,384 mm) attachment on the outside of the inner cover with reinforcement fabric inside
- 2 Zipper (280 mm) attachment to the outer and inner covers

**Figure A.33 – Attachments to outer and inside collar cover
(dimensions on pattern, before sewing)**

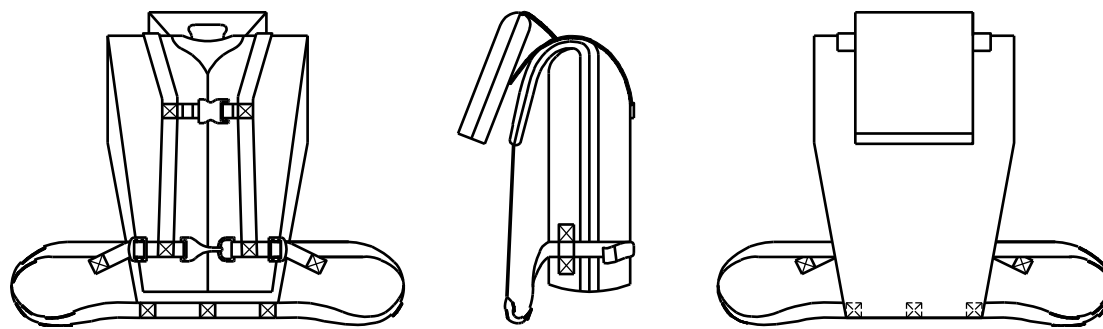
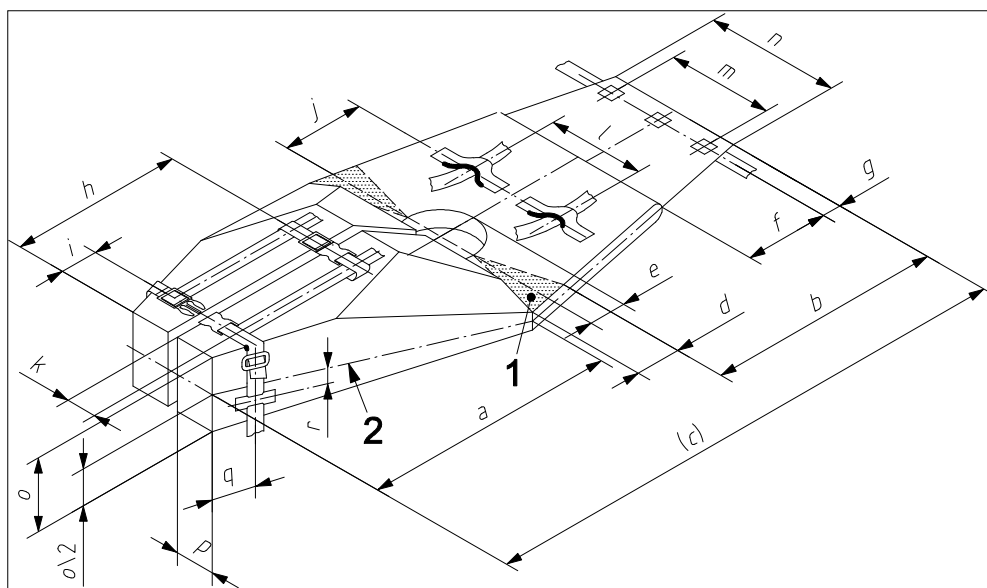


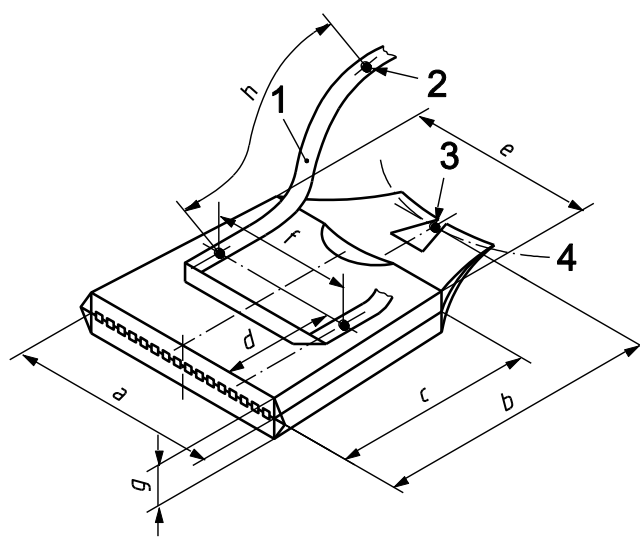
Figure A.34 – Assembly views of finished RTD



Key:

- 1 Dart at shoulder seam; shown spread out
- 2 Seam line and side zipper location

Figure A.35 – Assembly dimensions of finished RTD body with collar removed



Key:

- 1 Collar attachment webbing
- 2 Nearest point of attachment to chest of vest
- 3 Centre of neck seam on vest
- 4 Assembly seam in neck of vest

Note: *h* is measured along the webbing to the nearest point of attachment.

Figure A.36 – Assembly dimensions of finished RTD collar

ANNEX 35

DRAFT AMENDMENTS TO SOLAS REGULATION II-1/29

CHAPTER II-1 CONSTRUCTION – STRUCTURE, SUBDIVISION AND STABILITY, MACHINERY AND ELECTRICAL INSTALLATIONS

PART C MACHINERY INSTALLATIONS

Regulation 29 – Steering gear

- 1 The following new paragraph 3.5 is added after existing paragraph 3.4:

"3.5 Where it is impracticable to demonstrate compliance with the requirements in paragraph 3.2 during sea trials with the ship at its deepest seagoing draught and running ahead at the speed corresponding to the number of maximum continuous revolutions of the main engine and maximum design pitch, one of the following methods is acceptable:

- .1 during sea trial the ship is at even keel and the rudder fully submerged whilst running ahead at the speed corresponding to the number of maximum continuous revolutions of the main engine and maximum design pitch; or
- .2 where full rudder immersion during sea trials cannot be achieved, an appropriate ahead speed shall be calculated using the submerged rudder blade area in the proposed sea trial loading condition. The calculated ahead speed shall result in a force and torque applied to the main steering gear which is at least as great as if it was being tested with the ship at its deepest seagoing draught and running ahead at the speed corresponding to the number of maximum continuous revolutions of the main engine and maximum design pitch; or
- .3 the rudder force and torque at the sea trial loading condition have been reliably predicted and extrapolated to the full load condition. The speed of the ship shall correspond to the number of maximum continuous revolutions of the main engine and maximum design pitch of the propeller."

- 2 The following new paragraph 4.4 is added after existing paragraph 4.3:

"4.4 Where it is impracticable to demonstrate compliance with the requirements in paragraph 4.2 during sea trials with the ship at its deepest seagoing draught and running ahead at one half of the speed corresponding to the number of maximum continuous revolutions of the main engine and maximum design pitch or 7 knots, whichever is greater, one of the following methods is acceptable:

- .1 during sea trial the ship is at even keel and the rudder fully submerged whilst running ahead at one half of the speed corresponding to the number of maximum continuous revolutions of the main engine and maximum design pitch or 7 knots, whichever is greater; or
- .2 where full rudder immersion during sea trials cannot be achieved, an appropriate ahead speed shall be calculated using the submerged rudder blade area in the proposed sea trial loading condition. The calculated ahead speed shall result in a force and torque applied to the auxiliary steering gear which is at least as great as if it was being tested with the ship at its deepest seagoing draught and running ahead at one half of the speed corresponding to the number of maximum continuous revolutions of the main engine and maximum design pitch or 7 knots, whichever is greater; or
- .3 the rudder force and torque at the sea trial loading condition have been reliably predicted and extrapolated to the full load condition."

ANNEX 36

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

ANNEX A CODE ON THE ENHANCED PROGRAMME OF INSPECTIONS DURING SURVEYS OF BULK CARRIERS

Part A CODE ON THE ENHANCED PROGRAMME OF INSPECTIONS DURING SURVEYS OF BULK CARRIERS HAVING SINGLE-SIDE SKIN CONSTRUCTION

1 – General

- 1 At the end of paragraph 1.2.6, the following sentence is added:

"For transversely framed bulk carriers, a transverse section includes adjacent frames and their end connections in way of transverse sections."
- 2 In paragraph 1.2.7, the words "structural areas" are inserted between the words "identifiable critical" and "and/or suspect areas".
- 3 At the end of paragraph 1.2.9, the words "a gauged (or measured) thickness between $t_{net} + 0.5$ mm and t_{net} " are replaced by the words "a measured thickness between $t_{ren} + 0.5$ mm and t_{ren} . Renewal thickness (t_{ren}) is the minimum allowable thickness, in mm, below which renewal of structural members is to be carried out."
- 4 In paragraph 1.2.11 the figure "10" is inserted between the words "hard scale at" and "per cent".
- 5 At the beginning of paragraph 1.2.17, the words "*Special consideration*" are inserted before the words "or *specially considered*".
- 6 The following new paragraph 1.2.18 is added after existing paragraph 1.2.17:

"1.2.18 *Pitting corrosion* is defined as scattered corrosion spots/areas with local material reductions which are greater than the general corrosion in the surrounding area. Pitting intensity is defined in figure 2 of annex 15."
- 7 The following new paragraph 1.3.3 is added after existing paragraph 1.3.2:

"1.3.3 Where the damage found on the structure mentioned in paragraph 1.3.1 above is isolated and of a localized nature which does not affect the ship's structural integrity (as for example a minor hole in a cross-deck strip), consideration may be given by the surveyor to allow an appropriate temporary repair to restore watertight or weather tight integrity after evaluation of the surrounding structure and impose an associated condition of classification or recommendation with a specific time limit in order to complete the permanent repair and retain classification."

2 – Renewal survey

- 8 At the end of paragraph 2.1.2, the following sentence is added:

"When the renewal survey is commenced prior to the fourth annual survey, the entire survey is to be completed within 15 months if such work is to be credited to the renewal survey."

- 9 The following new paragraph 2.3.3 is added after existing paragraph 2.3.2:

"2.3.3 For bulk carriers built under IACS Common Structural Rules (CSR), the identified substantial corrosion areas may be:

- .1 protected by coating applied in accordance with the coating manufacturer's requirements and examined at annual intervals to confirm the coating in way is still in good condition; or alternatively
- .2 required to be measured at annual intervals."

3 – Annual survey

- 10 At the end of paragraphs 3.4.1.3, 3.4.2.3 and 3.5, the following sentence is added:

"For bulk carriers built under the IACS Common Structural Rules, the annual thickness gauging may be omitted where a protective coating has been applied in accordance with the coating manufacturer's requirements and is maintained in good condition;"

4 – Intermediate survey

- 11 In the second sentence of paragraph 4.2.1.3, the words "hard protective" are inserted between the words "breakdown of" and "coating".

- 12 At the end of paragraph 4.2.3.3, the following new sentence and explanatory note are added:

"For bulk carriers built under IACS Common Structural Rules, the identified substantial corrosion areas may be:

- .1 protected by coating applied in accordance with the coating manufacturer's requirements and examined at annual intervals to confirm the coating in way is still in good condition; or alternatively
- .2 required to be measured at annual intervals."

Explanatory note:

For existing bulk carriers, where owners may elect to coat or recoat cargo holds as noted above, consideration may be given to the extent of the close-up surveys and thickness measurement. Prior to the coating of cargo holds of existing ships, scantlings should be ascertained in the presence of a surveyor."

- 13 The following new paragraph 4.2.3.4 is added after existing paragraph 4.2.3.3:
- "4.2.3.4 Where hard protective coating is fitted in cargo holds and is found in GOOD condition, the extent of the close-up surveys and thickness measurements may be specially considered."

6 – Documentation on board

- 14 At the end of paragraph 6.3.2, the following text is added:
- "(for CSR bulk carriers, these plans are to include for each structural element both the as-built and renewal thickness. Any thickness for voluntary addition is also to be clearly indicated on the plans. The midship section plan to be supplied on board the ship is to include the minimum allowable hull girder sectional properties for hold transverse section in all cargo holds)."

Part B

CODE ON THE ENHANCED PROGRAMME OF INSPECTIONS DURING SURVEYS OF BULK CARRIERS HAVING DOUBLE-SIDE SKIN CONSTRUCTION

1 – General

- 15 At the end of paragraph 1.2.6, the following sentence is added:
- "For transversely framed bulk carriers, a transverse section includes adjacent frames and their end connections in way of transverse sections."
- 16 At the end of paragraph 1.2.9, the words "a gauged (or measured) thickness between $t_{net} + 0.5$ mm and t_{net} " are replaced by the words "a measured thickness between $t_{ren} + 0.5$ mm and t_{ren} . Renewal thickness (t_{ren}) is the minimum allowable thickness, in mm, below which renewal of structural members is to be carried out."
- 17 At the beginning of paragraph 1.2.17, the words "*Special consideration*" are inserted before the words "*or specially considered*".
- 18 The following new paragraph 1.3.3 is added after the existing paragraph 1.3.2:
- "1.3.3 Where the damage found on the structure mentioned in paragraph 1.3.1 above is isolated and of a localized nature which does not affect the ship's structural integrity (as for example a minor hole in a cross-deck strip), consideration may be given by the surveyor to allow an appropriate temporary repair to restore watertight or weather tight integrity after evaluation of the surrounding structure and impose an associated condition of classification or recommendation with a specific time limit in order to complete the permanent repair and retain classification."

2 – Renewal survey

- 19 At the end of paragraph 2.1.2, the following sentence is added:
- "When the renewal survey is commenced prior to the fourth annual survey, the entire survey is to be completed within 15 months if such work is to be credited to the renewal survey."

- 20 The following new paragraph 2.3.3 is added after the existing paragraph 2.3.2:

"2.3.3 For bulk carriers built under IACS Common Structural Rules (CSR), the identified substantial corrosion areas may be:

- .1 protected by coating applied in accordance with the coating manufacturer's requirements and examined at annual intervals to confirm the coating in way is still in good condition; or alternatively
- .2 required to be measured at annual intervals."

