

SUB-COMMITTEE ON FIRE PROTECTION
55th session
Agenda item 23

FP 55/23
7 September 2011
Original: ENGLISH

REPORT TO THE MARITIME SAFETY COMMITTEE

Table of contents

Section	Page
1 GENERAL	4
2 DECISIONS OF OTHER IMO BODIES	6
3 PERFORMANCE TESTING AND APPROVAL STANDARDS FOR FIRE SAFETY SYSTEMS	7
4 REQUIREMENTS FOR SHIPS CARRYING HYDROGEN AND COMPRESSED NATURAL GAS VEHICLES	13
5 FIRE RESISTANCE OF VENTILATION DUCTS	15
6 MEASURES TO PREVENT EXPLOSIONS ON OIL AND CHEMICAL TANKERS TRANSPORTING LOW-FLASH POINT CARGOES	18
7 RECOMMENDATIONS ON EVACUATION ANALYSIS FOR NEW AND EXISTING PASSENGER SHIPS	24
8 CONSIDERATION OF IACS UNIFIED INTERPRETATIONS	26
9 HARMONIZATION OF THE REQUIREMENTS FOR THE LOCATION OF ENTRANCES, AIR INLETS AND OPENINGS IN THE SUPERSTRUCTURES OF TANKERS	29
10 MEANS OF ESCAPE FROM MACHINERY SPACES	30
11 REVIEW OF FIRE PROTECTION REQUIREMENTS FOR ON-DECK CARGO AREAS	33
12 ANALYSIS OF FIRE CASUALTY RECORDS	34
13 REVISION OF THE RECOMMENDATIONS FOR ENTERING ENCLOSED SPACES ABOARD SHIPS	35
14 GUIDELINES FOR A VISIBLE ELEMENT TO GENERAL EMERGENCY ALARM SYSTEMS ON PASSENGER SHIPS	35

15	MEANS FOR RECHARGING AIR BOTTLES FOR AIR BREATHING APPARATUSES	36
16	SAFETY PROVISIONS APPLICABLE TO TENDERS OPERATING FROM PASSENGER SHIPS	37
17	DEVELOPMENT OF UNIFIED INTERPRETATIONS FOR CHAPTER 7 OF THE 2000 HSC CODE	37
18	DEVELOPMENT OF AMENDMENTS TO THE FSS CODE FOR COMMUNICATION EQUIPMENT FOR FIRE-FIGHTING TEAMS	38
19	DEVELOPMENT OF GUIDELINES FOR THE USE OF FIBRE REINFORCED PLASTIC WITHIN SHIP STRUCTURES	39
20	BIENNIAL AGENDA AND PROVISIONAL AGENDA FOR FP 56	40
21	ELECTION OF CHAIRMAN AND VICE-CHAIRMAN FOR 2012	41
22	ANY OTHER BUSINESS	41
23	ACTION REQUESTED OF THE COMMITTEE	43

LIST OF ANNEXES

ANNEX 1	DRAFT MSC CIRCULAR ON REVISED GUIDELINES FOR THE DESIGN AND APPROVAL OF FIXED WATER-BASED FIRE-FIGHTING SYSTEMS FOR RO-RO SPACES AND SPECIAL CATEGORY SPACES
ANNEX 2	DRAFT MSC CIRCULAR ON GUIDELINES FOR THE APPROVAL OF HELICOPTER FACILITY FOAM FIRE-FIGHTING APPLIANCES
ANNEX 3	DRAFT AMENDMENTS TO THE INTERNATIONAL CODE FOR FIRE SAFETY SYSTEMS (FSS CODE)
ANNEX 4	DRAFT MSC CIRCULAR ON REVISED GUIDELINES FOR THE MAINTENANCE AND INSPECTION OF FIRE PROTECTION SYSTEMS AND APPLIANCES
ANNEX 5	DRAFT MSC CIRCULAR ON UNIFIED INTERPRETATION OF SOLAS REGULATION II-2/10.6.4 AND CHAPTER 9 OF THE FSS CODE
ANNEX 6	DRAFT MSC CIRCULAR ON UNIFIED INTERPRETATIONS OF SOLAS CHAPTER II-2
ANNEX 7	DRAFT MSC CIRCULAR ON UNIFIED INTERPRETATION OF THE FTP CODE
ANNEX 8	DRAFT AMENDMENTS TO THE INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE AT SEA, 1974, AS AMENDED

- ANNEX 9 DRAFT AMENDMENTS TO THE INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE AT SEA, 1974, AS AMENDED
- ANNEX 10 PROPOSED BIENNIAL AGENDA OF THE SUB-COMMITTEE FOR THE 2012-2013 BIENNIUM IN SMART TERMS
- ANNEX 11 DRAFT PROVISIONAL AGENDA FOR FP 56
- ANNEX 12 REPORT ON THE STATUS OF PLANNED OUTPUTS OF THE HIGH-LEVEL ACTION PLAN OF THE ORGANIZATION AND PRIORITIES FOR THE 2010-2011 BIENNIUM RELEVANT TO THE SUB-COMMITTEE
- ANNEX 13 DRAFT MSC CIRCULAR ON AMENDMENTS TO THE UNIFIED INTERPRETATIONS OF SOLAS CHAPTER II-2, THE FSS CODE, THE FTP CODE AND RELATED FIRE TEST PROCEDURES (MSC/CIRC.1120)
- ANNEX 14 DRAFT MSC CIRCULAR ON UNIFIED INTERPRETATIONS TO SOLAS REGULATION II-2/21.4, TO BE USED IN CONJUNCTION WITH THE INTERIM EXPLANATORY NOTES FOR THE ASSESSMENT OF PASSENGER SHIP SYSTEMS' CAPABILITIES AFTER A FIRE OR FLOODING CASUALTY (MSC.1/CIRC.1369)

1 GENERAL

Introduction

1.1 The Sub-Committee held its fifty-fifth session from 25 to 29 July 2011 under the chairmanship of Mr. J.C. Cubisino (Argentina). The Vice-Chairman, Mr. C. Abbate (Italy), was also present.

1.2 The session was attended by delegations from the following Member Governments:

ALGERIA	MALTA
ANGOLA	MARSHALL ISLANDS
ARGENTINA	MEXICO
AUSTRALIA	NETHERLANDS
BAHAMAS	NIGERIA
BRAZIL	NORWAY
CHILE	PANAMA
CHINA	PAPUA NEW GUINEA
COLOMBIA	PERU
COOK ISLANDS	PHILIPPINES
CROATIA	POLAND
CYPRUS	REPUBLIC OF KOREA
DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA	RUSSIAN FEDERATION
DENMARK	SAINT KITTS AND NEVIS
EGYPT	SAUDI ARABIA
FINLAND	SINGAPORE
FRANCE	SOUTH AFRICA
GERMANY	SPAIN
GREECE	SWEDEN
IRAQ	SYRIAN ARAB REPUBLIC
IRELAND	THAILAND
ITALY	TURKEY
JAPAN	TUVALU
KENYA	UKRAINE
KIRIBATI	UNITED KINGDOM
LATVIA	UNITED STATES
LIBERIA	URUGUAY
LIBYAN ARAB JAMAHIRIYA	VENEZUELA (BOLIVARIAN REPUBLIC OF)
MALAYSIA	

and by the following Associate Member of IMO:

HONG KONG, CHINA

1.3 The session was also attended by observers from the following intergovernmental organizations:

EUROPEAN COMMISSION (EC)
MARITIME ORGANIZATION FOR WEST AND CENTRAL AFRICA (MOWCA)

and by observers from the following non-governmental organizations:

INTERNATIONAL CHAMBER OF SHIPPING (ICS)
INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO)
COMITÉ INTERNATIONAL RADIO-MARITIME (CIRM)
INTERNATIONAL ASSOCIATION OF PORTS AND HARBORS (IAPH)
INTERNATIONAL ASSOCIATION OF CLASSIFICATION SOCIETIES (IACS)
OIL COMPANIES INTERNATIONAL MARINE FORUM (OCIMF)
INTERNATIONAL COUNCIL OF MARINE INDUSTRY ASSOCIATIONS (ICOMIA)
INTERNATIONAL FEDERATION OF SHIPMASTERS' ASSOCIATIONS (IFSMA)
INTERNATIONAL ASSOCIATION OF INDEPENDENT TANKER OWNERS
(INTERTANKO)
SOCIETY OF INTERNATIONAL GAS TANKER AND TERMINAL OPERATORS
LIMITED (SIGTTO)
CRUISE LINES INTERNATIONAL ASSOCIATION (CLIA)
INSTITUTE OF MARINE ENGINEERING, SCIENCE AND TECHNOLOGY
(IMarEST)
INTERNATIONAL PARCEL TANKERS ASSOCIATION (IPTA)
THE INTERNATIONAL MARINE CONTRACTORS ASSOCIATION (IMCA)
THE ROYAL INSTITUTION OF NAVAL ARCHITECTS (RINA)
INTERNATIONAL TRANSPORT WORKERS' FEDERATION (ITF)
THE NAUTICAL INSTITUTE (NI)

Secretary-General's opening address

1.4 The Secretary-General welcomed the participants and delivered his opening address, the full text of which is reproduced in document FP 55/INF.6.

1.5 The Sub-Committee shared the sentiments of sadness, compassion, sympathy and solidarity conveyed by the Secretary-General to the Government of Norway and the Norwegian people in connection with the tragic events in Norway on 22 July 2011.

1.6 In responding to the statement by the Secretary-General, the Norwegian delegation expressed their gratitude for his warm words of sympathy to the people of Norway. On behalf of Norway, the delegation thanked all in the IMO family for the support and sympathy expressed following the tragic events in Oslo and Utøya.

Chairman's remarks

1.7 The Chairman, in thanking the Secretary-General, stated that his words of encouragement as well as the advice and requests would be given every consideration and taken into account under relevant agenda items and that his helpful guidance on the subjects to be considered by the Sub-Committee was very much appreciated, in particular concerning further work on performance testing and approval standards for fire safety systems, the measures to prevent explosions on oil and chemical tankers transporting low-flash point cargoes, recommendations on evacuation analysis for new and existing passenger ships and means of escape from machinery spaces.

Pirate attack on "Aegean Star"

1.8 The delegation of Liberia informed the Sub-Committee that the Liberian registered ship m/t **Aegean Star**, IMO No.7922295, 6,972 GT, en route from Tema (Ghana), was attacked in the Port of Cotonou, Benin, by six armed pirates on 16 July 2011. At the time of the attack, the ship had on board 20 crew members of five nationalities, namely, Ghana,

Greece, the Philippines, the Russian Federation and Ukraine. The pirates demanded a large ransom and shifted the vessel into Nigerian territorial waters, about 30 nm off Lagos. The Liberian authorities coordinated with the Nigerian Permanent Representative in London, Capt. Ibraheem Olugbade, who swiftly acted by requesting his local authorities to do everything possible to secure the safe release of the ship and its crew, and were informed on 18 July 2011 that the pirates had left the ship, leaving all crew members unharmed. The delegation of Liberia thanked the Nigerian Government and Capt. Olugbade for their swift action and all parties that contributed to the safe release of the m/t **Aegean Star**.

1.9 The delegation of Nigeria stated that they were informed about the sad incident of the hijacked Liberian-flagged vessel m/t **Aegean Star** last week and that they had initiated an investigation, following which the ship was released with all the crew safe on board. The delegation stated that the Nigerian Government frowned at all issues relating to piracy or armed robbery at sea and would do everything required and needful to join the campaign of IMO to stop this ugly trend at sea. The delegation expressed their gratitude to the Liberian Government for the trust and patience given to tackle this incident, which they were still investigating, especially the case of cargo stolen from the **Aegean Star** and moved to another feeder vessel; and stated that they would inform the Organization of the outcome of their investigation in due course.

Adoption of the agenda

1.10 The Sub-Committee adopted the agenda (FP 55/1) and agreed to be guided in its work, in general, by the annotations contained in document FP 55/1/1. The agenda, as adopted, with the list of documents considered under each agenda item, is set out in document FP 55/INF.7.

2 DECISIONS OF OTHER IMO BODIES

2.1 The Sub-Committee noted the decisions and comments pertaining to its work made by MSC 87, C 104, DSC 15, DE 54, MSC 88, SLF 53, BLG 15, COMSAR 15, DE 55 and MSC 89, as reported in documents FP 55/2, FP 55/2/1, FP 55/2/2 and FP 55/2/3, and took them into account in its deliberations when dealing with relevant agenda items. The Sub-Committee also noted information provided by the Secretariat with regard to the outcome of MEPC 62 on matters related to the Committee's Guidelines (see paragraph 2.5).

Decisions by C 104

2.2 With regard to the outcome of C 104, the Sub-Committee noted that the Council had approved a number of cost-saving measures with a view to improving the conduct of meetings by increasing efficiency and effectiveness. In this context, the measures of immediate interest to the work of the Sub-Committee were highlighted as follows:

- .1 documents, other than information documents and reports of working and correspondence group reports, which contain more than 20 pages, will not be translated into all working languages in their entirety, but should include, for translation purposes, a summary of the document not longer than four pages, with the technical content submitted as an annex in the language needed by working or drafting groups (e.g. English);
- .2 only two copies of working papers printed for circulation during a meeting will be printed per Member State, Associate Member and IGO and one copy per NGO;

-
- .3 working papers will be uploaded onto the IMODOCS website simultaneously with being printed and distributed in hard copy;
 - .4 the Chairmen of IMO organs and the Secretariat should examine how best to reduce the size of meeting reports and standardize their style and structure; and
 - .5 to save meeting time, information documents, and documents requiring no action other than for their contents to be noted, should not be introduced in the plenary meetings of any IMO organ.

Codes, recommendations, guidelines and other non-mandatory instruments

2.3 The Sub-Committee noted that MSC 87 (FP 55/2, paragraph 3) had approved the list of codes, recommendations, guidelines and other safety- and security-related non-mandatory instruments (MSC.1/Circ.1371), and approved a process for the updating of the aforementioned list. In this regard, the Secretariat was requested to issue annual circulars listing only the amendments to the consolidated list and the sub-committees were instructed to review specific extracts of the list, as prepared by the Secretariat, every four years under the agenda item "Any other business", for subsequent approval of a revised consolidated list by the Committee.

2.4 The Sub-Committee also noted that the Secretariat will issue a document summarizing the amendments to the relevant parts of MSC.1/Circ.1371, as referred to in the foregoing paragraph, for consideration at FP 56.

Applications of the Committee's Guidelines

2.5 The Sub-Committee noted that MSC 89 and MEPC 62 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), and urged all those concerned to strictly adhere to the Guidelines.

3 PERFORMANCE TESTING AND APPROVAL STANDARDS FOR FIRE SAFETY SYSTEMS

General

3.1 The Sub-Committee recalled that FP 54 had approved the revised action plan identifying the priorities, time frames and objectives for each priority category, prepared by the working group established on the matter (FP 54/WP.1, annex 10), taking into account the target completion date of 2011.

3.2 The Sub-Committee also recalled that FP 54 had re-established the Correspondence Group on Performance Testing and Approval Standards for Fire Safety Systems, with terms of reference, as set out in paragraph 3.27 of document FP 54/25, and had instructed the group to submit a report to FP 55.

3.3 The Sub-Committee further recalled that BLG 15 was requested by MSC 87 to consider matters related to the proposed amendments to chapter 14 of the FSS Code and, in this regard, BLG 15 had prepared draft amendments for consideration by FP 55, as set out in annex 12 to document BLG 15/19.

3.4 The Sub-Committee recalled further that FP 54 had agreed to finalize matters related to document FP 53/INF.7 (ISO), concerning the updating of a footnote in SOLAS regulation II-2/10.6.4 regarding ISO 15371, at this session.

