INTERNATIONAL MARITIME ORGANIZATION

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SUB-COMMITTEE ON FIRE PROTECTION
56th session
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REPORT TO THE MARITIME SAFETY COMMITTEE

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LIST OF ANNEXES

1 GENERAL

Introduction

1.1 The Sub-Committee on Fire Protection (FP) held its fifty-sixth session from 7 to 11 January 2013 under the chairmanship of Mr. Juan Carlos Cubisino (Argentina), who was re-elected as Chairman for 2013 at the opening of the session. The Vice-Chairman, Mr Claudio Abbate (Italy), who was also re-elected as Vice-Chairman for 2013 at the opening of the session, was also present.

1.2 The session was attended by delegations from Member States and Associated Members; by observers from intergovernmental organizations with agreements of cooperation; and by observers from non-governmental organizations; as listed in document FP 56/INF.1.

Secretary-General's opening address

1.3 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

1.4 In responding, the Chairman thanked the Secretary-General for his words of guidance and encouragement and assured him that his advice and requests would be given every consideration in the deliberations of the Sub-Committee.

Adoption of the agenda and related matters

1.5 The Sub-Committee adopted the agenda (FP 56/1/Rev.1) and agreed to be guided in its work, in general, by the annotations contained in document FP 56/1/1. The agenda, as adopted, together with the list of documents considered under each agenda item, is set out in document FP 56/INF.14.

2 DECISIONS OF OTHER IMO BODIES

2.1 The Sub-Committee noted the outcome of MSC 90, A 27, C 108, DSC 16, SLF 54, BLG 16, DE 56, FSI 20, DSC 17, MEPC 62, MEPC 64, C 109, MSC 91 and ESPH 18, relevant to the work of the Sub-Committee, as reported in documents FP 56/2, FP 56/2/1, FP 56/2/2, FP 56/2/3 and FP 56/2/4, and took them into account in its deliberations when dealing with relevant agenda items.

2.2 The Sub-Committee also noted that the Council, at its twenty-sixth extraordinary session, took decisions which have a bearing on the work of the Sub-Committee and, in particular:

.1 requested all IMO organs to observe the objectives of the *Guidelines on the application of the Strategic Plan and the High-level Action Plan of the Organization, contained in resolution* A.1013(26);

.2 on the labelling of planned outputs as being related to "mandatory" and "non-mandatory" instruments, agreed that the practice should be discontinued and that, instead, the specific instrument in question should be identified; and

.3 for outputs on which the Council, committees or sub-committees have not undertaken work for an extended period, decided that the continuing relevance of those outputs should be reassessed following a methodology consistent with that for the consideration of unplanned outputs.

2.3 The Sub-Committee further noted that MSC 90 had approved the revised *Guidelines on the organization and method of work of the Maritime Safety Committee and the Marine Environment Protection Committee and their subsidiary bodies* (MSC-MEPC.1/Circ.4/Rev.2) and urged all parties concerned to strictly adhere to the revised Guidelines.

3 DEVELOPMENT OF MEASURES TO PREVENT EXPLOSIONS ON OIL AND CHEMICAL TANKERS TRANSPORTING LOW-FLASHPOINT CARGOES

3.1 The Sub-Committee recalled that FP 55, having considered the draft amendments to SOLAS regulation II-2/4.5.5 on inert gas systems (IGSs) for new oil and chemical tankers prepared by a working group (FP 55/WP.6), had agreed to establish a correspondence group with terms of reference as set out in paragraph 6.16 of the report of FP 55 (FP 55/23), and had instructed the group to submit a written report to this session.

3.2 The Sub-Committee also recalled that MSC 90 had noted the lower threshold set by FP 55 for the purpose of application of draft amendments to SOLAS regulation II-2/4.5.5 as 8,000 dwt (MSC 90/28, paragraph 11.14).

3.3 The Sub-Committee further recalled that, in relation to matters associated with the IBC Code, FP 55 had requested BLG 16 to comment on the draft amendments developed at FP 55 and that BLG 16 and its Working Group on Evaluation of Safety and Pollution Hazards of Chemicals (ESPH Working Group), at its eighteenth session, considered the matter in detail and reported their comments (BLG 16/16 and BLG 17/3, respectively).

Report of the correspondence group

3.4 The Sub-Committee considered the report of the correspondence group (FP 56/3) and noted that the group had:

.1 agreed that the provisions for inert gas systems contained in chapter 15 (Inert gas systems) of the FSS Code and in the *Regulation for inert gas systems on chemical tankers* (resolution A.567(14) could be merged in one single instrument;

.2 agreed that chapter 15 of the FSS Code was the most appropriate location for the design and engineering provisions for fixed inert gas systems and prepared corresponding draft amendments to the chapter;

.3 recommended that the draft amendments to SOLAS regulation II-2/4.5.5.2 should be reviewed by the Sub-Committee in the light of its view that the existing regulation II-2/4.5.5.2 would also apply to new gas carriers;

.4 identified the need for operational requirements, as contained in draft revised chapter 15 of the FSS Code, to be duly reflected in SOLAS, and to that end proposed a corresponding draft amendment to SOLAS regulation II-2/16;

.5 observed that, if the revised *Guidelines for inert gas systems* (MSC/Circ.353, as amended by MSC/Circ.387) were to be retained, the references to SOLAS contained therein needed updating;

.6 proposed a new "Definitions" section to be included in chapter 15 of the FSS Code to ensure consistency of terminology throughout the chapter, but could not conclude this matter;

.7 identified the need for additional discussion on the location of IGS components as, despite similarities among the components of flue gas, gas supplied by inert gas generators (IGG) and nitrogen IGSs, some IGS components are located in different places depending on the type of the system;

.8 observed that since the different IGS types have different critical measurements and failure modes, the required alerts and indicators are not identical and that this matter needed additional review and discussion; and

.9 noting the difference between design and operational requirements for different IGSs in response to emergency conditions (emergency shutdowns), prepared general requirements for IGS emergency shutdowns, but was unable to finalize its work on separate requirements for each type of IGS.

3.5 The Sub-Committee also considered document FP 56/3/2 (SIGTTO), commenting on the report of the correspondence group and clarifying that:

.1 SOLAS regulation II-2/4.5.5.2 does not apply to gas carriers built under the provisions of the IGC Code;

.2 any amendments to SOLAS regulation II-2/4.5.5.2 would not affect existing ships, as they are not listed in regulation II-2/1.2.2; and

.3 consequently, references to gas carriers in SOLAS regulation II-2/4.5.5.2 may be deleted.

3.6 In considering the above documents, the Sub-Committee concurred with the view of the correspondence group that chapter 15 of the FSS Code was the most appropriate location for the design and engineering provisions for fixed inert gas systems and agreed that the proposed draft revised text of the chapter should be further considered at this session.

3.7 The Sub-Committee also agreed with the comments and clarifications by SIGTTO (see paragraph 3.5) and, therefore, concluded that the draft amendments to SOLAS regulation II-2/4.5.5.2 should not be reviewed by the Sub-Committee, as advised by the correspondence group in respect of new gas carriers. As a consequence, new gas carriers should not be addressed in draft SOLAS regulation II-2/16.3.3.

Outcome of BLG 16 and ESPH 18

3.8 The Sub-Committee recalled that FP 55 had requested BLG 16 to prepare consequential amendments to chapters 11, 17 and 18 of the IBC Code, together with other editorial modifications stemming from the draft amendments to SOLAS regulation II-2/4.5.5 prepared at FP 55. BLG 16 consequently instructed ESPH 18 (BLG 17/3) to consider the matter (see paragraph 3.3).

3.9 The Sub-Committee noted that ESPH 18 (BLG 17/3, section 6 and annex 6) had proposed the inclusion of the following related amendments to the IBC Code:

.1 introduction of two definitions for the terms "purging" and "gas freeing" in chapter 1;

.2 a new paragraph on cargo tank purging in chapter 8;

.3 consequential amendments to chapters 9 and 11;

.4 modifications to chapter 15 to take account of new and existing ships when carrying cargoes requiring oxygen-dependent inhibitors and insertion of a reference to a new generic MSC/MEPC circular on the carriage of cargoes requiring oxygen dependent inhibitors (yet to be developed). To that end, it was proposed to expand the Equivalency arrangements for the carriage of styrene monomer (MSC/Circ.879-MEPC/Circ.348) to ensure that the oxygen levels are maintained within the limits needed to prevent cargo polymerization;

.5 modification of chapter 17 of the Code to reflect that certain cargoes would require inerting of cargo tanks under SOLAS;

.6 modification of draft SOLAS regulation II-2/16.3.3.2, prepared by the Correspondence Group, to reflect its intent that inert gas would provide positive pressure in the tank to ensure only this gas is introduced in the tank while unloading; and

.7 insertion of a new paragraph in chapter 9 as a consequential amendment to amended SOLAS regulation II-2/16.3.3.2.

3.10 With particular regard to the stage at which cargo tanks should be inerted, the Sub-Committee agreed with the wording of draft SOLAS regulation II-2/16.3.3.3 set out in paragraph 6.3 of document BLG 17/3 (i.e. after the cargo tank has been loaded, but before commencement of unloading, and inerting shall continue to be applied until that cargo tank has been purged of all flammable vapours before gas-freeing), and decided that the working group should be tasked to reflect this agreement accordingly.

3.11 The Sub-Committee noted the intent of ESPH 18 to develop a generic MSC/MEPC circular on the carriage of cargoes requiring oxygen dependent inhibitors, which would expand on arrangements for the carriage of styrene monomer to ensure that the oxygen levels are maintained within the limits needed to prevent cargo polymerization.

Overlap between MSC/Circ.677 and ISO standard 16852

3.12 The Sub-Committee considered document FP 56/3/1 (France), referring to an overlap between the two standards relating to flame arresters, i.e. the Revised standards for the design, testing and location of devices to prevent the passage of flame into cargo tanks in tankers (MSC/Circ.677) and ISO Standard 16852 (Flame arresters – Performance requirements, test methods and limits for use). France, aiming at enhancing the safety of ships transporting flammable liquids, proposed that:

.1 the test procedures for static flame arresters in ISO 16852:2008 should be adopted in MSC/Circ.677, for applications within IMO's competence;

.2 the two standards should be cross-referenced, as ISO 16852:2008 reflects the latest knowledge on explosions and their propagation supplied by flame arrester manufacturers and research laboratories;

.3 high velocity vents should continue to be dealt with under ISO 15364:2000;

.4 the fire tests for high velocity vents provided for in MSC/Circ.677 should be transferred to ISO 15364, with consequential deletion of the requirements for high velocity vents from ISO 16852; and

.5 a correspondence group should be established to discuss the details of integrating elements of ISO 16582 into the IMO standard.

3.13 In this connection, the Sub-Committee noted information provided by the ISO observer that ISO standard 15364 was already under review and that the points raised by France would be duly taken into account in the review which would merge ISO 15364 and MSC/Circ.677, and that ISO/TC 8 would report back to FP 57 with regard to any developments.

3.14 The Sub-Committee agreed to await the outcome of ISO's work on the new standard and invited ISO to provide a draft standard, once finalized, to the Sub-Committee so that Member States and international organizations would have a possibility to comment. Subsequently, the Sub-Committee requested the Secretariat to forward the above requests to ISO/TC 8 for appropriate action.

Establishment of a working group

3.15 Having considered the above matters, the Sub-Committee established the Working Group on Development of Measures to Prevent Explosions on Oil and Chemical Tankers Transporting Low-flashpoint Cargoes, and instructed it, taking into account documents FP 56/3, FP 56/3/2 and BLG 17/3 (section 6 and annex 6) and the comments, proposals and decisions made in plenary, to:

.1 finalize the draft amendments to SOLAS regulations II-2/4.5.5, based on annex 1 to document FP 55/WP.6, and II-2/16.3.3, based on annex 3 to document FP 56/3, taking into account document FP 56/3/2;

.2 finalize draft amendments to chapter 15 of the FSS Code, based on annex 1 to document FP 56/3; and

.3 consider the draft amendments to the IBC Code (BLG 17/3) and advise the Sub-Committee accordingly.

Report of the working group

3.16 Having considered the report of the working group (FP 56/WP.3), the Sub-Committee approved it in general and took action as reflected in the following paragraphs.

Draft amendments to SOLAS chapter II-2

3.17 In considering the draft amendments to SOLAS chapter II-2 prepared by the group (FP 56/WP.3, annex 1), the Sub-Committee endorsed the group's recommendation that the Clarification of inert gas system requirements under the SOLAS Convention (MSC/Circ.485) and the Revised Guidelines for inert gas systems (MSC/Circ.353), as amended by

MSC/Circ.387 (footnote to the draft SOLAS regulation II-2/16.3.3.2*)*, need to be reviewed, in order to be updated and to include nitrogen systems, and invited Member States and international organizations to submit comments and proposals to MSC 92, as appropriate.

3.18 With regard to the proposed text of SOLAS regulation II-2/4.5.5.1.1, the observer from IACS stated that it lacked a clear application statement which would exclude existing ships built before 1 July 2002 from the necessity to comply with the requirements of the FSS Code and advised the Sub-Committee that IACS intended to submit a document on this issue to MSC 92.

3.19 The Sub-Committee briefly discussed the text of paragraph 5.5.1.4 of draft SOLAS regulation II-2/4, where the word "hydrocarbon" was used for gases which must be prevented from entering the double hull spaces through the IGS. While some delegations expressed their preference for "flammable vapours and gases" instead of "hydrocarbon", thus providing, in their view, a more general description applicable to, inter alia, chemical tankers, the majority of the Sub-Committee were in favour of the text proposed by the group, as there were a number of products listed in chapter 17 of the IBC that have a flashpoint exceeding 60°C but, when heated to within 15°C of their flashpoint, would be considered as flammable; hence the word "hydrocarbon" had to be retained in the text. The Committee is invited to note the discussion on this issue.

3.20 Subsequently, the Sub-Committee agreed to the draft amendments to SOLAS regulations II-2/4.5.5 and II-2/16.3.3, applicable to new ships, as set out in annex 1, for submission to MSC 92 for approval with a view to subsequent adoption.

Draft amendments to chapter 15 of the FSS Code

3.21 In considering the draft amendments to chapter 15 of the FSS Code prepared by the group (FP 56/WP.3, annex 2), and noting that the footnote to paragraph 2.2.1.1 is related to the work currently being carried out by ISO on the review of ISO standard 16852 (Flame arresters – Performance requirements, test methods and limits for use) (see paragraphs 3.12 to 3.14), the Sub-Committee endorsed the group's recommendation that the footnote should be reconsidered in the future, in light of the outcome of ISO work on this issue, and any decisions on matters related 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).

3.22 Subsequently, the Sub-Committee agreed to the draft amendments to chapter 15 of the FSS Code, applicable to new ships, as set out in annex 2, for submission to MSC 92 for approval with a view to subsequent adoption.

Draft amendments to the IBC Code

3.23 The Sub-Committee concurred with the draft amendments to the IBC Code (BLG 17/3) prepared by ESPH 18 and requested the Secretariat to inform BLG 17 and MEPC 65 accordingly.

Other matters

3.24 The Sub-Committee, having noted the casualty involving the LPG tanker **Maharshi Krishnatreya** (GISIS incident reference number C0008790), where it was reported that five seafarers had lost their lives, endorsed the group's recommendation that the accident report should be published at the earliest possible time so that lessons learnt could be available, and requested the Secretariat to inform FSI 21 accordingly.

3.25 The delegation of the Cook Islands, in expressing its concern at the loss of lives which may have been caused by asphyxiation of the seafarers, emphasized the necessity to further promulgate the *Guidelines on tank entry for tankers using nitrogen as an inerting medium* approved and disseminated by the Committee by MSC.1/Circ.1401, bearing in mind the importance of strict adherence to the instructions contained therein.

Completion of the work on this output

3.26 The Sub-Committee, bearing in mind the decision of MSC 83 (MSC 83/28, paragraph 9.26.2), invited the Committee to note that the work on this output related to new tankers had been completed.

4 DEVELOPMENT OF REQUIREMENTS FOR THE FIRE RESISTANCE OF VENTILATION DUCTS

4.1 The Sub-Committee recalled that FP 55 had re-established the Correspondence Group on Development of Requirements for the Fire Resistance of Ventilation Ducts, with terms of reference as set out in paragraph 5.7 of document FP 55/23, and instructed it to submit a report to this session. FP 55 also agreed to establish a working group at this session to finalize the draft requirements for the fire resistance of ventilation ducts.