3 – Annual survey

- 21 At the end of paragraphs 3.4.1.2, 3.4.2.2 and 3.5, the following sentence is added:

"For bulk carriers built under the IACS Common Structural Rules, the annual thickness gauging may be omitted where a protective coating has been applied in accordance with the coating manufacturer's requirements and is maintained in good condition;"

4 – Intermediate survey

- 22 At the end of paragraph 4.2.3.3, the following new sentence and explanatory note are added:

"For bulk carriers built under IACS Common Structural Rules, the identified substantial corrosion areas may be:

- .1 protected by coating applied in accordance with the coating manufacturer's requirements and examined at annual intervals to confirm the coating in way is still in good condition; or alternatively
- .2 required to be measured at annual intervals."

Explanatory note:

For existing bulk carriers, where owners may elect to coat or recoat cargo holds as noted above, consideration may be given to the extent of the close-up surveys and thickness measurement. Prior to the coating of cargo holds of existing ships, scantlings should be ascertained in the presence of a surveyor."

6 – Documentation on board

- 23 At the end of paragraph 6.3.2, the following text is added:

"(for CSR bulk carriers, these plans are to include for each structural element both the as-built and renewal thickness. Any thickness for voluntary addition is also to be clearly indicated on the plans. The midship section plan to be supplied on board the ship is to include the minimum allowable hull girder sectional properties for hold transverse section in all cargo holds)."

ANNEX B

CODE ON THE ENHANCED PROGRAMME OF INSPECTIONS DURING SURVEYS OF OIL TANKERS

Part A

CODE ON THE ENHANCED PROGRAMME OF INSPECTIONS DURING SURVEYS OF DOUBLE-HULL OIL TANKERS

1 – General

- 24 At the end of paragraph 1.2.6, the following sentence is added:
- "For transversely framed oil tankers, a transverse section includes adjacent frames and their end connections in way of transverse sections."
- 25 In paragraph 1.2.7, the words "structural areas" are inserted between the words "identifiable critical" and "and/or suspect areas".
- 26 At the end of paragraph 1.2.9, the words "a gauged (or measured) thickness between $t_{net} + 0.5$ mm and t_{net} " are replaced by the words "a measured thickness between $t_{ren} + 0.5$ mm and t_{ren} . Renewal thickness (t_{ren}) is the minimum allowable thickness, in mm, below which renewal of structural members is to be carried out."
- 27 In the first sentence of paragraph 1.2.10, the word "protective" is inserted between the words "full hard" and "coating".
- 28 At the beginning of paragraph 1.2.16, the words "*Special consideration*" are inserted before the words "or *specially considered*".
- 29 At the end of paragraph 1.3.1.5, the words "(combination carriers)" are added.
- 30 The following new paragraph 1.3.3 is added after existing paragraph 1.3.2:
- "1.3.3 Where the damage found on the structure mentioned in paragraph 1.3.1 above is isolated and of a localized nature which does not affect the ship's structural integrity (as for example a minor hole in a cross-deck strip), consideration may be given by the surveyor to allow an appropriate temporary repair to restore watertight or weather tight integrity after evaluation of the surrounding structure and impose an associated condition of classification or recommendation with a specific time limit in order to complete the permanent repair and retain classification."

2 – Renewal survey

- 31 At the end of paragraph 2.1.2, the following sentence is added:
- "When the renewal survey is commenced prior to the fourth annual survey, the entire survey is to be completed within 15 months if such work is to be credited to the renewal survey."

- 32 The following new paragraph 2.1.6 is added after existing paragraph 2.1.5:
- "2.1.6 Concurrent crediting to both intermediate survey and renewal survey for surveys and thickness measurements of spaces should not be acceptable."
- 33 At the end of paragraph 2.2.1, the following sentence and note are added:
- "An extension of inspection of the outside of the ship's bottom of three months beyond the due date can be granted in exceptional circumstances.
- Note:** "Exceptional circumstances" means unavailability of dry-docking facilities; unavailability of repair facilities; unavailability of essential materials, equipment or spare parts; or delays incurred by action taken to avoid severe weather conditions."
- 34 At the end of paragraph 2.5.2, the words "should have thickness measurements taken." are replaced by the words "are to be examined. Areas of substantial corrosion identified at previous surveys are to have thickness measurements taken".

3 – Annual survey

- 35 At the beginning of paragraph 3.1, the following sentence is added:
- "Annual surveys are to be held within three months before or after the anniversary date from the date of the initial classification survey or of the date credited for the last renewal survey."
- 36 At the end of paragraph 3.5.2, the following sentence is added:
- "For oil tankers built under IACS Common Structural Rules, the identified substantial corrosion areas are required to be examined and additional thickness measurements are to be carried out."
- 37 The following new paragraph 4.1.4 is added after existing paragraph 4.1.3 and the existing paragraph 4.1.4 is renumbered as 4.1.5:
- "4.1.4 For oil tankers built under IACS Common Structural Rules, the identified substantial corrosion areas are required to be examined and additional thickness measurements are to be carried out."

6 – Documentation on board

- 38 At the end of paragraph 6.3.2, the following text is added:
- "(for CSR ships these plans are to include for each structural element both the as-built and renewal thickness. Any thickness for voluntary addition is also to be clearly indicated on the plans. The midship section plan to be supplied on board the ship is to include the minimum allowable hull girder sectional properties for the tank transverse section in all cargo tanks)."

Part B
CODE ON THE ENHANCED PROGRAMME OF INSPECTIONS DURING
SURVEYS OF OIL TANKERS OTHER THAN DOUBLE-HULL OIL TANKERS

1 – General

- 39 At the end of paragraph 1.2.5, the following sentence is added:
- "For transversely framed oil tankers, a transverse section includes adjacent frames and their end connections in way of transverse sections."
- 40 In paragraph 1.2.6, the words "structural areas" are inserted between the words "identifiable critical" and "and/or suspect areas".
- 41 At the beginning of paragraph 1.2.15, the words "*Special consideration*" are added before the words "or *specially considered*".
- 42 The following new paragraph 1.3.3 is added after the existing paragraph 1.3.2:
- "1.3.3 Where the damage found on structure mentioned in paragraph 1.3.1 above is isolated and of a localized nature which does not affect the ship's structural integrity (as for example a minor hole in a cross-deck strip), consideration may be given by the surveyor to allow an appropriate temporary repair to restore watertight or weather tight integrity after evaluation of the surrounding structure and impose an associated condition of classification or recommendation with a specific time limit in order to complete the permanent repair and retain classification."

2 – Renewal survey

- 43 At the end of paragraph 2.1.1, the following sentence is added:
- "When the renewal survey is commenced prior to the fourth annual survey, the entire survey is to be completed within 15 months if such work is to be credited to the renewal survey."
- 44 The following new paragraph 2.1.7 is added after existing paragraph 2.1.6:
- "2.1.7 Concurrent crediting to both intermediate survey and renewal survey for surveys and thickness measurements of spaces should not be acceptable."
- 45 At the end of paragraph 2.2.1, the following sentence and note are added:
- "An extension of inspection of the outside of the ship's bottom of three months beyond the due date can be granted in exceptional circumstances."
- Note:** "Exceptional circumstances" means unavailability of dry-docking facilities; unavailability of repair facilities; unavailability of essential materials, equipment or spare parts; or delays incurred by action taken to avoid severe weather conditions."

46 At the end of paragraph 2.5.2, the words "should have thickness measurements taken" are replaced by the words "are to be examined. Areas of substantial corrosion identified at previous surveys are to have thickness measurements taken."

3 – Annual survey

47 At the beginning of paragraph 3.1, the following sentence is added:

"Annual surveys are to be held within three months before or after the anniversary date from the date of the initial classification survey or of the date credited for the last renewal survey."

6 – Documentation on board

48 At the end of paragraph 6.3.1, the following text is added:

"(for CSR ships these plans are to include for each structural element both the as-built and renewal thickness. Any thickness for voluntary addition is also to be clearly indicated on the plans. The midship section plan to be supplied on board the ship is to include the minimum allowable hull girder sectional properties for hold transverse section in all cargo tanks)."

ANNEX 37

DRAFT ASSEMBLY RESOLUTION

**RECOMMENDATIONS FOR THE TRAINING AND CERTIFICATION
OF PERSONNEL ON MOBILE OFFSHORE UNITS (MOUs)**

THE ASSEMBLY,

RECALLING Article 15(j) of the Convention on the International Maritime Organization concerning the functions of the Assembly in relation to regulations and guidelines concerning maritime safety and the prevention and control of marine pollution from ships,

CONSIDERING that personnel on mobile offshore units (MOUs) are often required to work under potentially hazardous conditions, and will be in a better position to protect themselves and others in the event of an emergency with adequate training,

RECOGNIZING the need for maritime safety, security awareness, environmental protection and emergency preparedness training, competency and fitness for all personnel working on MOUs,

RECOGNIZING ALSO the recommendations provide an international standard for training for all personnel on mobile offshore units complimentary to that required by the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), 1978, as amended and the Seafarers' Training, Certification and Watchkeeping (STCW) Code,

HAVING CONSIDERED the recommendation made by the Maritime Safety Committee, at its ninety-second session,

1. ADOPTS the Recommendations for the Training and Certification of personnel on mobile offshore units, set out in the annex to the present resolution;
2. URGES Governments concerned to implement the defined competencies in these recommendations as soon as practicable and to issue certificates and all other appropriate documents to personnel who are qualified and have successfully completed the training recommended in this resolution;
3. URGES ALSO Governments to consider acceptance of relevant certificates and documents based on this resolution;
4. AUTHORIZES the Maritime Safety Committee to keep the annexed recommendations under review and amend them as necessary;
5. REVOKES resolution A.891(21).

* * *

ANNEX

RECOMMENDATIONS FOR THE TRAINING AND CERTIFICATION OF PERSONNEL ON MOBILE OFFSHORE UNITS (MOUs)

1 SCOPE

1.1 These Recommendations provide an international standard for training for all personnel on mobile offshore units aimed at ensuring adequate levels of safety of life and property at sea, security awareness, and protection of the marine environment complimentary to that required by the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), 1978, as amended and the Seafarers' Training, Certification and Watchkeeping (STCW) Code.

1.2 The provisions of these Recommendations are without prejudice to the rights of coastal States, under international law, to impose their own requirements relating to training, qualifications and certification of personnel on board MOUs. This includes any MOU engaged, or intending to engage, in exploring, exploiting, producing, conserving or managing the natural resources of those parts of the seabed, including its subsoil, and waters superjacent to the seabed which are subject to the jurisdiction of those coastal States.

2 TERMS AND DEFINITIONS

For the purpose of these Recommendations, the terms used have the meanings defined hereunder:

2.1 *Administration* means the Government of the State whose flag the MOU is entitled to fly.

2.2 *Ballast Control Operator* (BCO) means the person assigned responsibility for the normal day-to-day control of trim, draught and stability.

2.3 *Barge Supervisor* (BS) means a person who may provide support to the offshore installation manager (OIM) in certain essential marine matters. The barge supervisor on some MOUs may be referred to as the stability section leader, barge engineer or barge master.

2.4 *Certificate of competency* (CoC) means a certificate issued and/or endorsed by the Administration for offshore personnel in accordance with the provisions of these recommendations and entitling the lawful holder thereof to serve in the capacity and perform the functions involved at the level of responsibility specified therein.

2.5 *Certificate of proficiency* (CoP) means a certificate, other than a certificate of competency, issued to offshore personnel stating that the relevant requirements of training, competencies or seagoing service in these recommendations have been met.

2.6 *Coastal State Administration* means the Government of the coastal State concerned in cases where a MOU is engaged in exploration for, or exploitation of, the seabed and subsoil thereof, adjacent to the coast over which the coastal State exercises sovereign rights for the purposes of exploration and exploitation of their natural resources.

2.7 *Company* means the owner of the Mobile Offshore Unit (MOU) or any other organization or person such as the manager, or the bareboat charterer, who has assumed the responsibility for Operation of the MOU from the owner and who, on assuming such responsibility, has agreed to take over all the duties and responsibilities imposed on the company by these recommendations.

2.8 *Documentary evidence* means documentation, other than a certificate of competency or certificate of proficiency, used to establish that the relevant requirements of these recommendations have been met.

2.9 *Dynamic Positioning System* means a system whereby a self-propelled MOU's position and heading is automatically controlled by using its own propulsion units.

2.10 *Emergency preparedness training* means training which prepares individuals to respond adequately and safely to anticipate emergency situations.

2.11 *ISPS Code* means the International Ship and Port Facility Security (ISPS) Code adopted on 12 December 2002, by resolution 2 of the Conference of Contracting Governments to the International Convention for the Safety of Life at Sea (SOLAS), 1974, as may be amended by the Organization.

2.12 *Maintenance supervisor (MS)* means the person assigned responsibility for the inspection, operation and testing, as required, of all machinery and equipment as specified by the owner of the MOU. The maintenance supervisor on some MOUs may also be referred to as the chief engineer, technical section leader or rig mechanic.

2.13 *Maritime crew* comprises the OIM, barge supervisor, ballast control operator and maintenance supervisor as well as other deck and engineer officers, radio operators and ratings as defined in regulation I/1 of the STCW Convention, as amended.

2.14 *Maritime safety training* means training with respect to safety of life at sea, including personal and group survival.

2.15 *Mobile offshore accommodation unit* is a unit the primary purpose of which is to accommodate personnel working offshore.

2.16 *Mobile offshore drilling unit* is a unit capable of engaging in drilling operations for the exploration for, or exploitation of, resources beneath the seabed such as liquid or gaseous hydrocarbons, sulphur or salt.

2.17 *Mobile offshore units (MOUs)* means vessels which can be readily relocated and which can perform an industrial function involving offshore operations other than those traditionally provided by vessels covered by chapter I of the 1974 SOLAS Convention. Such MOUs include at least the following:

- .1 *column-stabilized unit* is a MOU with the main deck connected to the underwater hull or footings by columns or caissons;
- .2 *non-self-propelled unit* is a MOU not fitted with mechanical means of propulsion to navigate independently;
- .3 *self-elevating unit* is a MOU with movable legs capable of raising its hull above the surface of the sea;
- .4 *self-propelled unit* is a MOU fitted with a mechanical means of propulsion to navigate independently;

- .5 *submersible unit* is a MOU with a ship shape, barge-type or novel hull design (other than a self-elevating unit) intended for operation while bottom bearing; and
- .6 *surface unit* is a MOU with a ship- or barge-type displacement hull of single- or multiple-hull configuration intended for operation in the floating condition.