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

- .1 FP 55/3 (Chairman of the working group at FP 54), containing part 2 of the report of the working group established at FP 54;
- .2 FP 55/3/1 (United States), containing the report of the Correspondence Group on Performance Testing and Approval Standards for Fire Safety Systems;
- .3 FP 55/3/2 (Italy), seeking clarification on the required location for control panels for fixed fire detection and fire alarm systems and proposing that the references to IEC 60092-505 in the text of chapter 9 of the FSS Code should be updated;
- .4 FP 55/3/3 (Australia and Bahamas), proposing to amend chapter 3 of the FSS Code to require that breathing apparatus be fitted with a safety device warning the user of low pressure and/or insufficient air volume remaining in the cylinder; and
- .5 FP 55/3/4 (Japan), expressing concern regarding the draft amendments to chapter 6 of the FSS Code approved by MSC 88 and presenting updated test information on the matter, and stating, in particular, that, according to the test data provided, the foam-generating capacity required in paragraphs 3.2.2.2 and 3.3.2.2 of chapter 6 of the Code may not be sufficient and cause safety risks.

3.6 In addition to the above documents, the Sub-Committee, noting that document FP 55/22/1 (Italy), proposing amendments to paragraph 2.4.2 of chapter 13 of the FSS Code to correct a perceived conflict in paragraph 2.3 of resolution A.757(18), in particular observing that the two standards give conflicting advice on the calculation of the width of stairways forming means of escape on passenger ships, fell within the scope of this agenda item, decided to consider the document under this item.

Report of the Working Group (part 2) established at FP 54

3.7 The Sub-Committee considered part 2 of the report of the Working Group on Performance Testing and Approval Standards for Fire Safety Systems established at FP 54 (FP 55/3) and, having approved it in general, noted that the group's report had been considered in detail by the correspondence group (FP 55/3/1) established at FP 54.

3.8 Having taken note of the view of the working group regarding the use of ethanol with non-alcohol resistant foam concentrates (FP 55/3, paragraph 8.1), the Sub-Committee requested the Secretariat to convey the group's comments to BLG 16 for consideration.

Report of the Correspondence Group

3.9 The Sub-Committee considered the report of the Correspondence Group on Performance Testing and Approval Standards for Fire Safety Systems (FP 55/3/1) and, having approved it in general, in particular:

- .1 agreed, in principle, to the draft amendments to chapters 3, 5, 8, 9, 12, 13 and 14 of the FSS Code, concerning the incorporation of relevant interpretations taken from MSC/Circ.1120, and forwarded them to the working group for finalization, taking into account the comments and decisions made in plenary; and
- .2 agreed, in principle, to the draft amendments to chapter 9 of the FSS Code, based on the review of IACS UI SC 35, and instructed the working group to incorporate the draft amendments to chapter 9 of the FSS Code in the other amendments to the Code just agreed in principle, with a view to providing one comprehensive set of amendments for approval,

and decided to forward the report to the working group for detailed consideration of the issues considered by the correspondence group (see paragraph 3.18).

Other proposals related to the review of the FSS Code

3.10 The Sub-Committee considered other proposals for amendments to the FSS Code, in particular those contained in documents FP 55/3/2 (see paragraph 3.5.3) and FP 55/3/4 (see paragraph 3.5.5) and referred them to the working group for detailed consideration and advice.

3.11 In relation to the proposal in document FP 55/3/4 to either exempt the foam filling rate for spaces with a deck height of 3 m or less from the requirements on the protection of vehicle, ro-ro, special category and cargo spaces, or to retain it on the condition that the decks in question are gas-tight (paragraphs 3.2.2.2 and 3.3.2.2 of the draft amendments to chapter 6 of the FSS Code, as set out in annex 8 to MSC 88/26/Add.1), the Sub-Committee, having taken note of the new experimental data provided by Japan, concurred with their view that the issue of gas-tightness of the decks forming borders of a vehicle, ro-ro, special category or cargo space, should be given further thorough consideration by the working group.

3.12 With regard to the proposal in document FP 55/3/3 to introduce in the FSS Code requirements for breathing apparatus to be fitted with low pressure/insufficient air volume warning devices, the Sub-Committee, following an extensive discussion, referred the proposal to the working group for detailed consideration, in particular regarding the scope of application (i.e. new and/or existing equipment) and phasing-in periods for existing equipment, as appropriate, taking into account existing ISO standards on the matter. In discussing whether to extend the above requirements to all types of breathing apparatus, the Sub-Committee was of the view that this would exceed the remit for this output and, therefore, would necessitate the establishment of a new output by the Committee. Consequently, Member Governments and international organizations were invited to submit relevant proposals to the Committee, in accordance with the Committee's Guidelines (MSC-MEPC.1/Circ.4).

3.13 In regard to the scope of application, the delegation of Italy pointed out that the proposal in document FP 55/3/3 made no mention of the intention of the sponsors to require retrospective application of the proposed amendment to chapter 3 of the FSS Code. The delegation of Italy expressed concern that this intention should have been clearly indicated in the document so that Member Governments could have had the opportunity to make an assessment of the consequences of the introduction of the amendment to their existing fleet. It was their position that, if not already contained in the Organization's guidelines, any proposed amendment should be accompanied by a clear indication regarding its specific application (i.e. type of ships, date of construction and other pertinent information to the amendment being proposed).

Editorial correction to the published version of the FSS Code

3.14 In respect of the proposal in document FP 55/22/1 (see paragraph 3.6), the Secretariat informed the Sub-Committee that the conflicting provisions in paragraph 2.4.2 of chapter 13 of the FSS Code and paragraph 2.3 of resolution A.757(18) were the result of a printing error in the publication of the FSS Code, whereas the authentic text, as adopted by resolution MSC.98(73) was correct, i.e. it unambiguously indicated that the dimension of the stairway width and doors from the assembly station to the survival craft embarkation position had to be based on the number of persons in the controlled group. The Secretariat informed the Sub-Committee that an appropriate erratum sheet would be issued, in due course, for the published copies of the FSS Code and that the error would also be rectified in future publications of the Code.

Outcome of BLG 15

3.15 The Sub-Committee considered the outcome of BLG 15 (FP 55/2/2) in respect of the draft requirements in chapter 14 of the FSS Code on fixed deck foam systems, with particular regard to substances listed in chapters 17 and 18 of the IBC Code, and the draft amendments to chapter 4 of the FSS Code prepared by BLG 15 (BLG 15/19, annex 12), which were prepared in response to a request made by FP 53 and FP 54. Following a brief discussion, the Sub-Committee decided to refer the draft amendments prepared by BLG 15 to the working group for further consideration and action, as appropriate, with a view to finalizing the draft amendments to chapter 4 of the FSS Code at this session.

Matters related to ISO standards

3.16 The Sub-Committee considered the matter of updating the footnote in SOLAS regulation II-2/10.6.4 regarding ISO standard 15371, as described in document FP 53/INF.7 (ISO) (see paragraph 3.4) and referred the issue to the working group for advice on whether the reference to the ISO standard should be updated in the next edition of SOLAS.

3.17 In this connection, the Sub-Committee noted information provided by the observer of ISO regarding the development of ISO standard 22488 entitled "Ship and marine technology – shipboard fire-fighter's outfits". They pointed out that a fire on board a ship would be fought firstly by the ship's crew and the usual operational restrictions, such as narrow passages and spaces, adverse sea conditions, etc., made the requirement for free and easy movement the essential precondition for successful fire-fighting. In this regard, the above ISO standard was useful as it addressed specific needs of non-professional fire-fighters in the typical shipborne environment, and they, therefore, recommended that ISO 22488 might be footnoted in paragraph 2.1.1 of chapter 3 of the FSS Code. In addition, ISO 23269-1, "Ship and marine technology – Breathing apparatus for ships" and, in particular, its part 1 "Emergency escape breathing device (EEBD) for shipboard use", covered all performance requirements in paragraph 2.2 of chapter 3 of the FSS Code, and therefore might be referenced accordingly. Furthermore, they pointed out that ISO 23269-2, "Ship and marine technology – Breathing apparatus for ships", in its part 2 "Self-contained breathing devices for shipboard fire-fighters", might be recommended to be referenced in paragraph 2.1.2 of chapter 3 of the Code.

Establishment of the working group

3.18 Having considered the above issues and recalling its relevant decision at FP 54, the Sub-Committee established the Working Group on Performance Testing and Approval Standards for Fire Safety Systems and instructed it, taking into account comments and decisions made in plenary and based on the report of the correspondence group (FP 55/3/1), to:

- .1 finalize the draft Revised Guidelines for the approval of fixed water-based fire-fighting systems for ro-ro spaces and special category spaces and the associated draft MSC circular, based on annex 1 of document FP 55/3/1;
- .2 finalize the draft Guidelines for the approval of helicopter facility fire-fighting appliances and the associated draft MSC circular, based on annex 2 of document FP 55/3/1;
- .3 finalize the draft amendments to the FSS Code based on annexes 3 and 5 of document FP 55/3/1, taking into account documents FP 55/3/2, FP 55/3/3, FP 55/3/4, FP 55/8/2 and BLG 15/19 (annex 12);
- .4 finalize the draft Revised Guidelines for the maintenance and inspection of fire-protection systems and appliances and the associated draft MSC circular, based on annex 4 of document FP 55/3/1;
- .5 consider the remaining long-term priorities set out in annex 10 of document FP 54/WP.1 and advise the Sub-Committee accordingly; and
- .6 consider the information contained in document FP 53/INF.7 and advise the Sub-Committee accordingly.

Report of the working group

3.19 Having received the report of the working group (FP 55/WP.3), the Sub-Committee approved it in general and took action as indicated hereunder.

Revised Guidelines for the design and approval of fixed water-based fire fighting systems for ro-ro spaces and special category spaces

3.20 The Sub-Committee agreed to the draft MSC circular on Revised Guidelines for the design and approval of fixed water-based fire-fighting systems for ro-ro spaces and special category spaces, as set out in annex 1, for submission to MSC 90 for approval.

3.21 The delegation of Italy, commenting on paragraph 3.22 of the Revised Guidelines, observed that, in their view, the fire protection of a space was a combination of active and passive fire protection measures. The criteria set out in the said paragraph for establishing the vertical extension of the applicability of water based fire fighting systems should refer to the extension of horizontal zones (for passenger ships), or fire-resisting decks (for cargo ships), rather than to the generic term "reasonably gas-tight decks".

Guidelines for the approval of helicopter facility foam fire-fighting appliances

3.22 The Sub-Committee agreed to the draft MSC circular on Guidelines for the approval of helicopter facility foam fire-fighting appliances, as set out in annex 2, for submission to MSC 90 for approval.

3.23 In this regard, the Sub-Committee, as requested by the group, considered whether the meaning of "occasional" helicopter landings described in SOLAS regulation II-2/18.2.2 should be further considered in relation to the draft Guidelines and invited Member Governments and international organizations to submit relevant documents, if any, to MSC 90 for consideration when the Committee considers the approval of the aforementioned draft Guidelines.

Amendments to the FSS Code

3.24 The Sub-Committee agreed to the draft amendments to chapters 3, 5, 8, 9, 12, 13 and 14 of the FSS Code, as set out in annex 3, for approval by MSC 90, with a view to subsequent adoption.

Draft amendments to chapter 6 of the FSS Code to be adopted at MSC 90

3.25 With regard to the draft amendments to chapter 6 of the FSS Code approved at MSC 88 for adoption at MSC 90, the Sub-Committee endorsed the group's view that the draft amendments to paragraphs 3.2.2.2 and 3.3.2.2 of chapter 6 of the FSS Code should be further modified, and invited MSC 90 to consider the following proposals, when adopting the draft amendments:

- .1 paragraph 3.2.2.2 should be replaced with the following:

"3.2.2.2 Sufficient foam-generating capacity shall be provided to ensure the minimum design filling rate for the system is met and in addition shall be adequate to completely fill the largest protected space within 10 min. However, for systems protecting vehicle and ro-ro spaces and special category spaces, with decks that are reasonably gas-tight and that have a deck height of 3 metres or less, the filling rate shall be not less than two-thirds of the design filling rate and in addition sufficient to fill the largest protected space within 10 min."; and

- .2 paragraph 3.3.2.2 should be replaced with the following:

"3.3.2.2 Sufficient foam-generating capacity shall be provided to ensure the minimum design filling rate for the system is met and in addition shall be adequate to completely fill the largest protected space within 10 min. However, for systems protecting vehicle and ro-ro spaces and special category spaces, with decks that are reasonably gas-tight and that have a deck height of 3 metres or less, the filling rate shall be not less than two-thirds of the design filling rate and in addition sufficient to fill the largest protected space within 10 min.".

Revised Guidelines for the maintenance and inspection of fire-protection systems and appliances

3.26 The Sub-Committee agreed to the draft MSC circular on Revised Guidelines for the maintenance and inspection of fire-protection systems and appliances, as set out in annex 4, for submission to MSC 90 for approval.

3.27 In this context, the Sub-Committee, in considering how to correct the omission in MSC.1/Circ.1318 regarding requirements for the internal examination of fixed gas system control valves at periodic intervals, as requested by the working group (FP 55/WP.3, paragraph 23), decided to consider the matter at FP 56 under the agenda item "Any other business" and invited Member Governments and international organizations to submit relevant comments and proposals to FP 56.

Unified interpretation of SOLAS regulation II-2/10.6.4 and chapter 9 of the FSS Code

3.28 The Sub-Committee agreed to the draft MSC circular on Unified interpretation of SOLAS regulation II-2/10.6.4 and chapter 9 of the FSS Code, as set out in annex 5, for submission to MSC 90 for approval.

3.29 Regarding standard ISO 15371, the Sub-Committee requested the Secretariat to amend the footnote to regulation II-2/10.6.4 in the next SOLAS publication. Concerning the reference to IEC standards, the Sub-Committee noted that relevant provisions had been included in the draft amendments to chapter 9 of the FSS Code (see paragraph 3.24).

ISO standards for inclusion in the FSS Code

3.30 The Sub-Committee endorsed the group's view that the other proposed ISO standards (see paragraph 3.17) should not be included in the FSS Code at this stage.

Completion of the work on this output

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

3.32 In this connection, the Sub-Committee, recalling the outstanding contribution to the successful development and implementation of numerous IMO instruments in the domain of fire safety made by the working and correspondence groups established on matters related to performance testing and approval standards for fire safety systems and, in particular, their Chairman and Co-ordinator, Mr. R. Eberly (United States), over the past years, expressed its high appreciation for the excellent results achieved under his able chairmanship.

4 REQUIREMENTS FOR SHIPS CARRYING HYDROGEN AND COMPRESSED NATURAL GAS VEHICLES

General

4.1 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 (HFCVs) and compressed natural gas vehicles (CNGVs), and had agreed to include, in the work programme of the Sub-Committee, a high priority item on "Requirements for ships carrying hydrogen and compressed natural gas vehicles", with two sessions needed to complete the item.

4.2 The Sub-Committee also recalled that FP 54 had established a Correspondence Group on Requirements for Ships Carrying Hydrogen and Compressed Natural Gas Vehicles to progress the work on this matter, with terms of reference as set out in paragraph 19.4 of document FP 54/25, instructing the group to submit a report to this session.

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

- .1 FP 55/4 (Japan), containing the report of the correspondence group, which includes draft amendments to SOLAS regulation II-2/20 in the form of additional requirements for spaces intended for carriage of CNGVs, and additional requirements for spaces intended for carriage of HFCVs;
- .2 FP 55/4/1 (Japan), offering the results of a number of tests and analytic research conducted of risks associated with the transportation of CNGVs and HFCVs, measures which would adequately counteract the said risks, and proposing a type of fire system which would be more efficient to protect the spaces containing CNGVs and HFCVs; and
- .3 FP 55/INF.2 (Japan), providing detailed information on the results of the study presented in document FP 55/4/1.