4.2 The Sub-Committee had for its consideration the report of the correspondence group (FP 56/4) and noted that the group:

.1 had prepared, in accordance with the terms of reference, draft amendments to SOLAS regulation II-2/9.7 (Ventilation systems) and draft consequential amendments to regulation II-2/3 (Definitions);

.2 could not reach agreement on the deletion of the exception to the separation of ducts for galley ventilation in cargo ships of a gross tonnage of less than 4,000 and passenger ships carrying not more than 36 passengers;

.3 had invited the Sub-Committee to consider the need for the development of guidance on the safety objectives, functional requirements and performance standards for smoke management systems on cargo and passenger ships;

.4 had decided not to reduce the threshold of 0.075 m^2 of ducts for which dampers are required;

.5 could not agree on a clear meaning of the term "routed directly" in respect of the ducts referred to in the Unified Interpretations of chapter II-2 (MSC.1/Circ.1239) and requested the Sub-Committee to provide it with relevant advice; and

.6 had developed a number of amendments in addition to those prescribed by the terms of reference, aimed at improving clarity and user-friendliness of the proposed text.

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

4.3 The Sub-Committee agreed in general with the draft amendments to SOLAS regulations II-2/9.7 and II-2/3, including additional modifications aimed at improving the clarity and user-friendliness of the regulations, as prepared by the correspondence group.

With regard to the exception to the separation of ducts for galley ventilation in cargo ships of a gross tonnage of less than 4,000 and passenger ships carrying not more than 36 passengers (regulation II-2/9.7.2.1), the Sub-Committee agreed not to include this matter in the current considerations.

Functional requirements and performance standards for smoke management systems and smoke dampers on cargo and passenger ships

4.4 The Sub-Committee considered that the proposal to develop guidance on the safety objectives, functional requirements and performance standards for smoke management systems and smoke dampers on cargo and passenger ships had merits, as existing SOLAS chapter II-2 regulations could be adversely affected by the lack of guidance or criteria for smoke management measures. Noting that the above proposal was outside the scope of this output, the Sub-Committee decided to include output 12 on "Smoke control and ventilation" from the Committee's post-biennial agenda (MSC 91/22, annex 38) in the proposed biennial agenda for the 2014-2015 biennium and provisional agenda for FP 57 (see paragraphs 18.2 and 18.3).

Meaning of the term "routed directly"

4.5 In response to the group's invitation to clarify the meaning of the term "routed directly" in respect of the ducts referred to in MSC.1/Circ.1239, the Sub-Committee decided a drafting group could clarify the intent of the language used in the circular (see paragraph 4.8).

Establishment of a Drafting Group

4.6 To finalize the output, the Sub-Committee established the Drafting Group on Development of Requirements for the Fire Resistance of Ventilation Ducts and instructed it, taking into account comments and proposals made in plenary, to finalize the draft amendments to SOLAS regulations II-2/9.7 and II-2/3, based on annexes 1 and 2 to document FP 56/4 and clarify the meaning of the term "routed directly" appearing in the unified interpretation to SOLAS regulation II-2/9.7.3.1.2 (MSC.1/Circ.1239).

Report of the drafting group

4.7 Having considered the report of the drafting group (FP 56/WP.4), the Sub-Committee approved it in general and took action as described in the following paragraphs.

Consideration of vague phrases

4.8 The Sub-Committee noted the action taken by the group concerning ventilation rooms serving certain machinery spaces, i.e. to clarify the intent of the "routed directly" language used in MSC.1/Circ.1239 to mean that the routeing exceptions contained in draft regulation II-2/9.7.2.2 are not to be used for such ducts, which instead must be dedicated to the machinery spaces in question, and noted that this provision was given effect by adding a relevant phrase to draft regulation II-2/9.7.6.2 and deleting draft regulation II-2/9.7.6.3. Having discussed this matter in detail, the Sub-Committee deleted the last sentence of draft regulation II-2/9.7.6.2, considering that its intent was already adequately covered by draft regulation II-2/9.7.2.1.

4.9 The Sub-Committee also noted that the group had examined the wording of draft regulation II-2/9.7.3.3 related to the manual reopening of remotely operated fire dampers and remedied its vagueness by deleting the last phrase in the last sentence of the paragraph.

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

4.10 Having considered the above issues, the Sub-Committee agreed to the draft amendments to SOLAS regulations II-2/3 and II-2/9.7, applicable to new ships, as set out in annex 3, for submission to MSC 92 for approval with a view to subsequent adoption.

Completion of the work on the output

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

5 REVIEW OF FIRE PROTECTION REQUIREMENTS FOR ON-DECK CARGO AREAS

5.1 The Sub-Committee recalled that MSC 83, having considered document MSC 83/25/5 (Germany), proposing to review the fire protection requirements in SOLAS chapter II-2 to address fire risks related to on-deck cargo areas, had instructed the Sub-Committee to review the fire protection requirements for on-deck cargo areas, in cooperation with the DSC Sub-Committee, as necessary and when requested by the FP Sub-Committee.

5.2 In this connection, the Sub-Committee also recalled that the review of fire protection requirements for on-deck cargo areas had been on the agenda of the Sub-Committee since FP 54, when the results of the Formal Safety Assessment submitted by Germany (FP 54/15 and FP 54/INF.2) provided evidence of the necessity to enhance the existing requirements concerning fire safety of deck cargoes, as the FSA indicated that the existing requirements may not be sufficient in case of fire in e.g. the fourth tier, or higher, of containerized cargo. The matter was dealt with by two correspondence groups established at FP 54 and FP 55.

5.3 The Sub-Committee noted the instruction by MSC 91, in regard to the FSA Expert Group's recommendation related to the FSA study on sea transport of dangerous goods, to further consider the proposals related to the safety of container ships carrying dangerous goods that react dangerously with water and/or carbon dioxide, and advise the Committee accordingly.

Report of the Correspondence Group

5.4 The Sub-Committee had for its consideration the report of the Correspondence Group on Review of Fire Protection Requirements for On-deck Cargo Areas (FP 56/5) and the advice on stability-related issues provided by SLF 55 (SLF 55/3/1/Add.1) in response to the request by FP 55 (FP 55/23, paragraph 11.6).

5.5 In considering the above two documents, the Sub-Committee noted that:

.1 the correspondence group had prepared draft amendments to SOLAS regulations II-2/2 and II-2/10 and a draft MSC circular on the design, performance, testing and approval of mobile water monitors used for the protection of on-deck cargo areas of containerships or ships carrying more than four tiers of containers on the weather deck;

.2 the draft amendments cover new containerships as well as other ship types if they carry containerized cargoes; and

.3 the effect of water used for fire fighting accumulated on deck should not be taken into consideration, owing to its negligible effect on the ship's stability.

5.6 The Committee agreed in general to the proposed draft amendments to SOLAS regulations II-2/2 and 10 and the draft *Guidelines for the design, performance, testing and approval of mobile water monitors used for the protection of on-deck cargo areas of containerships or ships carrying more than four tiers of containers on the weather deck*.

5.7 With regard to the scope of the draft amendments, i.e. containerships and multi-purpose dry cargo ships carrying containers on deck, some delegations were of the view that the inclusion of ships that may carry containers on deck, in addition to containerships, was beyond the remit of the correspondence group. The Sub-Committee, however, agreed that such ships should be included in the scope of the draft SOLAS amendments.

5.8 The Sub-Committee agreed also that the criterion for the application of the draft amendments, in terms of the height of the container stack, should be "five or more tiers of containers".

5.9 In respect of the advice provided by the SLF Sub-Committee on the effect of water on deck used for fire fighting on the ship's stability, the Sub-Committee noted that no subsequent stability-related modifications to the draft amendments would be needed.

5.10 Some delegations expressed concern at possible consequences of the proposed amendments for ships carrying containerized dangerous goods on deck, such as offshore supply vessels (OSV) carrying, in an extreme case, just one container on deck. Other delegations advised that a water mist lance would be required in such and similar cases, whereas the remaining requirements would not apply.

Establishment of a Working Group

5.11 After discussion, the Sub-Committee established the Working Group on Review of Fire Protection Requirements for On-deck Cargo Areas and instructed it, taking into account document FP 56/5 and comments and decisions made in the plenary, to:

.1 finalize the draft amendments to SOLAS regulations II-2/2 and II-2/10 for new containerships and ships carrying five or more tiers of containers on the weather deck, based on annex 1 to document FP 56/5;

.2 finalize the draft MSC circular for the design, performance, testing and approval of mobile water monitors used for the protection of on deck cargo areas of new containerships and ships carrying five or more tiers of containers on the weather deck, based on annex 2 to document FP 56/5;

.3 evaluate the adequacy of measures provided by the draft SOLAS amendments and the draft MSC circular referred to in subparagraphs .1 and .2 above against Recommendation 2 (Adjustments to fire protection equipment) of the FSA study on safe transport of dangerous goods (DSC 16/INF.2, page 88) and advise the Sub-Committee accordingly; and

.4 consider the definitions of water mist lances appearing in the draft SOLAS amendments referred to in subparagraph .1 and modify them, as appropriate.

Report of the Working Group

5.12 Having considered the report of the working group (FP 56/WP.5), the Sub-Committee approved it in general and, in particular, took action as reflected in the following paragraphs.

Types of ships to be addressed

5.13 The Sub-Committee noted that the group had used the term "ships" for the purpose of the draft amendments, thus covering containerships designed primarily for the carriage of containers and other ships designed to carry containers on their decks or hatch covers, thereby providing the same level of safety for both types. The Sub-Committee agreed with this approach, noting that only new ships will be covered.

Draft amendment to SOLAS regulation II-2/2.1.1.4 on fire safety objectives

5.14 The Sub-Committee noted the group's discussion on possible implications of the proposed amendments to SOLAS regulation II-2/2.1.1.4 on alternative design and arrangements under regulation II-2/17 (FP 56/WP.5, paragraphs 26 to 28) and its decision not to proceed with the draft amendments to regulation 2.1.1.4 and agreed with this view.

Draft amendments to SOLAS regulation II-2/10

5.15 Having considered the two options for draft SOLAS amendments prepared by the group (FP 56/WP.5, annex 1), the Sub-Committee, by majority, agreed to option 1, with regard to the application of a water mist lance to all ships designed to carry containers on or above the weather deck, of draft amendments to SOLAS regulation II-2/10, applicable to new ships, as set out in annex 4, for submission to MSC 92 for approval with a view to adoption.

Development of draft MSC circular

5.16 The Sub-Committee agreed to the 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*, developed by the group, as set out in annex 5, for submission to MSC 92 for approval in principle, with a view to final approval at MSC 93, in conjunction with the adoption of the associated amendments to SOLAS regulation II-2/10.

5.17 The observer from IMarEST noted in this connection that a manufacturer's operating manual provided in accordance with the draft Guidelines referred to above should be clear, concise, unambiguous and consistent with the language abilities of the operators for whom it is intended. He stated that seafarers' lives continue to be lost as a result of the provision of unclear operating and maintenance manuals, despite the matter being raised within more than one sub-committee.

Other matters

5.18 The Sub-Committee endorsed the group's view that the *Revised guidelines for the maintenance and inspection of fire protection systems and appliances* (MSC.1/Circ.1432) should be amended to include mobile water monitors in its scope in any future revision.

FSA study on sea transport of dangerous goods

5.19 The Sub-Committee noted the advice of the group that the proposed draft SOLAS amendments to regulation II-2/20 and the associated draft MSC circular (paragraphs 5.15 and 5.16) were consistent with Recommendation 2 of the FSA study on safe transport of dangerous goods (DSC 16/INF.2, page 88), thus meaning the intent of that recommendation had been achieved, offering considerable improvement of safety.

Completion of works on the output

5.20 Consequently, the Sub-Committee invited the Committee to note that its work on the review of fire protection requirements for on-deck cargo areas had been completed.

6 REVIEW OF THE RECOMMENDATIONS ON EVACUATION ANALYSIS FOR NEW AND EXISTING PASSENGER SHIPS

6.1 The Sub-Committee recalled that FP 55 had agreed to postpone the review of the *Guidelines for evacuation analysis for new and existing passenger ships* (MSC.1/Circ.1238) until the results of the EU SAFEGUARD Project become available, as this project is expected to provide enhanced scenarios of evacuation from passenger ships and appropriate acceptance criteria.

6.2 The Sub-Committee also recalled that the issue of evacuation in an emergency was included in the long-term work plan of the Organization on the enhancement of safety of passenger ships (MSC 91/WP.8, annex 3), agreed by the Committee in response to the initiative put forward by the Secretary-General after the tragic incident of the cruise ship **Costa Concordia**.

Proposed revisions to MSC.1/Circ.1238

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

.1 FP 56/6 and FP 56/INF.10 (Germany), drawing the attention of the Sub-Committee to a number of inconsistencies in chapter 13 of the FSS Code and proposing, inter alia, to: require a geometrical arrangement allowing for a flexible exchange of persons between assembly stations; take into account intuitive behaviour of passengers, which has to be properly analysed and taken into consideration; store lifejackets close to the muster stations to avoid counter-flows; explicitly forbid counter-flows and crossing flows in the process of evacuation; ensure that passenger flows through the same space are not separated; ensure that escape routes do not pass through muster stations; and take account of the size of public spaces on open decks for the purposes of defining dimensions of escape routes; and

.2 FP 56/INF.11, FP 56/INF.12 and FP 56/INF.13 (Canada), containing the outcome of the SAFEGUARD project, which recommended to:

.1 replace the current secondary cases with the scenarios relating to fire, heel and trim, and that the congestion criterion based on the maximum allowable evacuation time becomes a pass/fail criterion (FP 56/INF.11);

.2 modify response time data currently present in the Guidelines by those based on the data collected in the course of the realization of the SAFEGUARD project (FP 56/INF.12); and

.3 implement the validation protocol and acceptance criteria proposed within the scope of the SAFEGUARD project for determining acceptability of maritime evacuation models by means of amending the Guidelines (FP 56/INF.13).

6.4 In considering the above documents, the Sub-Committee noted the views expressed, in particular that, in developing measures for effective evacuation from passenger ships, a clear distinction should be made between design and operational aspects of the ship, and that, while SOLAS regulation II-2/13.7 required the conduct of evacuation analyses only for ro-pax ships, it would be desirable to mandate such analyses for all types of passenger ships.

6.5 In regard to the development of mandatory measures, the Sub-Committee was of the view that the development of amendments to mandatory instruments (i.e. SOLAS and/or the FSS Code) went beyond the scope of the output and agreed not to proceed at this stage with the amendments to the FSS Code proposed by Germany (see paragraph 6.3.1).

6.6 In considering how best to proceed, the Sub-Committee, recognizing that the review of recommendations on evacuation analysis had a high priority for the reasons referred to in paragraph 6.2 above and that the issue of modelling the human behaviour in an emergency represented a highly complicated problem, decided to request an extension of the target completion date to give delegations time to study the latest information with a view to preparing proposed modifications to the Guidelines (MSC.1/Circ.1238) at its next session, taking into account any instructions from MSC 92 with regard to the **Costa Concordia** accident. Consequently, the Sub-Committee invited Member States and international organizations to submit detailed proposals to FP 57.

Extension of the target completion year

6.7 The Sub-Committee invited MSC 92 to note the progress made on this output, which is now being tracked by the Committee as part of the long-term work plan on passenger ship safety, and requested it to extend the target completion year to 2014.

7 DEVELOPMENT OF REQUIREMENTS FOR ADDITIONAL MEANS OF ESCAPE FROM MACHINERY SPACES

7.1 The Sub-Committee recalled that FP 55 had prepared draft amendments to SOLAS regulation II-2/13.4 mandating requirements for additional means of escape from machinery spaces but, due to time constraints, had been unable to complete the work and had invited Member States and international organizations to submit comments and further proposals on the draft amendments (FP 55/23, paragraph 10.9) to this session.

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

.1 FP 56/7 (IACS) seeking clarification on whether the extent of insulation of escape trunks from machinery spaces of category A required by SOLAS regulation II-2/13.4.2.1.1 must be from the lower part of the engine-room to the position where the trunk connects to the outside of the space, or must apply to the trunk against any adjacent space;

.2 FP 56/7/1 (Bahamas, IMarEST and ICS) emphasizing the compelling need to develop requirements for a direct escape route from machinery control rooms and proposing a number of modifications to the draft SOLAS amendments prepared at FP 55, in particular concerning the exclusion of floor area and/or communication openings as the criteria;

.3 FP 56/7/2 (Republic of Korea) proposing a draft interpretation of SOLAS regulations II-2/13.4.1.1 and 13.4.2.1 on the arrangement of the escape trunk in machinery spaces of passenger and cargo ships, in the wake of the discussion at FP 55;

.4 FP 55/7/3 (China) also proposing a draft interpretation to SOLAS regulations II-2/13.4.1 and 13.4.2; and

.5 FP 56/7/4 and FP 56/7/5 (Denmark) proposing modifications to the draft SOLAS amendments prepared at FP 55 and, in particular, 18 m^2 of the floor area as a criterion for the application of the amendments to new ships.