2.18 *Mode of operation* means the condition or manner in which a MOU may operate or function while on location or in transit. The modes of operation of a MOU include the following:

- .1 *Operating conditions*: conditions wherein a MOU is on location for the purpose of conducting operations, including drilling and production activities, and wherein combined environmental and operational loadings are within the appropriate design limits established for such operations. The MOU may be either afloat or supported on the seabed, as applicable.
- .2 *Survival conditions*: conditions wherein a MOU may be subjected to environmental loadings in excess of those established by the MOU's operating manual. It is assumed that routine operations will have been discontinued due to the severity of the environmental loading. The MOU may be either afloat or supported on the seabed, as applicable.
- .3 *Transit conditions*: conditions wherein a MOU is moving from one geographical location to another.
- .4 *Combined operations*: operations in association with, or in close proximity to, another mobile offshore MOU or offshore installation, where conditions on the other MOU or installation may have an immediate impact on the safety of the MOU; for example, a mobile offshore drilling MOU attached to a fixed platform.

2.19 *Muster list* means the list prescribed by an international convention or recommendation which applies to the MOU. If no convention or recommendation applies, it means a similar list which indicates essential information on actions to be taken in the event of an emergency, in particular the station to which each person should go and the duties which that person should perform including the designation of individual responsibilities for the safety of others.

2.20 *Offshore installation manager* (OIM) means a competent person, certified in accordance with these recommendations, who has been appointed in writing by the company to manage the offshore activities of the MOU.

2.21 *Offshore Personnel* means personnel on board the MOU as indicated in section 5.1.

2.22 *Other mobile offshore unit* is a MOU which may be involved in any single offshore activity or combination of offshore activities such as:

- .1 construction;
- .2 maintenance (including the maintenance of wells);
- .3 lifting operations;
- .4 pipe-laying and related operations;
- .5 emergency/contingency preparedness, including fire-fighting;

- .6 production systems;
- .7 accommodations;
- .8 storage systems; and
- .9 diving.

MOUs do not include vessels such as:

- .1 supply vessels;
- .2 standby vessels;
- .3 anchor-handling vessels;
- .4 seismic vessels;
- .5 ship-shape mono hull diving support vessels; and
- .6 special purpose ships.

2.23 *Person in charge* (PIC) means the person on each MOU to whom all personnel are responsible in an emergency. This person should be designated in writing (with title) by the owner or operator of the MOU. This PIC may be the Master or OIM.

2.24 *Security duties* include all security tasks and duties as defined by chapter XI-2 of the International Convention for the Safety of Life at Sea (SOLAS 1974, as amended) and the International Ship and Port Facility Security (ISPS) Code.

2.25 *Ship security officer* (SSO) means the person on board, accountable to the PIC, designated by the Company as responsible for the security of the MOU, including implementation and maintenance of the ship security plan and liaison with the Company security officer and port facility security officers.

2.26 *Special personnel* means all persons carried on board a MOU in connection with the special purpose of the MOU or with special work being carried out on the MOU, and who are neither seafarers nor directly or indirectly paying passengers.

3 RESPONSIBILITIES OF COMPANIES AND PERSONNEL

3.1 Every Company employing personnel assigned to duty on MOUs has responsibility for ensuring that the standards set out in these recommendations are given full and complete effect. In addition, other measures as may be necessary should be taken to ensure that personnel can make knowledgeable and informed contributions to the safe operation of the MOU.

3.2 The Company should provide written instructions to the PIC setting forth the procedures to be followed in order to:

- .1 provide appropriate documentation of training for all personnel working on MOUs which indicates that training in accordance with this standard and, as applicable, with the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), 1978, as amended, has been accomplished; and
- .2 maintain training records on the MOU.

3.3 The PIC should designate a knowledgeable individual who will be responsible for ensuring that an opportunity is provided to each newly-assigned individual to receive essential information in a language that he or she understands.

3.4 The Company should ensure that those responsible for the training and assessment of competence of all trained personnel on the MOU are appropriately qualified for the type and level of training and assessment involved.

4 MARITIME CREW ON SELF-PROPELLED MOBILE OFFSHORE UNITS AND, WHERE REQUIRED, ON OTHER UNITS

4.1 All maritime crew members on self-propelled MOUs and, where required, on other units should meet the requirements of the STCW Convention, as amended.

4.2 In addition to meeting the requirements referred to in paragraph 4.1 above, all maritime crew members should be given onboard training and instruction in types of emergencies which might occur on the particular type of MOU on which they serve.

5 STANDARDS OF TRAINING AND INSTRUCTION

5.1 Categories of offshore personnel

Offshore personnel are, for practical reasons, divided into four categories:

Category A: Visitors and special personnel not regularly assigned who are on board for a limited period of time, in general not exceeding three days, and have no tasks in relation to the normal operations of the MOU.

Category B: Other special personnel without designated responsibility for the safety, security and survival of others.

Category C: Regularly assigned special personnel with designated responsibility for the safety, security and survival of others.

Category D: Maritime crew members.

5.2 Safety induction training and instruction

5.2.1 Personnel (Category A) should receive safety induction training or instruction in accordance with established company policies on their first attendance on board a MOU, and repeated within the frequency requirements established by the company. The Company should maintain documentary evidence of this training or instruction.

5.2.2 Such Safety Induction training or instruction should ensure, as a minimum that personnel are able to:

- .1 Understand elementary safety matters, safety information symbols, signs and alarm signals; especially with regard to knowing what to do if:
 - .1 a person falls overboard;
 - .2 fire, smoke, or hydrogen sulphide is detected; or
 - .3 the fire, abandon ship, toxic gas, or other general alarm is sounded (including recognition of each alarm type on board);

- .2 Locate and don lifejackets and, if provided, immersion suits and emergency escape breathing devices;
- .3 Identify muster and embarkation stations and emergency escape routes; and
- .4 Understand section 7 (Fitness for Duty) of these recommendations.

5.3 Familiarization training and instruction

5.3.1 Before being assigned to duties related to the regular operations of the MOU, all offshore personnel (categories B, C and D) should receive offshore orientation, familiarization training or sufficient information and instruction in personal survival techniques, security and workplace safety. Such safety familiarization training, information or instruction should ensure that personnel are able to:

- .1 communicate with other persons on board on elementary safety matters and understand safety information symbols, signs and alarm signals, especially with regard to knowing what to do if:
 - .1 a person falls overboard,
 - .2 fire, smoke, or hydrogen sulphide is detected; or
 - .3 the fire, abandon ship, toxic gas, or other general alarm is sounded (including recognition of each alarm type on board);
- .2 locate and don lifejackets and, if provided, immersion suits and emergency escape breathing devices;
- .3 identify muster and embarkation stations and emergency escape routes;
- .4 raise the alarm and have a basic knowledge of the use of portable fire-extinguishers;
- .5 take immediate action upon encountering an accident or other medical emergency before seeking further medical assistance on board;
- .6 close and open the fire, weathertight and watertight doors fitted on the MOU, other than those for hull openings;
- .7 follow the unit's basic safe work practices and permit-to-work system; and
- .8 understand the unit's basic organizational structure and chain of command.

5.3.2 A generalized course of offshore safety training or instruction obtained onshore may satisfy this requirement provided it is supplemented with the training, information or instruction specified in 5.3.1.3 and 5.3.1.8 above.

5.3.3 Safety Familiarization training should be provided at intervals not greater than five years.

5.3.4 Individuals should hold a CoP or provide documentary evidence of having received safety familiarization training within the previous five years, as required.

5.4 Security awareness training or instruction

5.4.1 All offshore personnel (categories B, C and D) should receive security awareness training or instruction so as to acquire the knowledge and understanding as it relates to their MOU and their assigned duties in order that they may contribute to the enhancement of maritime security. The Company should maintain documentary evidence of this training or instruction.

5.4.2 All offshore personnel (categories B, C and D) without designated security duties should receive security awareness training or instruction at intervals not greater than five years. Revalidation of this training or instruction may be satisfied if the person has met the security-related familiarization requirements of STCW Regulation VI/6 and participated in the drills and exercises required by the ISPS Code. These personnel should hold a CoP or provide documentary evidence of having received security awareness training or instruction within the previous five years, as required.

5.5 Training for all regularly assigned personnel, maritime crew and other special personnel

5.5.1 Before being assigned to duties related to the regular operations of the MOU, all regularly assigned personnel, maritime crew and other special personnel without designated responsibility for the safety and survival of others (i.e. categories B, C and D) should receive training in personal survival, fire prevention and fire-fighting, elementary first aid, personal safety and social responsibilities, and security awareness training and instruction as set out in tables 5.5.1 to 5.5.6. Every effort should be made to provide such training prior to proceeding offshore.

5.5.2 The following training should be provided either on shore and/or on the MOU, as appropriate, by qualified and experienced persons:

- .1 Familiarization and orientation on general arrangements of the MOU, central processes, operating systems, equipment and procedures, organization, safety philosophy and contingency plans, as well as preventive safety systems such as permit-to-work procedures, company health and medical services, and other matters related to safety.
- .2 Practical familiarity with emergency duties.
- .3 Understanding the critical need to bring any abnormal situation to the attention of a responsible person.
- .4 Knowledge of available evacuation methods and procedures.
- .5 Knowledge of alarm procedures for emergency situations.
- .6 Knowledge of safety procedures.
- .7 Hydrogen sulphide (H₂S) training, where applicable.
- .8 Operations and emergencies involving divers, where applicable.

5.5.3 A regular programme of drills and exercises should be established in order to provide and/or supplement training and provide for evaluation and assessment. Guidance regarding drills and exercises is provided in appendix 1.

5.5.4 Individuals should hold a CoP or provide documentary evidence of having achieved the required standard of competence to undertake the tasks, duties and responsibilities listed in column 1 of tables 5.5.1 to 5.5.6 within the previous five years as required through demonstration of competence or examination or continuous assessment as part of an approved training programme, in accordance with flag State and/or coastal State requirements, however in the absence of these, a recognized industry standard. Guidance regarding the use of drills for assessment of competence is provided in appendix 1.

5.6 Specialized training

5.6.1 Specialized training, as appropriate to the individual duties assigned on the muster list, should be provided to personnel in categories C and D.

5.6.2 Depending on their assigned duties, personnel should receive instruction and training as specified in, or equivalent to, the following:

- .1 for those in charge of survival craft, proficiency in survival craft and rescue boats other than fast rescue boats as specified in table A-VI/2-1 of the STCW Code;
- .2 for those assigned to operate fast rescue boats, proficiency in fast rescue boats as specified in table A-VI/2-2 of the STCW Code;
- .3 for those in charge of the MOU, and those designated to control fire-fighting operations, proficiency in advanced fire-fighting as specified in table A-VI/3 of the STCW Code;
- .4 for those designated to provide immediate first aid, proficiency in medical first aid as specified in table A-VI/4-1 of the STCW Code;
- .5 for a person designated to take charge of medical care on board the MOU, proficiency in taking charge of medical care as specified in table A-VI/4-2 of the STCW Code;
- .6 for a person designated security duties on board the MOU, proficiency in security duties as specified in section A-VI/6-2 of the STCW Code;
- .7 for MOUs with helidecks, the designated helicopter landing officer (HLO) should have completed an accredited HLO course, which should include basic meteorological observer training; and
- .8 for MOUs with dynamic positioning systems, the dynamic positioning operator(s) (DPO) should gain the appropriate training and experience in accordance with the guidance provided by industry and recognized by the Organization.¹

5.6.3 Since specialized training may not be provided on the MOU, care should be taken to ensure that newly-assigned personnel with designated responsibility for the survival of others have sufficient experience, instruction, information or training on the equipment they are to use.

5.6.4 Individuals should hold a CoP or provide documentary evidence of having received specialized training or instruction within the previous five years, as required.

¹ MSC.1/Circ.738/Rev.1 and STCW B-V/f.

Table 5.5.1

SPECIFICATION OF MINIMUM STANDARD OF PROFICIENCY IN PERSONAL SURVIVAL

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Emergency signals	Personnel should receive an initial orientation on the types and identification of emergency signals Personnel should be acquainted with the posting of the muster list as a source for defining emergency signals In the case of combined operations personnel should receive supplemental information on additional alarms and procedures	Assessment of evidence obtained during satisfactory participation in drills and exercises	Actions taken during drills and in emergencies are appropriate to the emergency signal
Mustering of personnel	During onboard orientation all personnel will be shown their primary safe muster areas Personnel should be acquainted with the posted muster list	Assessment of evidence obtained during satisfactory participation in drills and exercises	Actions taken during drills and in emergencies are appropriate to the emergency signal
Use of lifejacket	Personnel will receive instruction on location, types, inspection and donning lifejackets	Don lifejacket	Lifejacket is donned correctly
Use of immersion suits	Personnel will be given instruction on location, type, inspection and donning of immersion suits, if required	Don immersion suit	Immersion suits are donned correctly
Lifeboat procedures	Personnel will be instructed on proper entry into lifeboats and the use of seat belts	Board lifeboat during drills and strap in	Lifeboat is boarded correctly
Modes of evacuation	Personnel will be instructed on the selection and use of available modes of evacuation. This may include: - helicopter - catwalks or bridges - standby vessel - lifeboat - liferaft - adders/escape devices - jumping from height (undesirable)	Assessment of evidence obtained during satisfactory participation in drills and exercises	Demonstration of correct actions during drills and exercises

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Boarding liferafts or buoyant apparatus	Personnel will be instructed on boarding a liferaft or buoyant apparatus both at deck level and from the sea	Assessment of evidence obtained during satisfactory participation in drills and exercises	Demonstration of correct actions during drills and exercises
Water survival techniques	Personnel will be instructed on the following, as applicable: - use of lights and whistles and other signalling devices - proper body positions to conserve body heat and prevent hypothermia - how to right an inverted liferaft - boarding a rescue craft from the water	Assessment of evidence obtained during satisfactory participation in drills and exercises	Demonstration of correct actions during drills and exercises
Deployment of life rings and associated equipment	Personnel will be instructed in the procedures for deploying life rings and associated equipment Personnel will be instructed in the procedures for raising the alarm	Assessment of evidence obtained during satisfactory participation in drills and exercises	Demonstration of correct actions during drills and exercises