Report of the correspondence group

4.4 The Sub-Committee considered the report of the correspondence group (FP 55/4) together with the other documents referred to in paragraph 4.3 and, having approved it in general:

- .1 noted the hazards associated with the carriage of HFCVs and CNGVs on board ships, additional to those identified in paragraph 7 of document FP 54/19 (Japan);
- .2 endorsed in principle the view of the group on the use of explosion-proof electrical equipment, in particular the proposal to use the IEC 60079 standard throughout the spaces, as already provided for in the footnote to SOLAS regulation II-2/20.3.2.1;
- .3 noted the views expressed in respect of portable fire extinguishers and instructed the working group to give further consideration to the matter;
- .4 noted the discussion with regard to fire integrity and means for cooling cargo spaces and instructed the working group to give further consideration to the matter;
- .5 endorsed the view of the group that, recognizing their effectiveness, portable gas detectors of appropriate types should be carried on board ships transporting CNGVs and HFCVs;
- .6 noted the discussion by the group on aspects of the required air flow rate and need for providing a fixed gas detection system and instructed the working group to give further consideration to the matter;
- .7 noted comments on the type of ventilation and location of duct openings and instructed the working group to give further consideration to the matter;
- .8 noted the views of the group on ultraviolet/infrared flame detectors, in particular that UV or IR detectors are not necessary for spaces containing CNGVs and HFCVs;
- .9 noted the views of the group regarding damage mitigation measures in case of an explosion and instructed the working group to give further consideration to the matter; and
- .10 noted the issue of the scope of application of future requirements and the proposal by the coordinator to apply these requirements only to new ships for the time being, but instructed the group to also consider which of the proposed measures could be applied to existing ships.

Establishment of a Working Group

4.5 Having taken the above decisions, the Sub-Committee established the Working Group on Requirements for Ships Carrying Hydrogen and Compressed Natural Gas Vehicles and instructed it to:

- .1 further develop the draft amendments to SOLAS regulation II-2/20, based on the annex to document FP 55/4 and taking into account

documents FP 55/4/1 and FP 55/INF.2 and the comments and proposals made in plenary, with a view to resolving the issues identified by the correspondence group; and

- .2 consider whether there is a need to re-establish the correspondence group and, if so, prepare terms of reference, as appropriate.

Report of the working group

4.6 Having considered the report of the working group (FP 55/WP.4), the Sub-Committee, while approving it in general, observed that the scope of safety measures proposed by the group may have gone beyond the terms of reference for this output. In particular, the proposed amendments to SOLAS regulations II-1/1 and II-1/20 prepared by the group to cargo spaces on board all ships, irrespective of their type, which carry, on either a regular or case-by-case basis, HFCVs and/or CNGVs. The Sub-Committee noted that new paragraphs 7.4 and 8.4 of SOLAS regulation II-2/10, as proposed by the group, were developed specifically for existing ships and felt that this needed further thorough analysis, especially in terms of the impact the proposed amendments may have on ships subject to the remit of this output.

4.7 In considering other proposals developed by the group (e.g. draft SOLAS regulation II-2/6.1.1.1.2, requiring the quantity of carbon dioxide for fixed gas fire-extinguishing systems equal to 100% of the gross volume of the largest cargo space accommodating HFCVs and/or CNGVs), the Sub-Committee, having noted the views that the above matter clearly has an influence on the ship construction itself, nevertheless decided that the above issues still needed to be assessed and, for this reason, did not support the above proposals at this stage.

4.8 Recognizing that the safety of ships carrying HFCVs and CNGVs on board was a matter of high priority but that further consideration was necessary, the Sub-Committee invited Member Governments and international organizations to submit detailed comments and proposals to FP 56.

Clarification of the scope of application of future requirements

4.9 Taking into account the above discussion, the Sub-Committee, with a view to advancing the work on this output, invited MSC 90 to clarify which ship types should be addressed for the purposes of developing future requirements for carriage of HFCVs and CNGVs and take action accordingly.

Extension of target completion year

4.10 In light of the above, the Sub-Committee invited the Committee to extend the target completion year for this output to 2012.

5 FIRE RESISTANCE OF VENTILATION DUCTS

General

5.1 The Sub-Committee recalled that MSC 83, having considered document MSC 83/25/11 (Denmark), proposing to expand the scope of the work programme item on "Fire resistance of ventilation ducts", to undertake a comprehensive review of all ventilation systems covered by SOLAS chapter II-2, agreed to expand the work on this output to cover all SOLAS regulations for ventilation systems.

5.2 The Sub-Committee also recalled that FP 54, having considered document FP 54/5 (United States), clarifying the issues that still needed to be resolved before the draft amendments to SOLAS regulation II-2/9.7 could be finalized, decided to establish a correspondence group to progress the work intersessionally, with terms of reference as set out in paragraph 5.5 of document FP 54/25, and instructed the group to submit a report to this session.

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

- .1 FP 55/5 (United States), containing the report of the correspondence group, which prepared draft amendments to SOLAS regulation II-2/9.7, taking into account relevant IMO interpretations and other related issues, such as size cut-offs for automatic fire dampers in ducts passing through "A" class boundary penetrations, provisions for "B" class penetrations, closing appliances and galley ventilation ducts; clarification of provisions related to smoke control/management systems; and consequential draft amendments to SOLAS regulation II-2/3 (definition of a fire damper); and
- .2 FP 55/5/1 (IACS), questioning the justification and adequacy of some assumptions underlying the proposals contained in the report of the correspondence group (FP 55/5) and discussing possible consequences of the draft amendments to regulation II-2/9.7 developed by the group.

Report of the correspondence group

5.4 Having considered the report of the correspondence group (FP 55/5), together with document FP 55/5/1, the Sub-Committee took action as outlined in paragraphs 5.5 and 5.6.

5.5 The Sub-Committee considered the draft amendments to regulation II-2/9.7 prepared by the group, as set out in annex 1 to document FP 55/5, and noted that a number of issues still needed to be resolved before the amendments could be considered for approval. In particular, the Sub-Committee noted the view of the observer from IACS that no evidence had been provided to date for the compelling need or justification to support the proposal to reduce the threshold size of ventilation ducts (i.e. from of 0.075 m² to 0.02 m²) where fire dampers are required to be fitted. In this connection, the Sub-Committee, after a lengthy debate, decided not to reduce the threshold size of ventilation ducts at this stage.

5.6 Subsequently, the Sub-Committee, having decided that it was premature to establish a drafting group to refine and finalize the draft amendments at this session, as originally planned at FP 54 (FP 54/25, paragraph 22.5), agreed that the work should continue by means of a correspondence group, with a view to establishing a working group at FP 56 to finalize the draft amendments to SOLAS regulation II-2/9.7.

Re-establishment of the Correspondence Group

5.7 Having considered the above issues, the Sub-Committee re-established the Correspondence Group on Fire Resistance of Ventilation Ducts, under the co-ordination of the United States,* and instructed the group to:

- .1 further consider whether certain ducts serving more than one tweendeck space should be fitted with fire, smoke, or fire and smoke dampers, and develop a suitable definition for the term "smoke damper", as necessary;
- .2 further consider the treatment of galley ducts for passenger ships carrying not more than 36 passengers and cargo ships with respect to separation and dampers;
- .3 further consider the objective and performance of smoke control and management systems in the context of fire protection in ventilation systems and develop draft amendments to SOLAS regulation II-2/9.7 accordingly;
- .4 further consider the use of remotely controlled fire dampers, including the need for a definition of the term, and develop draft amendments to SOLAS regulation II-2/9.7 accordingly;
- .5 consider the reasons for and the need for an explicit prohibition against splitting ducts to avoid the need for fire dampers in a duct;
- .6 investigate the basis for the current 0.075 m² cut-off for installation of dampers at penetrations and further develop justification for any proposed changes;
- .7 review the draft amendments to SOLAS regulation II-2/9.7, as contained in document FP 55/5, to ensure that all relevant unified interpretations and amendments to SOLAS are taken into account;
- .8 prepare a comprehensive draft amendment to SOLAS regulation II-2/9.7, clearly indicating all proposed changes to the existing text, for consideration by the Sub-Committee;
- .9 investigate the basis for developing requirements for ventilation of fan rooms serving engine rooms, taking into account MSC.1/Circ.1239; and
- .10 submit a report to FP 56.

Extension of target completion year

5.8 In view of the above, the Sub-Committee invited the Committee to extend the target completion year for this output to 2012.

*

Coordinator:

Mr. Laurence E. Fisher
Commandant (CG-5214)
United States Coast Guard
2100 Second Street, S.W.
Washington, DC 20593-0001
United States of America
Tel: +1 202 372 1447/1924
E-mail: Laurence.e.fisher@uscg.mil

6 MEASURES TO PREVENT EXPLOSIONS ON OIL AND CHEMICAL TANKERS TRANSPORTING LOW-FLASH POINT CARGOES

General

6.1 The Sub-Committee recalled that FP 54, having considered the report of its working group on this agenda item (FP 54/WP.2), agreed that the issue of a lower limit of applicability of the requirement for new tankers to be equipped with an inert gas system (IGS) should be discussed and decided at this session.

6.2 The Sub-Committee recalled also that FP 54 agreed to draft amendments to SOLAS regulation II-2/4.5.5 (annex to FP 54/WP.2), but observed that these amendments may be more appropriate for the IBC Code. In this connection, the Sub-Committee recalled that, due to the complexity and scattered location of requirements dealing with IGS within different IMO instruments, the Committee was invited to consider the need to update, revise and consolidate references to IGS in appropriate IMO instruments.

6.3 The Sub-Committee recalled further that FP 54 invited MSC 87 to consider the need to update, revise and consolidate references to inert gas in appropriate IMO instruments (FP 54/26, paragraph 6.18) and invited BLG 15 to comment on draft amendments to SOLAS chapter II-2 and their impact on the IBC Code (FP 54/26, paragraph 6.22).

Outcome of MSC 87

6.4 In considering document FP 55/2 (Secretariat), on the outcome of MSC 87, regarding the need to update, revise and consolidate references to inert gas in appropriate IMO instruments, the Sub-Committee noted that MSC 87 had instructed FP 55 to prepare an appropriate justification for a new output for the Committee's consideration. In this connection, the Sub-Committee considered the relevant part of document FP 55/6/3 (United States), containing a draft justification for an unplanned output to revise the IMO publication on Inert gas systems, and decided that the working group should finalize the text of the draft justification, for consideration by the Sub-Committee with a view to approval of the new output by MSC 90.

Outcome of BLG 15

6.5 The Sub-Committee considered document FP 55/6/1 (Secretariat), reporting on the outcome of BLG 15 with regard to the proposed draft amendments to SOLAS chapter II-2 and their impact on the IBC Code, and noted that BLG 15 had considered the points raised at FP 54 and, in particular, agreed that:

- .1 the proposed amendments to SOLAS regulation II-2/4.5.5 would not affect chapter 9 of the IBC Code, as this chapter is of a general nature;
- .2 in regard to chapter 11 of the IBC Code, its modification would depend on whether the amendments go to SOLAS or the IBC Code; nevertheless, chapter 11 and, in particular, paragraph 11.1 on "Application" would need to be revised in the light of the amendments contained in document FP 54/WP.2, and should refer to resolution A.567(14), as may be amended;
- .3 in respect of the possible impact of applying inert gas to specific cargoes, certain cargoes do require oxygen-dependent inhibitors;

-
- .4 to specify nitrogen as the only inerting medium would be too restrictive, and the selection of the inerting medium should be left to the shippers to decide, depending on the properties of the cargo; and
 - .5 it would be inappropriate to amend column "h" (tank environmental control) in chapter 17 of the IBC Code to incorporate future inert gas requirements, since this chapter applies to all ships carrying chemicals in bulk, regardless of their size or date of construction.

6.6 The Sub-Committee took note of the advice provided by BLG 15 and agreed that this information should be duly taken into account by the working group.

Lower size limit for new oil and chemical tankers to be fitted with inert gas systems

6.7 The Sub-Committee noted the practical aspects of the proposed application of the draft amendments to SOLAS regulation II-2/4.5.5 to new oil and chemical tankers transporting low-flash point cargoes (FP 54/WP.2 and FP 54/26, paragraphs 6.10 to 6.14) and, in particular, recalled FP 54's decision to further debate the lower limit for IGS application at this session, carrying forward the two potential limits of 5,000 and 8,000 tonnes deadweight.

6.8 In this regard, the Sub-Committee had for its consideration document FP 55/6 (OCIMF), providing factual data on the average operational time of inert gas plants, fuel and electrical power consumption, emissions, required space on board ships and, subsequently, proposing a lower limit of 5,000 dwt for chemical tankers to be equipped with IGS.

6.9 After an extensive discussion on the lower size limit for the purpose of applying IGS requirements to new oil and chemical tankers, the Sub-Committee noted that there were differing views on whether a cut-off figure of 5,000 dwt or 8,000 dwt should be set as the criterion.

6.10 Many delegations that spoke on the matter expressed a clear preference for a lower limit of 5,000 dwt, supporting the views in document FP 55/6. In particular, they pointed out that there were no technical difficulties which would prevent equipping new tankers with IGS, using dedicated inert gas generators which are both compact and power saving. These delegates also reminded the Sub-Committee that the above figure had been agreed, in principle, by the working group at FP 54 and was substantiated by an FSA study (FP 53/5/3 for ships of 4,000 dwt). Other delegations expressed the view that the agreement of a working group should not be taken into account when deciding on the cut-off figure.

6.11 However, a clear majority did not accept a 5,000 dwt lower limit, stating that the analysis in document FP 55/6 referred to small oil tankers only, of which approximately 88% did not have IGS and, therefore, the conclusions could not simply be extended to include chemical tankers. They referred to the absence of reliable analyses of the possible impact of the proposed amendments on smaller (e.g. coastal trade) chemical tankers transporting low-flash point cargoes, pointing out that the results of the assessment in document FP 53/5/6 (IPTA and ICS) had already revealed inevitable delays of small chemical tankers in ports, should they be required to use IGS as proposed, which would potentially lead to congestion and increased emissions in the port area. Given that a considerable, not yet sufficiently assessed, quantity of low-flash point cargoes would also be required to be inerted during transportation, they were in favour of a lower limit of 8,000 dwt, as reflected in paragraph 6.14 of document FP 54/25.

6.12 The Sub-Committee, therefore, agreed to 8,000 dwt as the lower size limit for the purpose of applying IGS requirements and instructed the working group to develop amendments to SOLAS regulation II-2/4.5.5 accordingly (see paragraph 6.19.5).

Draft amendments to SOLAS chapter II-2 and/or the IBC Code

6.13 The Sub-Committee, having recalled the different views expressed at FP 54 regarding the allocation of the draft amendments (i.e. SOLAS or the IBC Code), as prepared by the working group established at that session (FP 54/WP.2, paragraph 16 and annex), considered document FP 55/6/2 (Norway), proposing to remove unnecessary duplications from the text of the above draft amendments and that the new requirements should be incorporated into SOLAS and not the IBC Code to avoid confusion; and supporting the option that allows a ship to not inert the tank until it has reached the port of unloading; together with the relevant parts of documents FP 55/6/1 and FP 55/6/3.

6.14 Having discussed the above matter in detail, the Sub-Committee agreed that, while the necessity for draft amendments to SOLAS was obvious, consequential amendments may also be needed to other IMO instruments, including, but not restricted to, the IBC and FSS Codes. Consequently, the Sub-Committee instructed the working group to further consider the matter and advise the Sub-Committee accordingly (see also paragraph 6.18).

Application of the inerting media

6.15 The Sub-Committee considered when the inerting media should be applied to cargo tanks (i.e. after the tank has been loaded, prior to commencement of unloading, etc.), taking into account the relevant parts of document FP 55/6/2, and agreed that the second alternative, as it appears in paragraph 6.16.5 of document FP 54/25, should be pursued for the purposes of developing draft amendments.

Types of inerting media and their impact on specific cargoes

6.16 In considering the use of nitrogen as the only inerting medium, the Sub-Committee concurred with the view of BLG 15 that specifying nitrogen as the only inerting medium could be too restrictive. The Sub-Committee generally agreed that a decision on the use of alternative inerting agents should be part of the ship certification process by the Administration, and not the shipper's decision.

6.17 With regard to cargoes requiring the use of oxygen-dependent inhibitors, the Sub-Committee observed that this matter should be further considered by the group, based on the outcome of BLG 15 and document FP 55/6/3 and taking into account MSC/Circ.879-MEPC/Circ.348 on Equivalency arrangements for the carriage of styrene monomer.