Proposed amendments to SOLAS regulation II-2/13.4

7.3 Having considered documents FP 56/7/1, FP 56/7/4 and FP 56/7/5, concerning the proposals for amending SOLAS regulation II-2/13.4, the Sub-Committee, having noted support for the proposals, agreed that the amendments should be finalized at this session and stressed that they would be applicable to new ships only.

7.4 Consequently, the Sub-Committee established a group of experts and instructed it to finalize the draft amendments to SOLAS regulation II-2/13.4 concerning means of escape from enclosed rooms within machinery spaces, examining the annex in document FP 56/7/4 and also matters referred to in document FP 56/7/5, for possible inclusion of text.

7.5 Having considered the report of the group (FP 56/WP.7), the Sub-Committee agreed to draft amendments to SOLAS regulation II-2/13.4, set out in annex 6, for submission to MSC 92 for approval with a view to subsequent adoption, advising the Committee that the amendments should apply to new passenger and cargo ships only.

7.6 In this connection, the Sub-Committee noted that the group had also discussed whether to identify in detail all spaces required to have two independent means of escape and that there was general agreement that, for instance, electrical workshops not being part of the main (mechanical) workshop would not need an independent secondary means of escape. Although some benefits could be identified by applying this approach, the group had concluded that the term "main workshop" would offer the most suitable wording.

7.7 The delegation of Sweden stated that it could not agree with the draft amendments developed by the Group of Experts, as e.g. 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 which case the escape is supposed to be effected by means of the room-to-room escape principle, and that this might not be possible if the electrical workshop is separated from the main workshop. Therefore, 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 regulation II-2/13.

Proposed interpretations to SOLAS regulation II-2/13.4

7.8 The Sub-Committee considered the proposals for developing interpretations to SOLAS regulation II-2/13.4 relating to the extent of insulation of escape trunks for machinery spaces of category A, put forward in documents FP 56/7, FP 56/7/2 and FP 56//7/3.

7.9 Regarding the proposals in document FP 56/7, having noted that a number of delegations expressed the view that the insulation should apply to any adjacent space, while other delegations did not share this view, the Sub-Committee agreed that no unified

interpretation could be developed and that, in the absence of unambiguous directions, Administrations would have to decide individually on this matter on a case-by-case basis.

7.10 Regarding the proposals in documents FP 56/7/2 and FP 56/7/3, the Sub-Committee, considering the common elements in the two submissions and, noting that there was some support for the proposed interpretations, agreed that the matter was outside the scope of this agenda item but could, however, be further discussed at FP 57 under "Any other business".

Completion of the work on the output

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

8 DEVELOPMENT OF REQUIREMENTS FOR SHIPS CARRYING HYDROGEN AND COMPRESSED NATURAL GAS VEHICLES

8.1 The Sub-Committee recalled that MSC 85 had considered document MSC 85/23/5 (Japan) proposing to develop appropriate safety requirements in SOLAS chapter II-2 for ships carrying hydrogen vehicles and compressed natural gas vehicles, and agreed to include a new output in the Sub-Committee's work programme accordingly.

8.2 The Sub-Committee also recalled that, following consideration at FP 55, it had requested the Committee to clarify which ship types should be considered for inclusion in the scope of this work and that MSC 90 had subsequently decided that only pure car carriers should be addressed (MSC 90/28, paragraph 11.13).

8.3 The Sub-Committee had for its consideration document FP 56/8 (Japan) proposing a new draft SOLAS regulation II-2/20-1 on *Requirement for vehicle carriers carrying motor vehicles with compressed hydrogen or natural gas in their tanks for their own propulsion*, intended to be applied to new car carriers, and a draft associated MSC circular providing relevant recommendations for existing car carriers.

Draft SOLAS amendments

8.4 The Sub-Committee agreed, in principle, to the proposed draft regulation II-2/20-1 (FP 56/8, annex 1), noting that the text submitted to this session took into account the outcome of all previous discussions on the matter and that a new definition of a ro-ro cargo ship (vehicle carrier) had been included in the form of a draft amendment to SOLAS regulation II-2/3.

8.5 In discussing the proposed amendments, some delegations noted that the definition of a vehicle carrier suggested in the draft new SOLAS regulation might go beyond the instruction by MSC 90 to consider pure car carriers only and, consequently, needed to be modified.

8.6 The Sub-Committee also agreed to insert references to IEC publication 60092, Electrical installations in ships, whenever the proposed text of draft regulation II-2/20-1 mentioned precautions against explosions in respect of electrical equipment.

Instructions to the Working Group

8.7 Having exchanged views, the Sub-Committee decided to refer the draft SOLAS amendments to the working group established under agenda item 20 (see paragraph 20.3) and instructed it, taking into account the decisions taken in plenary (paragraphs 8.4 and 8.6), to finalize the text of the draft new regulation II-2/20-1, based on annex 1 to document FP 56/8.

Draft MSC circular in support of draft SOLAS regulation II-2/20-1

8.8 Having considered the draft MSC circular on Recommendation on safety measures for existing pure car carriers transporting motor vehicles with compressed hydrogen or natural gas in their tanks for their own propulsion (FP 56/8, annex 2), the Sub-Committee was of the view that the proposed draft needed further work and agreed to consider it further at FP 57.

Report of the Working Group

8.9 Having considered the part report of the working group dealing with the agenda item (FP 56/WP.6, paragraph 20 and annex 3), the Sub-Committee agreed to the draft amendments to SOLAS regulations II-2/1, II-2/3 and II-2/20-1, applicable to new ships, set out in annex 7, for submission to MSC 92 for approval with a view to subsequent adoption.

Extension of the target completion year

8.10 In view of the above (see paragraph 8.8), the Sub-Committee invited the Committee to extend the target completion year for the output to 2014.

9 CONSIDERATION OF IACS UNIFIED INTERPRETATIONS

9.1 The Sub-Committee recalled that this agenda item is a continuous one in the biennial agenda of the Sub-Committee, established by MSC 78, and intended to consider, on a regular basis, any newly developed or updated unified interpretations to SOLAS chapter II-2 and the FSS and FTP Codes, with a view to preparing appropriate IMO interpretations, whenever deemed necessary.

9.2 The Sub-Committee also recalled that MSC 90, when considering document MSC 90/11/4 (IACS), which stated that there were no requirements for control stations to be covered by fire detectors and a fire alarm system, had invited IACS to submit a draft MSC circular which would clarify the requirements of SOLAS regulation II-2/7.5.5 concerning methods of protection of control stations on cargo ships to FP 56. Consequently, IACS submitted document FP 56/9/9 addressing the matter (see paragraphs 9.17 to 9.19).

9.3 In addition to documents submitted under this agenda item, the Sub-Committee also agreed to consider documents FP 56/20 (IACS), FP 56/20/1 (Belgium) and DSC 17/WP.5 (amendments to the IMSBC Code and its supplements) under this agenda item, since they also dealt with various interpretations to IMO instruments on fire safety. The Sub-Committee noted that document FP 56/9/3 (IACS) had been withdrawn by the sponsor.

9.4 Having briefly discussed the issue of the effective dates of MSC circulars, the Sub-Committee could not come to consensus, as views diverged. While some delegations expressed their preference for having such dates for the sake of uniformity, others stated that the issue of implementation of such circulars as recommendatory documents lay with the Administrations.

Suction and discharge piping for emergency fire pumps

9.5 The Sub-Committee noted that document FP 56/9/Rev.1 (IACS) had been submitted as a follow-up to the consideration of document FP 54/10/2 (IACS) at FP 54, where the Sub-Committee, having agreed to the interpretations contained in paragraph 3 of the document, had invited IACS to submit a document on the whole issue. In response, IACS submitted its revised IACS interpretation UI SC 245/Corr.1, where all elements of the proposal made in FP 54/10/2 are kept, except for the definition of a "short pipe" on which FP 54 could not come to agreement. The Sub-Committee agreed to the revised

interpretation set out in the annex to FP 56/9/Rev.1 and requested the Secretariat to prepare draft MSC circulars containing all interpretations agreed at this session for its consideration (see paragraph 9.36).

Emergency exit hatches to open deck

9.6 The Committee considered document FP 56/9/1 (IACS), which drew the attention of the Sub-Committee to potential difficulties in applying SOLAS regulation II-2/13.1 whenever the physical force needed to open hatches serving as a means of escape to the open deck is excessive, and proposed to impose a restriction of 150 N on that force.

9.7 Some delegations noted that the type of the hatch securing device, which must be such as to allow it to be opened from both sides of the hatch, may be in conflict with security considerations. The IACS observer clarified that the interpretation covered escape routes prescribed by SOLAS regulation II-2/13.1, thus extending to safety measures only. Consequently, the Sub-Committee agreed to the interpretation as submitted, for inclusion in the draft MSC circulars containing the interpretations agreed at this session (see paragraph 9.36).

Fixed fire-extinguishing systems (FSS Code, chapter 5, paragraph 2.2.2)

9.8 In considering document FP 56/9/2 (IACS), the Sub-Committee noted that, in view of multiple different technical solutions regarding the practical application of paragraph 2.2.2.1 of chapter 5 of the FSS Code (controls for releasing CO_2 and activating the alarm in the protected space), IACS proposed an interpretation of paragraphs 2.1.3.2 and 2.2.2 of the chapter, as regards the action of the pre-discharge alarm, status of two separate controls for releasing CO_2 into the protected space and operation of the controls. Having considered the proposal, the Sub-Committee agreed to the interpretation as submitted, for inclusion in the draft MSC circulars containing the interpretations agreed at this session (see paragraph 9.36).

Gas measurement and detection with portable instruments

9.9 The Sub-Committee considered document FP 56/9/4 (IACS), suggesting that the words "… together with a sufficient set of spares" in SOLAS regulation II-2/4.5.7.1, in connection with portable instruments for gas measurement and detection, constituted a vague expression and proposed an interpretation to clarify their meaning and purpose. The Sub-Committee agreed to the proposed interpretation set out in the annex to document FP 56/9/4 (IACS) for inclusion in the draft MSC circulars containing the interpretations agreed at this session (see paragraph 9.36).

Location of the fire main isolation valves in tankers

9.10 The Sub-Committee noted that document FP 56/9/5 (IACS) was a follow-up to the consideration of document FP 54/10 (IACS) at FP 54, where IACS had been invited to submit a unified interpretation of the term "protected position" of the isolation valve used to preserve the integrity of the fire main system in case of fire or explosion. In response to the Sub-Committee's invitation, IACS, before proposing a unified interpretation, sought clarification of the words "general area of the front of the deckhouse structure" (FP 54/25, paragraph 10.4). Having considered the three options on how to define the term "protected position", the Sub-Committee agreed to the interpretation in paragraph 7 of document FP 56/9/5, for inclusion in the draft MSC circulars containing the interpretations agreed at this session (see paragraph 9.36).

Fixed hydrocarbon gas detection systems

9.11 In considering document FP 56/9/6 (IACS), the Sub-Committee noted that IACS had identified a contradiction between the already existing interpretations of regulation II-2/4.5.1 (MSC/Circ.1120, based on IACS UI SC 54) and the interpretations contained in MSC.1/Circ.1239, where the void space is not considered as a cofferdam and not as a potential source of leakage, and sought clarification in the matter. IACS offered to develop a new interpretation or act otherwise, depending on the Sub-Committee's advice.

9.12 Having discussed the matter, the Sub-Committee expressed its clear preference for the interpretation provided in MSC/Circ.1120. In this regard, the IACS observer advised the Sub-Committee of their intention to proceed with an interpretation on fixed hydrocarbon gas detection system on the basis of the advice provided.

Fire resistance requirements for fibre reinforced plastic (FRP) gratings

9.13 The Sub-Committee considered document FP 56/9/7 (IACS) stating that gratings serving as a means of safe access to tanker bows, often made of fibre reinforced plastic (FRP), are required to be "constructed of fire resistant … material" and, noting that the term "fire resistant" is vague, proposing UI SC 253 as a suitable interpretation to clarify the above term.

9.14 The Sub-Committee did not support the above unified interpretation since it was not sufficiently substantiated and was based on a standard which was expected to be replaced with a new one in the foreseeable future. Notwithstanding the above decision, the Sub-Committee, recognizing that UI SC 253 had clear merits, agreed to include this matter in the terms of reference for the correspondence group established under agenda item 12 (see paragraph 12.5.5).

Proposed clarification on the application of SOLAS regulation II-2/9.2.4.5

9.15 The Sub-Committee considered document FP 56/9/8 (IACS), referring to a practical case where the width of the bridge of an oil tanker is less than the width of the accommodation space below it, thus leaving the problem of insulation of exposed portions on top of the accommodation space unclear in relation to the requirements of SOLAS regulation II-2/9.2.4.2.5. Consequently, IACS proposed that those portions should be insulated to an "A-60" standard, but without proposing any clarifying wording for the text of the above regulation.

9.16 Having considered the proposal, the Sub-Committee concluded that, by its nature, it constituted a change to SOLAS regulation II-2/9.2.4.2.5 rather than an interpretation. It was recognized that the case identified by IACS needed more detailed consideration and should be developed further as a SOLAS amendment. The Sub-Committee therefore invited interested parties to submit a proposal for a relevant new output to the Committee, in accordance with the Committees' Guidelines (MSC-MEPC.1/Circ.4/Rev.2).

Protection of control stations on cargo ships

9.17 The Sub-Committee considered document FP 56/9/9 (IACS) suggesting, in regard to SOLAS regulation II-2/7.5.5, that control stations on cargo ships do not need to be covered by a fixed fire detection and fire alarm system, together with document FP 56/9/14 (China) commenting on this issue, and proposed to harmonize the draft interpretation put forward by IACS with SOLAS regulations II-2/9.2.3.1.1 and II-2/9.2.3.1.1.3 to achieve consistency with SOLAS regulation II-2/7.5.5.3.

9.18 The majority of delegations that spoke recognized that, from a legal point of view, the interpretation proposed by IACS adequately reflected the current state of the protection of control stations in cargo ships, while some delegations objected to this view, considering that the proposed interpretation was in conflict with regulation II-2/9.2.3.1.1.3 requiring that Method III of protection shall be used for control stations, as these may contain sources of emergency power and thus be viewed as spaces where a fire might originate.

9.19 The Sub-Committee, recognizing that the problem deserved further attention and should be resolved through developing and adopting a relevant SOLAS amendment, agreed to the interpretation proposed by IACS, as an interim measure, for inclusion in the draft MSC circulars containing the interpretations agreed at this session (see paragraph 9.36), pending possible future amendments to SOLAS. Consequently, the Sub-Committee invited Member States and international organizations to submit a relevant proposal for a new output to the Committee, in accordance with the Committees' Guidelines (MSC-MEPC.1/Circ.4/Rev.2).

Protection of load bearing structures on high-speed craft

9.20 In considering document FP 56/9/10 (IACS) expressing the opinion that the existing requirements of paragraph 7.4.2.3 of the 2000 HSC Code needed sufficient clarification as to the protection time; extent of the design fire; standards to be applied for fire testing; and load case, and seeking advice on whether the proposed interpretation should be forwarded for comments to the DE Sub-Committee, the Sub-Committee, following a brief discussion, agreed to the proposed interpretation set out in the annex to document FP 56/9/10, for inclusion in the draft MSC circulars containing the interpretations agreed at this session (see paragraph 9.36). The Secretariat was requested to inform the DE Sub-Committee accordingly.

Request for clarification relating to MSC/Circ.1165

9.21 The Sub-Committee considered document FP 56/9/11 (IACS), requesting clarification on the definition of "bilge areas" contained in the *Revised guidelines for the approval of equivalent water-based fire-extinguishing systems for machinery spaces and cargo pump-rooms* (MSC/Circ.1165) and on the associated provisions for dedicated water mist bilge nozzles contained in MSC.1/Circ.1386. To that end, the Sub-Committee noted that IACS considered it useful and appropriate to clarify the term "solid engine-room floor plates" and asked for advice on whether the arrangement of bilge nozzles should depend on the type of the floor plates (either perforated or not perforated), or gratings.

9.22 Having discussed the matter, the Sub-Committee concluded that the proposed interpretation of "bilge areas" in paragraph 7 of document FP 56/9/11 (IACS) adequately reflected the purposes of the guidelines set out in MSC/Circ.1156, and agreed to include it in the draft MSC circulars containing the interpretations agreed at this session (see paragraph 9.36).