Table 5.5.2

SPECIFICATION OF MINIMUM STANDARD OF FIRE PREVENTION AND FIRE-FIGHTING

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Minimize the risk of fire and maintain a state of readiness to respond to emergency situations involving fire	Personnel should receive instruction that would include, but not be limited to, the following: .1 elements of fire and explosion (the fire triangle) .2 types and sources of ignition .3 flammable materials, fire hazards and spread of fire .4 requirement for constant vigilance .5 classification of fire and applicable extinguishing agents Personnel should receive an initial orientation and familiarization instruction that would include, but not be limited to, the following: .1 onboard fire-fighting organization and muster list .2 location of fire-fighting equipment and emergency escape routes .3 onboard fire and smoke detection and automatic alarm systems .4 actions to be taken on discovery of smoke or fire .5 in the case of combined operations, supplemental instruction on additional alarms and procedures Personnel should receive instruction on actions to be taken, given the individual's status on board	Assessment of evidence obtained during satisfactory participation in drills and exercises	Initial actions during drills or in response to emergencies conform to established procedures
Fight and extinguish fires	Personnel should receive familiarization instruction that includes the following: .1 selection and use of fire-fighting equipment and its location on board .2 selection and use of personal protective equipment .3 fire-fighting and containment methods .4 fire-fighting agents.	Assessment of evidence obtained during satisfactory participation in drills and exercises or from approved instruction or during attendance at an approved course	Action during drills in response to emergencies conform to established procedures

Table 5.5.3

SPECIFICATION OF MINIMUM STANDARD OF PROFICIENCY IN ELEMENTARY FIRST AID

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Take immediate and appropriate action upon encountering an accident or other medical emergency	Assessment of needs of casualties and of threats to own safety Appreciation of body structure and functions Understanding of immediate measures to be taken in case of emergency, including the ability to: .1 position casualty .2 apply resuscitation techniques .3 control bleeding .4 apply appropriate measures of basic shock management .5 apply appropriate measures in event of burns and scalds, including accidents caused by electric current .6 rescue and transport a casualty .7 improvise bandages and use materials in emergency kit	Assessment of evidence obtained from approved instruction or during attendance at an approved course	The manner and timing of raising the alarm is appropriate to the circumstances of the accident or medical emergency Takes prompt action to evaluate the nature and extent of injuries and to prioritize treatment proportional to any threat to life Applies appropriate first aid measures to identified injuries in accordance with training provided Risk of further harm to self and casualty is minimized at all times

Table 5.5.4

SPECIFICATION OF MINIMUM STANDARD OF COMPETENCE IN PERSONAL SAFETY

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Comply with emergency procedures	Types of emergency which may occur, such as collision, fire, foundering General knowledge of contingency plans for response to emergencies and individual responsibility thereunder Emergency signals; and specific duties allocated to crew members in the muster list; muster stations; and correct use of personal safety equipment Action to take on discovering potential emergency including: fire, collision, foundering and ingress of water Action to take on hearing emergency alarm signals Value of training and drills Knowledge of escape routes and internal communication and alarm systems	Assessment of evidence obtained during satisfactory participation in drills and exercises or from approved instruction or during attendance at an approved course	Action during drills or in response to emergencies conform to established procedures Information given on raising alarm is prompt, accurate, complete and clear
Take precautions to prevent pollution of the marine environment	Basic knowledge of the impact of shipping on the marine environment and the effects of operational or accidental pollution on it Basic environmental protection procedures Basic knowledge of complexity and diversity of the marine environment	Assessment of evidence obtained during satisfactory participation in drills and exercises from approved instruction or during attendance at an approved course	Organization procedures designed to safeguard the marine environment are observed at all times
Observe safe working practices	Importance of adhering to safe working practices at all times Safety and protective devices available to protect against potential hazards Precautions to be taken prior to entering enclosed spaces (see resolution A.1050(27))	Assessment of evidence obtained during satisfactory participation in safety meetings or from approved instruction or attendance at an approved course	Safe working practices are observed and appropriate safety and protective equipment is correctly used at all times

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Contribute to effective communications on board MOU	Understand principles of, and barriers to, effective communication between individuals and teams within the MOU Ability to establish and maintain effective communications	Assessment of evidence obtained from approved instruction or during attendance at an approved course	Communications are clear and effective at all times
Understand and take necessary action to control fatigue	Importance of obtaining the necessary rest Effects of sleep, schedules, and the circadian rhythm on fatigue Effects of physical stressors on personnel Effects of environmental stressors in and outside the MOU and their impact on personnel Effects of schedule changes on personnel fatigue	Assessment of evidence obtained from approved instruction or during attendance at an approved course	Fatigue management practices are observed and appropriate actions are used at all times

Table 5.5.5

SPECIFICATION OF MINIMUM STANDARD OF COMPETENCE IN SOCIAL RESPONSIBILITIES

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Contribute to effective human relationships on board MOU	Personnel should receive familiarization instruction that would include, but not be limited to, the following: .1 importance of maintaining good human and working relationships .2 basic teamworking principles and practice, including conflict resolution .3 special emphasis should be given to the following: .1 social responsibilities, individual rights and responsibilities and practice of respect for co-workers: .1 no ethnic, racial, religious or sexual jokes or harassment .2 no horseplay or practical jokes .3 no profanity .4 control noise levels .5 dress appropriately .6 attend to personal hygiene .7 maintain neatness in living and working spaces .8 respect for privacy of others .9 respect for property of others .10 comply with company policies regarding prohibited items .2 dangers of drug and alcohol abuse: .1 company policy .2 operator policy (if different) .3 legal sanctions .3 factors affecting human relationships in the offshore environment: .1 harsh weather and working environments .2 physically demanding .3 long hours and isolation from shore .4 be prepared for unexpected extended stays .5 prohibited items	Documentation from orientations given to personnel should reflect this topic is adequately covered This can be demonstrated by video, computer-based training, training syllabus or personnel receiving this information verbally through lectures Examination and assessment of evidence obtained from one or more of the following: .1 instruction or training given prior to going offshore, .2 instruction or training given on board the MOU, or .3 direct observation of actions or conduct during training or instruction, while en route to or while on board the MOU	Demonstration of correct knowledge

Table 5.5.6

SPECIFICATION OF MINIMUM STANDARD OF COMPETENCE IN SECURITY AWARENESS

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Contribute to the enhancement of maritime security through heightened awareness	Basic working knowledge of maritime security terms and definitions, including elements that may relate to piracy and armed robbery Basic knowledge of international maritime security policy and responsibilities of Governments, companies and persons Basic knowledge of international maritime security levels and their impact on security measures and procedures aboard ship and in port facilities Basic knowledge of security reporting procedures Basic knowledge of security-related contingency plans	Assessment of evidence obtained from approved instruction or during attendance at an approved course	Requirements relating to enhanced maritime security are correctly identified
Recognition of security threats	Basic knowledge of techniques used to circumvent security measures Basic knowledge enabling recognition of potential security threats, including elements that may relate to piracy and armed robbery Basic knowledge enabling recognition of weapons, dangerous substances and devices and awareness of damage they can cause Basic knowledge in handling security-related information and security-related communications	Assessment of evidence obtained from approved instruction or during attendance at an approved course	Maritime security threats are correctly identified
Understanding the need for and methods of maintaining security awareness and vigilance	Basic knowledge of training, drill and exercise requirements under relevant conventions, codes and IMO circulars, including those relevant for anti-piracy and anti-armed robbery	Assessment of evidence obtained from approved instruction or during attendance at an approved course	Requirements relating to enhanced maritime security are correctly identified

6 SPECIALIZED TRAINING AND QUALIFICATIONS OF KEY PERSONNEL

6.1 General

6.1.1 Every MOU should have sufficient key persons on board possessing the knowledge, qualifications, skills and experience necessary to ensure the safe operation of the MOU. It is recognized that the nature of MOUs and their operations necessitate the consideration of specialized training and qualifications. The Administration should determine the adequacy of the knowledge, qualifications, skills and experience of the personnel assigned the responsibility for essential safety and pollution prevention functions on the basis of the design, type, size, and operating parameters of each MOU. Administrations are invited to consider the essential functions listed below in determining the necessary knowledge, qualifications, skills and experience for key personnel.

6.1.2 For personnel with STCW certificates, additional guidance on meeting the training requirements that are specified in this section is provided in appendix 2. The recommendations provided in appendix 2 are subject to the approval of the Administration.

6.2 Offshore installation manager (OIM)

6.2.1 The essential safety and pollution prevention functions for which the OIM is responsible and the related knowledge, competencies and qualifications required will depend on the type of MOU and its mode of operation:

- .1 The person in charge should be well acquainted with the characteristics, capabilities and limitations of the MOU and should have a full knowledge of the organization and actions to take in an emergency and the need to conduct and keep records of emergency drills and training; and
- .2 Persons delegated by him should possess the capability to maintain and operate all fire-fighting equipment and life-saving appliances on board the MOU and be able to train others in these activities.

6.2.2 Subject to the more precise indications given in table 6.1, which relates to the training, knowledge, skill and competency requirements for particular types of MOUs, it is considered necessary for the proper discharge of the essential safety and pollution prevention functions assigned to the OIM for the OIM to have knowledge, experience and have demonstrated competence in each of the following matters:

- .1 stability and construction:
 - .1 the general principles of construction;
 - .2 the static and dynamic stability of floating MOUs; theory and factors affecting trim and stability; measures to preserve safe trim and stability, including sufficient knowledge of stability calculations and the use of stability booklets; also the relationship with the regulatory requirements in respect of the stability curves for operating and survival conditions, taking into account the effect of the environmental conditions prevailing;
 - .3 the effect on the trim and stability of a floating MOU in the event of damage to, and consequence flooding of, any compartment; counter-measures to be taken; knowledge of the principle and importance of maintaining the watertight integrity of the MOU; procedures for maintaining watertight integrity;

- .4 loading supplies and ballasting in order to keep the unit's stresses within acceptable limits;
- .5 principal structural members and required periodical inspections. Basic knowledge of the effects of welding. Effects of corrosion on the structure;
- .6 the effect of the mooring system on stability; and
- .7 preloading and leg reaction stresses on self-elevating MOUs;
- .2 station-keeping, mooring and dynamic positioning:
 - .1 seabed composition and characteristics;
 - .2 behaviour of mooring systems and force distribution, including the effect of environmental conditions;
 - .3 consequences of failure of the mooring system;
 - .4 anchor placement and recovery, and working with anchor-handling vessels; and
 - .5 the principles of the dynamic positioning system, including capabilities and limitations of thrusters, power systems and maximum allowable position offsets;
- .3 transit operations:
 - .1 the 1972 Collision Regulations, as amended;
 - .2 navigation and electronic navigational aids appropriate to the type of MOU; and
 - .3 towing procedures, including recovery of tow;
- .4 emergency procedures and safety equipment:
 - .1 life-saving and fire-fighting procedures, including drills;
 - .2 maintenance and inspection of life-saving and fire-fighting appliances in accordance with the regulatory requirements;
 - .3 communication procedures in emergencies;
 - .4 precautions to be taken before the onset of heavy weather;
 - .5 evacuation procedures; and
 - .6 crisis management and crowd control;

- .5 personnel transfers:
 - .1 precautions to be taken during transfer of personnel;
 - .2 use of the personnel basket;
 - .3 helicopter transfers; and
 - .4 vessel transfers;
- .6 handling and stowage of supplies, including dangerous goods:
 - .1 safe handling, stowage and care of equipment, supplies and dangerous goods;
 - .2 cranes and lifting equipment and inspections; and
 - .3 procedures for loading and discharge of helicopters and supply vessels;
- .7 pollution prevention and control:
 - .1 pollution prevention systems and equipment; and
 - .2 pollution control procedures;
- .8 meteorology:
 - .1 the characteristics of various weather systems;
 - .2 ability to apply available meteorological information to ensure safety of the MOU and, upon request, supply other vessels or aircraft with information;
 - .3 sources of meteorological information; and
 - .4 the effects of weather on the environmental limits of the MOU;
- .9 safe working practices:
 - .1 occupational safety, health and hygiene;
 - .2 hazardous areas;
 - .3 permits to work;
 - .4 work over water;
 - .5 work in enclosed spaces (see resolution A.1050(27));
 - .6 personnel training;
 - .7 understanding of organization and communication; and
 - .8 understanding and inspection of safety equipment;

- .10 regulatory and certification requirements, including an appreciation of international and national regulations and recommendations affecting operations; and
- .11 industrial operations as they relate to maritime safety, including appreciation of the interrelationship between marine operations and specific industrial activities, including, where appropriate, the following:
 - .1 drilling and maintenance, where appropriate, of wells;
 - .2 construction and offshore maintenance and repair;
 - .3 production;
 - .4 accommodation support;
 - .5 lifting operations;
 - .6 pipe-laying;
 - .7 diving; and
 - .8 fire-fighting support.

6.2.3 Methods for demonstrating competence and criteria for evaluating competence for OIMs are set forth in table 6.2.

6.2.4 Every OIM serving on board a MOU should hold a CoC.

6.3 Barge supervisor (BS)

6.3.1 Knowledge, experience and competence in each of the following matters is considered necessary for the proper discharge of the essential safety and pollution prevention functions assigned to the barge supervisor:

- .1 stability and construction:
 - the stability concepts specified for the ballast control operator plus a period of service in that capacity;
- .2 construction:
 - principles of construction, structural members, watertight integrity and damage control;
- .3 emergency duties:
 - responsibilities set forth in the emergency plan or operating manual relating to the safety of the MOU;
- .4 communications:
 - communication procedures for normal operations and in an emergency;
- .5 safe working practices:
 - .1 occupational safety, health and hygiene;

- .2 hazardous areas;
 - .3 permits to work;
 - .4 work over water;
 - .5 work in enclosed spaces (see resolution A.1050(27));
 - .6 personnel training; and
 - .7 understanding and inspection of safety equipment;
- .6 regulatory requirements:
 - international and national regulations and recommendations affecting operations;
- .7 emergency first aid:
 - provision of first aid to a casualty pending transfer to a medical facility;
- .8 transit operations:
 - .1 the 1972 Collision Regulations, as amended;
 - .2 navigation and electronic navigational aids appropriate to the type of MOU; and
 - .3 towing procedures, including recovery of tow;
- .9 seamanship
 - .1 heavy weather;
 - .2 store and bulk liquid transfer;
 - .3 manoeuvring and positioning;
 - .4 anchor handling; and
 - .5 dynamic positioning, if applicable.