Consequential amendments to other IMO instruments

6.18 The Sub-Committee agreed that the development of draft amendments to SOLAS and the IBC Code would imply updating other related instruments, in particular the FSS Code and recommendations concerning inert gas systems, and further agreed that the development of consequential changes to other IMO instruments affected by the IGS-related amendments could best be handled within the comprehensive framework of a proposed new output (see paragraphs 6.4 and 6.29).

Establishment of a Working Group

6.19 Having considered the above issues, the Sub-Committee established the Working Group on Measures to Prevent Explosions on Oil and Chemical Tankers Transporting Low-flash Point Cargoes and instructed it, taking into account the comments and decisions made in plenary, to:

- .1 further consider the alternative draft texts in paragraph 6.16.5 of document FP 54/25 on operation phase(s) when inerting media should be applied, taking into account document FP 55/6/2;
- .2 assess the proposals contained in documents FP 55/6/2 and FP 55/6/3 in light of the outcome of BLG 15 with regard, in particular, to the cargo polymerization or cargo reaction with some inert gases, taking into account the Equivalency arrangements for the Carriage of styrene monomer (MSC/Circ.879-MEPC/Circ.348);
- .3 decide on any consequential amendments to other IMO instruments (e.g. the IBC Code and/or other instruments), taking into account documents FP 55/6/1, FP 55/6/2 and FP 55/6/3;
- .4 prepare a justification for a new output to revise the instruments in the IMO publication on Inert gas systems, based on the annex to document FP 55/6/3; and
- .5 prepare draft amendments to SOLAS regulation II-2/4.5.5, based on the annex to document FP 54/WP.2.

Report of the working group

6.20 Having considered the report of the working group (FP 55/WP.6), the Sub-Committee approved it in general and took action as indicated hereunder.

Operational phases when inerting media should be applied

6.21 In considering operational phases when inerting media should be applied, the Sub-Committee concurred with the group's view that inerting may take place after a cargo tank has been loaded, but before commencement of unloading, and must continue to be applied until that cargo tank is gas free.

6.22 In this connection, the Sub-Committee noted that the group had prepared the following text, with a view to preparing appropriate amendments to the IBC Code (see also paragraphs 6.25 and 6.26):

"For chemical tankers and gas carriers, when carrying, in specific cargo tanks, products which have a flashpoint of less than 60°C, such as cargoes listed in chapters 17 or 18 of the International Bulk Chemical Code or in the related MEPC.2 circular, the application of inert gas to render the cargo tank non-flammable, may take place after that cargo tank has been loaded, but before commencement of unloading and shall continue to be applied until that cargo tank is gas free. Only nitrogen is acceptable as inert gas under this provision."

Inerting agents to be used in relation to the draft amendments to SOLAS regulation II-2/4.5.5

6.23 In considering the inerting agents to be used in relation to the draft amendments to SOLAS regulation II-2/4.5.5, the Sub-Committee concurred with the group's recommendation that nitrogen should be used as the only inerting medium for chemical tankers.

Cargoes requiring oxygen-dependent inhibitors

6.24 With regard to oxygen-dependent inhibitors required by some cargoes, having noted the Equivalency arrangements for the carriage of styrene monomer (MSC/Circ.879-MEPC/Circ.348), the Sub-Committee noted the group's view that inerting tanks carrying low-flash point cargoes which also require oxygen-dependent inhibitors should be according to the characteristics of the inhibitor. In light of the above, and taking into account that the necessary expertise to evaluate the impact on specific cargoes lies with the BLG Sub-Committee, the Sub-Committee invited BLG 16 to consider the aforementioned views on oxygen-dependent inhibitors, with a view to expanding the application of MSC/Circ.879-MEPC/Circ.348 to other cargoes, as appropriate.

Allocation of the amendments related to inert gas systems

6.25 In considering the views expressed in document FP 55/6/2, in particular, that SOLAS-based requirements should be kept within SOLAS and that IBC-related requirements should be kept in the IBC Code, the Sub-Committee agreed that the requirements to protect cargo tanks with a fixed inert gas system, or other equivalent means, should be located within SOLAS, and that any additional design, construction, functional or operational requirements should be located in other IMO instruments, as appropriate. In this connection, the Sub-Committee agreed that the inerting of cargo tanks after loading was an operational matter and, therefore, should be located within the IBC Code.

Amendments to the IBC Code

6.26 Having noted the group's discussion on matters related to amendments to the IBC Code and recalling the decision in paragraph 6.24, the Sub-Committee invited BLG 16 to:

- .1 prepare amendments to chapter 11 of the IBC Code to reflect the application of the draft amendments to SOLAS regulation II-2/4.5.5 (FP 55/WP.6, annex);
- .2 taking into account paragraph 7 of document FP 55/6/3, prepare amendments to chapters 17 and 18 of the IBC Code to refer to SOLAS regulation II-2/4.5.5 and to identify the cargoes to which inerting media may apply; and
- .3 note the discussion in paragraphs 6.21 to 6.25 above, and concur with the proposed text contained in paragraph 6.22 above, in order to develop appropriate editorial modifications when preparing draft amendments to the IBC Code.

Amendments to other instruments

6.27 The Sub-Committee noted the group's agreement that the FSS Code, resolution A.567(14) and MSC/Circ.353 (as amended by MSC/Circ.387), should be reviewed in the context of the draft amendments to SOLAS regulation II-2/4.5.5 and the proposed amendments to the IBC Code. Notwithstanding the above agreement, the Sub-Committee noted that the group, due to time constraints, was unable to complete the above review, which is considered crucial for the completion of this output.

Amendments to SOLAS chapter II-2

6.28 Subsequently, the Sub-Committee agreed to the draft amendments to SOLAS regulations II-2/1 and II-2/4.5.5, as set out in annex 1 to document FP 55/WP.6, with a view to finalization at FP 56.

Justification for a new output

6.29 Although the working group was instructed to prepare a draft justification for a new output (see paragraph 6.19.4) to revise the instruments in the IMO publication on Inert Gas Systems, the Sub-Committee, based on the decision of MSC 83 to include the item in the Sub-Committee's work programme to deal with the consideration of inert gas systems comprehensively (MSC 83/28, paragraphs 8.13 to 8.15), agreed with the group's view that the revision of the instruments in the IMO publication was already within the scope of this output. In light of the above, the Sub-Committee agreed that the best way forward was the establishment of a correspondence group to deal with this matter and noted the schedule of the work to be done in this regard, as prepared by the group (FP 55/WP.6, annex 2).

Establishment of a correspondence group

6.30 In order to progress the work on this issue, the Sub-Committee established the Correspondence Group on Measures to Prevent Explosions on Oil and Chemical Tankers Transporting Low-flash Point Cargoes, under the co-ordination of the United States,* and instructed the group, taking into account the draft amendments to SOLAS regulation II-2/4.5.5, as set out in annex 1 to document FP 55/WP.6, to:

- .1 consider whether the provisions for inert gas systems contained in chapter 15 of the FSS Code and resolution A.567(14) could be merged into one single document;
- .2 develop requirements for inert gas systems using nitrogen as the inerting medium, taking into account any additional regulations related to nitrogen-based inert gas systems;
- .3 evaluate the relevance of chapter 15 of the FSS Code for tankers of 8,000 dwt and upwards but less than 20,000 dwt and chemical tankers;
- .4 develop amendments to chapter 15 of the FSS Code, resolution A.567(14), and/or MSC/Circ.353 (as amended by MSC/Circ.387), as appropriate; and
- .5 submit a written report to FP 56.

Extension of the target completion year

6.31 In view of the above developments, the Sub-Committee invited the Committee to extend the target completion year for the output to 2012.

*

Co-ordinator:

Ms. Brandi Baldwin, P.E.
Commandant (CG-5214)
United States Coast Guard
2100 2nd Street, S.W.
Washington DC 20593-7126
United States of America
Tel/Fax: +1 202-372-1394/1924
E-mail: Brandi.A.Baldwin@uscg.mil

7 RECOMMENDATION ON EVACUATION ANALYSIS FOR NEW AND EXISTING PASSENGER SHIPS

General

7.1 The Sub-Committee recalled that FP 54 had noted that the Correspondence Group established under this agenda item could not reach consensus regarding the mandatory nature of the Guidelines for evacuation analysis for new and existing passenger ships (MSC.1/Circ.1238) (the Guidelines), but had agreed that amending the scenarios for evacuation analysis could be useful for the implementation of said Guidelines.

7.2 The Sub-Committee recalled also that FP 54 had invited Member Governments and international organizations to submit detailed proposals to this session, which should, however, not address the possibly mandatory nature of the Guidelines, as this matter needed to be considered after the draft amendments had been agreed by the Sub-Committee.

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

- .1 FP 55/7 (Germany), proposing an additional scenario for the evacuation of people gathered in safe areas during a safe-return-to-port operation to be included in the Guidelines and suggesting draft text for consideration, based on the grounds that the distribution of persons on board the ship and its actual geometric arrangement can significantly differ from the assumptions adopted as a basis for calculating stair and corridor capacities;
- .2 FP 55/7/1 (United States), commenting on the view of the correspondence group at FP 54 that the Guidelines on alternative design and arrangements for fire safety (MSC/Circ.1002) should be amended to include life safety criteria and proposing four life safety criteria, addressing the survivability of passengers and crew in terms of effects of heat, smoke, toxicity and reduced visibility on evacuation time;
- .3 FP 55/7/2 (United States), expressing the view that the proposal in document FP 55/7 does not account for cases where onboard procedures direct passengers to first return to their cabins to retrieve their lifejackets, which may require adjustments to the overall travel times for counterflow and proposing to amend chapter 13 of the FSS Code in lieu of the Guidelines, to address this matter; and
- .4 FP 55/7/3 (CLIA), questioning the basis underlying the proposal in document FP 55/7, considering that the proposed amendments exceed the casualty threshold; and expressing the view that the assumption that a full main vertical zone (MVZ) was not available for transit is unrealistic and that the foremost and aftermost MVZ should be exempted from the analysis proposed by Germany.

Revision of the Guidelines for evacuation analysis for new and existing passenger ships

7.4 The Sub-Committee extensively discussed the proposal in document FP 55/7 regarding an additional scenario for the evacuation analysis (MSC.1/Circ.1238) to be considered at an early stage of ship design, taking into account the comments contained in document FP 55/7/3.

7.5 While recognizing the merits of the above proposal, the Sub-Committee noted the views of several delegations that the scenario for safe return to port (SRtP), as a part of the evacuation analysis, went beyond the casualty threshold (as defined in SOLAS regulation II-2/21.3) and, therefore, presented a new requirement. In particular, it was pointed out that the proposal to consider an MVZ unavailable for transit was unrealistic since passenger ships, having multiple decks and vertical fire divisions, will always have numerous routes of travel within an MVZ zone even after the casualty threshold has been exceeded.

7.6 Recognizing that the matter should be given further consideration, and possible similar scenarios may need to be developed within the SRtP concept, the Sub-Committee agreed to await the outcome of the SAFEGUARD project (FP 54/25, paragraph 9.6) currently being executed by the European Union. In this connection, the Sub-Committee noted the latest information on the SAFEGUARD project, in particular that the project is expected to be completed by March 2012. Consequently, the Sub-Committee decided to await the results of the project and reconsider the issue at FP 56, when the findings of the project would be available.

Proposed amendments to chapter 13 of the FSS Code

7.7 In considering document FP 55/7/2, containing draft amendments to chapter 13 of the FSS Code to address daytime cases where onboard procedures direct passengers to first return to their cabins to retrieve their lifejackets, the Sub-Committee noted the information provided by the observer from CLIA that many cruise ships now provide lifejackets at the assembly stations.

7.8 The Sub-Committee also noted the views of several delegations that the preparation of draft amendments to the FSS Code went beyond the scope of this agenda item since this output was focused on the development of recommendations only. Nevertheless, the Sub-Committee agreed that matters related to counterflow could also be considered at FP 56 once the results of the SAFEGUARD project were available.

Proposed amendments to the Guidelines on alternative design and arrangements on fire safety (MSC/Circ.1002)

7.9 The Sub-Committee considered document FP 55/7/1, proposing to incorporate life safety performance criteria into MSC/Circ.1002 to address the effects of heat, smoke, toxic gases and reduced visibility on evacuation time, and noted that there was general support to develop such criteria. Notwithstanding this view, several delegations pointed out that the proposed values were based on national shore-based standards and did not take into consideration any relevant international standards.

7.10 Taking into account that the above proposal went beyond the remit of this output, the Sub-Committee invited the United States and other interested delegations to submit a relevant proposal for a new output to the Committee, in accordance with the Committee's Guidelines.

Extension of target completion year

7.11 In light of the above, the Sub-Committee invited the Committee to extend the target completion year for the output to 2012.

8 CONSIDERATION OF IACS UNIFIED INTERPRETATIONS

General

8.1 The Sub-Committee recalled that this was a continuous item on its biennial agenda, established by MSC 78 so that IACS could submit any newly developed or updated unified interpretations for the consideration of the Sub-Committee with a view to preparing appropriate IMO interpretations, if deemed necessary.

8.2 The Sub-Committee noted that document FP 54/10/3 by IACS, offering IACS UI SC 35 (revision 2) relevant to paragraph 2.2 of chapter 9 of the FSS Code (sources of power supply for fixed fire detection and fire alarm systems) had been considered under agenda item 3 (see paragraph 3.9.2 and annex 3, paragraph 8).

8.3 The Sub-Committee had for its consideration eleven documents submitted by IACS (FP 55/8, FP 55/8/1, FP 55/8/2, FP 55/8/3 and FP 55/8/3/Corr.1, FP 55/8/4, FP 55/8/5, FP 55/8/6, FP 55/8/7, FP 55/8/8, FP 55/8/9 and FP 55/8/10), as well as one document by OCIMF (FP 55/8/11), commenting on document FP 55/8/9 and took action as described in the following paragraphs.

Fire protection arrangements in cargo spaces (SOLAS regulation II-2/10.7.2 and IACS UI SC 49)

8.4 The Sub-Committee noted the intent of IACS (FP 55/8) to clarify the application of SOLAS regulation II-2/10.7.2 as regards: restriction of the application of that regulation to cargo ships of 500 GT and above; indication of the age of cargo ships of 500 GT and above; and addressing the scope of the application of the regulation to passenger ships constructed on or after 1 September 1984 and cargo ships of less than 500 GT constructed on or after 1 February 1992. The new interpretations offered for consideration form an update of IACS UI SC 49, originally developed in 1985.

8.5 Having considered the subject, the Sub-Committee could not accept the proposed interpretation, as it was deemed to be in conflict with the existing interpretation of SOLAS regulation II-2/10.7.2 as contained in MSC/Circ.1120.

Pump-rooms intended solely for ballast transfer or fuel oil transfer (SOLAS regulation II-2/4.5.10)

8.6 The Sub-Committee considered document FP 55/8/1, regarding the possibility of exempting pump-rooms intended for fuel oil transfer, in addition to the function of ballast transfer, from the requirements of SOLAS regulation II-2/4.5.10, but did not agree to a relevant unified interpretation, as the proposal was deemed to contravene the intent of SOLAS regulation II-2/4.5.1.1, which required the level of safety for such pump-rooms to be equivalent to that for cargo pump-rooms. At the same time, the Sub-Committee observed that the unified interpretation for SOLAS regulation II-2/4.5.1.1, as contained in MSC/Circ.1037, may need to be revised, and invited Member Governments and international organizations to submit their views and comments on this issue to FP 56.

Clarification on spaces to which CO₂ control provisions of paragraph 2.2.2 of chapter 5 of the FSS Code apply (paragraph 2.1.3.2 of chapter 5 of the FSS Code and IACS UI SC 132)

8.7 With regard to document FP 55/8/2, where IACS was proposing that the spaces protected by systems specified under paragraph 2.2.2 of chapter 5 of the FSS Code (carbon dioxide) should be the same as those specified in paragraph 2.1.3.2 of the said chapter,

which ensures consistency in the application of the requirements, the Sub-Committee noted that the draft unified interpretation to paragraph 2.1.3.2 of chapter 5 of the FSS Code, proposed by IACS, had been already taken into account by the correspondence group on agenda item 3, as reflected in the draft amendments to the FSS Code set out in annex 3 to document FP 55/3/1 and agreed by the Sub-Committee (see paragraph 4 of that annex). As to the interpretation to paragraph 2.2.2 of chapter 5 of the FSS Code, it was considered as being pertinent to the scope of the working group established under agenda item 3, and the Sub-Committee, therefore, referred it to the group for inclusion in the draft amendments to the FSS Code, which is reflected in paragraph 5 of annex 3.