Application of the IMDG Code and SOLAS chapter II-2 requirements to spaces carrying vehicles with fuel in their tanks

9.23 The Sub-Committee considered document FP 56/9/12 (IACS) seeking clarification of the relationship between the requirements of the IMDG Code and SOLAS for the carriage of vehicles in spaces other than those identified in Special (UN) Provision 961 (i.e. other than on ro-ro ships or in other (than vehicle, special category and ro-ro) cargo spaces) designated by the Administration as designed and approved for the carriage of vehicles.

9.24 The delegation of Germany, supported by other delegations, stated that the matter raised by IACS was, from the juridical point of view, an issue independent of SOLAS

enforcement, as the responsibility for the safety of vehicles carried in such a way lay with the cargo holders/owners, therefore requiring no action from the Sub-Committee with regard to the spaces in question.

9.25 Notwithstanding this view and recognizing that the request by IACS dealt with safety issues, the Sub-Committee considered it appropriate to seek advice on the safety aspects of the carriage of vehicles in spaces other than those identified in SP 961 from the DSC Sub-Committee's Editorial & Technical Group (E&T 19) scheduled to meet in April 2013 and requested the Secretariat to convey this matter to the Group.

Fire protection arrangements in cargo spaces

9.26 The Sub-Committee considered document FP 56/9/13 (IACS) stating that the decision taken at FP 55 not to accept the relevant interpretation (FP 55/8) was in conflict with the existing interpretation of SOLAS regulation II-2/10.7.2 in MSC/Circ.1120 and requesting the Sub-Committee to reconsider IACS UI 49.

9.27 Having noted the information provided by IACS, the Sub-Committee reiterated its view that the application of SOLAS regulation II-2/10.7.2 concerning the equipment of ships with a fixed gas fire-extinguishing system for the carriage of dangerous goods for ships below a gross tonnage of 500 should be left to the discretion of the Administration.

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

9.28 The Sub-Committee considered document FP 56/20 (IACS) seeking advice on whether the survey and certification of fire protection of incinerator spaces and waste stowage spaces should fall under the scope of SOLAS or MARPOL, as the issues addressed are meant to be included in the relevant sections of the SOLAS certificates. In this regard, the Sub-Committee noted the view of IACS that the relevant survey and certification should fall under the scope of the SOLAS Convention.

9.29 Having discussed the matter, the Sub-Committee agreed that the survey and certification of fire protection of incinerator and waste stowage spaces should be covered by SOLAS, and invited the Committee and the MEPC to endorse this view.

9.30 In addition, the Sub-Committee considered that the survey and certification of these spaces should be included in the Survey Guidelines under the Harmonized System of Survey and Certification (HSSC), 2011 (resolution A.1053(27)) and invited the Committee to instruct the FSI Sub-Committee accordingly.

Fire test procedures for vertically supported textiles and films

9.31 The Sub-Committee considered document FP 56/20/1 (Belgium) drawing attention to a possible inconsistency in the provisions of the 2010 FTP Code, paragraph 3.1 of part 7 of annex 1 and sections 6.2 and 6.3 of appendix 1 to part 7, where the results of actual tests may contravene the instructions of appendix 1 prescribing adjustment of the position of the burner (paragraph 6.2.2 of appendix 1) to the edge of the fabric specimen, should the surface application of the flame fail to cause sustained ignition. In such cases (the proponent indicated that they account for almost 50%), any results obtained through the edge application should be considered as if they were obtained through the surface application, for the purposes of paragraphs 3.1.1 and 3.1.2 of part 7 of annex 1 to the Code.

9.32 The Sub-Committee agreed that the inconsistency identified should be resolved and agreed to the relevant interpretation included in the draft MSC circular on Unified Interpretations of SOLAS chapter II-2, the FSS Code and the FTP Code, set out in annex 8.

Fire extinguishing arrangements in cargo spaces (IMSBC Code)

9.33 The Sub-Committee noted that DSC 17 had forwarded a draft interpretation to the IMSBC Code on Fire-extinguishing arrangements in cargo spaces (DSC 17/WP.5, annex 6) to FP 56 for its expert consideration and advice to DSC 18.

9.34 In this regard, the Sub-Committee noted that DSC 17 had deleted the last sentence of the IACS Unified Interpretation SC 250 (DSC 17/4/1/Rev.1, annex), which was used as the basis for the draft interpretation agreed at the session, on fixed gas fire-extinguishing systems or inert gas systems dedicated for the protection of spaces other than cargo spaces that should not be used for the purposes of preventing the consequences of self-heating of certain solid bulk cargoes.

9.35 In this connection, the Sub-Committee concluded that the addition of the word "exclusively" after "dedicated" in the last sentence of IACS Unified Interpretation SC 250 would exclude from the text of the interpretation those fixed gas systems which are intended to protect just one space (e.g. engine-room), thus removing any ambiguities, and agreed that the sentence should be reinstated, as modified, in the text of the interpretation prepared at DSC 17. The Sub-Committee invited DSC 18 to consider the above view and take action accordingly.

Draft MSC circular on agreed interpretations

9.36 Having considered the draft MSC circulars containing the fire safety related interpretations to IMO instruments agreed at this session (FP 56/WP.8 and Corr.1), the Sub-Committee agreed to the following draft MSC circulars:

.1 Unified Interpretations of SOLAS chapter II-2 and the FSS and FTP Codes, as set out in annex 8;

.2 Unified Interpretations of the 2000 HSC Code, as amended by resolutions MSC.175(79) and MSC.222(82), as set out in annex 9;

.3 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), as set out in annex 10; and

.4 Unified Interpretation of the SOLAS Convention and the IBC and IGC Codes, as set out in annex 11,

for submission to MSC 92 for approval. In this connection, BLG 17 and DE 57 were invited to note the above decisions, as appropriate.

10 HARMONIZATION OF THE REQUIREMENTS FOR THE LOCATION OF ENTRANCES, AIR INLETS AND OPENINGS IN THE SUPERSTRUCTURES OF TANKERS

10.1 The Sub-Committee recalled that it had been considering this output since FP 54 in light of the two options put forward by Argentina (FP 54/12), namely to:

.1 refine the current prescriptive approach; or

.2 introduce a new chapter into the FSS Code to harmonize the requirements for the location of entrances, air inlets and openings in the superstructures of tankers, with a view to amending, at a certain stage, the SOLAS

Convention and the IBC and IGC Codes by placing therein references to the new chapter.

10.2 The Sub-Committee had for its consideration document FP 56/10 (Argentina), presenting the results of a comparative study of various requirements contained in IMO and IEC instruments and its conclusions, stating, inter alia, that:

.1 the minimum distance at which openings may be fitted to spaces containing various ignition sources does not depend on the type of source;

.2 requirements for spaces included or excluded under various regulations are not always consistent;

.3 disparities between standards with regard to the classification of hazard for an area constitute a problem for uniform implementation of safety measures;

.4 new definitions of hazardous areas in IEC standards could result in lower safety levels compared to the existing ones;

.5 the IEC standards consider only one type of ignition source, electrical, thus making it necessary for IMO instruments to address other sources; and

.6 the SOLAS Convention, when setting fire safety standards for other cargo spaces, such as spaces intended for the carriage of dangerous goods, ro-ro, vehicle and special category spaces, refers to IEC standards, but does not set specific distances for openings and other (than electrical) sources of ignition, as is provided for cargo tanks intended for carriage of flammable liquids.

10.3 Argentina concluded that there would be no difficulty in adopting for IMO instruments a holistic approach consistent with the hazardous areas criterion in the IEC standards, and proposed two options for further consideration, the first being to develop criteria based on distance and type of gas emitting source, which would be applicable to any ship designs and arrangements; and the second to develop a unified IMO interpretation linking the SOLAS, IBC and IGC requirements with the IEC 60092-502 standard in respect of hazardous areas defined therein.

10.4 Having considered the two options referred to in the foregoing paragraph, the Sub-Committee agreed to the second option, i.e. the development of a unified IMO interpretation, and, having considered document FP 56/WP.8, agreed to the inclusion of a relevant interpretation in the draft MSC circular on Unified Interpretation of the SOLAS Convention and the IBC and IGC Codes, as set out in annex 11, agreed under agenda item 9 (see paragraph 9.36.4).

Completion of the work on the output

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

11 DEVELOPMENT OF UNIFIED INTERPRETATIONS FOR CHAPTER 7 OF THE 2000 HSC CODE

11.1 The Sub-Committee recalled that FP 55 had considered a proposal by Norway (FP 55/17) to develop an interpretation of paragraph 7.4.1.3 of the 2000 HSC Code concerning:

.1 the use of fire-restricting materials in spaces with no fire risk and open decks;

.2 non-combustible insulation in systems approved as 30 min or 60 min fire-resisting division which needs not to be qualified as a fire-restricting material; and

.3 two options for testing floors, depending on the presence or absence of a sprinkler system in the space in question,

had agreed that the matter needed more detailed consideration, and, therefore, had invited further comments to this session.

11.2 Having noted that no further comments had been submitted to this session, the Sub-Committee, taking into account that several delegations supported the interpretation set out in the annex to document FP 55/17 and having considered document FP 56/WP.8, agreed to the inclusion of a relevant interpretation in the draft MSC circular on *Unified interpretation of the 2000 HSC Code*, as amended by resolutions MSC.175(79) and MSC.222(82), as set out in annex 10, agreed under agenda item 9 (see also paragraph 9.36.2).

Completion of the work on the output

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

12 DEVELOPMENT OF GUIDELINES FOR USE OF FIBRE REINFORCED PLASTIC (FRP) WITHIN SHIP STRUCTURES

12.1 The Sub-Committee recalled that this output had been included in the biennial agenda of the Sub-Committee by MSC 87 and that FP 55 had given preliminary consideration to the proposals by Sweden (FP 55/19/1 and FP 55/INF.3) and the United Kingdom (FP 55/19) on possible options to proceed, namely:

.1 to develop guidelines which would be based on an engineering and risk-based approach which may be followed under SOLAS regulation II-2/17 and associated circular MSC/Circ.1002 (option 1), or

.2 to consider FRP as a specific type of material within the existing regulatory framework of the SOLAS Convention and the FTP Code (option 2).

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

.1 FP 56/12 (Sweden) proposing to proceed with the approach based on engineering and risk-based methods (option 1), offering draft guidelines for further elaboration, suggesting to establish a correspondence group with draft terms of reference open for comments, and proposing an extension of the target completion year to 2014;

.2 FP 56/12/1 (United States) objecting to the proposal to consider FRP as a specific type of material within the existing regulatory framework of the SOLAS Convention and FTP Code (option 2), as one of the main principles behind chapter II-2 is the restricted use of combustible materials, and further observing that the proposal to use option 1 as formulated at FP 55 may be misleading, as the engineering methods which may be used under SOLAS regulation II-2/17 are not intended to justify the use of materials that do not conform to the functional requirements of SOLAS chapter II-2. The existing relaxation on using FRP on high-speed craft, based on a holistic design and operational philosophy, cannot be automatically applied to conventional ships, thus a suitable test method for FRP divisions for use on board such ships is yet to be developed. The United States considered that the acceptance of FRP in SOLAS would significantly impair the overall level of fire safety;

.3 FP 56/12/2 and FP 56/INF.9 (China) expressing a clear preference for option 1 and offering the following six factors to be considered when evaluating structures made of FRP in the form of a standardized process:

.1 identification of areas where FRP may be used (the whole hull structure or parts thereof);

.2 definition of safety objectives and functional requirements;

.3 carrying out fire risk analysis;

.4 elaboration of RCOs with qualitative and quantitative options;

.5 development of test procedures, methods and criteria for a standard fire test, and

.6 provision of instructions on the selection and mounting of insulation materials.

12.3 The Sub-Committee noted that China, in order to contribute to the development of guidelines for fire testing of FRP structures, offered some findings obtained as a result of experimental testing of FRP divisions (FP 56/INF.9).

12.4 After an extensive discussion, the majority of the Sub-Committee expressed a clear preference for option 1, noting that the development of the guidelines will require a cautious and prudent approach to ensure an equivalent level of safety to that required by SOLAS chapter II-2 is achieved and should take into consideration such aspects as maintenance and repair of composite structures and the effect of fire on their load carrying capacity.

Establishment of a correspondence group

12.5 To progress the work on the matter intersessionally, the Sub-Committee established a Correspondence Group on Development of Guidelines for Use of Fibre-reinforced Plastic (FRP) within Ship Structures, under the coordination of Sweden[*], and instructed it, taking into account documents FP 56/12, FP 56/12/1, FP 56/12/2 and FP 56/INF.9 and the discussion at FP 56, to:

.1 determine the possible use of FRP composite structures in the light of SOLAS regulation II-2/17, having regard to regulations II-2/2.1 (Fire safety objectives), II-2/2.2 (Functional requirements) and II-2/2.3 (Achievement of the fire safety objectives);

.2 review available fire testing results and research and methodologies with regard to FRP composite structures in ships, as well as current regulations and relevant applications of FRP composite structures;

.3 develop draft guidelines to be used for assessment and testing of FRP structures;

.4 discuss if any relevant new procedures and qualification criteria for fire testing and classification of FRP composite structures are required for use on SOLAS ships;

.5 consider document FP 56/9/7 (IACS) and advise the Sub-Committee accordingly; and

.6 submit a written report to FP 57.

Extension of target completion year

12.6 In view of the above decision, the Sub-Committee invited the Committee to extend the target completion year for this output to 2014.

13 ANALYSIS OF FIRE CASUALTY RECORDS

13.1 The Sub-Committee had for its consideration document FP 56/13 (Germany and Lithuania) informing of fires in vehicle spaces and of evacuation from the ro-pax ship **Lisco Gloria,** which was flying the flag of Lithuania, on 8 October 2010, and providing a brief description of lessons learnt from that casualty.

13.2 The Sub-Committee, having expressed its appreciation to the co-sponsors for the information provided, noted that the report on the casualty had already been submitted to IMO, was accessible through the relevant module of GISIS and was subject to future consideration by the FSI Correspondence Group on Casualty Analysis.

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14 DEVELOPMENT OF AMENDMENTS TO SOLAS CHAPTER II-2, THE FTP CODE AND MSC/CIRC.1120 TO CLARIFY THE REQUIREMENTS FOR PLASTIC PIPES ON SHIPS

14.1 The Sub-Committee recalled that MSC 88, having considered documents MSC 88/23/8 and MSC 88/INF.2 (Canada and United Kingdom), proposing to develop amendments to SOLAS chapter II-2, the FTP Code and the Unified interpretations of SOLAS chapter II-2, the FSS Code, the FTP Code and related fire test procedures (MSC/Circ.1120) to clarify the application of smoke, toxicity and flame spread criteria for plastic pipes on ships, included a relevant new output in the post-biennial agenda of the Committee and had instructed the Sub-Committee to include this item in the provisional agenda for FP 56.

14.2 The Sub-Committee considered document FP 56/14 (Denmark) proposing to introduce a requirement for a fire endurance test for plastic pipes penetrating bulkheads and decks and questioning whether the test requirements for pipe penetrations in the FTP Code are adequate to prevent the spread of fire downwards, and noted that the aforementioned proposal was supported in general. However, the Sub-Committee agreed that the matter needed further detailed consideration and invited Member States and international organizations to submit comments and proposals on documents FP 56/14 and MSC 88/23/8 to FP 57.

14.3 In taking the above decision, the Sub-Committee agreed that the scope of the item should also include a possible review of the *Guidelines for the application of plastic pipes on ships* (resolution A.753(18), as amended by resolution MSC.313(88)) and that, following completion of the work, the SLF Sub-Committee may be requested to comment on any amendments developed, taking into account the use of plastic pipes in watertight compartments.

Extension of target completion year

14.4 In light of the above, the Sub-Committee invited the Committee to extend the target completion year for this output to 2014.

15 CONSIDERATION OF AMENDMENTS TO SOLAS CHAPTER II-2 ON LOCATION OF EEBDs

15.1 The Sub-Committee recalled that MSC 88, having considered document MSC 88/23/5 (United Kingdom) proposing to require at least two emergency escape breathing devices (EEBDs) be stored in each fire locker, to assist in the rescue of personnel from a hazardous environment, had included a new output in the post-biennial agenda of the Committee and had instructed the Sub-Committee to include it in the provisional agenda of FP 56.

15.2 The Sub-Committee considered document FP 56/15 (United Kingdom) referring to SOLAS regulation II-2/13.3.4 and the *Guidelines for the performance, location, use and care of emergency escape breathing devices (EEBDs)* (MSC/Circ.849) and observing that there were two different philosophies in place regarding the storage, location and use of EEBDs, namely:

.1 within machinery spaces, meaning that EEBDs are to be used by personnel themselves to escape; and

.2 within accommodation spaces, where it is anticipated that EEBDs would be taken to trapped personnel by the rescue party to assist in escaping from a hazardous atmosphere.