6.3.2 Methods for demonstrating competence and criteria for evaluating competence for BS are set forth in table 6.3.

6.3.3 Every BS serving on board a MOU should hold a CoC.

6.4 Ballast control operator (BCO)

6.4.1 Knowledge, experience and competence in each of the following matters is considered necessary for the proper discharge of the essential safety and pollution prevention functions assigned to the ballast control operator on column-stabilized MOUs:

- .1 basic stability:
 - .1 understanding of general terms, i.e. displacement, draught, trim, heel, freeboard, buoyancy, reserve buoyancy, etc.;

- .2 understanding of centre of gravity, centre of buoyancy, position of metacentre, righting lever and its effect on transverse stability;
- .3 stable, unstable and neutral equilibrium;
- .4 theory of moments applied to stability including the effects of heavy lifts and movement of same;
- .5 effect of adding, removing and shifting weight. Calculation of vertical, transverse and longitudinal shift of centre of gravity;
- .6 understanding of the inclining experiment report and its use;
- .7 effect of free surface on stability and factors affecting same;
- .8 general understanding of change of trim, trimming moments, longitudinal metacentre and longitudinal stability;
- .9 use of hydrostatic curves, deadweight scale and hydrostatic tables;
- .10 use of cross curves to produce a curve of statical stability and information from curve;
- .11 dynamical stability; synchronous rolling and angle of loll; stability criteria for MOUs;
- .12 effect of mooring system on stability; and
- .13 daily loading calculations;
- .2 application of stability knowledge, where the following should include the relevant theory and calculations:
 - .1 deck loads and effect on stability; change in lightweight;
 - .2 examination of ballasting systems and procedures;
 - .3 response to systems failures including station-keeping systems, damage to structures and subsequent action;
 - .4 damage control procedure, watertight compartments counter-flooding, use of pumping systems and cross-connections;
 - .5 environmental conditions and their effect on stability;
 - .6 unit and environmental limitations and criteria for changing to survival condition;
 - .7 zones of reduced stability, precautions to take, unsymmetrical ballasting/de-ballasting and importance of sequence with regard to stress;
 - .8 theory of calculations carried out on daily loading sheet, variations in chain deployed and effect on vertical moment; and
 - .9 emergency procedures;

.3 supplementary training:

having successfully completed the formal training, as indicated above, no individual should work in a ballast control room without the supervision of a competent person for a period of time to enable him to become fully conversant with the ballasting systems of that MOU. Before being left in sole charge and being required to react alone in the event of an emergency, the individual should receive experience of simulated emergency situations.

6.4.2 Methods for demonstrating competence and criteria for evaluating competence for BCO are set forth in table 6.4.

6.4.3 Every BCO serving on board a MOU should hold a CoC.

6.5 Maintenance supervisor (MS)

6.5.1 On self-propelled MOUs, the person assigned responsibility for the operation and maintenance of the main propulsion and auxiliary machinery should meet the appropriate knowledge requirements of chapter III of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended (see section 4.1 on self-propelled MOUs).

6.5.2 On non-self-propelled MOUs, the person assigned responsibility for the operation and maintenance of the power plant and auxiliary machinery should have knowledge, experience and competence in each of the following:

- .1 operation and maintenance of engines.
- .2 operation and maintenance of auxiliary machinery including pumping and piping systems, associated control systems and, if appropriate, jacking systems;
- .3 detection of machinery malfunction, location of faults to prevent or minimize damage;
- .4 maintenance and repair problems;
- .5 operation and maintenance of systems for fire prevention, detection and extinction;
- .6 safe working practices;
- .7 maintenance of survival craft and launching appliances; and
- .8 pollution prevention procedures.

6.5.3 Methods for demonstrating competence and criteria for evaluating competence for MS on non-self-propelled MOUs are set forth in table 6.5.

6.5.4 Every MS serving on board a MOU should hold a CoC.

Table 6.1

KNOWLEDGE AND TRAINING REQUIREMENTS FOR AN OIM FOR DIFFERENT TYPES OF MOU

Knowledge/ experience listed in section 6.2.2	Type of MOU						
	Self-Propelled			Non-Self-Propelled			
	Surface MOU	Column-stabilized MOU	Other	Column-stabilized MOU	Other	Bottom Bearing Submersible MOU	Bottom Bearing_Self-elevated MOU
.1.1	X	X	X	X	X	X	X
.1.2	X	X	X	X	³	²	²
.1.3	X	X	X	X	X	²	²
.1.4	X	X	X	X	X	X	X
.1.5	X	X	X	X	X	X	X
.1.6	X ¹	X ¹	X ¹		X	X	
.1.7							X
.2.1	X	X	X	X	X	X	X
.2.2	X ¹	X ¹	X ¹		X	X	
.2.3	X ¹	X ¹	X ¹		X	X	
.2.4	X	X	X	X	X	X	X
.2.5	X	X	X				
.3.1	X	X	X	X ³	³	^{2,3}	^{2,3}
.3.2	X	X	X	X ³	³	^{2,3}	^{2,3}
.3.3	X	X	X	X	X ³	²	²
.4 to .11	X	X	X	X	X	X	X

¹ Except for MOUs in dynamic positioning mode.

² Bottom-bearing MOUs whilst afloat.

³ Depends on MOU type and circumstances of operation (to be determined by the Administration).

Table 6.2

SPECIFICATION OF MINIMUM STANDARD OF COMPETENCE FOR OFFSHORE INSTALLATION MANAGER

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Plan and ensure safe ballasting and deballasting operations and accounting of changes in deck loads	Knowledge of, and ability to apply, relevant international and national standards concerning stability Use of loading stability information which may be contained in or derived from stability and trim diagrams, operation manual, and/or computer-based loading and stability programs	Assessment of evidence obtained from one or more of the following: in-service experience, direct observation, formal instruction, simulator training, or examination	Ballasting and deballasting are planned and executed in accordance with established procedures Changes in deck loads are accounted for in accordance with established procedures
Operational control of trim, stability and stress	Understanding of fundamental principles of MOU construction, including principal structural members and required periodic inspections Basic knowledge of effects of welding, and effects of corrosion on the structure Understanding of fundamental principles and the theories and factors affecting trim and stability and measures necessary to preserve trim and stability (afloat mode) Stability criteria for MOUs (static and dynamic), environmental limits and criteria for survival conditions Understanding of inclining experiment, deadweight survey, and their use Use of daily loading calculations Knowledge of the effect: .1 on trim and stability of MOU in event of damage to and consequent flooding of a compartment, and countermeasures to be taken (afloat mode) .2 of loading supplies and ballasting in order to keep the MOU's stresses within acceptable limits .3 of mooring systems and mooring line failure .4 of pre-loading and leg stresses on self-elevating MOUs .5 of loss of buoyancy	Assessment of evidence obtained from one or more of the following: in-service experience, direct observation, formal instruction, simulator training, or examination	MOU structure, stability and stress conditions are maintained within safe limits at all times

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Maintain safety and security of MOU personnel and the operational condition of life-saving, fire-fighting and other safety systems	Knowledge of life-saving appliance regulations (International Convention for the Safety of Life at Sea) as applicable to MOUs Organization of fire and abandon ship drills Maintenance of operational condition of life-saving, fire-fighting and other safety systems Actions to be taken to protect and safeguard all persons on board in emergencies, including evacuation Actions to limit damage following a fire, explosion, collision, or grounding Precautions to be taken before onset of heavy weather	Assessment of evidence obtained from one or more of the following: in-service experience, direct observation, formal instruction, simulator training, or examination	Procedures for monitoring fire-detection and safety systems ensure that all alarms are detected promptly and acted upon in accordance with established emergency procedures Life-saving appliances and fire-fighting equipment are maintained in accordance with prescribed standards
Develop emergency and damage control plans and handle emergency situations	Preparation of contingency plans for response to emergencies MOU construction, including damage control Methods and aids for fire prevention, detection and extinction Functions and use of life-saving appliances Evacuation from MOU Precautions to be taken before onset of heavy weather	Assessment of evidence obtained from one or more of the following: in-service experience, direct observation, formal instruction, simulator training, or examination	Emergency procedures are in accordance with the established plans for emergency situations
Respond to emergencies	Knowledge of : .1 emergency procedures .2 the effect of trim and stability of flooding due to damage, fire-fighting , loss of buoyancy or other reasons and countermeasures to be taken Effectively communicate stability-related information	Assessment of evidence obtained from one or more of the following: in-service experience, direct observation, formal instruction, simulator training, or examination	Established procedures are followed during drills and emergencies Communications are clear and effective

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Maintain MOU safe for transit, station keeping, mooring and dynamic positioning conditions	Knowledge of: .1 the 1972 Collision Regulations, as amended .2 navigation and electronic navigational aids appropriate to the type of MOU .3 towing procedures, including recovery of tow .4 seabed composition and characteristics .5 behaviour of mooring systems and force distributions, including the effect of environmental conditions .6 consequences of mooring system failure .7 anchor placement and recovery, and working with anchor handling vessels .8 principles of dynamic positioning system, including capabilities and limitations of thrusters, power systems and maximum allowable position offsets (For Dynamic Position equipped vessels only)*	Assessment of evidence obtained from one or more of the following: in-service experience, direct observation, formal instruction, simulator training, or examination	Transit, station keeping, mooring and dynamic positioning operations are within safe limits at all times Communications are effective and comply with established procedures
Forecast weather and oceanographic conditions	Knowledge of: .1 characteristics of weather systems .2 ability to apply available meteorological information to ensure safety of MOU and , upon request, supply other vessels or aircraft with information .3 sources of weather information .4 the effects of weather on the MOU environmental limits	Assessment of evidence obtained from one or more of the following: in-service experience, direct observation, formal instruction, simulator training, or examination	The likely weather conditions for a determined period are based on all available information Actions taken to maintain safety of navigation and operations minimize risk to safety of MOU
Plan and ensure safe transfer of personnel	Knowledge of: .1 precautions to be taken during transfer of personnel .2 use of the personnel basket .3 helicopter transfers .4 vessel transfers .5 effect of environmental conditions on method of personnel transfer	Assessment of evidence obtained from one or more of the following: in-service experience, direct observation, formal instruction, simulator training, or examination	Personnel transfers are conducted safely

* Resolution MSC.38(63), annex 2.

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Plan and ensure safe loading, stowage, securing and handling of supplies, including dangerous goods	Knowledge of: .1 the effect on trim and stability of cargoes and cargo operations .2 safe handling, stowage and care of equipment, supplies and dangerous goods .3 crane and lifting equipment, and their inspections .4 procedures for loading and discharge of helicopters and supply vessels .5 precautions during loading, and unloading, and use of dangerous, hazardous, or harmful goods	Assessment of evidence obtained from one or more of the following: in-service experience, direct observation, formal instruction, simulator training, or examination	The likely weather conditions for a determined period are based on all available information Stowage and securing of cargoes and supplies ensures that stability and stress conditions remain within safe limits, and are in accordance with established guidelines and legislative requirements Information on dangers, hazards and special requirements is recorded in a suitable format for easy reference in the event of an incident
Prevention of pollution	Methods and aid to prevent pollution of the environment Knowledge of: .1 pollution prevention systems and controls .2 pollution control procedures, including the MOU's MARPOL I/26 and article 3 of OPRC Convention Shipboard Oil Pollution Emergency Plan, MARPOL Annex V Waste Management Plan, and any plan dealing with dangerous/hazardous goods .3 importance of proactive measures to protect the marine environment	Assessment of evidence obtained from one or more of the following: in-service experience, direct observation, formal instruction, simulator training, or examination	Operations are conducted without hazarding the environment through spills of oil or dangerous/hazardous goods, or garbage Actions to ensure that a positive environmental reputation is maintained
Monitor and control safe working practices	Knowledge of safe working practices, such as: .1 occupational safety, health and hygiene .2 hazardous areas .3 permits to work .4 work over water .5 work in confined spaces Knowledge of personnel training, organization and communication Understanding and inspection of safety equipment Identify, evaluate, control new hazards through engineering controls or safe working practices	Assessment of evidence obtained from one or more of the following: in-service experience, direct observation, formal instruction, simulator training, or examination	Operations minimize hazards to personnel

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea and the protection of the marine environment	Knowledge of international maritime law embodied in international agreements and conventions Regard should be paid to the following subjects: .1 certificates and other documents required to be carried on board MOUs by international conventions and/or agreements .2 responsibilities under the relevant requirements of the: - International Convention on Load Lines; - International Convention for the Safety of Life at Sea; - International Convention for the Prevention of Pollution from Ships; .3 maritime declarations of health and the requirements of the International Health Regulations .4 responsibilities under international instruments affecting the safety of the MOU, visitors, crew and cargo .5 methods and aids to prevent pollution of the marine environment by MOUs .6 national legislation for implementing international agreements and conventions	Assessment of evidence obtained from one or more of the following: in-service experience, direct observation, formal instruction, simulator training, or examination	Procedures for monitoring operations and maintenance comply with legislative requirements Potential non-compliance is promptly and fully identified Planned renewal and extension of certificates ensures continued validity of surveyed items and equipment
Monitor and control industrial operations impacting maritime safety	Knowledge and appreciation of the interrelationship between marine operations and specific industrial activities including, where appropriate, the following: .1 drilling and maintenance, where appropriate, of wells .2 construction and offshore maintenance and repair .3 production .4 accommodation support .5 lifting operations .6 pipe-laying .7 diving .8 fire-fighting support	Assessment of evidence obtained from one or more of the following: in-service experience, direct observation, formal instruction, simulator training, or examination	Industrial operations are carried out safely