Testing, approval and installation of "A" class materials (SOLAS regulation II-2/3.2.3, Part 3 of the FTP Code, resolution A.754(18) and IACS UIs FTP 5 and SC 239)

8.8 The Sub-Committee considered documents FP 55/8/3 and FP 55/8/3/Corr.1, aiming at guaranteeing consistency of tested "A" class materials with actual structures to be installed on board ships. Such consistency is to be ensured by, in particular, correspondence between the way of actual installation of insulating materials and that in a type approval report.

8.9 Having discussed the matter, the Sub-Committee agreed to a draft unified interpretation for Part 3 of the FTP Code, for approval by MSC 90 (see paragraph 8.23).

Closing device for ventilation of battery rooms (SOLAS regulation II-2/5.2.1.1 and IACS UI SC 240)

8.10 The Sub-Committee considered document FP 55/8/4, offering a number of reasons justifying the need to keep ventilation outlets of all ventilation systems open because of the hazard of hydrogen accumulation inside which may result in an explosion, and agreed to a draft interpretation to SOLAS regulation II-2/5.2.1.1, for approval by MSC 90 (see paragraph 8.23).

Cargo tank vent systems and selection of electrical equipment (SOLAS regulations II-2/4.5.3.4.1.3 and II-2/11.6.2.2, IEC standard 60092-502 and IACS UI SC 70)

8.11 The Sub-Committee, noting the information provided by IACS in document FP 55/8/5 concerning inconsistencies between the requirements in SOLAS in respect of cargo tank vent location arrangements (regulations II-2/4.5.3.4.1.3 and II-2/11.6.2.2) and those in IEC standard 60092-502 and, in particular, in respect of specifications for Zone 2 in tankers, did not agree to a relevant unified interpretation.

8.12 The Sub-Committee noted in this connection that MSC/Circ.1120 already contained an interpretation regarding cargo tank vent systems and selection of electrical equipment (SOLAS regulation II-2/11.6.2.2), which defines that areas within 2 m beyond Zone 1 are to be considered as Zone 2, as proposed in UI SC 70.

8.13 The delegation of Argentina observed in this regard that interpretation UI SC 120 should be examined for consistency with SC 70.

Manually operated call points (SOLAS regulation II-2/7.7 and IACS UI SC 241)

8.14 The Sub-Committee considered an interpretation to SOLAS regulation II-2/7.7 (FP 55/8/6) providing, in particular, for relaxations regarding installation of manually operated call points in spaces having little or no fire risk, such as voids and CO₂ rooms, which was supported by a number of delegations. However, noting diverging views on the matter, the Sub-Committee did not agree to a relevant unified interpretation and invited IACS to submit a proposal to FP 56 which would take into account the comments made at this session.

Implementation of the provisions of SOLAS regulation II-2/7.5.5

8.15 The Sub-Committee considered document FP 55/8/7 and, having recalled that FP 53 had invited IACS to submit an IACS UI on the application of SOLAS regulation II-2/7.5.5 with regard to control stations (which method of protection, i.e. IC, IIC or IIIC to apply to such spaces), took note of IACS' view that the advice on this matter given by FP 53 (FP 53/23, paragraph 12.5) may not be consistent with regulation II-2/7.5.5 and that, as a consequence, IACS did not offer any interpretations to the regulation.

8.16 The Sub-Committee, having discussed the matter in detail, did not arrive at a firm conclusion, as views were divided. As a consequence, the Sub-Committee invited those Member States and international organizations wishing to clarify requirements on fire detection in SOLAS, to bring their views to the attention of the Committee.

8.17 The observer from IACS re-iterated their opinion that, in order to formalize the advice by FP 53 referred to in paragraph 8.15 above, an appropriate amendment to SOLAS would be necessary, and supported the view of the Sub-Committee that this matter should be considered at the Committee level, as soon as possible, in order to initiate the process.

Ventilation of cargo spaces (SOLAS regulation II-2/19.3.4 and UI SC 89)

8.18 The Sub-Committee considered document FP 55/8/8, presenting the results of the review of IACS UI 89 (in its previous version) *vis-à-vis* the provisions of the IMSBC Code which had entered into force on 1 January 2011. In particular, IACS drew the attention of the Sub-Committee to the issue of "continuous ventilation", as defined in the IMSBC Code, and means of closure provided for in SOLAS for fire safety purposes.

8.19 The Sub-Committee agreed in principle to the proposed interpretation, but observed that, since it dealt with the provisions of the IMSBC Code, it should also be considered by the DSC Sub-Committee and instructed the Secretariat to advise DSC 16 Sub-Committee accordingly. Subsequently, the Sub-Committee agreed to a draft unified interpretation to SOLAS regulation II-2/19.3.4, for approval by MSC 90 (see paragraph 8.23), subject to any comments by DSC 16.

Secondary means of venting cargo tanks (SOLAS regulations II-2/4.5.3.2.2, 11.6.3.2 and IACS UI SC 140)

8.20 The Sub-Committee considered documents FP 55/8/9, proposing an interpretation to SOLAS regulations II-2/4.5.3.2.2 and 11.6.3.2, and FP 55/8/11 (OCIMF), commenting on the latest version of IACS UI SC 140 (annex to FP 55/8/9). In this regard, the Sub-Committee noted that, while the interpretation proposed by IACS provided for a P/V breaker on the inert gas main as the required secondary means of venting, OCIMF questioned the substance of the interpretation, stating that it allowed isolation of both primary and secondary means of venting, giving an illustration to this statement and a practical example of the consequences of a situation where inadvertent closing of the stop valve led to the incident. OCIMF also observed that an inadvertent closing of a stop valve should be assumed as the failure mode, contrary to the assumption appearing in paragraph 4 of IACS UI SC 140, and was of the view that the interpretation in both the latest and previous version allowed the approval of systems where both the primary and secondary means of venting can be isolated from the cargo tank and thus do not meet the SOLAS requirements.

8.21 The Sub-Committee subsequently endorsed the arguments put forward by OCIMF, which were supported by many delegations, and invited IACS, in consultation with OCIMF and other interested delegations, to review the interpretation, taking into account the comments contained in document FP 55/8/11, with a view to providing BLG 16 with the outcome of such deliberations.

Access to controls for closing of ventilation of vehicle, special category and ro-ro spaces (SOLAS regulation II-2/20.3.1.4.1 and IACS UI SC 243)

8.22 The Sub-Committee considered document FP 55/8/10, offering an interpretation of vague expressions in SOLAS regulation II-2/20.3.1.4.1, namely "permit a rapid shutdown" and "taking into account the weather and sea conditions", with regard to the accessibility of controls for closing the means of ventilation, and agreed to a relevant unified interpretation to SOLAS regulation II-2/20.3.1.4.1, for approval by MSC 90 (see paragraph 8.23).

Draft MSC circulars on unified interpretations of SOLAS chapter II-2 and the FTP Code

8.23 Having considered the above documents and the draft interpretations agreed during the session (FP 55/WP.7), the Sub-Committee agreed to the draft MSC circulars on Unified interpretations of SOLAS chapter II-2, as set out in annex 6, and on Unified interpretations of the FTP Code, as set out in annex 7, both for approval by MSC 90.

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

9.1 The Sub-Committee recalled that FP 54 had considered document FP 54/12 (Argentina), proposing two different options for harmonizing the requirements existing in various IMO instruments and other international standards (i.e. IEC 60092-502) with regard to ignition of flammable gases or vapours that can enter through separate openings to ship's working or accommodation spaces, namely to:

- .1 refine the current prescriptive approach by elaborating a comparative table of all requirements in various IMO instruments before proceeding to harmonize all of them in comparison with other international standards; or
- .2 amend the FSS Code by introducing therein a new chapter containing harmonized requirements with a view to amend thereafter SOLAS and the IBC and IGC Codes to refer to such new chapter in the FSS Code.

9.2 The Sub-Committee also recalled that FP 54, in considering the aforementioned document, noted that views were divided on whether the IEC requirements represented a higher or inferior standard of safety, compared to IMO instruments and, subsequently, decided to invite Member Governments and international organizations to submit comments and proposals to this session (see paragraphs 8.11 to 8.13).

9.3 In this connection, the Sub-Committee further recalled that document FP 55/8/5 (IACS), regarding cargo tank vent systems and selection of electrical equipment as specified in SOLAS regulations II-2/4.5.3.4.1.3 and II-2/11.6.2.2, also dealt with the matter, though no agreement was reached on the IACS unified interpretation to these regulations.

9.4 Having noted that no documents had been submitted under the agenda item, and following a proposal by the delegation of Argentina, the Sub-Committee agreed to continue to analyse the requirements on safe distances of entrances, air inlets and openings in the

superstructures of tankers in the relevant IMO and IEC instruments at FP 56 and invited Member Governments and international organizations to submit relevant comments and proposals to that session.

Extension of the target completion year

9.5 Taking the above into account, the Sub-Committee invited the Committee to extend the target completion year for the output to 2012.

10 MEANS OF ESCAPE FROM MACHINERY SPACES

10.1 The Sub-Committee recalled that FP 54, having considered the proposed draft amendments to SOLAS regulations II-2/13.4.1 and II-2/13.4.2 on means of escape from machinery control rooms and other enclosed spaces within machinery spaces of cargo and passenger ships (FP 54/14), had agreed to them in principle, with the proviso that they should be made applicable to new ships only.

10.2 The Sub-Committee also recalled that FP 54, having considered the information provided on the investigation report into the loss of the Chilean-flagged car carrier **Rio Blanco**, had considered it important to pursue the development of the draft amendments that were proposed in document FP 54/14.

10.3 The Sub-Committee further recalled that, due to the necessity to clarify a number of definitions and address specific issues related to smaller ships in regard to the aforementioned draft amendments, FP 54 had invited Member Governments and international organizations to submit comments and proposals to this session.

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

- .1 FP 55/10 (China), drawing attention to the lack of clarity in the text of SOLAS regulation II-2/13.4.2 in respect of the width of enclosed stairway used only as a means of escape from machinery space on a cargo ship; the internal dimensions of an enclosure used as a means of escape from machinery space; dispensation from the two means of escape; and proposing to develop unified interpretations of these requirements;
- .2 FP 55/10/1 (Chile, Denmark, Norway and Sweden), expanding and clarifying the draft amendments to SOLAS regulations II-2/13.4.1 and II-2/13.4.2 already considered at FP 54, and proposing, in particular, to include, in the scope of SOLAS regulation II-2/13.4.1.4, that two means of escape also be provided for other enclosed spaces within machinery spaces of category A, where the ship personnel carry out work on a daily basis; to ensure an equal safety level for the personnel aboard passenger ships and cargo ships; and that additional requirements for open ladders forming part of, or providing access to, escape routes from machinery spaces, should be included;
- .3 FP 55/10/2 (IACS), discussing issues related to the implementation of SOLAS regulations II-2/13.4.1.1 and 13.4.2.1, such as: the location of the door fitted on the lowest part of the enclosure protecting one or two sets of steel ladders; the arrangement of the open stairway providing access to the door from the lowest floor level; the minimum clear opening of the door; and the minimum width between stringers of a vertical or inclined ladder to provide means of escape within and from machinery spaces; and

-
- .4 FP 55/INF.5 (Denmark), providing examples of an engine room arrangement complying with the provisions of the draft SOLAS regulations set out in document FP 55/10/1, and of a ladder construction.

Proposed amendments to SOLAS chapter II-2

10.5 In considering the draft amendments to SOLAS regulations II-2/13.4.1 and 13.4.2, as set out in the annex to document FP 55/10/1, the Sub-Committee noted that they mainly accentuated the following safety aspects:

- .1 providing two means of escape for other enclosed spaces within machinery spaces of category A, where the ship personnel carry out work on a daily basis;
- .2 ensuring an equal safety level for the personnel aboard passenger ships and cargo ships; and
- .3 ensuring additional means of protection for open ladders forming part of, or providing access to, escape routes.

10.6 The Sub-Committee generally agreed with the substance of the draft amendments, but considered they were still lacking consistency and clarity as regards their application to smaller ships, spaces of other than "A" category on cargo ships, definition of enclosed spaces, and parity in terms of ensuring adequate safety levels between passenger and cargo ships.

Establishment of a drafting group

10.7 To refine the draft amendments, the Sub-Committee established a drafting group 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, as contained in the annex to document FP 55/10/1, taking into account comments and proposals made in plenary.

Report of the drafting group

10.8 Having considered the report of the drafting group (FP 55/WP.8), the Sub-Committee agreed, in principle, to the draft amendments to SOLAS regulation II-2/13.4, but observed that the definition of "enclosed room", as taken from SOLAS regulation II-2/9.2.2.4.2.2, needed further clarity in terms of a lower threshold size of such rooms for the purposes of applying the proposed amendments; in particular, two possible criteria were put forward for consideration: floor area of 9 m² or 27 m². In addition, the Sub-Committee noted the views that the definition of "enclosed room" should not be referred to in a footnote, but included in the text of the draft amended regulations themselves.

10.9 Due to lack of time, the Sub-Committee could not conclude its consideration of the draft amendments to SOLAS regulation II-2/13.4 and invited Member Governments and international organizations to submit their comments on the below draft text to FP 56:

"Regulation 13 – Means of escape

- .1 A new paragraph 4.1.5 is added as follows:

"4.1.5 Escape from enclosed rooms within machinery spaces

Two means of escape shall be provided from any enclosed room [with a floor area greater than [9] [27] m²] in which crew members are normally employed and which is located within a machinery space. At least one of these escape routes shall be independent of the machinery space in which the enclosed room is located and shall lead to a safe position outside such machinery space. Any enclosed room means a space that has less than 30% communication openings to the machinery space in which it is located."

.2 In paragraph 4.2.2, the words "required under paragraph 4.2.1" are amended to read "required under paragraphs 4.2.1 and 4.2.5".

.3 Two new paragraphs 4.2.4 and 4.2.5 are added as follows:

"4.2.4 Escape from machinery control rooms

Two means of escape shall be provided from a machinery control room located within a machinery space, at least one of which will provide continuous fire shelter to a safe position outside the machinery space.

4.2.5 Escape from enclosed rooms within machinery spaces

Two means of escape shall be provided from any enclosed room [with a floor area greater than [9] [27] m²] in which crew members are normally employed and which is located within a machinery space. At least one of these escape routes shall be independent of the machinery space in which the enclosed room is located and shall lead to a safe position outside such machinery space. Any enclosed room means a space that has less than 30% communication openings to the machinery space in which it is located."

10.10 The Sub-Committee agreed that any draft amendments should apply to new passenger and cargo ships only and noted that, upon their completion, the Committee should be invited to update the application provisions in regulation II-2/1 accordingly when adopting the amendments.

Development of unified interpretations to SOLAS regulation II-2/13.4, including IACS interpretations

10.11 In considering documents FP 55/10 (see paragraph 10.4.1) and FP 55/10/2 (see paragraph 10.4.3), the Sub-Committee agreed, in general, that the text of SOLAS regulation II-2/13.4.2 needed greater clarification with regard to the requirements regulating dimensions of means of escape from machinery space and to the dispensation from the two means of escape.

10.12 The Sub-Committee noted the intention of IACS (FP 55/10/2) to develop unified interpretations regarding the location of the door fitted on the lowest part of the enclosure protecting one of two sets of steel ladders; the arrangement of the open stairway providing access to the door from the lowest floor level; and the minimum clear opening of the door (SOLAS regulations II-2/13.4.1.1 and 13.4.2.1), taking into account the need to provide additional clarification for these requirements, in particular for port State control purposes.