15.3 Based on the latter approach, the Sub-Committee noted that the United Kingdom proposed the inclusion of a new paragraph in SOLAS regulation II-2/13.3.4 to require the storage of EEBDs in the same location or adjacent to the location of fire-fighters' outfit storage for use within accommodation spaces. Furthermore, the proposal envisaged a duty for rescue teams to carry EEBDs in the event that a passenger or crew member is found in need of such a device in an emergency.

15.4 In this connection, the Sub-Committee also considered document FP 56/15/1 (Bahamas), commenting on document FP 56/15 and stressing that, if implemented, the proposal by the United Kingdom would lead to inappropriate use of the equipment designed to be used primarily as an escape and self-rescue device, and that the personnel responding to a fire would be burdened with additional equipment. In the opinion of the Bahamas, the priority for an emergency team should be to remove a casualty and themselves from the area of danger; if there are no EEBDs within an accommodation space, there will be no means of escape for those inside other than to await rescuers. They also mentioned the difficulties in fitting an EEBD to an unconscious person (EEBDs are not required to have means of securing). Thus, the Bahamas considered that regulation II-2/13.3.4 should retain its existing text.

15.5 The majority of the Sub-Committee did not support the proposals in document FP 56/15 and it was therefore agreed not to proceed with the work on the output. However, the Sub-Committee supported views that the minimum number of two EEBDs, currently prescribed in SOLAS, may not be sufficient and should be reconsidered. In this regard, the Sub-Committee invited Member States and international organizations to submit a relevant proposal for a new output to the Committee, in accordance with the Committee's Guidelines (MSC-MEPC.1/Circ.4/Rev.2).

Completion of work on the output

15.6 The Committee was invited to note that the work on this output has been completed.

16 DEVELOPMENT OF AMENDMENTS TO THE REQUIREMENTS FOR FOAM-TYPE FIRE EXTINGUISHERS IN SOLAS REGULATION II-2/10.5

16.1 The Sub-Committee recalled that MSC 89 (MSC 89/25, paragraph 22.9), having considered document MSC 89/22/5 (China), proposing to review SOLAS regulation II-2/10.5 for the arrangements of 135 *l* and 45 *l* foam-type extinguishers in the engine-rooms and boiler rooms of cargo ships, based on the results of fire tests (spray fire, pool fire, initial B-class fire) carried out in China, agreed to include a new output in the Sub-Committee's biennial agenda and in the provisional agenda for FP 56.

16.2 The Sub-Committee considered documents FP 56/16 and FP 56/INF.10 (China) proposing to review the existing requirements for fire extinguishers, taking into account the changes in ship design since SOLAS amendments adopted in 1981 (e.g. modern ships do not have separate boiler rooms), and the requirement of SOLAS regulation II-2/10.5.6 for a fixed water-based local application fire-extinguishing system for boilers in machinery spaces of category A having a volume of 500 m^3 and over on board cargo ships of 2,000 GT and more, and on passenger ships of 500 GT and more. In their view, the above fixed fire-extinguishing system could fully replace a 135 *l* extinguisher, as proven by the tests conducted by China. With regard to 45 *l* extinguishers, China proposed to use them to extinguish initial fires on horizontal and vertical surfaces in engine-rooms.

16.3 Taking the above information into account, China proposed amendments to SOLAS regulation II-2/10.5.1 with a view to making it concise and user-friendly by distinguishing between a general case, where the boiler room and engine room are combined, and a special case where these are separated.

16.4 In considering the above proposal, which was supported by some delegations, the Sub-Committee noted that the majority of those that spoke on the matter were in favour of a more cautious approach and stated that additional justification is needed before draft SOLAS amendments are developed to make the 135 *l* extinguishers obsolete.

16.5 Consequently, the Sub-Committee agreed to consider the matter further at the next session and invited Member Governments and international organizations to submit comments and proposals to FP 57.

Extension of the target completion year

16.6 Taking the above decision into account, the Sub-Committee invited the Committee to extend the target completion year for this output to 2014.

17 DEVELOPMENT OF AMENDMENTS TO SOLAS REGULATION II-2/20 AND ASSOCIATED GUIDANCE ON AIR QUALITY MANAGEMENT FOR VENTILATION OF CLOSED VEHICLE SPACES, CLOSED RO-RO AND SPECIAL CATEGORY SPACES

17.1 The Sub-Committee recalled that MSC 88, having considered document MSC 88/23/7 (the Netherlands) proposing to amend SOLAS regulation II-2/20 to include air quality management for ventilation in closed vehicle spaces, closed ro-ro spaces and special category spaces, had included a new output in the post-biennial agenda of the Committee and had instructed the Sub-Committee to include the item in the provisional agenda for FP 56.

17.2 The Sub-Committee had for its consideration document FP 56/17 (Denmark and the Netherlands) offering an alternative to the dilution method prescribing certain numbers of air changes in closed vehicle spaces, closed ro-ro spaces and special category spaces, in the form of air quality management systems. Such systems, in the opinion of the proponents, would offer considerable economy of energy and reduction of CO_2 emission. They proposed a draft amendment to SOLAS regulation II-2/20 and the addition of a new appendix to part 1 of the *Design guidelines and operational recommendations for ventilation systems in ro-ro spaces* (MSC/Circ.729), which might be referenced in the amended regulation II-2/20 (if agreed) as the minimum requirements (performance characteristics) for air quality management systems.

17.3 The Sub-Committee noted in this connection document FP 56/INF.2 (Netherlands) presenting background information justifying the feasibility of air quality management systems proposed in document FP 56/17. A three-dimension calculation method, Computational Fluid Dynamics, was used for modelling flows and defining to what extent a reduction of the ship's ventilation is possible during loading and unloading operations whilst complying with air quality requirements.

17.4 Although the proposal gained some support, the Sub-Committee concluded that additional information on the safety of personnel, the speed at which the concentration of toxic/flammable gases grows in ro-ro spaces while carrying out loading/unloading operations, reaction time to measurement taken by the system, maintenance provisions, etc. were needed in order to proceed with the work.

Establishment of a correspondence group

17.5 To progress the work intersessionally, the Sub-Committee agreed to establish the Correspondence Group on Development of Amendments to SOLAS Regulation II-2/20 and Associated Guidance on Air Quality Management for Ventilation of Closed Vehicle Spaces, Closed Ro-Ro Spaces and Special Category Spaces, under the coordination of the Netherlands*, and instructed it to:

.1 further consider the draft amendment to SOLAS regulation II-2/20 and the associated draft MSC circular, as contained in document FP 56/17, taking into account the additional safety aspects raised by the Sub-Committee (FP 56/23, paragraph 17.4); and

.2 submit a written report to FP 57.

Extension of the target completion year

17.6 In view of the above decision, the Sub-Committee invited the Committee to extend the target completion year for this output to 2014.

18 BIENNIAL AGENDA AND PROVISIONAL AGENDA FOR FP 57

General

18.1 In considering matters related to the biennial agenda, provisional agenda and arrangements for its next session, the Sub-Committee recalled that:

.1 A 27 had approved the six-year *Strategic Plan for the Organization* (resolution A.1037(27)) and the *High-level Action Plan of the Organization and priorities for the 2012-2013 biennium* (resolution A.1038(27));

.2 MSC 91, as reported in document FP 56/2/3, had requested all sub-committees to prepare their respective proposals for the High-level Action Plan for the coming biennium, for consideration by MSC 92, for inclusion in the Committee's proposals to C 110 for the High-level Action Plan for 2014-2015; and

.3 with regard to the proposed Sub-Committee restructuring, as reported in document FP 56/2/3, the Sub-Committee should still prepare its biennial and provisional agendas accordingly, bearing in mind that they are subject to change pending the decisions of MEPC 65, MSC 92 and C 110.

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Proposals for the biennial agenda for 2014-2015 and provisional agenda for FP 57

18.2 Taking into account the progress made at this session and the instructions of MSC 91, the Sub-Committee prepared its proposed biennial agenda for 2014-2015, including outputs on the Committee's post-biennial agenda that fall under the purview of the Sub-Committee (FP 56/WP.2, annex 1), and the provisional agenda for FP 57 (FP 56/WP.2, annex 2) as set out in annexes 12 and 13, respectively, for consideration by MSC 92.

Arrangements for the next session

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

.1 development of guidelines for use of fibre reinforced plastic (FRP) within ship structures;

.2 development of a mandatory Code for ships operating in polar waters;

.3 smoke control and ventilation; and

.4 review of the *Recommendation on evacuation analysis for new and existing passenger ships*.

18.4 The Sub-Committee established correspondence groups on the following subjects, due to report to FP 57:

.1 development of guidelines for use of fibre reinforced plastic (FRP) within ship structures;

.2 development of a mandatory Code for ships operating in polar waters; and

.3 development of amendments to SOLAS regulation II-2/20 and associated guidance on air quality management for ventilation of closed vehicle spaces, closed ro-ro and special category spaces.

Status of planned outputs in the High-level Action Plan

18.5 The Sub-Committee, noting that the status of planned outputs will no longer be produced as part of a working paper during the session in order to avoid duplication of work, invited MSC 92 to note the status of planned outputs, set out in annex 14.

Date of next session

18.6 The Sub-Committee noted the information provided by the Secretary that the date of the next meeting will be announced in due course, pending the decisions by MEPC 65, MSC 92 and C 110 on the proposed Sub-Committee restructuring.*

19 ELECTION OF CHAIRMAN AND VICE-CHAIRMAN FOR 2014

19.1 In light of the decisions of C 109 and MSC 91 regarding the Sub-Committee restructuring, the Sub-Committee did not elect a Chairman and Vice-Chairman for 2014.

* Whenever a reference to FP 57 appears in this report, it should be construed as a reference to the first session of the new Sub-Committee, if approved by the Committees and the Council.

20 ANY OTHER BUSINESS

20.1 The Sub-Committee recalled that it had dealt with documents FP 56/20 (IACS) concerning fire protection requirements for stowage spaces under resolution MEPC.76(40), and FP 56/20/1 (Belgium) commenting on fire test procedures for vertically supported textiles and films required by the 2010 FTP Code, under agenda item 9 (see paragraphs 9.28 to 9.30, 9.31 and 9.32).

Review of the IGC Code

20.2 The Sub-Committee recalled that BLG 16, having endorsed the list of sections of the draft revised International Gas Carrier Code (IGC Code) to be considered by other IMO bodies for their input (BLG 16/7, annex 2), had forwarded sections 3.1 to 3.3 of chapter 3 and chapters 8, 11, 12 and 16 of the draft Code, as set out in the annex to document BLG 17/9, to FP 56 for review and advice.

Establishment of a Working Group

20.3 The Sub-Committee, having noted that it had also been asked to review parts of the draft mandatory Code for ships operating in polar waters (Polar Code) and the draft International Code of safety for ships using gases or other low-flashpoint fuels (IGF Code), agreed to establish a Working Group on Consideration of the draft IGC, Polar and IGC Codes and, with regard to the draft revised IGC Code, instructed it, taking into account document BLG 17/9, the editorial modifications set out in document BLG 17/9/1, and comments and decisions made in the plenary, to consider and comment on the following parts of the draft revised Code:

.1 section 3.1 "Segregation of the cargo area";

.2 section 3.2 "Accommodation, service and machinery spaces and control stations";

.3 section 3.3 "Cargo machinery spaces and turret compartments";

.4 chapter 8 "Vent systems for cargo containment";

.5 chapter 11 "Fire protection and extinction";

.6 chapter 12 "Artificial ventilation in the cargo area"; and

.7 chapter 16 "Use of cargo as fuel".

Report of the Working Group

20.4 Having considered the part of the report of the group dealing with the matter (FP 56/WP.6, paragraphs 7 to 10 and annex 1), the Sub-Committee noted that the group had, as set out in annex 1 to document FP 56/WP.6:

.1 prepared the draft chapter 11 of the Code;

.2 made a number of editorial modifications in chapters 12 and 16;

.3 agreed to delete the references to the FSS Code in paragraph 11.4 of the draft Code for dry chemical powder fire-extinguishing systems, as the Code did not contain requirements for such systems; and

.4 prepared consequential amendments to chapter 3.

20.5 The Sub-Committee endorsed the action taken by the group and requested the Secretariat to refer annex 1 to document FP 56/WP.6 to BLG 17 for consideration and action as appropriate.

Review of the draft Polar Code

20.6 The Sub-Committee recalled that DE 56 had requested relevant sub-committees to consider the parts of the draft Polar Code that fall under their respective purviews, as indicated in annex 2 to document DE 56/WP.4 and advise DE 57 accordingly. In this connection, the Sub-Committee noted that FP 56 was requested to consider chapter 7 (Fire safety/protection) of the draft Code, which is based on the existing *Guidelines for ships operating in polar waters* (resolution A.1024(26)).

Instructions to the Working Group

20.7 The Sub-Committee referred the matters indicated in the foregoing paragraph to the Working Group on Consideration of the Draft IGC, Polar and IGC Codes (see paragraph 20.3), and instructed it, taking into account document DE 56/WP.4 (draft Polar Code, annex 1, and the guidance provided in section 2 of annex 2) and comments and decisions made in the plenary, to consider and comment on the following aspects of the draft Polar Code:

.1 mitigation of hazards specific to polar waters, such as:

.1 low temperatures that may cause freezing of working fluids (extinguishing agents) and loss of functionality of other materials, which may impact also human performance; and

.2 ice accretion that may reduce or prevent equipment functionality and may create dangerous conditions for crew and passengers, e.g. means of evacuation;

.2 efficacy of the provisions of chapter 7 in addressing the risks identified in paragraph .1 above, and of any other risks identified by the Sub-Committee; and

.3 additional consequences of adopting the measures that could adversely affect their cost/benefit.

Report of the Working Group

20.8 Having considered the part of the report of the working group dealing with the matter (FP 56/WP.6, paragraphs 11 to 13), the Sub-Committee took action as described in paragraphs 20.9 to 20.12.

20.9 As concerns the mitigation of hazards specific to polar waters, the Sub-Committee agreed that other factors may require mitigation measures as referred to in paragraph 20.11.2 below.

20.10 With regard to the efficacy of the provisions of chapter 7, the Sub-Committee agreed that the efficacy cannot be evaluated without determining operating parameters and that the Polar Water Operation Manual (PWOM), which is intended to set restrictions on the ship's operation, should be taken into account for such evaluation.

20.11 The Sub-Committee noted that the group did not have sufficient basis for considering consequences of adopting measures that could adversely affect their cost/benefit, as the group:

.1 did not have the latest draft of the Polar Code as a basis for detailed consideration of chapter 7; and

.2 needed additional data on design temperature ranges, weather conditions, slush and snow, i.e. in general, on operational scenarios, accounting for seasonal data and the like.

20.12 Taking into account the above matters, the Sub-Committee agreed to:

.1 request the DE Sub-Committee to provide the latest draft of the Polar Code for consideration by a correspondence group (see paragraph 20.12.4);

.2 request the DE Sub-Committee to develop an enhanced holistic set of ship operation scenarios, including seasonal data, operating temperature ranges, etc. to enable the Sub-Committee to develop guidance on fire safety system selection, on testing/approval requirements, for example, in a form of a matrix of temperature ranges and operating scenarios;

.3 invite Member States and interested organizations to provide relevant information to FP 57, containing proposals for such testing/approval requirements, temperature ranges etc.; and

.4 establish an intersessional Correspondence Group on Development of a Mandatory Code for Ships Operating in Polar Waters, under the coordination of Canada,* and instruct it to:

.1 investigate the applicability of the FSS Code and SOLAS chapter II-2 with regard to temperature criteria;

.2 consider the temperature ranges and other aspects, e.g. ice accretion, for determination of requirements for fire safety systems;

.3 consider additional requirements for each condition, when appropriate;

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.4 develop further chapter 7 of the draft Polar Code; and

.5 submit a written report to FP 57.

Review of the draft IGF Code

20.13 The Sub-Committee noted that BLG 16 had requested it to consider paragraphs 12 to 14, 19, 30.2, 30.7 of the draft IGF Code and the annex to document BLG 16/WP.5 and advise BLG 18 accordingly.