Table 6.3
SPECIFICATION OF MINIMUM STANDARD OF COMPETENCE FOR BARGE SUPERVISOR

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Plan and ensure safe ballasting and deballasting operations and accounting of changes in deck loads	Knowledge of and ability to apply relevant international and national standards concerning stability Use of loading stability information as may be contained in or derived from stability and trim diagrams, operation manual, and/or computer-based loading and stability programs	Assessment of evidence obtained from one or more of the following: in-service experience, direct observation, formal instruction, simulator training, or examination	Ballasting and deballasting are planned and executed in accordance with established procedures Changes in deck loads are accounted for in accordance with established procedures
Operational control of trim, stability and stress	Understanding of fundamental principles of MOU construction, including principal structural members and required periodic inspections, watertight integrity and damage control Basic knowledge of effects of welding, and effects of corrosion on the structure Understanding of fundamental principles and the theories and factors affecting trim and stability and measures necessary to preserve trim and stability Stability criteria for MOU (static and dynamic), environmental limits and criteria for survival conditions Understanding of inclining experiment, deadweight survey, and their use Use of daily loading calculations Knowledge of the effect of mooring systems and mooring line failure	Assessment of evidence obtained from one or more of the following: in-service experience, direct observation, formal instruction, simulator training, or examination	MOU structure, stability and stress conditions are maintained within safe limits at all times

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Respond to emergencies	Knowledge of : .1 emergency procedures .2 the effect of trim and stability of flooding due to damage, fire-fighting, loss of buoyancy or other reasons and countermeasures to be taken Effectively communicate stability related and damage control information	Assessment of evidence obtained from one or more of the following: in-service experience, direct observation, formal instruction, simulator training, or examination	Established procedures are followed during drills and emergencies Communications are clear and effective
Seamanship	Knowledge of : .1 the 1972 Collision Regulations, as amended .2 navigation and electronic navigational aids appropriate to the type of MOU .3 towing procedures, including recovery of tow Proficiency in the following: .1 heavy weather .2 store and bulk liquid transfer .3 manoeuvring and positioning .4 anchor handling .5 dynamic positioning, if applicable Effectively communicate navigational and cargo handling information	Assessment of evidence obtained from one or more of the following: in-service experience, direct observation, formal instruction, simulator training, or examination	Transit, station keeping, mooring and dynamic positioning operations are within safe limits at all times Communications are effective and comply with established procedures
Plan and ensure safe loading, stowage, securing and handling of supplies, including dangerous goods	Knowledge of: .1 the effect on trim and stability of cargoes and cargo operations .2 safe handling, stowage and care of equipment, supplies and dangerous goods .3 crane and lifting equipment, and their inspections .4 procedures for loading and discharge of helicopters and supply vessels .5 precautions during loading, and unloading, and use of dangerous, hazardous, or harmful goods	Assessment of evidence obtained from one or more of the following: in-service experience, direct observation, formal instruction, simulator training, or examination	The likely weather conditions for a determined period are based on all available information Stowage and securing of cargoes and supplies ensures that stability and stress conditions remain within safe limits, and are in accordance with established guidelines and legislative requirements Information on dangers, hazards and special requirements is recorded in a suitable format for easy reference in the event of an incident

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Monitor and control safe working practices	Knowledge of safe working practices, such as: .1 occupational safety, health and hygiene .2 hazardous areas .3 permits to work .4 work over water .5 work in confined spaces Knowledge of personnel training, organization and communication Understanding and inspection of safety equipment	Assessment of evidence obtained from one or more of the following: in-service experience, direct observation, formal instruction, simulator training, or examination	Operations minimize hazards to personnel
Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea and the protection of the marine environment	Knowledge of international maritime law embodied in international agreements and conventions Regard should be paid to the following subjects: .1 certificates and other documents required to be carried on board MOUs by international conventions and/or agreements .2 responsibilities under the relevant requirements of the: - International Convention on Load Lines; - International Convention for the Safety of Life at Sea; - International Convention for the Prevention of Pollution from Ships; .3 responsibilities under international instruments affecting the safety of the MOU, visitors, crew and cargo .4 methods and aids to prevent pollution of the marine environment by MOUs .5 national legislation for implementing international agreements and conventions .6 importance of proactive measures to protect the marine environment	Examination and a Assessment of evidence obtained from one or more of the following: in-service experience, direct observation, formal instruction, simulator training, or examination	Procedures for monitoring operations and maintenance comply with legislative requirements Potential non-compliance is promptly and fully identified Planned renewal and extension of certificates ensures continued validity of surveyed items and equipment Actions to ensure that a positive environmental reputation is maintained
Provide first aid to a casualty prior to transfer to medical facility	See table A-VI/4-1 of STCW Code	See table A-VI/4-1 of STCW Code	See table A-VI/4-1 of STCW Code

Table 6.4

SPECIFICATION OF MINIMUM STANDARD OF COMPETENCE FOR BALLAST CONTROL OPERATORS

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Plan and ensure safe ballasting and deballasting operations and accounting of changes in deck loads	Knowledge of and ability to apply relevant international and national standards concerning stability Use of loading stability information as may be contained in or derived from stability and trim diagrams, operations manuals, and/or computer-based loading and stability programs	Assessment of evidence obtained from one or more of the following: in-service experience, direct observation, formal instruction, simulator training, or examination	Ballasting and deballasting operations are planned and executed in accordance with established procedures Changes in deck loads are accounted for in accordance with established procedures
Operational control trim, stability and stress	Understanding of fundamental principles of ship construction and the theories and factors affecting trim and stability and the measures necessary to preserve trim and stability Stability criteria for MOUs, environmental limits and criteria for survival conditions Understanding the inclining experiment report and its use Use of daily loading calculations Dynamical stability Effect of mooring systems and mooring line failure	Assessment of evidence obtained from one or more of the following: in-service experience, direct observation, formal instruction, simulator training, or examination	Stability and stress conditions are maintained within established limits at all times
Respond to emergencies	Knowledge of emergency procedures Knowledge of the effect on trim and stability of flooding due to damage, fire-fighting, loss of buoyancy or other reasons and countermeasures to be taken Effectively communicate stability-related information	Assessment of evidence obtained from one or more of the following: in-service experience, direct observation during drills and exercises, formal instruction, simulator training, or examination	Established procedures are followed during drills and emergencies Communications are clear and effective
Prevention of pollution	Methods and aids to prevent pollution of the environment Knowledge of relevant international and national requirements, regard should be paid especially to: .1 certificates and other documents required by international conventions or national law, how they may be obtained, and their period of validity .2 responsibilities under relevant international agreements .3 importance of proactive measures to protect the marine environment	Assessment of evidence obtained from one or more of the following: in-service experience, formal instruction, or examination	Follows pollution prevention procedures established by international convention, national requirements and company policy Actions to ensure that a positive environmental reputation is maintained

Table 6.5

SPECIFICATION OF MINIMUM STANDARD OF COMPETENCE FOR MAINTENANCE SUPERVISORS ON NON-SELF-PROPELLED MOUS

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Use appropriate tools for fabrication and repair operations typically performed on MOUs	Characteristics and limitations of materials used in construction and repair Characteristics and limitations of processes used for fabrication and repair Properties and parameters considered in the fabrication and repair of systems and components Application of safe working practices in the workshop environment	Assessment of evidence obtained from one or more of the following: workshop skills training, in-service experience, or examination	Identification of important parameters for fabrication of typical MOU-related components is appropriate Selection of material is appropriate Fabrication is to designated tolerances Use of equipment and machine tools is appropriate and safe
Use hand tools and measuring equipment for dismantling, maintenance, repair and re-assembly of onboard plant and equipment	Design characteristics and selection of materials in construction of equipment Interpretation of machinery drawings and hand tools Operational characteristics of equipment and systems	Assessment of evidence obtained from one or more of the following: workshop skills training, in-service experience, or examination	Safety procedures followed are appropriate Selection of tools and spare gear is appropriate Dismantling, inspecting, repairing and reassembling equipment is in accordance with manuals and good practice Re-commissioning and performance testing in accordance with manuals and good practice
Use hand tools, electrical and electronic measuring and test equipment for fault-finding, maintenance and repair operations	Safety requirements for working on electrical systems Construction and operational characteristics of onboard AC and DC electrical systems and equipment Construction and operation of electrical test and measuring equipment	Assessment of evidence obtained from one or more of the following: workshop skills training, in-service experience, or examination	Implementation of safety procedures is satisfactory Selection and use of test equipment is appropriate and interpretation of results is accurate Selection of procedures for the conduct of repair and maintenance is in accordance with manuals and good practice Commissioning and performance testing of equipment and systems brought back into service after repair is in accordance with manuals and good practice

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Operate alternators, generators and control systems	Generating plant Appropriate basic electrical knowledge and skills Preparing, starting, coupling and charging over alternators or generators Location of common faults and action to prevent damage Control systems Location of common faults and action to prevent damage	Assessment of evidence obtained from one or more of the following: in service experience, simulator training, laboratory equipment training, or examination	Operations are planned and carried out in accordance with established rules and procedures to ensure safety of operations
Maintain engineering systems, including control systems	Appropriate basic mechanical knowledge and skills Safe isolation of electrical and other types of plant and equipment required before personnel are permitted to work on such plant or equipment Undertake maintenance and repair to plant and equipment	Assessment of evidence obtained from one or more of the following: in service experience, simulator training, laboratory equipment training, or examination	Isolation, dismantling and reassembly of plant and equipment is in accordance with accepted practices and procedures. Action taken leads to the restoration of plant by the method most suitable and appropriate to the prevailing circumstances and conditions
Operate, monitor and evaluate engine and machinery performance and capacity	Operation and maintenance of: engines auxiliary machinery including pumping and piping systems, associated control systems and, if appropriate, jacking systems	Assessment of evidence obtained from one or more of the following: in-service experience, formal instruction, simulator training, or examination	Action during drills or in response to emergencies conform to established procedures
Detect and identify the cause of machinery malfunctions and correct faults	Detection of machinery malfunction and location of faults to prevent or minimize damage	Assessment of evidence obtained from one or more of the following: in-service experience, formal instruction, simulator training, or examination	Methods of comparing actual operating conditions are in accordance with recommended practices and procedures Actions and decisions are in accordance with recommended operating specifications and limitations

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Organize safe maintenance and repair procedures	Marine engineering practice Organizing and carrying out safe maintenance and repair procedures	Assessment of evidence obtained from one or more of the following: in-service experience, formal instruction, simulator training, or examination	Maintenance activities are correctly planned and carried out in accordance with technical, legislative, safety and procedural specifications Appropriate plans, specifications materials and equipment are available and used for maintenance and repair Actions taken lead to the restoration of the plant by the most suitable method
Operate and maintain survival craft and launching systems and systems for fire prevention, detection and extinction	Maintenance of operational condition of survival craft and launching systems and systems for fire prevention, detection and extinction Actions taken to protect the MOU and its personnel and limit damage following fire, explosion, collision or grounding	Assessment of evidence obtained from one or more of the following: in-service experience, formal instruction, simulator training, or examination	Procedures for maintaining equipment ensure that equipment remains operational Actions taken in response to drills or emergencies follow established procedures
Prevention of pollution	Methods and aids to prevent pollution of the environment Knowledge of relevant international and national requirements, regard should be paid especially to: .1 certificates and other documents required by international conventions or national law, how they may be obtained, and their period of validity .2 responsibilities under relevant international agreements .3 importance of proactive measures to protect the marine environment	Assessment of evidence obtained from one or more of the following: in-service experience, formal instruction, simulator training, or examination	Follows pollution prevention procedures established by international conventions, national requirements and company policy Actions to ensure that a positive environmental reputation is maintained
Ensure safe working practices	Safe working practices	Assessment of evidence obtained from one or more of the following: in-service experience, formal instruction, simulator training, or examination	Working practices are in accordance with legislative requirements, codes of practice, environmental concerns, and company policies Safe working practices are observed and appropriate safety and protective equipment is correctly used at all times

7 FITNESS FOR DUTY

7.1 Each Administration should direct the attention of Companies to familiarize all their offshore personnel (Categories A, B, C & D) with the requirements, principles and guidance as set out in these recommendations. Offshore personnel should:

- .1 make proper assignments to ensure that a safe watch and work schedule, appropriate to the prevailing circumstances and conditions, is maintained on board the MOU;
- .2 take into account any limitations in qualifications or fitness of an individual on watch or working prior to allowing or assigning them the watch or task;
- .3 understand their individual roles and responsibilities and those of other personnel on watch or workers on duty with them;
- .4 make effective use of all resources available (e.g. information, equipment and other personnel);
- .5 understand the functions and operation of equipment under their purview;
- .6 understand information provided to them by their equipment (i.e. readings) and by other personnel on watch or working with them prior to acting on it;
- .7 maintain an exchange of appropriate communication in any situation; and
- .8 notify their immediate supervisor and/or the OIM without hesitation when in any doubt as to what action to take in the interest of safety or security.

7.2 Each Administration should direct the attention of Companies that adequate measures are established for the purpose of preventing drug and alcohol abuse.

7.3 Each Administration should direct the attention of Companies to establish and enforce rest periods for all personnel, especially personnel on watch and those whose duties involve safety, security or pollution prevention.

7.4 Arrangements regarding rest and fatigue:

- 1 Administrations should take into account the danger posed by fatigue of personnel, especially those whose duties involve the safety and security of the MOU;
- .2 All personnel whose duties involve designated safety, security or pollution prevention should be provided with a minimum rest period of not less than 10 hours in any 24-hour period, and 77 hours in any 7-day period, except in emergency situations and as determined by the Administration;
- .3 Musters, fire-fighting, lifeboat drills and other drills prescribed by national laws and regulations or by international instruments, should be conducted in a manner that minimizes the disturbance of rest periods and does not induce fatigue; and

- .4 Nothing in these recommendations should be deemed to impair the right of the Master, OIM, or Person-in-Charge of the MOU to require any personnel to perform any hours of work necessary for the immediate safety or security of the MOU, the personnel on board, to effect crew-changes, or for the purpose of aiding another MOU in distress. Accordingly, the Master, OIM, or Person-in-Charge may suspend the schedule of rest to perform any necessary work until the normal situation of the MOU has been restored.

8 MEDICAL STANDARDS

Administrations should establish standards of medical fitness for offshore personnel (Categories C & D) serving on board MOUs and those personnel should hold a valid medical certificate issued in accordance with the requirements of the Administration or recognized industry standards. Flag States are encouraged to recognize the coastal State medical regime when they are in place.