10.13 Having considered the draft interpretations to SOLAS regulation II-2/13.4 in the documents referred to above, the Sub-Committee concluded that further work was necessary to arrive at an agreed interpretation of the regulation, and invited Member Governments and international organizations to submit their views on the matter to FP 56.

Extension of target completion year

10.14 In view of the above, the Sub-Committee invited the Committee to extend the target completion date for the output to 2012.

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

General

11.1 The Sub-Committee recalled that MSC 83, in considering document MSC 83/25/5 (Germany), which proposed to review the fire protection requirements of SOLAS chapter II-2 to address fire risks related to on-deck cargo areas, had agreed to include in the Sub-Committee's work programme a high priority item on "Review of fire protection requirements for on-deck cargo areas", in co-operation with the DSC Sub-Committee, as necessary and when requested by the FP Sub-Committee.

11.2 The Sub-Committee also recalled that FP 54, having considered documents FP 54/15 and FP 54/INF.2 (Germany), providing the results of an FSA study on container fire on deck carried out by Germany, had agreed to establish a correspondence group to progress the work, with terms of reference as set out in paragraph 5.5 of document FP 54/25, and instructed the group to submit a report to FP 55.

Report of the correspondence group

11.3 The Sub-Committee considered the report of the correspondence group (FP 55/11) and took action as indicated in paragraphs 11.4 to 11.7 below.

Application of the draft amendments to SOLAS chapter II-2

11.4 In considering the draft amendments to SOLAS regulations II-2/2 and II-2/10, as set out in annex 1 to document FP 55/11, the Sub-Committee noted the views of several delegations that the scope of application of the proposed amendments implied applicability to all ships.

11.5 In considering the applicability of the above amendments to existing ships, the Sub-Committee agreed that, due to significant structural alterations that would be required, the measures proposed should not be extended to existing ships.

Impact of fire-fighting water on ship stability

11.6 In considering matters related to extinguishing fires in high container stacks, the Sub-Committee, having noted the concerns expressed by several delegations regarding the potential dangerous decrease of ship stability after water used for fire extinguishing had been applied to high container stacks, agreed that the above draft amendments should also be considered by the SLF Sub-Committee. In this connection, delegations also questioned the need for developing amendments to SOLAS chapter II-2, as these, in their view, were originating from a specific and highly particular case and did not take account of, e.g. separate stowage of containers with different cargoes, such as dangerous and conventional goods.

Scope of work under this output

11.7 Taking into account the scope of the work to be considered under this output (MSC 83/25/5), the Sub-Committee noted that the group's considerations covered a wider range of applications, not restricted to containerhips only, but included, for example, general cargo ships carrying containers on their hatch covers. Consequently, the Sub-Committee decided that further work on the development of the draft amendments to SOLAS chapter II-2 should concentrate on containerhips and that it should be ensured, possibly through national legislation, that ships of other types carrying cargo on deck are not penalized by these draft amendments.

Establishment of the Correspondence Group

11.8 Recognizing the need to make progress on this issue, the Sub-Committee re-established the Correspondence Group on Review of Fire Protection Requirements for On-Deck Cargo Areas, under the co-ordination of Germany,* and instructed it, taking into account document FP 54/15 and the comments made and decisions taken at FP 55, to:

- .1 finalize the draft amendments to SOLAS chapter II-2 and the draft Guidelines for additional fire safety measures for on-deck containerized cargo areas, based on annexes 1 and 2 of document FP 55/11, focusing on containerized cargo on deck in higher stacks in lieu of addressing cargo ships in general;
- .2 clarify the scope of application of the draft amendments and the draft guidelines with regard to new and existing ships, as appropriate;
- .3 review the draft amendments with regard to the footnote references to relevant MSC circulars;
- .4 consider whether to specify performance standards for mobile water monitors and advise the Sub-Committee accordingly; and
- .5 submit a report to FP 56.

Extension of target completion year

11.9 In light of the above, the Sub-Committee invited the Committee to extend the target completion year for this output to 2012.

12 ANALYSIS OF FIRE CASUALTY RECORDS

12.1 The Sub-Committee noted document FP 55/INF.4 (Denmark), providing the preliminary results of investigations conducted into the fires on two passenger ships, which had occurred in October and November 2010, and of the initial corrective and preventive measures taken by the shipowner and the Danish Maritime Authority (DMA) in the wake of

*

Coordinator:

Mr. Peter Securius
Germanischer Lloyd AG
Head of Department Strategic Research
Brooktorkai 18, 20457 Hamburg
Germany
Tel/Fax: +49 -40-36149-558/7320
E-mail: CG.fire-protection@gl-group.com

these incidents. The conclusions drawn concerned, in particular, the importance of training the crew as a precondition for effective fire-fighting and the value of using thermographic equipment to indicate the potential hot spots in adjacent spaces.

12.2 The delegation of Denmark informed the Sub-Committee of their intention to submit, in due course, the outcome of their investigations to the Committee.

13 REVISION OF THE RECOMMENDATIONS FOR ENTERING ENCLOSED SPACES ABOARD SHIPS

13.1 The Sub-Committee recalled that FP 54, having considered several documents submitted under the agenda item, had decided to await the outcome of DSC 15 (coordinating Sub-Committee for the output), in order to avoid a duplication of work on this subject. The Sub-Committee also recalled that FP 54, with regard to the draft Guidance for tank entry on chemical tankers contained in document FP 54/17/1 (IPTA), had agreed that the draft Guidance should be referred to DSC 15 and BLG 15 for consideration, as appropriate, taking into account its applicability to all tankers.

13.2 The Sub-Committee considered document FP 55/13 (Secretariat), containing the outcomes of DSC 15, MSC 88, STW 42, BLG 15 and MSC 89 relevant to this agenda item and noted that MSC 89, having approved a draft Assembly resolution on Revised Recommendations for entering enclosed spaces aboard ships, for submission to the twenty-seventh session of the Assembly for adoption, and the Guidelines on tank entry for tankers using nitrogen as an inerting medium (MSC.1/Circ.1401), had instructed FP 55 to take no further action in this matter.

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

14 GUIDELINES FOR A VISIBLE ELEMENT TO GENERAL EMERGENCY ALARM SYSTEMS ON PASSENGER SHIPS

General

14.1 The Sub-Committee recalled that FP 54 had agreed to postpone consideration of the Guidelines for a visible element to general emergency alarm systems on passenger ships until the outcome of DE 54 could be considered, and invited Member Governments and international organizations to submit relevant comments and proposals to this session, taking into account the outcome of DE 54.

Outcome of DE 55

14.2 The Sub-Committee, having noted that the DE Sub-Committee had continued its work on the matter at DE 55, considered document FP 55/14 (Secretariat), advising that DE 55 had finalized draft Guidelines for the design and installation of a visible element to the general emergency alarm system on passenger ships, for submission to MSC 90 for approval, and had invited FP 55 to submit any fire safety related comments directly to MSC 90, for consideration in conjunction with the approval of the Guidelines.

14.3 Having considered the draft Guidelines for the design and installation of a visible element to the general emergency alarm system on passenger ships prepared by DE 55, set out in the annex to document FP 55/14, the Sub-Committee agreed to inform MSC 90 that fire safety related matters were adequately addressed.

Completion of the work on this output

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

15 MEANS FOR RECHARGING AIR BOTTLES FOR AIR BREATHING APPARATUSES**General**

15.1 The Sub-Committee recalled that MSC 86, having considered document MSC 86/23/15 (Denmark and Faroes), proposing to develop amendments to SOLAS regulation II-2/10.10.2 concerning requirements for fire-fighters' breathing apparatuses, agreed to include, in the work programme of the Sub-Committee and the provisional agenda for FP 54, a high-priority item on "Means for recharging air bottles for air breathing apparatuses", with a target completion date of 2011.

15.2 The Sub-Committee also recalled that FP 54, in view of the absence of any documents submitted on the agenda item, had invited Member Governments and international organizations to submit relevant comments and proposals to this session.

Draft amendments to SOLAS regulation II-2/10

15.3 The Sub-Committee considered document FP 55/15 (Denmark), proposing an amendment to SOLAS regulation II-2/10 to require cargo and passenger ships to be equipped with means for fully recharging cylinders of air breathing apparatuses, together with document FP 55/15/1 (Faroes), supporting the above proposal, and, following a brief discussion, agreed that the proposed amendments needed further detailed consideration, in particular concerning possible alternatives to recharging (e.g. spare charges, air quality, etc.).

Instructions to the Working Group

15.4 Consequently, the Sub-Committee instructed the Working Group on Performance Testing and Approval Standards for Fire Safety Systems, established under agenda item 3, to further consider the proposed amendments (FP 55/15, annex), taking into account document FP 55/15/1.

Report of the Working Group

15.5 Having considered the part of the report of the working group (FP 55/WP.3/Add.1) relating to this item, the Sub-Committee agreed to the draft amendments to SOLAS regulation II-2/15, as set out in annex 8, for submission to MSC 90 for approval with a view to subsequent adoption.

Completion of the work on this output

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

16 SAFETY PROVISIONS APPLICABLE TO TENDERS OPERATING FROM PASSENGER SHIPS

General

16.1 The Sub-Committee recalled that MSC 84, having considered document MSC 84/22/8 (United Kingdom and IACS), proposing to develop provisions for the design, equipment and operation of tenders carrying passengers and crew from passenger ships to shore, together with document MSC 84/22/24 (CLIA), had agreed to include a new item in the work programmes of the DE, FP, COMSAR, NAV, SLF and STW Sub-Committees, assigning the DE Sub-Committee as the co-ordinator of the work.

Outcome of DE 55

16.2 The Sub-Committee considered document FP 55/16 (Secretariat) and noted that DE 55 had finalized draft Guidelines for passenger ship tenders (DE 55/22, annex 2), for submission to MSC 90 for approval, and had invited FP 55 to consider the parts of the draft Guidelines under its purview, in particular paragraph 3.3 thereof, and advise MSC 90 accordingly.

16.3 In considering the aforementioned draft Guidelines (FP 55/16, annex), in particular the fuel flashpoint temperatures in square brackets in paragraph 3.3 (i.e. 43°C or 60°C), the Sub-Committee agreed to the lower flashpoint temperature of 43°C, since this was the same temperature required for lifeboats in the LSA Code, taking into account that lifeboats are designed to operate, inter alia, under low temperature conditions. In this connection, the Sub-Committee also agreed to slightly rephrase the provision in paragraph 3.3 of the draft Guidelines to read: "Fuel with a flashpoint of 43°C or above should be used".

16.4 The Sub-Committee invited MSC 90 to take the above proposals into account when considering the approval of the draft Guidelines for passenger ship tenders.

Completion of the work on the output

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

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

17.1 The Sub-Committee recalled that MSC 87, having considered document MSC 87/24/7 (Norway), proposing to develop interpretations for the fire safety provisions of the 2000 HSC Code, as amended by resolutions MSC.175(79) and MSC.222(82), had included in the biennial agenda of the Sub-Committee and the provisional agenda for FP 55, an unplanned output on "Development of unified interpretations for chapter 7 of the 2000 HSC Code", with a target completion year of 2012.

17.2 The Sub-Committee considered document FP 55/17 (Norway), proposing a draft unified interpretation for paragraph 7.4.1.3 (Fire-restricting materials) of the 2000 HSC Code envisaging a number of exemptions from its requirements for spaces representing no fire risk, and also proposing that insulation systems approved for 30 or 60 min fire resisting divisions need not be qualified as a fire-restricting material, provided that the insulation is non-combustible in accordance with the provisions of the FTP Code. They also proposed a procedure for testing floors in two versions, for areas where a sprinkler system is not provided, and for areas with such a system.

17.3 The Sub-Committee, having noted that, while some delegations were supporting the proposals, others were of the view that the matter needed more detailed consideration, agreed to discuss the issue further at FP 56 and invited Member Governments and international organizations to submit relevant comments and proposals to that session.

18 DEVELOPMENT OF AMENDMENTS TO THE FSS CODE FOR COMMUNICATION EQUIPMENT FOR FIRE-FIGHTING TEAMS

General

18.1 The Sub-Committee recalled that MSC 87, having considered document MSC 87/24/8 (Denmark, Finland and Sweden), proposing to develop amendments to the FSS Code for communication equipment for fire-fighting teams, had agreed to include in the biennial agenda of the Sub-Committee and the provisional agenda for FP 55 an unplanned output on "Development of amendments to the FSS Code for communication equipment for fire-fighting teams", with a target completion year of 2012.

18.2 The Sub-Committee considered document FP 55/18 (Denmark, Finland and Sweden), proposing to include requirements for radio communication equipment in chapter 3 of the FSS Code, and noted that, apart from introducing draft requirements for two-way portable apparatus for use by members of the fire-fighting team, the document also proposed additional appliances to support communication, such as an emergency alarm for the smoke diver built-in on the radio, allowing to alert the leader by pressing the button; location lights placed on the air cylinders of breathing apparatus making it easy for smoke divers to locate each other; and a so-called PASS (Personal Alert Safety) System sounding a loud audible alert to notify others.

Instructions to the Working Group

18.3 After a brief discussion, the Sub-Committee, having noted general support for the inclusion of relevant requirements in the FSS Code, instructed the Working Group on Performance Testing and Approval Standards for Fire Safety Systems, established under agenda item 3, to consider the draft amendments (FP 55/18, annex), taking into account comments made in plenary, and advise the Sub-Committee, as appropriate.

Report of the working group

18.4 Having considered the part of the report of the working group (FP 55/WP.3/Add.1) relating to this item, the Sub-Committee agreed to draft amendments to SOLAS regulation II-2/10, as set out in annex 9, for submission to MSC 90 for approval with a view to subsequent adoption.

18.5 The observer from IACS noted that no criteria had yet been developed against which any assessment could be made of whether the specified two-way portable radiotelephone apparatus would be fit for purpose.

Completion of the work on this output

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

19 DEVELOPMENT OF GUIDELINES FOR USE OF FIBRE REINFORCED PLASTIC WITHIN SHIP STRUCTURES

General

19.1 The Sub-Committee recalled that MSC 87, having considered document MSC 87/24/9 (United Kingdom), proposing to develop guidelines for use of fibre reinforced plastic (FRP) within ship structures, had agreed to include in the biennial agenda of the FP and DE Sub-Committees and the provisional agendas for FP 55 and DE 55, an unplanned output on "Development of Guidelines for use of fibre reinforced plastic (FRP) within ship structures", with a target completion year of 2012. In this connection, the Sub-Committee noted that DE 55 had postponed its work on this matter to DE 56.

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

- .1 FP 55/19 (United Kingdom), pointing out that FRPs are unlikely to pass the non-combustibility test required by Part 1 of Annex 1 to the FTP Code and proposing two options allowing the use of FRPs in ship structures: firstly, envisaging the application of SOLAS regulation II-2/17 on alternative design and arrangements for evaluating FRP structures; and secondly, proposing that the use of FRP may not be regarded as a novel concept, but may be regulated as a material type within the regulatory framework of SOLAS and the FTP Code. Pros and cons of both options were presented for consideration by the Sub-Committee;
- .2 FP 55/19/1 (Sweden), informing of extensive tests on various materials, carried out with due regard to the engineering analysis provisions in SOLAS regulation II-2/17 and the Guidelines on alternative design and arrangements for fire safety (MSC/Circ.1002) and proposing to establish a correspondence group in the matter; and
- .3 FP 55/INF.3 (Sweden), providing background information and experimental data from testing and approval of FRP structures.

19.3 The Sub-Committee extensively discussed the two options put forward by the United Kingdom (FP 55/19) as a starting point for proceeding with the development of requirements for FRP, namely:

- .1 Option 1: to develop guidelines for the application of SOLAS regulation II-2/17 (i.e. through engineering and risk-based analysis methods) and the associated Guidelines on alternative design and arrangements for fire safety (MSC/Circ.1002) for evaluating FRP structures; or
- .2 Option 2: to consider FRP as a material type within the existing regulatory framework of the SOLAS Convention and the FTP Code.