Instructions to the Working Group

20.14 The Sub-Committee referred the matters related to the draft IGF Code to the Working Group on Consideration of the Draft IGC, Polar and IGC Codes (see paragraph 20.3) and instructed it, taking into account documents BLG 17/8, BLG 16/WP.5 (annex) and BLG 17/8/1 and comments and decisions made in plenary, to:

.1 using the tables in SOLAS regulation II-2/9 for cargo and passenger ships, define:

.1 what is the suitable category for the containment systems; and

.2 whether an existing category can be used for the containment systems or, if a new category is required, develop it;

.2 consider containment systems for the following fuels:

.1 natural gas, liquid and compressed;

.2 propane, liquid and compressed;

.3 butane (i and n), liquid [and compressed];

.4 propane/butane mixtures liquid [and compressed];

.5 ethyl alcohol, [liquid];

.6 methyl alcohol [liquid];

.7 hydrogen, [liquid and] compressed; and

.8 dimethyl-ether, [liquid] [and compressed];

.3 consider fuel containments systems for the following locations:

.1 open deck;

.2 semi-enclosed spaces;

.3 enclosed spaces; and

.4 enclosed spaces below accommodation and cargo areas;

.4 with regard to paragraph 11.7.2 of the draft Code, advise whether dry powder is suitable as a fire extinguishing medium for all fuels listed in paragraph 2 above; and

.5 advise what type of fixed fire-extinguishing system is suitable in enclosed spaces containing compressed gas storage for gases addressed by the IGF Code.

Report of the Working Group

20.15 Having considered the part of the report of the working group dealing with the matter (FP 56/WP.6, paragraphs 14 to 19 and annex 2), the Sub-Committee took action as described in paragraphs 20.16 to 20.19.

Consideration of various fuels

20.16 The Sub-Committee noted the group's conclusions on:

.1 the absence of a suitable category in the existing SOLAS regulation II-2/9 for all various fuels in relation to the category for the containment systems;

.2 the impossibility of establishing a new single category for containment systems and all various fuels, given the lack of relevant information; and

.3 the impossibility of developing a single set of requirements for containment systems for all various fuels.

20.17 The Sub-Committee noted also that the group could not complete its consideration of the following issues for all the various fuels:

.1 fuel containments systems for various locations;

.2 adequacy of dry powder as a fire extinguishing medium; and

.3 type of fixed fire-extinguishing system suitable for enclosed spaces containing compressed gas storage for gases.

Consideration of natural gas fuel

20.18 The Sub-Committee noted:

.1 that the group had prepared the text of the requirement for separation of fuel containment systems (paragraph 10.3.1 of the draft Code, as set out in the annex to BLG 17/8) and agreed to it, as shown in paragraph 17 of the group's report;

.2 the opinion of the group that dry chemical powder was suitable in general as a fire extinguishing medium for LNG and CNG and that various types of fixed fire-extinguishing systems complying with the provisions of the FSS Code could be used for enclosed spaces, as mentioned in paragraph 11.5 in the draft revised IGC Code (BLG 17/9, annex); and

.3 that the group did not consider the draft text of chapter 11 of part A-1 of the IGF Code prepared by the group (FP 56/WP.6, annex 2), due to lack of information and experience, and that unresolved issues were left in square brackets for the time being.

20.19 The Sub-Committee agreed to the draft chapter 11 of part A-1 of the draft IGF Code prepared by the group and invited the BLG Sub-Committee to finalize the text.

20.20 The Secretariat was requested to forward the above outcome to BLG 17 accordingly.

Error in the 2010 FTP Code

20.21 The Sub-Committee considered document FP 56/20/2 (Norway) drawing its attention to a possible editorial error in annex 1, part 8, appendix 2, Guidance notes, in section 3 of the 2010 FTP Code, where the word "polyether" had inadvertently been replaced with the wrong word "polyester", and proposed to issue a relevant correction thereto.

20.22 Following a brief discussion, the Sub-Committee requested the Secretariat to issue a relevant Note Verbale of Rectification as soon as possible and also an appropriate erratum to the publication.

Consequential amendments to SOLAS regulation II-2/18.5 and related instruments

20.23 The Sub-Committee considered document FP 56/20/3 (United States) suggesting amendments to SOLAS regulation II-2/18.5, the MODU Code and the *Recommendation on helicopter landing areas on ro-ro passenger ships* (MSC/Circ.895), consequential to the approval of the *Guidelines for the approval of helicopter facility foam fire-fighting appliances* (MSC.1/Circ.1431), aimed at the harmonization of these instruments.

20.24 Following discussion, the Sub-Committee:

.1 agreed to draft amendments to SOLAS regulation II-2/18, applicable to new ships, as set out in annex 15, for submission to MSC 92 for approval with a view to subsequent adoption; and

.2 referred the draft amendments to the MODU Code and MSC/Circ.895 (annexes 2 and 3 of document FP 56/20/3, respectively) to the DE Sub-Committee for appropriate action, noting that these draft amendments were applicable to new MODUs and new ro-ro passenger ships, as appropriate.

Vague provisions of MSC.1/Circ.1270

20.25 The Sub-Committee noted document FP 56/20/4 (United Kingdom) pointing out a possible inconsistency in the provisions of the revised *Guidelines for the approval of fixed aerosol fire-extinguishing systems equivalent to fixed gas fire-extinguishing systems* (MSC.1/Circ.1270) regarding the extinguishing acceptance criteria for wood cribs, as it is not clear from the classification criteria if total extinguishment of the cribs by the aerosol system is one of the acceptance criteria; and informing the Sub-Committee of the United Kingdom's intention to submit a suitable proposal for a new output on review of MSC.1/Circ.1270 to MSC 92.

Codes, recommendations, guidelines and other non-mandatory instruments

20.26 The Sub-Committee noted document FP 56/INF.3 (Secretariat) updating the status of non-mandatory instruments related to the work of the Sub-Committee as listed in the *List of Codes, recommendations, guidelines and other safety- and security-related non-mandatory instruments* (MSC.1/Circ.1371), and instructed the Secretariat to inform the FSI Sub-Committee accordingly.

EU Research Project FIREPROOF – Probabilistic framework for on board fire safety

20.27 The Sub-Committee noted with appreciation document FP 56/INF.4 (United Kingdom) advising it of the outcome of the FIREPROOF research project, the objective of which was to develop a risk-based framework for fire safety of passenger ships, as well as the presentation on the project delivered during the meeting.

Environmental exposure test of fire detection and fire alarm systems for cabin balconies

20.28 The Sub-Committee noted with appreciation document FP 56/INF.5 (Japan) introducing the results of environmental exposure test of fixed fire detection and fire alarm systems for cabin balconies, conducted in conformity with the newly developed test method meant to assess the ability of the fixed fire detection and fire alarm systems to withstand sun irradiation and ultraviolet exposure.

Research on air cylinders and air recharging systems for fire-fighter's outfits

20.29 The Sub-Committee noted with appreciation document FP 56/INF.7 (Republic of Korea) presenting the results of research into the air quality in cylinders and air recharging systems for fire-fighters' outfits on board vessels and suggesting that the water vapour may be a critical factor from the air quality standpoint.

Omission in MSC.1/Circ.1318

20.30 The Sub-Committee recalled that FP 55 had invited views on how to rectify the omission in the *Guidelines for the maintenance and inspections of fixed carbon dioxide fire-extinguishing systems* (MSC.1/Circ.1318) dealing with maintenance and inspections of fixed CO_2 fire extinguishing systems (FP 55/WP.3, paragraph 23 and FP 55/23, paragraph 3.27). In view of the absence of any submissions addressing the matter, the Sub-Committee invited Member States and international organizations to submit comments and proposals on the provisions for the internal examination of fixed gas system control valves at periodic intervals to a future session.

Guidelines for the carriage of blends of petroleum oil and biofuels

20.31 With reference to paragraph 2.1 of document FP 56/2/1 (outcome of BLG 16) and paragraph 3.30.7 and annex 3 of BLG 16/16, the Sub-Committee noted amendments to the *Guidelines for the carriage of blends of petroleum oil and biofuels* (MEPC.1/Circ.761), approved at MEPC 64 (MEPC 64/23, paragraph 11.6) and issued as MEPC.1/Circ.761/Rev.1, affecting the operation of the deck fire-fighting system referred to in SOLAS regulations II-2/1.6.1 and 1.6.2 when carrying biofuel blends containing more than 5 per cent of ethyl alcohol, and requiring that in such cases alcohol-resistant foams should be used.

Changing the title of MSC.1/Circ.1430

20.32 With reference to amendments to the FSS Code adopted at MSC 91 by resolution MSC.339(91), including amendments to chapter 7 of the Code dealing with fixed water-based fire fighting systems for ro-ro spaces, vehicle spaces and special category spaces (new paragraph 2.4), the Sub-Committee noted that this paragraph had a footnote referring to the *Revised guidelines for approval of fixed water-based fire-fighting systems for ro-ro spaces and special category spaces* (MSC.1/Circ.1430), approved at MSC 90. As the title of the Guidelines does not mention vehicle spaces, whereas its contents are applicable to such spaces, the Sub-Committee, in order to eliminate this inconsistency, invited MSC 92

to amend MSC.1/Circ.1430 to include "vehicle spaces" in its title; amend the relevant text of the footnote in resolution MSC.339(91); and request the Secretariat to issue corrigenda for the above instruments, as appropriate.

Test laboratories recognized by the Administration and availability of halon banking and reception facilities

20.33 Regarding the two annual FP circulars on halon banking and reception facilities and on test laboratories recognized by the Administration issued annually by the Secretariat, the Sub-Committee noted that:

.1 the revised annual FP circular on test laboratories recognized by Administrations would be issued as FP.1/Circ.45; and

.2 the revised annual FP circular on halon banking and reception facilities would be issued as FP.1/Circ.46.

Reform of the subsidiary bodies reporting to MSC

20.34 The Sub-Committee, having noted the information provided by the Secretariat regarding the discussions at MSC 91 on matters related to the review and reform of the Organization (C 109/D and MSC 91/22), was invited by the Secretary-General to comment on the proposed amalgamation of the DE, FP and SLF Sub-Committees into two new sub-committees (MSC 91/19/9). The views expressed were noted with appreciation by the Secretary-General and he informed the Sub-Committee that they would be taken into account when preparing the detailed proposal requested by MSC 91 regarding the proposed names, terms of reference, provisional agendas, biennial agendas, cost-benefit analysis and meeting dates for each body, for consideration at MEPC 65 and MSC 92.

FSA study on crude oil tankers

20.35 The Sub-Committee noted (FP 56/2/3) that MSC 90 had re-established the Experts Group on Formal Safety Assessment to review the FSA studies on crude oil tankers, and that its report is contained in document MSC 91/WP.6 (paragraphs 21 to 42). MSC 91, having considered the Group's report, agreed inter alia that:

.1 the FP and STW Sub-Committees should further consider RCO 8 (hot work procedures training), which may apply to all ships, within the mainframe of the FSA on crude oil tankers (MSC 91/22, paragraph 16.15.5); and

.2 the FP Sub-Committee should further consider RCO 9 (double sheathed low pressure fuel pipes for fuel injection systems in engines) (MSC 91/22, paragraph 16.15.6), for application to new ships only.

20.36 With regard to RCO 8, the Sub-Committee concluded that the work on that output had been completed (see section 21), and work related to RCO 9 was included in the list of items on the Committee's post-biennial agenda that fall under the purview of the Sub-Committee (refer to the second table in annex 12).

Expressions of appreciation

20.37 Noting that this session of the Sub-Committee was the last one to be chaired by the current Chairman, Mr J. C. Cubisino of Argentina, the Sub-Committee expressed its deep appreciation to him, emphasizing the wise, highly professional, competent and sensible manner in which he had chaired the meetings during the past decade, and wished him success in his future professional undertakings.

20.38 The Sub-Committee also expressed its appreciation to Mr V. Semenov, Secretary of the Sub-Committee, who will shortly be relinquishing his duties, for his valuable contribution to its work and wished him every success in his new endeavours.

21 REVIEW OF GENERAL CARGO SHIP SAFETY

21.1 The Sub-Committee recalled that this output had been included in the biennial agenda of the Sub-Committee by MSC 90, following consideration of document MSC 90/WP.7 instructing the Sub-Committee to consider the risk control option (RCO) proposing the development of measures to prevent fire and explosion accidents caused by inadequate repair and maintenance procedures and work during harbour stays.

21.2 The Sub-Committee noted that the above RCO, designated as "RCO 28" in the initial study of general cargo ships' safety conducted by IACS (MSC 88/19/2, MSC 88/INF.6, MSC 88/INF.8), was proposed for implementation in the form of a safety checklist to be filled in before proceeding with maintenance procedures, as it was emphasized by the authors of the study that cases of fire and explosion are due to inadequate repair and maintenance procedures and work while the ship is in harbour.

21.3 The Sub-Committee noted views that safety precautions to be taken when carrying out hot works on board ships of all types were already covered in the *Principles for hot work on board all types of ships* (MSC/Circ.1084) and by ISGOTT for, in particular, tankers; and that, if the proposal on the checklist format was accepted, MSC/Circ.1084 may be used as the basis. In addition, a number of delegations pointed out that this matter should be duly reflected in the ship's safety management documents under the ISM Code.

21.4 The Sub-Committee, considering that the regulatory basis for measures to comply with RCO 28 recommendations was already in place, concluded that measures on preventing fire and explosion accidents caused by inadequate repair and maintenance procedures and work during harbour stays should be effected by the Administration through strict implementation of the requirements of the ISM Code, including further strengthening of SMS procedures, and invited the Committee to note this view. It was agreed that no further action on this output was needed.

Completion of the work on the output

21.5 Consequently, the Sub-Committee invited the Committee to note that the work on this output has been completed.

22 DEVELOPMENT OF INTERPRETATION OF SOLAS REGULATION II-2/13.6 ON MEANS OF ESCAPE FROM RO-RO SPACES

22.1 The Sub-Committee recalled that MSC 90, having agreed with the view of Sweden (MSC 90/25/16) that the text of SOLAS regulation II-2/13.6 on means of escape from ro-ro spaces may contain vague wording leading to differing interpretations, had approved, for inclusion in the biennial agenda of the Sub-Committee and in the provisional agenda for FP 56, an unplanned output to develop a relevant interpretation for SOLAS regulation II-2/13.6 on means of escape from ro-ro spaces.

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

.1 FP 56/22 (Sweden) proposing interpretations for the terms "normally employed" with regard to the ship personnel who may be present in the ro-ro space in the course of routine operation of the ship, and "safe escape"

which, in the opinion of Sweden, may be harmonized with the definition used in respect of passenger ships; and

.2 FP 56/INF.8 (Republic of Korea) providing information on the practical application of SOLAS regulation II-2/13.6 on means of escape from machinery spaces in shipyards and shipping companies, in order to facilitate the development of clarifications of the regulation based on a number of findings from the studies into the actual applications.

22.3 Following discussion, the Sub-Committee considered that the interpretations proposed in document FP 56/22 needed further refinement, in particular relating to the level of safety of escape routes offered by the proposed interpretation, which should be carefully compared to that for other ship types, as prescribed by SOLAS chapter II-2; the definition of the term "normally employed", which in its proposed form may be applicable to a wider range of ship types than just ro-ro ships; and the inclusion of decks that can be hoisted. Subsequently, the Sub-Committee decided to further consider the matter at FP 57 and invited Member States and international organizations to submit proposals and comments to that session.

Extension of target completion year for the output

22.4 In light of the above, the Sub-Committee invited the Committee to extend the target completion year for this output to 2014.