* * *

Appendix 1

GUIDANCE ON DRILLS AND EXERCISES

1 INTRODUCTION

1.1 This Guidance is offered to aid in the development of an effective programme of drills and exercises for training and assessment of basic offshore emergency response. Drills and exercises are a primary means of testing and maintaining the emergency response arrangements of a mobile offshore MOU. They also are an integral part of the system of providing basic safety training and other emergency response training to individuals and evaluating individual skills and knowledge in these areas.

1.2 Definitions

1.2.1 *Exercise* means a test of the emergency response arrangements under as near realistic conditions as possible on the MOU and involves all MOU personnel.

1.2.2 *Drill* means a form of exercise which provides the opportunity to practice elements of the system. Drills are carried out under realistic conditions while allowing for instruction and training, e.g. breathing apparatus drills for the fire team, casualty handling for first-aid and stretcher teams, etc.

1.3 Drill and exercise programme

1.3.1 The drill and exercise programme should be an integral part of the MOU's training programme. For drills and exercises that are intended to develop to maintain and assess competencies which are too risky or too complex to perform on board the MOU, e.g. lifeboat launching in rough seas, the use of approved simulators in accordance with flag State and/or coastal State requirements, however in the absence of these, a recognized industry standard to enhance the realism of the drill and the exercise should be considered. The design of a programme of drills and exercises can be considered on four levels.

Offshore/onshore exercises

1.3.2 Since many MOUs rely on shore-based support during response to major emergencies, these exercises are intended to test and develop communications and relationships between the MOU and onshore emergency support teams. To maximize the benefits of such exercises, considerable coordination and planning may be required.

1.3.3 Arrangements should be made for independent observers, i.e. persons not involved in the actual exercise, to monitor both the offshore and onshore elements of the exercise and provide objective assessment and feedback.

1.3.4 Offshore/onshore exercises should be held at such intervals as to allow each OIM to participate in at least one such exercise every 3 years, i.e. the nominal frequency should be approximately 18-month interval.

Offshore exercises

1.3.5 These exercises are intended to test and develop communications and relationships for those on board the MOU and for the MOU's emergency support teams. They are also used to test and develop integrated emergency response arrangements for MOUs engaged in combined operations.

1.3.6 When possible, arrangements should be made for independent observers, i.e. persons not involved in the actual exercise, to monitor the exercise and provide objective assessment and feedback.

Routine drills

1.3.7 A programme of routine drills is established to provide systematic practical training and experience in the elements of basic offshore emergency response. The programme should ensure that all the elements of required individual and team competence in basic offshore emergency preparedness training are regularly tested. Various elements can be tested during a drill.

1.3.8 Consideration should also be given to carrying out drills in order to provide training and heighten awareness prior to conducting non-routine or hazardous operations.

Assessment drills

1.3.9 A programme of assessment drills should be specifically established to provide for periodic and systematic demonstration of individual competence in the elements of basic safety training. Other elements of emergency response as may be determined to be appropriate for the MOU may also be assessed.

1.4 Evaluation and assessment

1.4.1 Assessors should be assigned for each exercise and drill. If practicable, assessors should not be active participants in the drill or exercise, so that they can dedicate their time and attention to training and assessment.

1.4.2 All assessors should:

- .1 have an appropriate level of knowledge and understanding of the competence to be assessed;
- .2 be qualified in the tasks for which the assessment is being made; and
- .3 have received appropriate guidance in assessment methods and practice and have gained practical assessment experience.

1.4.3 Arrangements should be made periodically which permit the OIM, PIC or other supervisors, to be released from their normal emergency response role to monitor the key aspects of the MOU's drills.

1.4.4 As a matter of routine, personnel with key emergency response roles should monitor the performance in their areas and ensure that appropriate action is taken to resolve any problems which are identified.

1.4.5 Drills should be structured so as to also demonstrate that associated emergency appliances and equipment are complete, in good working order and ready for immediate use.

1.4.6 A debriefing should be held after each drill exercise for training purposes and to assist in the overall assessment and evaluation.

1.5 Records and follow-up

1.5.1 Records, similar to the samples provided in attachment 1, should be maintained describing the scope of all drills which are conducted. More detailed reports may be appropriate for exercises.

1.5.2 Records should include any recommendations for improvements or modification which were identified with respect to emergency procedures, drill or exercise procedures, or equipment.

1.5.3 A record, similar to the sample provided in attachment 2, should be maintained of all assessment drills. When assessment drills are completed, suitable endorsements should also be made in individuals' training record books, training passports or other appropriate records.

1.5.4 A system should be established to ensure that all recommendations are properly considered and appropriate action taken.

1.6 Special precautions

1.6.1 For MOUs that may be working with open wells, the status of the well and the safety of well operations should be given special consideration.

1.6.2 For MOUs involved in combined operations, the effect of the drill or exercise on the other MOU or facility should be considered. Nevertheless, the development of drill and exercise scenarios addressing combined operations is encouraged.

2 OFFSHORE EXERCISES

2.1 Exercise scenarios

Offshore exercises should be varied and challenging. Scenario details should be adequate to allow for a realistic exercise but not so prescriptive as to prevent variations and an injection of the unexpected into the exercise. An example of an exercise scenario is contained in attachment 3.

2.2 Planning of exercises

2.2.1 Exercises should be carried out at a time which minimizes disruption to operations without detriment to the exercise objectives.

2.2.2 There should be elements of surprise in the timing of the exercise. However, this needs to be balanced with safety and other operational requirements.

2.2.3 Where possible, offshore exercises should be held when there are onshore management or other suitably qualified personnel available to assist in monitoring the exercise and to input realistic variations to the scenarios at random and unexpectedly. If there are no persons with the necessary knowledge or experience of an emergency exercise available then the OIM, or other supervisors, should fulfil this function.

2.2.4 Offshore exercises should be held at approximately 3-month intervals.

3 ROUTINE DRILLS

3.1 Drill scenarios

3.1.1 Routine drills are a means of practising emergency response, building teamwork, and providing training in basic safety and other elements of emergency response.

3.1.2 It is essential that routine drills do not become repetitive. Drills should be developed from a selection of the elements relevant to current or planned operations so as to provide variety and a challenge to the personnel of the MOU.

3.1.3 All the required elements of basic safety training should be covered by the drill programme within any 3-month period. Additional emergency response elements may be added to address unit-specific concerns such as combined operations (assistance to others), helideck fire fighting, etc. Possible elements for developing routine drills are provided in attachment 4.

3.1.4 Unless a drill is designed to meet a specific training purpose, e.g. breathing apparatus procedures for fire team members, then each drill should include the mustering of all personnel to both their normal and alternative muster points.

3.1.5 For MOUs operating (or scheduled to operate) in areas where hydrogen sulphide (H₂S) is a concern, the H₂S mustering procedures should be included.

3.2 Frequency

3.2.1 One abandon MOU and one fire drill should be held every week. Drills should be so arranged that all regularly assigned personnel participate in one abandon MOU and one fire drill at least once a month. A drill should take place within 24 hours, if possible, after a personnel change if more than 25 per cent of the personnel have not participated in abandon MOU and fire drills on board that particular MOU in the previous month.

3.2.2 Other drills should be held as frequently as required to ensure that the required levels of competence in basic safety and emergency response preparedness are achieved.

4 ASSESSMENT DRILLS

4.1 Assessment drills are designed for the specific purpose of providing a means for an individual to demonstrate that he or she has achieved the required standard of competence in basic safety (i.e. personal survival, fire fighting, elementary first aid, and personal safety) and other emergency response elements determined to be appropriate for the MOU.

4.2 Personnel not regularly assigned to a MOU may experience difficulty in documenting that they have achieved the required standard of competence in basic safety under realistic conditions (i.e. they may have only been assessed during shore-based training). Accordingly, installation managers should be encouraged to include such personnel in assessment drills when they are conducted.

4.3 Because of the importance attached to proficiency in basic safety, individuals failing to demonstrate the required level of proficiency should be immediately provided with remedial training.

4.4 Guidance on assessment drills is provided in attachment 5.

Attachment 1

SAMPLE DRILL/EXERCISE RECORD

MOU:

Date:

Brief description of drill/exercise scenario: (e.g. fire in pantry, muster, etc.)

Emergency response elements exercised:

1 Emergency control centre

- Command
- Communications
- Information availability
- Establishing alternate location

2 Mustering

- Accounting for personnel
- Moving and controlling personnel
- Communications

3 Evacuation/escape

- Survival craft boarding
- Survival craft launching
- Escape systems
- Protective equipment
- Communications

4 Fire teams

- Leadership
- Communications
- Fire containment and extinction
- Dewatering
- Breathing apparatus procedures
- Search and rescue
- Casualty handling

5 First aid

- Casualty management
- Casualty handling
- Casualty evacuation

6 Well control (if applicable)

- Trip drills
- Kick drills
- Well control
- Well kill
- Shallow gas

7 Helideck (if installed)

- Leadership
- Fire monitor and rescue equipment
- Casualty handling

8 Collision/flooding

- Manual operation of valves
- Preserving watertight integrity
- Emergency dewatering

9 Man overboard

- Rescue boat launching
- Standby vessel communication

10 Severe storm

- Securing equipment on deck
- Preserving watertight integrity

11 Hydrogen sulphide

**12 Diving operations
(if applicable)**

- Onboard emergency while divers submerged
- Emergencies involving divers

13 Assistance to others

**14 Enclosed Space Entry and Rescue
(See resolution A.1050(27))**

15 Rescue at heights

16 Security Awareness

17 Environmental Awareness

Comments on performance:

Recommendations for improvements:

Signed: _____

Position: _____

Date: _____

Attachment 2

ASSESSMENT DRILL RECORD SHEET
(A separate record sheet should be completed for each drill)

MOU name:

Location:

Date of drill:

Drill No:

Drill title:

Candidates assessed:

Name:	Employer:	Training passport or record No:	Performance:

Assessor:

Name:

Position:

I confirm that I have assessed the performance of the above candidates against the drill objectives and found it to be satisfactory. I have endorsed their individual records accordingly.

Signature:

Date:

OIM:

I confirm that the above drill and assessment was carried out.

Signature:

Date:

Attachment 3

SAMPLE OFFSHORE EMERGENCY RESPONSE EXERCISE SCENARIO

Objective:

To demonstrate the MOU's ability to respond to a major incident which escalates to the point that evacuation is appropriate.

Outline scenario:

- Exercise commences with a manually initiated alarm and a report of fire, collision, loss of well control or other escalating event.
- Emergency response procedures are put into action.
- Person or persons are identified as missing.
- The event escalates until the response teams conclude containment is no longer possible.
- Abandon MOU procedures are initiated.
- Personnel proceed to controlled evacuation or escape points, as directed.

Expected response:

- Personnel make job sites safe and proceed to assigned muster areas.
- On MOUs engaged in well operations, the drill crew closes the well and makes it safe.
- The OIM proceeds to designated emergency control point and takes control.
- Standby vessel, emergency response organizations, and onshore base(s) are notified of exercise, as appropriate.
- Mustering, identify missing person or persons and where last seen.
- Fire teams, appropriately clothed, run hoses and commence search of area.
- Where safe and appropriate to do so, fixed fire-fighting systems are activated and performance verified.
- Casualties are located and are moved to a safe area by first aid responders and/or the stretcher-bearers.
- Fire escalates and personnel ordered to preferred evacuation points.
- Fire teams are withdrawn and abandon MOU alarm is initiated.

Possible scenario variables: (Not all will be used in a single exercise)

- Communications failure between fire team leader, muster checkers and/or OIM.
- OIM incapacitated at any stage during the exercise.
- Other key personnel incapacitated.
- Routes to muster areas and/or evacuation points are blocked.
- Critical equipment fails, e.g. loss of a fire pump.
- Search teams are trapped.
- Casualties in other areas require immediate medical attention.

Attachment 4

POSSIBLE ELEMENTS OF EMERGENCY RESPONSE FOR DEVELOPING ROUTINE DRILLS

1 Emergency control centre

- Command
- Communications
- Information availability
- Establishing alternate location

2 Mustering

- Accounting for personnel
- Moving and controlling personnel
- Communications

3 Evacuation/Escape

- Survival craft boarding
- Survival craft launching
- Escape systems
- Protective equipment
- Communications

4 Fire teams

- Leadership
- Communications
- Fire containment and extinction
- Dewatering
- Breathing apparatus procedures
- Search and rescue
- Casualty handling

5 First aid

- Casualty management
- Casualty handling
- Casualty evacuation

6 Well control (where applicable)

- Trip drills
- Kick drills
- Well control
- Well kill
- Shallow gas

7 Helideck (if installed)

- Leadership
- Fire monitor and rescue equipment
- Casualty handling

8 Collision/Flooding

- Manual operation of valves
- Preserving watertight integrity
- Emergency dewatering

9 Man overboard

- Rescue boat launching
- Standby vessel communication

10 Severe storm

- Securing equipment on deck
- Preserving watertight integrity

11 Hydrogen sulphide

12 Diving operations (if applicable)

- Onboard emergency while divers are underwater
- Emergencies involving divers

13 Assistance to others (particularly for combined operations)

14 Enclosed Space Entry and Rescue (see resolution A.1050(27))

15 Rescue at heights

16 Security Awareness

17 Environmental Awareness

Attachment 5

STANDARD ASSESSMENT DRILLS

Mustering

Drill objectives: Candidates are to demonstrate to the satisfaction of the assessor that on hearing/observing alarms they:

- correctly identify the alarm, appropriately make safe their work area, and proceed to their assigned muster area;
- arrive at the muster area suitably clothed, with the required personal protective equipment, and with such other equipment as may be assigned on the muster list or station bill;
- follow the instructions and directions of the muster checker or other person in control; and
- can don the personal protective equipment.²

Drill conditions: This drill can form part of the MOU's routine drill programme provided that:

- the assessor is in a position to observe the candidates at their muster area;
- the drill includes transferring the group from the muster area to the point of evacuation, or escape, if different from the muster area; and
- persons being assessed demonstrate the ability to don all appropriate personal protective equipment.³

Assessment frequency: Personnel should be assessed performing this drill at 21 to 27-month (nominal 24-month) intervals.