19.4 In assessing the pros and cons of the two approaches, the Sub-Committee concurred with the view expressed by the United Kingdom that an approach based on Option 1 might result in ship-specific FRP structures that cannot readily be used on other ships and thus would prevent the wider use of FRP structures. However, the use of the "prescriptive" approach provided for by SOLAS and the FTP Code (i.e. Option 2) was hardly feasible without introducing amendments to SOLAS chapter II-2 (regulation 11 "Structural integrity") to the effect that FRP is considered as a material equivalent to steel to which specifically developed test acceptance criteria should apply.

19.5 The Sub-Committee noted that the proposals put forward by Sweden (FP 55/19/1 and FP 55/INF.3) expressed a clear preference for Option 1, not only for FRP, but possibly for other composite materials as well. In regard to FRP, Sweden referred to their 15 year experience of fire testing of more than 50 full-scale FRP structures, thus offering an adequate database for future development of requirements based on regulation II-2/17.

19.6 Having noted the diverging views regarding the two options proposed in document FP 55/19, the Sub-Committee considered it premature to establish a correspondence group on this subject, recognizing that there was no sound basis for providing such a group with suitable terms of reference. Consequently, the Sub-Committee invited Member Governments and international organizations to submit their views and proposals on the matter to FP 56.

19.7 Noting the decision of the Committee to assign the DE Sub-Committee as the coordinator for the work on the output, and given the prevalence of fire protection issues in its scope, the Sub-Committee invited the Committee to assign the FP Sub-Committee as the coordinating body for the work and requested the Secretariat to refer the outcome of its considerations in the matter to DE 56.

20 BIENNIAL AGENDA AND PROVISIONAL AGENDA FOR FP 56

20.1 The Sub-Committee noted that MSC 89 and MEPC 62 had approved the revisions to the Committee's Guidelines, taking into account the provisions of the Migration Plan prepared by the Council to harmonize the Committee's Guidelines with the Guidelines on the Application of the Strategic Plan and the High-level Action Plan (resolution A.1013(26)), that the revised Guidelines have been issued as MSC-MEPC.1/Circ.4 and that the Committees urged all those concerned to strictly apply them.

20.2 The Sub-Committee further noted that, to facilitate the transition to the new system, MSC 87 had instructed its subsidiary bodies to prepare their respective biennial agendas for the next biennium, at their forthcoming sessions, in accordance with the revised Guidelines, taking into account, in particular, that:

- .1 outputs selected for the biennial agenda should be phrased in SMART (Specific, Measurable, Achievable, Realistic and Time-bound) terms; and
- .2 where the target completion year for a specific output goes beyond that 2012-2013 biennium, an interim output should be placed in the biennial agenda with a target completion year of 2012 or 2013, as appropriate, and a related output should be placed in the Committee's post-biennial agenda with the anticipated completion year,

and requested the Secretariat, in consultation with the Chairman, to prepare the initial proposals for consideration by the sub-committees accordingly.

Proposals for the biennial agenda for 2012-2013 and provisional agenda for FP 56

20.3 Taking into account the progress made during this session and the decisions of MSC 89, the Sub-Committee prepared its draft biennial agenda for the 2012-2103 biennium in SMART terms and the provisional agenda for FP 56 (FP 55/WP.2, annexes 1 and 2), based on the biennial agenda confirmed by MSC 89 (FP 55/2/3, annex), as set out in annexes 10 and 11, respectively, for consideration by MSC 90.

Arrangements for the next session

20.4 The Sub-Committee agreed to establish, at its next session, working groups on the following subjects:

- .1 development of measures to prevent explosions on oil and chemical tankers transporting low-flash point cargoes;
- .2 development of requirements for the fire resistance of ventilation ducts; and
- .3 review of fire protection requirements for on-deck cargo areas,

and agreed to establish a drafting group on review of the recommendations on evacuation analysis for new and existing passenger ships.

20.5 The Sub-Committee established correspondence groups on the following subjects, due to report to FP 56:

- .1 development of measures to prevent explosions on oil and chemical tankers transporting low-flash point cargoes;
- .2 development of requirements for the fire resistance of ventilation ducts; and
- .3 review of fire protection requirements for on-deck cargo areas.

Status of planned outputs

20.6 The Sub-Committee prepared the report on the status of planned outputs of the High-level Action Plan of the Organization and priorities for the 2010-2011 biennium relevant to the Sub-Committee, as set out in annex 12, and invited the Committee to note the status.

Date of the next session

20.7 The Sub-Committee noted that its fifty-sixth session has been tentatively scheduled to take place from 14 to 18 January 2013.

21 ELECTION OF CHAIRMAN AND VICE-CHAIRMAN FOR 2012

21.1 In accordance with the Rules of Procedure of the Maritime Safety Committee, the Sub-Committee unanimously re-elected Mr. Juan Carlos Cubisino (Argentina) as Chairman and Mr. Claudio Abbate (Italy) as Vice-Chairman, both for 2012.

22 ANY OTHER BUSINESS

Comments on MSC/Circ.1120

22.1 The Sub-Committee concurred with the proposal by Italy (FP 55/22) to introduce amendments to the unified interpretations of SOLAS chapter II-2, the FSS Code, the FTP Code and related fire test procedures (MSC/Circ.1120) to exclude coffee automats, dish washers and water boilers, irrespective of their electrical power, from the list of electrical devices in ship pantries representing higher fire risk and agreed to the draft MSC circular on Amendments to the Unified interpretations of SOLAS chapter II-2, the FSS Code, the FTP Code and related fire test procedures (MSC/CIRC.1120), set out in annex 13, for submission to MSC 90 for approval.

Clarification of paragraph 2.4.2 of chapter 13 of the FSS Code

22.2 The Sub-Committee recalled that it had dealt with document FP 55/22/1 (Italy) under agenda item 3 (see paragraphs 3.6 and 3.14).

Unified interpretations related to safe return to port and safe areas

22.3 Having considered the outcome of the consideration of the draft unified interpretations relating to safe return to port and safe areas by SLF 53 and COMSAR 15 (FP 55/22/2), the Sub-Committee agreed that the best way of disseminating this information would be by means of amendments to MSC.1/Circ.1369 (Interim explanatory notes for the assessment of passenger ship systems' capabilities after a fire or flooding casualty), and agreed to the draft MSC circular on Amendments to the Interim explanatory notes for the assessment of passenger ship systems' capabilities after a fire or flooding casualty (MSC.1/CIRC.1369), as set out in annex 14, for approval by MSC 90.

Amendments to SOLAS chapter II-2

22.4 The Sub-Committee considered document FP 55/22/3 (Secretariat), containing comments made by MSC 88 while approving draft amendments to SOLAS chapter II-2 prepared by FP 54 (MSC 88/26/Add.1, annex 8), reflecting potential difficulties that might occur when applying these and future amendments to existing ships, whenever it is expressly indicated in the text of SOLAS chapter II-2 regulations.

22.5 The Sub-Committee recognized the existence of a conflict between the proposed amendments to regulation II-2/1 and a number of SOLAS chapter II-2 regulations that are linked to the date in the aforementioned regulation *vis-à-vis* specific dates of ship construction and thus leading to a potential inconsistency between them and SOLAS regulation II-2/1. In this regard, the delegation of Argentina, emphasizing the importance of having in place a methodology which would ensure a consistent introduction of amendments into chapter II-2 (and other chapters of SOLAS), proposed an unplanned output for inclusion in the biennial agenda of the Sub-Committee for the 2012-2013 biennium on review of SOLAS chapter II-2 aimed at ensuring that all regulations are subject to a consistent and systematic procedure of adopting amendments.

22.6 The Sub-Committee, expressing its general support for the introduction of consistent amendment procedures with particular regard to the distinction between new and existing ships, and noting that the matter was already under discussion in the Committee, agreed to inform MSC 90 of the above concern and also agreed to invite FSI 20 to consider the matter within the context of its related work on the application of SOLAS chapter III and the LSA Code.

Safety provisions for open-top general cargo ships

22.7 The Sub-Committee noted the intention of IACS (FP 55/22/4) to prepare guidelines which would contain a set of safety provisions specific to open-top general cargo ships akin to those appearing in the Interim guidelines for open-top containerships (MSC/Circ.608/Rev.1), when these are applicable to open-top general cargo ships.

Onboard use and application of programmable systems

22.8 The Sub-Committee noted (FP 55/2/2) that DE 55, when considering document DE 55/INF.2 (IACS), regarding the onboard use and application of programmable electronic systems, in particular, the use of wireless data communication links in safety-related

installations in the maritime industry, had forwarded the above document to FP 55 for consideration. The Sub-Committee noted the information provided.

Test laboratories recognized by Administrations

22.9 The Sub-Committee noted information by the Secretariat that the latest annual FP circular on Test laboratories recognized by the Administrations had been issued as FP.1/Circ.41 on 31 January 2011.

Halon banking and reception facilities

22.10 The Sub-Committee noted information by the Secretariat that the latest annual FP circular on Halon banking and reception facilities had been issued as FP.1/Circ.42 on 31 January 2011.

Expressions of appreciation

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

- Capt. Valentin Sanz Rodriguez (Argentina);
- Commander Roberto Annichini (Argentina);
- Mr. Santiago Villalba (Argentina);
- Mr. Jean-François Fauduet (France);
- Mr. George M. Arku (Liberia);
- Mr. Alexander Frolov (Russian Federation);
- Mr. Manuel Nogueira Romero (Spain);
- Mr. Hakan Lindley (Sweden);
- Mr. Paul Fonseka (United Kingdom);
- Mr. Denis Compton (United States);
- Mr. John Bainbridge (ITF);
- Dr. Peter Swift (INTERTANKO);
- Mr. Eduardo Hernández Martín (Secretariat);
- Mr. Graham Mapplebeck (Secretariat);
- Mr. Miguel Palomares (Secretariat); and
- Mr. Alexander Petrov (Secretariat).

22.12 The Sub-Committee also expressed appreciation for the outstanding achievements to the outgoing Secretary-General, Mr. E.E. Mitropoulos, and warmly congratulated Mr. K. Sekimizu on his election as the Secretary-General from 1 January 2012, and wished both of them every success in the future.

23 ACTION REQUESTED OF THE COMMITTEE

23.1 The Maritime Safety Committee, at its ninetieth session, is invited to:

- .1 approve the draft MSC circular on Revised Guidelines for the design and approval of fixed water-based fire fighting systems for ro-ro spaces and special category spaces (paragraph 3.20 and annex 1);

- .2 approve the draft MSC circular on Guidelines for the approval of helicopter facility foam fire-fighting appliances (paragraph 3.22 and annex 2);
- .3 approve the draft amendments to chapters 3, 5, 8, 9, 12, 13 and 14 of the FSS Code (paragraph 3.24 and annex 3);
- .4 consider the proposals on modifications to the draft amendments to paragraphs 3.2.2.2 and 3.3.2.2 of chapter 6 of the FSS Code approved at MSC 88 for adoption at MSC 90 and take action as appropriate (paragraph 3.25);
- .5 approve the draft MSC circular on Revised Guidelines for the maintenance and inspection of fire-protection systems and appliances (paragraph 3.26 and annex 4);
- .6 approve the draft MSC circular on Unified interpretation of SOLAS regulation II-2/10.6.4 and chapter 9 of the FSS Code (paragraph 3.28 and annex 5);
- .7 consider which ship types should be included in the scope of the output on Requirements for ships carrying hydrogen and compressed natural gas vehicles and decide as appropriate (paragraph 4.9);
- .8 note the agreement of the Sub-Committee to set a threshold of 8,000 dwt as the lower size limit for the purpose of applying requirements on equipping new oil and chemical tankers below 20,000 dwt, with inert gas systems (paragraph 6.12);
- .9 approve the draft MSC circular on Unified interpretations of SOLAS chapter II-2 (paragraph 8.23 and annex 6);
- .10 approve the draft MSC circular on Unified interpretations of the FTP Code (paragraph 8.23 and annex 7);
- .11 note the view of the Sub-Committee that fire safety-related matters are adequately addressed in the Guidelines for the design and installation of a visible element to general emergency alarm system on passenger ships, prepared by DE 55 (paragraph 14.3);
- .12 approve the draft amendments to SOLAS regulation II-2/15 (paragraph 15.5 and annex 8);
- .13 consider the modifications proposed by the Sub-Committee to paragraph 3.3 of the Guidelines for passenger ship tenders, as prepared by DE 55, and decide as appropriate (paragraphs 16.3 and 16.4);
- .14 approve the draft amendments to SOLAS regulation II-2/10 (paragraph 18.4 and annex 9);
- .15 assign the Sub-Committee as the coordinator for the work on the output on Development of guidelines for use of fibre reinforced plastic within ship structures, taking into account the prevalence of fire protection issues in its scope (paragraph 19.7);

- .16 approve the biennial agenda of the Sub-Committee for the 2012-2013 biennium (paragraph 20.3 and annex 10);
- .17 approve the provisional agenda for FP 56 (paragraph 20.3 and annex 11);
- .18 note the report on the status of the Sub-Committee's planned outputs in the High-level Action Plan for the current biennium (paragraph 20.6 and annex 12);
- .19 approve the draft MSC circular on Amendments to the unified interpretations of SOLAS chapter II-2, the FSS Code, the FTP Code and related fire test procedures (MSC/Circ.1120) (paragraph 22.1 and annex 13);
- .20 approve the draft MSC circular on Amendments to the Interim explanatory notes for the assessment of passenger ship systems' capabilities after a fire or flooding casualty (MSC.1/Circ.1369) (paragraph 22.3 and annex 14);
- .21 note the Sub-Committee's concern regarding the potential conflict between explicit application dates included in some SOLAS chapter II-2 regulations and the proposed amendments to regulation II-2/1 approved at MSC 88 and the Sub-Committee's invitation to FSI 20 to consider the matter (paragraph 22.6); and
- .22 approve the report in general.

ANNEX 1

DRAFT MSC CIRCULAR

REVISED GUIDELINES FOR THE DESIGN AND APPROVAL OF FIXED WATER-BASED FIRE-FIGHTING SYSTEMS FOR RO-RO SPACES AND SPECIAL CATEGORY SPACES

1 The Committee, at its eighty-fourth session (7 to 16 May 2008), approved the Guidelines for the approval of fixed water-based fire-fighting systems for ro-ro spaces and special category spaces equivalent to that referred to in resolution A.123(V) (MSC.1/Circ.1272).

2 The Committee, at its [ninetieth session (16 to 25 May 2012)], having considered a proposal by the Sub-Committee on Fire Protection at its fifty-fifth session, with a view to updating and integrating the prescriptive requirements of the Recommendation on fixed fire-extinguishing systems for special category spaces (resolution A.123(V)) and the performance-based requirements of the Guidelines for the approval of fixed water-based fire-fighting systems for ro-ro spaces and special category spaces equivalent to that referred to in resolution A.123(V) (MSC.1/Circ.1272), approved the Revised Guidelines for the design and approval of fixed water-based fire-fighting systems for ro-ro spaces and special category spaces, as set out in the annex.

3 Member Governments are invited to apply the annexed Guidelines when approving fixed water-based fire-fighting systems for ro-ro spaces and special category spaces on or after [date of approval] and bring them to the attention of ship designers, shipowners, equipment manufacturers, test laboratories and other parties concerned.

4 This circular supersedes MSC.1/Circ.1272, except that fire and component tests previously conducted in accordance with MSC.1/Circ.1272, remain valid for the approval of new systems. Existing fixed fire-extinguishing systems for special category spaces approved and installed based on resolution A.123(V) and MSC.1/Circ.1272 should be permitted to remain in service as long as they are serviceable.

ANNEX

REVISED GUIDELINES FOR THE DESIGN AND APPROVAL OF FIXED WATER-BASED FIRE-FIGHTING SYSTEMS FOR RO-RO SPACES AND SPECIAL CATEGORY SPACES

1 General

1.1 These Guidelines and fire tests are intended for the design and approval of fixed water-based fire-fighting systems for open and closed ro-ro spaces and special category spaces defined in SOLAS regulations II-2/3.12, II-2/3.13, II-2/3.35, II-2/3.36, II-2/3.46 and II-2/3.49. Deluge systems can be applied on open ro-ro spaces when the actual wind condition is taken into consideration, for example through the use of high velocity nozzles. Systems using automatic sprinklers or nozzles are only permitted for closed ro-ro and special category spaces or other spaces where wind conditions are not likely to affect system performance.