23 ACTION REQUESTED OF THE COMMITTEE

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

.1 note the discussion of the term "hydrocarbon" that took place when considering the text of draft SOLAS regulation II-2/4.5.5.1.4 on inert gas systems (paragraph 3.19);

.2 approve the draft amendments to SOLAS regulations II-2/4.5.5 and II-2/16.3.3 concerning inert gas systems for new ships, with a view to adoption at MSC 93 (paragraphs 3.17 to 3.20 and annex 1);

.3 approve the draft amendments to chapter 15 of the FSS Code concerning inert gas systems for new ships, with a view to adoption at MSC 93 (paragraph 3.22 and annex 2);

.4 approve the draft amendments to SOLAS regulations II-2/3 and II-2/9.7 concerning fire resistance of ventilation ducts for new ships, with a view to adoption at MSC 93 (paragraph 4.10 and annex 3);

.5 approve the draft amendments to SOLAS regulation II-2/10 concerning fire protection requirements for on-deck cargo areas for new ships, with a view to adoption at MSC 93 (paragraph 5.15 and annex 4);

.6 approve, in principle, the 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*, for final approval at MSC 93, in conjunction with the adoption of the amendments to SOLAS regulation II-2/10 (paragraphs 5.15, 5.16 and annex 5);

.7 note that the proposed draft SOLAS amendments to regulation II-2/20 and the associated draft MSC circular are consistent with Recommendation 2 of the FSA study on safe transport of dangerous goods (DSC 16/INF.2, page 88), thus meaning compliance with that recommendation had been achieved, and offering considerable improvement of safety (paragraph 5.19);

.8 note the progress made on review of the recommendations on evacuation analysis for new and existing passenger ships (paragraph 6.7);

.9 approve the draft amendments to SOLAS regulation II-2/13.4 concerning additional means of escape from machinery spaces for new passenger and cargo ships, with a view to adoption at MSC 93 (paragraph 7.5 and annex 6);

.10 note 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" (paragraph 7.10);

.11 approve the draft amendments to SOLAS regulations II-2/1 and 3 and the proposed draft new regulation II-2/20-1 concerning requirements for ships carrying hydrogen and compressed natural gas vehicles for new ships, with a view to adoption at MSC 93 (paragraph 8.9 and annex 7);

.12 endorse the view of the Sub-Committee that the survey and certification of fire protection of incinerator and waste stowage spaces should be covered by the SOLAS Convention (paragraphs 9.28 and 9.29);

.13 instruct the FSI Sub-Committee to include the survey and certification of fire protection of incinerator and waste stowage spaces in the *Survey Guidelines under the Harmonized System of Survey and Certification (HSSC), 2011* (resolution A.1053(27)) (paragraph 9.30);

.14 approve the draft MSC circular on *Unified Interpretations of SOLAS chapter II-2 and the FSS and FTP Codes* (paragraph 9.36.1 and annex 8);

.15 approve the draft MSC circular on *Unified Interpretations of the 2000 HSC Code, as amended by resolutions* MSC.175(79) and MSC.222(82) (paragraphs 9.36.2 and 11.2 and annex 9);

.16 approve the draft MSC circular on 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) (paragraph 9.36.3 and annex 10);

.17 approve the draft MSC circular on *Unified Interpretation of the SOLAS Convention and the IBC and IGC Codes* (paragraphs 9.36.4 and 10.4 and annex 11);

.18 endorse 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 which may be followed under SOLAS regulation II-2/17 and associated circular MSC/Circ.1002 (paragraph 12.4);

.19 endorse the agreement of the Sub-Committee not to proceed with the development of amendments to SOLAS chapter II-2 on the location of EEBDs (paragraph 15.5);

.20 approve the biennial agenda of the Sub-Committee for the 2014-2015 biennium, including outputs on the Committee's post-biennial agenda under the purview of the Sub-Committee (paragraph 18.2 and annex 12);

.21 approve the provisional agenda for FP 57 (paragraph 18.2 and annex 13);

.22 note the status of planned outputs (paragraph 18.5 and annex 14);

.23 note that the Sub-Committee reviewed the parts of the IGC Code referred to it by the BLG Sub-Committee, for referral to BLG 17 (paragraph 20.5);

.24 note that the Sub-Committee reviewed the parts of the draft Polar Code referred to it by the DE Sub-Committee and established a correspondence group to finalize the review, to report to FP 57 (paragraph 20.12);

.25 note that the Sub-Committee reviewed the parts of the IGF Code referred to it by the BLG Sub-Committee, for referral to BLG 17 (paragraphs 20.19 and 20.20);

.26 approve the draft amendments to SOLAS regulation II-2/18 concerning helicopter landing areas on ro-ro passenger ships for new ships, with a view to adoption at MSC 93 (paragraph 20.24 and annex 15);

.27 note the Sub-Committee's view, reading general cargo ship safety, that measures on preventing fire and explosion accidents caused by inadequate repair and maintenance procedures and work during harbour stays should be effected by the Administration through strict implementation of the requirements of the ISM Code and that therefore no further action on this output is needed (paragraph 21.4); and

.28 approve the report in general.

23.2 The Marine Environment Protection Committee, at its sixty-fifth session, is invited to endorse the view of the Sub-Committee that the survey and certification of fire protection of incinerator and waste stowage spaces should be covered by SOLAS (paragraphs 9.28 and 9.29).

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ANNEX 1

DRAFT AMENDMENTS TO SOLAS REGULATIONS II-2/4 AND II-2/16

Part B
Prevention of fire and explosion

Regulation 4 – Probability of ignition

1 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 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 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.

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 m^3 and the individual nozzle capacities of tank washing machines do not exceed 17.5 m^3/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 m^3/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 E
Operational requirements

Regulation 16 – Operations

2 Insert a new paragraph 16.3.3 after the existing paragraph 16.3.2 as follows:

"**16.3.3 Operation of inert gas system**

16.3.3.1 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.

16.3.3.2 Notwithstanding the above, for chemical tankers constructed on or after [*date of entry into force*], 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.

16.3.3.3 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.

16.3.3.4 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."

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ANNEX 2

DRAFT AMENDMENTS TO THE FSS CODE

The existing chapter 15 is replaced by the following:

"**CHAPTER 15**
INERT GAS SYSTEMS

1 Application

This chapter details the specifications for inert gas systems installed on ships constructed on or after [*date of entry into force*] as required by chapter II-2 of the Convention. Detailed specifications for inert gas systems installed on ships constructed before [*date of entry into force*] are given in chapter 15 of the Code adopted by resolution MSC.98(73).

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 60ºC.

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 of 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*.

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* 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."

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ANNEX 3

DRAFT AMENDMENTS TO SOLAS REGULATIONS II-2/3 AND II-2/9

Regulation 3 - Definitions

1 The following two 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."

Regulation 9 - Containment of fire

2 Paragraph 7 is replaced with the following:

"**7 Ventilation systems**

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 m^2, 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/m^2 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.

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* 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 m^2, at least 4 mm for ducts with a free cross-sectional area of between 0.075 m^2 and 0.45 m^2, and at least 5 mm for ducts with a free cross-sectional area of over 0.45 m^2;

.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*

7.5.2.1 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

7.7.1 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."

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ANNEX 4

DRAFT AMENDMENTS TO SOLAS REGULATION II-2/10

Part C
Suppression of fire

Regulation 10 – Fire fighting

1 Paragraph 1 (Purpose), is replaced with 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)."

2 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".

3 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".

4 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 regulation 10.2.1.5.1 can be supplied at the pressure required by regulation 10.2.1.6; 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."

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ANNEX 5

DRAFT MSC CIRCULAR

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

1 The Maritime Safety Committee, at its [ninety-third session (… May 2014)], adopted amendments to SOLAS regulation II-2/10 on additional measures of fire safety for ships designed and constructed to carry five or more tiers of containers on or above the weather deck, prepared by the Sub-Committee on Fire Protection at its fifty-sixth session (7 to 11 January 2013). The amendments, to be applied to new ships constructed on or after *[date of entry into force]* contain, inter alia, requirements for mobile water monitors used for the protection of on-deck cargo areas.

2 At the same time, the Committee approved 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, set out in the annex, in order to provide instructions on the design, performance, testing and approval of such mobile water monitors.

3 Member Governments are invited to use the annexed Guidelines when applying the requirements of SOLAS regulation II-2/10 and to bring them to the attention of all parties concerned.

ANNEX

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

1 Application

These Guidelines apply to mobile water monitors for the protection of on deck container stacks, in accordance with SOLAS regulation II-2/10.7.3.

2 Definitions

Mobile water monitors (hereinafter referred to as monitors) are water discharge devices of portable or wheeled type, consisting of inlet fitting(s), monitor waterway, swivel fittings, discharge nozzle and a shut-off device.

3 Principle requirements

3.1 All monitors should be tested and approved by the Administration in accordance with these Guidelines.

3.2 Monitors should be constructed of corrosion resistant materials.

3.3 Monitors discharge nozzles should be of a dual-purpose spray/jet type capable of discharging effective water barriers between container stacks in the event of a container fire on deck.

3.4 Monitors should be equipped with a coupling allowing connection to the ship's fire hydrants by fire hoses. The coupling should be sized so as to ensure that the flow and pressure needed for correct performance will be provided.

3.5 The minimum monitor capacity should be 60 m^3/h (1000 *l*/min), at the pressure required by SOLAS regulation II-2/10.7.3.

3.6 Monitors should allow swivelling of the discharge nozzle for adjusting and controlling the throw direction of water in both the horizontal and vertical planes, whilst in continuous operation. The vertical swivel range should be from 0° to 90°. External lubrication fittings should be provided for the swivel joints, if lubrication is required.

3.7 Monitors should be capable of a minimum horizontal throw of 40 m at an inlet pressure of 0.4 N/mm^2, when discharging at a horizontal elevation of 30° to 35°.

3.8 Monitors should be provided with an inlet waterway designed to balance radial thrust forces. The design configuration should minimize nozzle thrust reaction, permitting one-person operation and/or unattended operation, once set up. Heavy duty dual spring-loaded locking pins for quick and secure base set up or other means to ensure a secure/safe fixing to the ship's structure should be provided. A manufacturer's operating manual should be provided which includes information on the safe operation of the monitors.

3.9 Monitors should be provided with a carrying handle or other means for ease of transport. Monitors weighing more than 23 kg should be fitted with wheels.

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ANNEX 6

DRAFT AMENDMENTS TO SOLAS REGULATION II-2/13

Part D
Escape

Regulation 13 – Means of escape

1 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."

2 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."

3 In the first sentence of paragraph 4.2.1, the words "paragraph 4.2.2" are replaced with the words "paragraph 4.2.4".

4 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."

5 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."

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ANNEX 7

DRAFT AMENDMENTS TO SOLAS REGULATIONS II-2/1, II-2/3 AND II-2/20-1

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 A new paragraph 54 is added after the existing paragraph 53 as follows:

"54 *Vehicle carrier* means a cargo ship with multi deck ro-ro spaces designed for the carriage of empty cars and trucks as cargo."

Part G
Special requirements

3 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."

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ANNEX 8

DRAFT MSC CIRCULAR

UNIFIED INTERPRETATIONS OF SOLAS CHAPTER II-2 AND THE FSS AND FTP CODES

1 The Maritime Safety Committee, at its [ninety-second session (12 to 21 June 2013)], with a view to providing more specific guidance for the application of the relevant requirements of chapter II-2 of the SOLAS Convention and the FSS and FTP Codes, approved unified interpretations of SOLAS chapter II-2 (annex 1), of the FSS Code (annex 2) and of the FTP Code (annex 3), prepared by the Sub-Committee on Fire Protection at its fifty-sixth session (7 to 11 January 2013).

2 Member Governments are invited to use the annexed unified interpretations as guidance when applying relevant provisions of SOLAS chapter II-2 and the FSS and FTP Codes and to bring them to the attention of all parties concerned.

ANNEX 1

UNIFIED INTERPRETATIONS OF SOLAS CHAPTER II-2

1 Gas measurement and detection – portable instruments (regulation 2/4.5.7.1)

The requirement of regulation II-2/4.5.7.1 for one portable instrument for measuring oxygen and one for measuring flammable vapour concentrations, and spares for both, should be considered as being satisfied when a minimum of two instruments, each capable of measuring both oxygen and flammable vapour concentrations are provided on board. Alternatively, two portable instruments for measuring oxygen and two portable instruments for measuring flammable vapour concentrations could be provided on board.

2 Control stations on cargo ships – application to cargo ships (regulation II-2/7.5.5)

As no reference to control stations is made for any of the protection methods provided in accordance with SOLAS regulations II-2/7.5.5.1, 7.5.5.2 and 7.5.5.3, control stations on cargo ships do not need to be covered by a fixed fire detection and fire alarm system.

3 Suction and discharge piping of emergency fire pumps which are run through the machinery space (regulation 10.2.1.4.1)

3.1 "The valve" in the second sentence means "sea inlet valve".

3.2 In cases where suction or discharge piping penetrating machinery spaces are enclosed in a substantial steel casing, or are insulated to "A-60" class standards, it is not necessary to enclose or insulate "distance pieces", "sea inlet valves" and "sea-chests". For this purpose, the discharge piping means piping between the emergency fire pump and the isolating valve.

3.3 The method for insulating pipes to ""A-60" class standards" is that they are to be covered/protected in a practical manner by insulation material which is approved as a part of "A-60" class divisions in accordance with the FTP Code.

3.4 Where the sea inlet valve is in the machinery space, the valve should not be a fail-close type. Where the sea inlet valve is in the machinery space and is not a fail-open type, measures should be taken so that the valve can be opened in the event of fire, e.g. control piping, actuating devices and/or electric cables with fire resistant protection equivalent to "A-60" class standards.

3.5 In cases where main fire pumps are provided in compartments outside machinery spaces and where the emergency fire pump suction or discharge piping penetrates such compartments, the above interpretation should be applied to the piping.

4 Location of the fire main isolation valves in tankers (regulation 10.2.1.4.4)

The complete interpretation of the phrase "the isolation valves shall be fitted in the fire main at the poop front in a protected position" would be that the valve should be located:

.1 within an accommodation space, service spaces and control station; or

.2 at least 5 m aft of the aft end of the aftermost cargo tank in case the valve is located on the open deck; or

.3 if the above is not practical, within 5 m aft of the cargo area provided it is protected from the cargo area by a permanent steel obstruction.

5 Application of carbon dioxide or inert system for self-heating solid bulk cargoes (regulations 10.7.1.3 and 10.7.2)

This self-heating phenomenon should be regarded as an emergency condition such that it is not necessary to provide a separate fixed carbon dioxide fire-extinguishing system or inert gas system dedicated to the control of the self-heating of the cargo within the cargo holds. The fixed carbon dioxide or inert gas fire-extinguishing system complying with the provisions of the FSS Code required by SOLAS regulations II-2/10.7.1.3 or II-2/10.7.2 may be used for this purpose. Fixed gas fire-extinguishing systems or inert gas systems installed on board dedicated exclusively to the protection of spaces other than cargo spaces should not be used for this purpose.

6 Emergency exit hatches to open deck (regulation 13.1)

To facilitate a swift and safe means of escape to the lifeboat and liferaft embarkation deck, the following provisions should apply to overhead hatches fitted along the escape routes addressed by regulation II-2/13:

.1 the securing devices should be of a type which can be opened from both sides;

.2 the maximum force needed to open the hatch cover should not exceed 150 N; and

.3 the use of a spring equalizing, counterbalance or other suitable device on the hinge side to reduce the force needed for opening is acceptable.

ANNEX 2

UNIFIED INTERPRETATIONS OF THE FSS CODE

Controls for releasing carbon dioxide and activating the alarm in the protected space (chapter 5, paragraphs 2.1.3.2 and 2.2.2)

1 The pre-discharge alarm may be activated before the two separate system release controls are operated (e.g. by a micro-switch that activates the pre-discharge alarm upon opening the release cabinet door as per paragraph 2.1.3.2). Therefore, the two separate controls for releasing carbon dioxide into the protected space (i.e. one control to open the valve of the piping which conveys the gas into the protected space and a second control used to discharge the gas from its storage containers) as per paragraph 2.2.2 can be independent of the control for activating the alarm.

2 A single control for activation of the alarm is sufficient.

3 The "positive means", referred to in paragraph 2.2.2.1 for the correct sequential operation of the controls, should be achieved by a mechanical and/or electrical interlock that does not depend on any operational procedure to achieve the correct sequence of operation.

ANNEX 3

UNIFIED INTERPRETATION OF THE FTP CODE

Test for vertically supported textiles and films (paragraphs 3.1.1 and 3.1.2 of Part 7 of Annex 1 and paragraph 6.2.2 of Appendix 1 to Part 7 of Annex 1)

The performance criteria for curtains, draperies of free-hanging product, as described in paragraphs 3.1.1 and 3.1.2, are also applicable with an edge application of the pilot flame.

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ANNEX 9

DRAFT MSC CIRCULAR

UNIFIED INTERPRETATIONS OF THE 2000 HSC CODE, AS AMENDED BY RESOLUTIONS MSC.175(79) AND MSC.222(82)

1 The Maritime Safety Committee, at its [ninety-second session (12 to 21 June 2013)], with a view to providing more specific guidance on the application of the relevant requirements of the 2000 HSC Code, as amended by resolutions MSC.175(79) and MSC.222(82), on matters related to fire safety, approved unified interpretations of chapter 7 of the Code, prepared by the Sub-Committee on Fire Protection, at its fifty-sixth session (7 to 11 January 2013).

2 Member Governments are invited to use the annexed unified interpretations as guidance when applying relevant provisions of the 2000 HSC Code and to bring them to the attention of all parties concerned.

ANNEX

UNIFIED INTERPRETATIONS OF THE 2000 HSC CODE, AS AMENDED BY RESOLUTIONS MSC.175(79) AND MSC.222(82)

Paragraph 7.4.1.3 – Fire-restricting materials

1 This paragraph is intended to apply to all enclosed spaces and open cargo and ro-ro decks, except as defined below.

2 Spaces considered as being of no fire risk and open decks (except open cargo and ro-ro decks) need not comply with this requirement. In this context, spaces of no fire risk are those containing no ignition sources and only insignificant combustible materials (in addition to the combustible hull structure). Lights and bilge alarm devices may be accepted in these spaces if smoke detection is provided.