Assessment process: Prior to the commencement of the drill the candidates for assessment should be identified so as to be recognizable by the assessor. The assessor will evaluate each candidate in achieving the drill objectives. In the event that the assessor is not satisfied with a candidate's performance, the candidate's supervisor or employer should be informed.

Survival craft boarding procedures

CAUTION – PRECAUTIONS SHOULD BE TAKEN TO PROTECT AGAINST INADVERTENT ACTIVATION OF THE SURVIVAL CRAFT'S RELEASING GEAR DURING THIS DRILL

Drill objectives: By the end of the drill candidates will demonstrate to the satisfaction of the drill assessor that they can:

² Including both lifejackets and immersion suits if operating in an area where immersion suits are provided. If sealed immersion suits are provided, individuals may demonstrate donning procedures on suits provided for demonstration and drill purposes.

³ For assessment purposes, this part of the drill may take place at the end of the routine drill when other personnel have stood down.

- board a survival craft in accordance with appropriate procedures;
- secure themselves in the survival craft; and
- assist others in the survival craft.

Drill conditions: This drill can form part of the MOU's routine drill programme provided that the assessor is in a position to observe candidates throughout the drill.

Assessment frequency: Personnel should be assessed performing this drill at 21 to 27-month (nominal 24-month) intervals for each type of survival craft installed.

Assessment process: Prior to the commencement of the drill the candidates for assessment should be identified so as to be recognizable by the assessor. The assessor will ensure that each candidate has achieved the drill objectives. In the event that the assessor is not satisfied with a candidate's performance, the candidate's supervisor or employer should be informed.

Survival craft start and launching procedures

CAUTION – PRECAUTIONS SHOULD BE TAKEN TO PROTECT AGAINST INADVERTENT ACTIVATION OF THE SURVIVAL CRAFT'S RELEASING GEAR DURING THIS DRILL

Drill objectives: By the end of the drill, candidates will demonstrate to the satisfaction of the drill assessor that they:

- can secure the survival craft for launch;
- can start the survival craft using both primary and back-up systems;
- are familiar with the procedures for launching and releasing the survival craft;
- know which way to steer the survival craft; and
- are familiar with the essential equipment within the survival craft.⁴

Drill conditions: This drill will not normally form part of the MOU's routine drill programme. This drill should be carried out at the end of a routine drill or as a separate event. The number of personnel involved in the drill should be restricted, nominally to a maximum of six.

Assessment frequency: Personnel should be assessed performing this drill at 21 to 27-month (nominal 24-month) intervals.

Assessment process: The assessor should ask the candidate to secure the survival craft ready for launching and then ask them to talk through the start-up launch and steering procedures to achieve the drill objectives. In the event that the assessor is not satisfied with a candidate's performance, the candidate's supervisor or employer should be informed.

Escape drill

Drill objectives: By the end of the drill candidates will demonstrate to the satisfaction of the drill assessor that they know:

⁴ Care should be exercised to prevent the inadvertent broadcast of distress calls when handling radios, EPIRBs, etc.

- the locations of the MOU's escape and emergency communications equipment; e.g. liferafts, knotted ropes, scramble nets, other personnel escape systems and EPIRBs;
- how to deploy the equipment;
- the techniques for using the equipment; and
- the precautions for jumping into the water from a height.

Drill conditions: This drill will not normally form part of the MOU's routine drill programme. This drill should be carried out at the end of a routine drill or as a separate event. When used for assessment purposes the number of participants on the drill should be restricted to a maximum of six.

Assessment frequency: Personnel should be assessed performing this drill at 21 to 27-month (nominal 24-month) intervals.

Assessor: The assessment will be carried out by a supervisor who has the necessary knowledge and skills.

Assessment Process: The assessor should ask candidates to take them to where the escape systems are located. The candidate should then be asked to talk through the procedures for deploying the equipment, outline how the equipment should be used and, when appropriate, demonstrate its use. In the event that the assessor is not satisfied with a candidate's performance, the candidate's supervisor or employer should be informed.

First aid drill

Drill objectives: By the end of the drill candidates will demonstrate to the satisfaction of the drill assessor that they:

- can take the basic precautions to maintain an airway;
- understand and can apply basic cardio-pulmonary resuscitation (CPR);
- can take necessary precautions to control bleeding; and
- know the actions to take to assist a hypothermia victim.

Drill conditions: This drill should be carried out with a maximum of six candidates in controlled conditions. If available, suitable aids should be used to assist candidates to demonstrate their skills to the satisfaction of the assessor.

Assessment frequency: Personnel should be assessed performing this drill at 21 to 27-month (nominal 24-month) intervals.

Assessment Process: The assessor should take the candidates through the basic requirements of first aid, ask questions of the group, and ask for demonstrations of the various techniques. A first aid mannequin should be available for these demonstrations. In the event that the assessor is not satisfied with a candidate's performance, the candidate's supervisor or employer should be informed.

Fire drill

Drill objectives: By the end of the drill candidates will demonstrate to the satisfaction of the drill assessor that they:

- understand the elements of fire and explosion, types and sources of ignition and classification of fire and appropriate extinguishing agents;
- know the onboard fire-fighting organization and their individual responsibilities;
- can locate fire-alarms, fire-fighting equipment and emergency escape routes;
- can take the necessary actions upon discovery of smoke or fire;
- know the appropriate actions to take to exit a smoke-filled space;
- can properly use escape breathing apparatus, if provided; and
- can properly use equipment commonly used to extinguish small fires.

Drill conditions: This drill should be carried out with a maximum of six candidates in controlled conditions. Actual use of equipment is encouraged if it can be done safely.

Assessment frequency: Personnel should be assessed performing this drill at 21 to 27-month (nominal 24-month) intervals.

Assessment process: The assessor should examine the candidates in their basic knowledge of fire theory, onboard fire-fighting organization and individual responsibilities. Candidates should be asked to individually demonstrate and walk through the actions they would take upon discovery of smoke or fire.

* * *

Appendix 2

GUIDANCE FOR PERSONNEL WITH STCW CERTIFICATES OF COMPETENCY TO MEET THE SPECIALIZED TRAINING SPECIFIED IN SECTION 6 OF THESE RECOMMENDATIONS

1 Introduction

This Guidance is offered to assist in the identification of additional training requirements for STCW certificated mariners serving on board Mobile Offshore MOUs (MOUs), to be equivalent to the specialized training specified for the various positions listed in section 6 of these recommendations. These recommendations are subject to the approval of the Administration.

2 Definitions

2.1 *Convention* – in this appendix refers to the International Convention on Standards of Training, Certification and Watchkeeping (STCW) for Seafarers 1978, as amended.

2.2 *Officer in Charge of a Navigational Watch* in this appendix refers to personnel certified in accordance with the Convention regulation II/1.

2.3 *Masters or Chief Mates* – in this appendix refers to personnel certified in accordance with the Convention regulation II/2.

2.4 *Officer in Charge of an Engineering Watch* in this appendix refers to personnel certified in accordance with the Convention regulation III/1.

2.5 *Chief Engineer and Second Engineer* – in this appendix refer to personnel certified in accordance with the Convention regulation III/2.

3 Additional recommended training for personnel certificated under the Convention

3.1 Offshore Installation Manager – to fulfil the role of OIM, as specified in Paragraph 6.2 of these recommendations, personnel holding a valid STCW certificate of competency as Master or Chief Mate should in addition successfully complete a training course in Well Control and MOU Stability (MOU-type specific).

3.2 Barge Supervisor – to fulfil the role of BS, as specified in Paragraph 6.3 of these recommendations, personnel holding a valid STCW certificate of competency as Master, Chief Mate, or Officer in Charge of a Navigational Watch should in addition successfully complete a training course in MOU Stability (MOU-type specific).

3.3 Ballast Control Operator – to fulfil the role of BCO, as specified in paragraph 6.4 of these recommendations, personnel holding a valid STCW certificate of competency as Master, Chief Mate, Chief Engineer, Second Engineer, Officer in Charge of a Navigational Watch or Officer in Charge of an Engineering Watch should in addition successfully complete a training course in MOU Stability (MOU-type specific).

3.4 Maintenance Supervisor – to fulfil the role of MS, as specified in paragraph 6.5 of these recommendations, personnel holding a valid STCW certificate of competency as Chief Engineer, Second Engineer, or Officer in Charge of an Engineering Watch, require no additional training.

ANNEX 38

DRAFT AMENDMENTS TO THE INTERNATIONAL CONVENTION ON STANDARDS OF TRAINING, CERTIFICATION AND WATCHKEEPING FOR SEAFARERS, 1978, AS AMENDED

CHAPTER I

GENERAL PROVISIONS

- 1 The following new definitions are added at the end of regulation I/1.36:

- "37 *Audit* means a systematic, independent and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which audit criteria are fulfilled.
- 38 *Audit Scheme* means the IMO Member State Audit Scheme established by the Organization and taking into account the guidelines developed by the Organization.*
- 39 *Code for Implementation* means the IMO Instruments Implementation Code (III Code) adopted by the Organization by resolution A.[...](28).
- 40 *Audit Standard* means the Code for Implementation.

*Note: Refer to the *Framework and Procedures for the [IMO] Member State Audit Scheme*, adopted by the Organization by resolution [A...(28)]."

- 2 A new regulation I/16 is added after the existing regulation I/15:

"Regulation I/16

Verification of compliance

- 1 Each Party shall apply the provisions of the Code for Implementation in the execution of their obligations and responsibilities contained in the present Convention. For the purpose of this regulation, the requirements of the Code shall be treated as mandatory and its recommendations shall be treated as non-mandatory.
- 2 Every Party shall be subject to periodic audits by the Organization of its compliance with the audit standard and the [applicable] requirements of the present Convention.
- 3 The Secretary-General of the Organization shall have responsibility for the implementation of the Audit Scheme, based on the guidelines developed by the Organization.*
- 4 Every Party shall have responsibility for facilitating the conduct of the audit and implementation of a programme of actions to address the findings, based on the guidelines developed by the Organization.*

- 5 Audit of all Parties shall be:
- .1 based on an overall schedule developed by the Secretary-General of the Organization, taking into account the guidelines developed by the Organization; and
 - .2 conducted at periodic intervals, taking into account the guidelines developed by the Organization.*

*Note: Refer to the *Framework and Procedures for the [IMO] Member State Audit Scheme*, adopted by the Organization by resolution [A....(28)]."

ANNEX 39

DRAFT AMENDMENTS TO PART A OF THE SEAFARERS' TRAINING, CERTIFICATION AND WATCHKEEPING (STCW) CODE

CHAPTER I – GENERAL PROVISIONS

- 1 A new section A-I/16 is added after the existing section A-I/15 as follows:

"Section A-I/16

Verification of compliance

- 1 For the purpose of regulation I/16 the applicable requirements of the present Convention and Code that shall be subjected to audit are indicated in the table below:

OBLIGATIONS		
REFERENCE	AREA	REMARKS AND SUMMARY DESCRIPTION

INITIAL COMMUNICATION OF INFORMATION

Article IV, regulation I/7 and section A-I/7, paragraph 2	Initial communication of information	Has the Party communicated information pursuant to article IV and regulation I/7? If yes, is the Party confirmed by the Maritime Safety Committee as found to be giving "full and complete effect" to the provisions of the STCW Convention?

SUBSEQUENT REPORTS

Article IX and section A-I/7, paragraph 3.1	Equivalents	Has the Administration retained/adopted any equivalent educational and training arrangements since communicating information pursuant to regulation I/7? If yes, have the details of such arrangements been reported to the Secretary-General?
Regulation I/10 and section A-I/7, paragraph 3.2	Recognition of certificates	Does the Administration recognize certificates issued by other Party in accordance with regulation I/10? If yes, has the Party submitted reports on the measures taken to ensure compliance with regulation I/10?
Regulation VII/1, section A-I/7, paragraph 3.3	Alternative certification	Does the Party authorize employment of seafarers holding alternative certificates issued under regulation VII/1 on ships entitled to fly its flag? If yes, has a Copy of the type of minimum safe manning document issued to such ships been provided to the Secretary-General?
Regulation I/8.3 and section A-I/7, paragraph 4	Communication of information concerning the periodic independent evaluation	Has the Party communicated its report of independent evaluation pursuant to regulation I/8?
Regulation I/7.4 and section A-I/7, paragraphs 5 and 6	Communication of information concerning STCW amendments	Has the Party communicated a report concerning implementation of subsequent mandatory amendments to the STCW Convention and Code?
Regulation I/13, paragraphs 4 and 5	Conduct of trials	Has the Administration authorized ships entitle to fly its flag to participate in trials? If yes, have the details of such trials been reported to the Secretary-General (paragraph 4)?, and Has the details of results of the trials been reported to the Secretary-General (paragraph 5)?

OBLIGATIONS		
REFERENCE	AREA	REMARKS AND SUMMARY DESCRIPTION
Article VIII	Dispensations	Has the Administration issued any dispensation? If yes, are reports related to dispensations issued during each year sent to the Secretary-General?

CONTROL

Article X and regulation I/4	Port State control	Has the Party exercised its right to perform port State control? If yes, have control measures as required under article X been established?

FITNESS FOR DUTY AND WATCHKEEPING ARRANGEMENTS

Regulation VIII/1, paragraph 1 and section A-VIII/1	Fatigue prevention	Has the Administration established measures to enforce the STCW Convention and Code requirements in respect of fatigue prevention?
Regulation VIII/ 1, paragraph 2 and section A-VIII/1, paragraph 10	Prevention of drug and alcohol abuse	Has the Administration established measures to enforce STCW Convention and Code requirements for the purpose of preventing drug and alcohol abuse?
Regulation VIII/2	Watchkeeping arrangements and principles to be observed	Has the Administration established measures to direct the attention of companies, masters, chief engineer officers and all watchkeeping personnel to the requirements, principles and guidance set out in the STCW Code to ensure that safe continuous watches appropriate to prevailing circumstances and conditions are maintained in all seagoing ships at all times?

2 The following new text is inserted at the end of the existing notes 6 and 7 of table A-I/9 as follows:

"Other equivalent confirmatory test methods currently recognized by the Administration may continue to be used."