3 Dedicated storage rooms for gas fire-extinguishing systems may also be considered as spaces of no fire risk.

4 Insulation systems approved as a 30 min or 60 min fire-resisting division, as per paragraph 7.2.1 of the Code, need not be qualified as a fire-restricting material, provided that the insulation is non-combustible, as per the International Code for Application of Fire Test Procedures (FTP Code).

5 The test qualifying fire-restricting materials does not specify how to test floors. The following methods may be applied:

.1 for areas where a sprinkler system is not provided, a design with the deck of fibre-reinforced polymers covered by a non-combustible board or insulation faced with an approved floor covering according to the FTP Code, parts 2 and 5, may be accepted; and

.2 for areas where a sprinkler system is provided, a floor design with a floor covering approved according to the FTP Code, parts 2 and 5, applied directly on the deck constructed of fibre-reinforced polymers, may be accepted.

Paragraph 7.4.2.3 – Protection of load bearing structures

6 **Protection time** - the structural fire protection time of main load bearing structures located within areas of major fire hazard (classified as A) and areas of moderate fire hazard (classified as B), and load bearing structures supporting control stations should, as a minimum, be the same as that required by tables 7.4-1 and 7.4-2 (as applicable), for the divisions enclosing the space where these supports are located. In accordance with paragraph 7.4.1.1, in no case should the structural fire protection time be less than 30 min.

7 **Insulation** - load bearing structures made of steel, other than those constituting the divisions dealt with in tables 7.4-1 and 7.4-2 (as applicable), need not be insulated.

8 **Extent of structural fire protection** – the structures considered should be all load-carrying structures within areas of major and moderate fire hazard (classified as A or B), as well as all structures (irrespective of where they are located), which are necessary to support control stations.

9 The vertical extent of structure supporting control stations should be considered all the way down to and including spaces within the hull(s). However, all structures within voids in the hull can be exempted from this consideration based on paragraph 7.4.2.1 (first part) of the Code.

10 **Fire testing** - approvals from the standard fire test according to the FTP Code, Annex 1, Part 11, for a bulkhead or deck of a given material can be applied for protection of pillars of the same material. The structural fire protection time should be considered to be the same as that achieved in the fire test.

11 **Load case** - when load carrying capability calculations are performed for an assumed fire within a space, all insulated or un-insulated steel structures, including pillars, as well as fire insulated aluminium and FRP structures in the space may be included; uninsulated aluminium and FRP structures should not be included. A single fire concept can be applied where a fire is only presumed to originate in one enclosed space and not propagate to another enclosed space.

Example: Structures within a public space support a wheelhouse and a separate enclosed public space on the wheelhouse deck. Two load calculations should then be made:

.1 one presuming a fire below the wheelhouse; utilizing, in the load calculations uninsulated steel and insulated aluminium and FRP structures within the public space on the wheelhouse deck;

.2 another presuming fire within the public spaces on the wheelhouse deck; utilizing, in the load calculations, uninsulated steel and insulated aluminium and FRP structures within the public space below the wheelhouse.

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ANNEX 10

DRAFT MSC CIRCULAR

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)

1 The Maritime Safety Committee, at its [ninety-second session (12 to 21 June 2013)], approved the following 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), concerning the term "bilge area" (paragraph 3 of the annex to the Revised Guidelines), prepared by the Sub-Committee on Fire Protection, at its fifty-sixth session (7 to 11 January 2013):

> "Bilge area is the space between the engine room floor plates (perforated or non-perforated) or gratings and the bottom of the engine room."

2 Member Governments are invited to use the interpretation when applying the Revised Guidelines and to bring it to the attention of all parties concerned.

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ANNEX 11

DRAFT MSC CIRCULAR

UNIFIED INTERPRETATION OF THE SOLAS CONVENTION AND THE IBC AND IGC CODES

1 The Maritime Safety Committee, at its [ninety-second session (12 to 21 June 2013)], with a view to providing guidance on the uniform application of the requirements for the location of entrances, air inlets and openings in the superstructures and/or deckhouses of oil and chemical tankers and gas carriers, contained in SOLAS chapter II-2 and the IBC and IGC Codes, approved the following unified interpretation, prepared by the Sub-Committee on Fire Protection, at its fifty-sixth session (7 to 11 January 2013):

> "If, under the requirements of the SOLAS Convention, the IBC Code or the IGC Code[1], owing to the design of a ship, it is impossible in practice, or unreasonable, to fulfil the requirements relating to the location of access doors, air inlets or other openings in superstructures and/or deckhouses, the Administration or recognized organization acting on its behalf may adopt alternative provisions provided that, as a consequence of doing so, no ignition source is located in the hazardous areas defined in publication IEC 60092-502, except for electrical installations that have the required protection and have been certified as safe under that standard."

2 Member Governments are invited to use the above interpretation as guidance when applying relevant provisions of the SOLAS Convention and the IBC and IGC Codes, and to bring it to the attention of all parties concerned.

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[1] E.g. SOLAS regulations II-2/4.5.2.1 and 4.5.2.2, 4.5.3.4.1, 11.6.2 and 16.3.2.3; IBC Code, paragraphs 3.2.3, 3.7.4, 8.3.4 and 8.5.1; and IGC Code, paragraphs 3.2.4, 3.8.4, 8.2.9, 8.2.10 and 10.2.5.1.

ANNEX 12

PROPOSED BIENNIAL AGENDA FOR THE 2014-2015 BIENNIUM AND ITEMS ON THE COMMITTEE'S POST-BIENNIAL AGENDA THAT FALL UNDER THE PURVIEW OF THE SUB-COMMITTEE

PROPOSED BIENNIAL AGENDA FOR THE 2014-2015 BIENNIUM*

Number	Description	Parent organ(s)	Coordinating organ(s)	Associated organ(s)	Target completion year
1.1.2.2	**Cooperation with IACS: consideration of unified interpretations**	MSC/MEPC		BLG/DE/FP/FSI/ NAV/SLF	Continuous
~~2.0.1.23~~	~~Development of unified interpretations for chapter 7 of the 2000 HSC Code~~	~~MSC~~	~~FP~~		~~2013~~
5.1.1.3	**Review of the recommendations on evacuation analysis for new and existing passenger ships**	MSC	FP		~~2013~~ 2015
5.1.1	**Development of life safety performance criteria for alternative design and arrangements for fire safety (MSC/Circ.1002)**	MSC	FP		2015
~~5.2.1.2~~	~~Amendments to SOLAS related to the fire resistance of ventilation ducts~~	~~MSC~~	~~FP~~		~~2013~~
~~5.2.1.6~~	~~Development of requirements for additional means of escape from machinery spaces.~~	~~MSC~~	~~FP~~		~~2013~~
~~5.2.1.7~~	~~Review of general cargo ship safety~~	~~MSC~~	~~DE / DSC / FP / NAV / SLF / STW~~		~~2013~~
~~5.2.1.8~~	~~Harmonized requirements for the location of entrances, air inlets and openings in the superstructures of tankers~~	~~MSC~~	~~FP~~	~~BLG~~	~~2013~~
~~5.2.1.9~~	~~Review of fire protection requirements for on-deck cargo areas~~	~~MSC~~	~~FP~~	~~DSC~~	~~2013~~
~~5.2.1.10~~	~~Development of requirements for additional means of escape from machinery spaces.~~	~~MSC~~	~~FP~~		~~2013~~

* Proposed modifications to the Sub-Committee's 2012-2013 biennial agenda, as set out in annex 36 of document MSC 91/22. Outputs printed in bold have been selected for the draft provisional agenda for FP 57, as shown in annex 13. Struck-out text indicates proposed deletions and shaded text indicates proposed changes. Deleted outputs will be maintained in the report on the status of planned outputs. Output numbers subject to change by A 28.

Number	Description	Parent organ(s)	Coordinating organ(s)	Associated organ(s)	Target completion year
5.2.1.12	Development of requirements for ships carrying hydrogen and compressed natural gas vehicles	MSC	FP		~~2013~~ 2014
5.2.1.17	**Development of a mandatory Code for ships operating in polar waters**	MSC	DE	FP	~~2013~~ 2015
5.2.1.23	**Development of guidelines for use of Fibre Reinforced Plastic (FRP) within ship structures**	MSC	FP	DE	~~2013~~ 2014
5.2.1.29	**Development of amendments to SOLAS chapter II 2, the FTP Code and MSC/Circ.1120 to clarify the requirements for plastic pipes on ships**	MSC	FP		~~2013~~ 2014
5.2.1.30	**Development of amendments to the requirements for foam-type fire extinguishers in SOLAS regulation II-2/10.5**	MSC	FP		~~2013~~ 2014
5.2.1.32	**Development of an interpretation of SOLAS regulation II-1/13.6 on means of escape from ro-ro cargo spaces**	MSC	FP		~~2013~~ 2014
~~5.2.1.34~~	~~Consideration of amendments to SOLAS chapter II-2 on location of EEBDs~~	~~MSC~~	~~FP~~		~~2013~~
5.2.1.35	**Development of amendments to SOLAS regulation II-2/20 and associated guidance on air quality management for ventilation of closed vehicle spaces, closed ro-ro and special category spaces**	MSC	FP		~~2013~~ 2014
5.2.1	**Smoke control and ventilation**	MSC	FP		2015
5.2.1	**Development of amendments to the provisions of SOLAS chapter II-2 relating to secondary means of venting cargo tanks**	MSC	FP		2015
~~5.2.3.10~~	~~Measures to prevent fires and explosions on oil and chemical tankers transporting low-flashpoint fuels~~	~~MSC~~	~~FP~~	~~BLG / DE~~	~~2013~~
12.1.2.1	**Analysis of fire casualty records**	MSC	FSI	FP	Continuous
12.2.1	**Considerations related to the double sheathed low-pressure fuel pipes for fuel injection systems in engines on crude oil tankers**	MSC	FP		2015

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

MARITIME SAFETY COMMITTEE (MSC)								
ACCEPTED POST-BIENNIAL OUTPUTS								
Number	**Biennium approved**	**Reference to HLA**	**Description**	**Parent organ(s)**	**Coordinating organs(s)**	**Associated organ(s)**	**Timescale (sessions)**	**References**
~~10~~	~~2012-2013~~	~~5.1.1~~	~~Development of life safety performance criteria for alternative design and arrangements for fire safety (MSC/Circ.1002)~~	~~MSC~~	~~FP~~		~~1~~	~~MSC 90/28, paragraph 25.12~~
~~12~~	~~2012-2013~~	~~5.2.1~~	~~Smoke control and ventilation~~	~~MSC~~	~~FP~~		~~2~~	~~FP 46/16, section 4~~
~~34~~	~~2012-2013~~	~~12.2.1~~	~~Considerations related to the double sheathed low-pressure fuel pipes for fuel injection systems in engines on crude oil tankers~~	~~MSC~~	~~FP~~		~~1~~	~~MSC 91/22, Paragraph 19.13.~~
~~43~~	~~2012-2013~~	~~5.2.1~~	~~Development of amendments to the provisions of SOLAS chapter II-2 relating to secondary means of venting cargo tanks~~	~~MSC~~	~~FP~~	~~BLG~~	~~1~~	~~MSC 90/28, paragraph 25.5~~

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* Refer to annex 38 of document MSC 91/22.

ANNEX 13

PROVISIONAL AGENDA FOR FP 57

Opening of the session

1 Adoption of the agenda

2 Decisions of other IMO bodies

3 Development of guidelines for use of Fibre Reinforced Plastic (FRP) within ship structures

4 Development of a mandatory Code for ships operating in polar waters

5 Review of the Recommendation on evacuation analysis for new and existing passenger ships

6 Development of amendments to SOLAS chapter II-2, the FTP Code and MSC/Circ.1120 to clarify the requirements for plastic pipes on ships

7 Smoke control and ventilation

8 Development of an interpretation of SOLAS regulation II-1/13.6 on means of escape from ro-ro cargo spaces

9 Development of requirements for ships carrying hydrogen and compressed natural gas vehicles

10 Considerations related to the double sheathed low-pressure fuel pipes for fuel injection systems in engines on crude oil tankers

11 Development of amendments to the provisions of SOLAS chapter II-2 relating to secondary means of venting cargo tanks

12 Development of amendments to the requirements for foam-type fire-extinguishers in SOLAS regulation II-2/10.5

13 Development of amendments to SOLAS regulation II-2/20 and associated guidance on air quality management for ventilation of closed vehicle spaces, closed ro-ro and special category spaces

14 Development of life safety performance criteria for alternative design and arrangements for fire safety (MSC/Circ.1002)

15 Consideration of IACS Unified Interpretations

16 Analysis of fire casualty records

17 Biennial agenda and provisional agenda for FP 58

18 Election of Chairman and Vice-Chairman for 2015

19 Any other business

20 Report to the Maritime Safety Committee

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ANNEX 14

REPORT ON THE STATUS OF PLANNED OUTPUTS OF THE HIGH-LEVEL ACTION PLAN OF THE ORGANIZATION AND PRIORITIES FOR THE 2012-2013 BIENNIUM RELEVANT TO THE SUB-COMMITTEE

SUB-COMMITTEE ON FIRE PROTECTION								
Planned output number in the HLAP for 2012-2013	**Description**	**Target completion year**	**Parent organ(s)**	**Coordinating organ(s)**	**Associated organ(s)**	**Status of output for Year 1**	**Status of output for Year 2**	**References**
1.1.2.2	Cooperation with IACS: consideration of IACS unified interpretations	Continuous	MSC		BLG/DE/FP/ FSI/NAV/ SLF	Ongoing	Ongoing	FP 56/23, section 9; MSC 78/26, paragraph 22.12
2.0.1.23	Development of unified interpretations for chapter 7 of the 2000 HSC Code	2013	MSC	FP		In progress	Completed	FP 56/23, paragraph11.3
5.1.1.3	Review of the recommendations on evacuation analysis for new and existing passenger ships	~~2013~~ 2014	MSC	FP		In progress	In progress	FP 56/23, section 6; MSC 83/28, paragraphs 8.7 and 25.25
5.2.1.2	Development of requirements for the fire resistance of ventilation ducts	2013	MSC	FP		In progress	Completed	FP 56/23, paragraph 4.11
5.2.1.6	Development of requirements for additional means of escape from machinery spaces	2013	MSC	FP		In progress	Completed	FP 56/23, paragraph 7.10
5.2.1.7	Review of general cargo ship safety	2013	MSC		FP/DE/DSC/ NAV/SLF/ STW		Completed	FP 56/23, paragraph 21.5

SUB-COMMITTEE ON FIRE PROTECTION								
Planned output number in the HLAP for 2012-2013	**Description**	**Target completion year**	**Parent organ(s)**	**Coordinating organ(s)**	**Associated organ(s)**	**Status of output for Year 1**	**Status of output for Year 2**	**References**
5.2.1.8	Harmonization of the requirements for the location of entrances, air inlets and openings in the superstructures of tankers	2013	MSC	FP	BLG	In progress	Completed	FP 56/23, paragraph 10.5
5.2.1.9	Review of fire protection requirements for on-deck cargo areas	~~2013~~ 2014	MSC	FP	DSC	In progress	In progress	FP 56/23, paragraph 5.23
5.2.1.10	Development of requirements for ships carrying hydrogen and compressed natural gas vehicles	~~2013~~ 2014	MSC	FP		In progress	In progress	FP 56/23, paragraph 8.10
5.2.1.17	Development of a mandatory Code for ships operating in polar waters	~~2013~~ 2014	MSC/ MEPC	DE	COMSAR/ FP/NAV/ SLF/STW	In progress	In progress	FP 56/23, paragraph 20.12
5.2.1.23	Development of guidelines for use of fibre reinforced plastic (FRP) within ship structures	~~2013~~ 2014	MSC	FP	DE	In progress	In progress	FP 56/23, paragraph 12.6
5.2.3.10	Development of measures to prevent explosions on oil and chemical tankers transporting low-flash point cargoes	2013	MSC	FP	BLG/DE	In progress	Completed	FP 56/23, paragraph 3.26
12.1.2.1	Analysis of fire casualty records	Continuous	MSC	FSI	FP	Ongoing	Ongoing	FP 56/23, section 13

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ANNEX 15

DRAFT AMENDMENTS TO SOLAS REGULATION II-2/18

Part G
Special requirements

Regulation 18 – Helicopter facilities

Paragraphs 5.1.3 through 5.1.5 are replaced by the following, and the remaining paragraphs 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)."