1.2 These Guidelines are intended to replace both the prescriptive requirements of resolution A.123(V) for conventional water spray systems and the performance-based requirements of circular MSC.1/Circ.1272 for automatic sprinkler and deluge systems. All systems should comply with sections 1, 2 and 3. In addition, prescriptive-based systems should comply with section 4, and performance-based systems should comply with section 5.

2 Definitions

2.1 *Area of operation* is a design area for wet-pipe, automatic sprinkler system (to be determined for performance-based systems by the test procedure described in the appendix to these Guidelines).

2.2 *Automatic sprinkler or nozzle* is a single or multiple orifice water discharge device that activates automatically when its heat-activated element is heated to its thermal rating or above, allowing water under pressure to discharge in a specific, directional discharge pattern.

2.3 *Automatic system* is a system utilizing either automatic sprinklers or nozzles or a system that is automatically activated by a fire detection system.

2.4 *Deluge system, automatic and manual release* is a system employing open nozzles attached to a piping system connected to a water supply through a valve that can be opened by signals from a fire detection system and by manual operation. When this valve is opened, water flows into the piping system and discharges from all nozzles attached thereto.

2.5 *Deluge system, manual release* is a system employing open nozzles attached to a piping system connected to a water supply through a valve that is opened by manual operation. When this valve is opened, water flows into the piping system and discharges from all nozzles attached thereto.

2.6 *Dry pipe system* is a system employing automatic sprinklers or nozzles attached to a piping system containing air or nitrogen under pressure, the release of which (as from the activation of a sprinkler or nozzle by heat from a fire) permits the water pressure to open a valve known as a dry pipe valve. The water then flows into the piping and discharges from the open nozzles or sprinklers.

2.7 *Fire control* limits the size of a fire by distribution of water so as to decrease the heat release rate, while controlling ceiling gas temperatures and pre-wetting adjacent combustibles and/or reducing heat radiation to avoid structural damage.

2.8 *Fire suppression* is the sharp reduction of the heat release rate of a fire and the prevention of regrowth.

2.9 *K-factor* is a sprinkler nozzle discharge coefficient determined by testing, that is used to calculate flow rate at any given pressure through the relationship $Q = k P^{1/2}$, where Q is the flow rate in litres per minute, and P is the pressure in bars.

2.10 *Open sprinkler or nozzle* is an open single or multiple orifice water discharge device that, when discharging water under pressure, will distribute the water in a specific, directional discharge pattern.

2.11 *Performance based requirements* are based on the results of fire tests conducted on specific nozzle design and arrangements. The required engineering parameters for such systems are determined by the results of the fire tests.

2.12 *Prescriptive based requirements* are specific requirements, such as minimum water discharge density or maximum nozzle spacing, and are applied equally to all systems designed to this approach.

2.13 *Pump* means a single water pump, with its associated driver and control or an individual pump within a pump unit.

2.14 *Pump unit* means a single water pump, or two or more pumps connected together to form a unit, with their associated driver(s) and controls.

2.15 *Preaction system* is a system employing automatic sprinklers or nozzles attached to a piping system containing air that may or may not be under pressure, with a supplemental fire detection system installed in the same area as the sprinklers or nozzles. Activation of the fire detection system opens a valve that permits water to flow into the system piping and to be discharged from any sprinkler or nozzle that has operated.

2.16 *Water-based extinguishing medium* is fresh water or seawater, with or without an antifreeze solution and/or additives to enhance fire-extinguishing capability.

2.17 *Water discharge density* is the unit rate of water application to an area or surface expressed in mm/min (equal to (l/min)/m²).

2.18 *Wet pipe system* is a system employing automatic sprinklers or nozzles attached to a piping system containing water and connected to a water supply so that water discharges immediately from sprinklers or nozzles opened by heat from a fire.

3 Principal requirements for all systems

3.1 The system may be automatically activated, automatically activated with provisions for manual activation or manually activated.

3.2 All systems should be divided into sections. Each section should be capable of being isolated by one section control valve. The section control valves should be located outside the protected space, be readily accessible without entering the protected spaces and their locations should be clearly and permanently indicated. It should be possible to

manually open and close the section control valves either directly on the valve or via a control system routed outside of the protected spaces. Means should be provided to prevent the operation of the section control valves by an unauthorized person. Control valve locations should be adequately ventilated to minimize the build-up of smoke.

3.3 The piping system should be sized in accordance with a hydraulic calculation technique* such as the Hazen-Williams hydraulic calculation technique or the Darcy-Weisbach hydraulic calculation technique, to ensure the availability of the flows and pressures required for correct performance of the system. The design of the system should ensure that full system pressure is available at the most remote sprinkler or nozzle in each section within 60 s of activation.

3.4 The system supply equipment should be located outside the protected spaces and all power supply components (including cables) should be installed outside of the protected space. The electrical components of the pressure source for the system should have a minimum rating of IP 54.

3.5 Activation of an automatic system should give a visual and audible alarm at a continuously manned station. The alarm in the continuously manned station should indicate the specific section of the system that is activated. The system alarm requirements described within this paragraph are in addition to, and not a substitute for, the detection and fire alarm system required by SOLAS regulation II-2/20.4.

3.6 Wet pipe systems on board vessels that can operate in areas where temperatures below 0°C can be expected, should be protected from freezing either by having temperature control of the space, heating coils on pipes, antifreeze agents or other equivalent measures.

3.7 The capacity of the system water supply should be sufficient for the total simultaneous coverage of the minimum coverage area of tables 4-1 to 4-3 and 5-1 and the vertically applicable area as defined in paragraph 3.22.

3.8 The system should be provided with a redundant means of pumping or otherwise supplying a water-based extinguishing medium to the system. The capacity of the redundant means should be sufficient to compensate for the loss of any single supply pump or alternative source. Failure of any one component in the power and control system should not result in a reduction of required pump capacity of deluge systems. In the case of wet pipe, dry pipe and preaction systems, failure of any one component in the power and control system should not result in a reduction of the automatic release capability or reduction of required pump capacity by more than 50%. However, systems requiring an external power source need only be supplied by the main power source. Hydraulic calculations should be conducted to assure that sufficient flow and pressure are delivered to the hydraulically most demanding section both in normal operation and in the event of the failure of any one component.

3.9 The system should be fitted with a permanent sea inlet and be capable of continuous operation during a fire using sea water.

* Where the Hazen-Williams Method is used, the following values of the friction factor *C* for different pipe types which may be considered should apply:

<i>Pipe type</i>	<i>C</i>
Black or galvanized mild steel	100
Copper and copper alloys	150
Stainless steel	150

3.10 The system and its components should be designed to withstand ambient temperatures, vibration, humidity, shock, impact, clogging and corrosion normally encountered. Piping, pipe fittings and related components except gaskets inside the protected spaces should be designed to withstand 925°C. Distribution piping should be constructed of galvanized steel, stainless steel, or equivalent. Sprinklers and nozzles should comply with paragraph 3.11.

3.11 The system and its components should be designed and installed based on international standards acceptable to the Organization^{**}. The nozzles should be manufactured and tested based on the relevant sections of appendix A to circular MSC/Circ.1165 (Revised Guidelines for the approval of equivalent water-based fire-extinguishing systems for machinery spaces and cargo pump-rooms).

3.12 A means for testing the automatic operation of the system and, in addition, assuring the required pressure and flow should be provided.

3.13 If the system is pre-primed with water containing a fire suppression enhancing additive and/or an antifreeze agent, periodic inspection and testing, as specified by the manufacturer, should be undertaken to assure that their effectiveness is being maintained. Fire suppression enhancing additives should be approved for fire protection service by an independent authority. The approval should consider possible adverse health effects to exposed personnel, including inhalation toxicity.

3.14 Operating instructions for the system should be displayed at each operating position.

3.15 Installation plans and operating manuals should be supplied to the ship and be readily available on board. A list or plan should be displayed showing spaces covered and the location of the zone in respect of each section. Instructions for testing and maintenance should be available on board.

3.16 Spare parts should be provided as recommended by the manufacturer. In the case of automatic sprinkler systems, the total number of spare sprinkler heads for each type of sprinklers shall be 6 for the first 300, 12 for the first 1,000.

3.17 Where automatic systems are installed, a warning notice should be displayed outside each entry point stating the type of medium used (i.e. water) and the possibility of automatic release.

3.18 All installation, operation and maintenance instruction/plans for the system should be in the working language of the ship. If the working language of the ship is not English, French, or Spanish, a translation into one of these languages should be included.

3.19 Any foam concentrates used as system additives should comply with the Revised Guidelines for the performance and testing criteria and surveys of foam concentrates for fixed fire-extinguishing systems (MSC.1/Circ.1312).

3.20 Means for flushing of systems with fresh water should be provided.

3.21 The presence of obstructions and the potential for shielding of the water spray should be evaluated to ensure that the system performance is not affected. Supplementary

^{**} Pending the development of international standards acceptable to the Organization, national standards as prescribed by the Administration should be applied.

sprinklers or nozzles should be installed beneath obstructions. In addition, nozzles should be located to protect spaces above and below intermediate decks, hoistable decks and ramps. Nozzles below hoistable decks should be capable of protecting all applicable heights.

3.22 Vertically the applicable area of all decks, including hoistable decks or other intermediate decks, between reasonably gas-tight steel decks (or equivalent materials), should be included for simultaneous coverage (example: with one hoistable deck, both the layer above and below this deck with a dimensioning area complying with Tables 4-1 to 4-3 or 5-1 should be included in the water supply calculations). Decks with ramps are accepted as reasonably gas-tight decks assuming that the ramps are always in their closed position at sea and the ramps and the decks which these ramps are part of are reasonably gas-tight.

3.23 All release controls for deluge systems, monitor(s) for any CCTV system, the control panel (or an indication panel) for the fire detection system, water pressure on the discharge side of all pump units, and the position indication of all section valves should be available and grouped together in a continuously manned control station or the safety centre, if provided.

3.24 The length of a deluge section (along the lanes) should not be less than 20 m and the width of the section should not be less than 14 m. Further, the sections need not be longer or wider than the distance between reasonably gas-tight steel bulkheads (or equivalent materials). The maximum size of a section on any single deck should be 48 m multiplied by the width of cargo space (measured as distance between tight steel divisions). Vertically one section can cover up to three decks.

4 Additional prescriptive-based system design requirements

In addition to the requirements in section 3, systems designed with this approach should comply with paragraphs 4.1 to 4.10.

4.1 Wet pipe, dry pipe and preaction systems should be designed for simultaneous coverage of the hydraulically most demanding area at the minimum water discharge density given in Tables 4-1 to 4-3. The minimum operating pressure of any sprinkler should be 0.05 MPa.

4.2 Deluge systems should be designed for the simultaneous activation of the two adjacent deluge sections with the greatest hydraulic demand at the minimum water discharge density given in Tables 4-1 to 4-3. The minimum operating pressure of any sprinkler should be 0.12 MPa.

Table 4-1 Minimum required water discharge density and area of coverage for decks having a free height equal to or less than 2.5 m

Type of system	Minimum water discharge density (mm/min)	Minimum coverage area
Wet pipe system	6.5	280 m ²
Dry pipe or preaction system	6.5	280 m ²
Deluge system	5	2 x 20m x B ¹

Table 4-2 Minimum required water discharge density and area of coverage for decks having a free height in excess of 2.5 m but less than 6.5 m

Type of system	Minimum water discharge density (mm/min)	Minimum coverage area
Wet pipe system	15	280 m ²
Dry pipe or preaction system	15	365 m ²
Deluge system	10	2 x 20 m x B ¹

Table 4-3 Minimum required water discharge density and area of coverage for decks having a free height in excess of 6.5 m but less than 9.0 m

Type of system	Minimum water discharge density (mm/min)	Minimum coverage area
Wet pipe system	20	280 m ²
Dry pipe or preaction system	20	365 m ²
Deluge system	15	2 x 20 m x B ¹

¹ B = full breadth of the protected space.

4.3 Automatic sprinklers or nozzles intended for decks with a free height equal to or less than 2.5 m should have a nominal operating temperature range between 57°C and 79°C and standard response characteristics. If required by ambient conditions, higher temperature ratings may be acceptable.

4.4 Automatic sprinklers or nozzles intended for decks with a free height in excess of 2.5 m and hoistable decks that can be raised above 2.5 m should have a nominal operating temperature range between 121°C and 149°C and standard response characteristics.

4.5 Sprinklers or nozzles should be positioned at or within 0.6 m of the underside of the deck, in order to distribute water over and between all vehicles or cargo in the area being protected. Automatic sprinklers or nozzles should be positioned and located so as to provide satisfactory performance with respect to both activation time and water distribution. The maximum horizontal spacing between nozzles or sprinklers should not exceed 3.2 m.

4.6 Only upright sprinklers or nozzles are allowed for dry pipe or preaction systems.

4.7 For wet pipe and dry pipe sprinkler systems, fire detection systems should be installed in accordance with the requirements of SOLAS regulation II-2/20.4.

4.8 For manual deluge systems, automatic deluge systems and pre-action systems, fire detection systems should be provided complying with the International Code for Fire Safety Systems (FSS Code) and the following additional requirements:

- .1 the detection system should consist of flame, smoke or heat detectors of approved types, arranged as described below. The flame detectors should be installed under fixed continuous decks according to the limitation and application defined by the maker and the approval certificate. The smoke and heat detector arrangement shall comply with the FSS Code. Smoke

detectors with a spacing not exceeding 11 m or heat detectors with a spacing not exceeding 9 m should be installed under hoistable ramps;

- .2 the detection system should ensure rapid operation while consideration should also be given to preventing accidental release. The area of coverage of the detection system sections should correspond to the area of coverage of the extinguishing system sections. The following arrangements are acceptable:
 - .1 set-up of approved flame detectors and approved smoke detectors or heat detectors; or
 - .2 set-up of approved smoke detectors and approved heat detectors;other arrangements can be accepted by the Administration;
- .3 for automatic deluge systems and pre-action systems, the discharge of water should be controlled by the detection system. The detection system should provide an alarm upon activation of any single detector and discharge if two or more detectors activate. The Administration may accept other arrangements; and
- .4 automatically released systems should also be capable of manual operation (both opening and closing) of the section valves. Means should be provided to prevent the simultaneous release of multiple sections that result in waterflow demand in excess of the pumping system design capacity. The automatic release may be disconnected during on and off-loading operations, provided that this function is automatically reconnected after a pre-set time being appropriate for the operations in questions.

4.9 Where beams project more than 100 mm below the deck, the spacing of spot-type heat detectors at right angles to the direction of the beam travel should not be more than two-thirds of the spacing permitted under chapter 9 of the FSS Code.

4.10 Where beams project more than 460 mm below the deck and are more than 2.4 m on centre, detectors should be installed in each bay formed by the beams.

5 Additional performance-based system design requirements

In addition to the requirements in section 3, systems designed with this approach should comply with paragraphs 5.1 to 5.6.

5.1 The system should be capable of fire suppression and control and be tested to the satisfaction of the Administration in accordance with the Appendix to these Guidelines.

5.2 The nozzle location, type of nozzle and nozzle characteristics should be within the limits tested to provide fire suppression and control as referred to in paragraph 5.1.

5.3 System designs should be limited to the use of the maximum and minimum temperature ratings of the thermally sensitive fire detection devices tested to provide fire suppression and control as referred to in paragraph 5.1.

5.4 The capacity of the system water supply should be sufficient for the total simultaneous coverage of the minimum coverage area of Table 5-1 and the vertically applicable area as defined in paragraph 3.22, and the requirements of paragraph 5.5.

Table 5-1 Minimum coverage area per type of system

Type of system (Definition number)	Minimum coverage area
A. Wet pipe, automatic sprinkler heads (2.18)	280 m ² or area of operation as defined in the fire tests – whichever is larger
B. Deluge system, automatic ¹ and manual release (2.4)	280 m ² and the overlapping or adjacent section as defined by paragraph 5.5 ²
C. Deluge system, manual release (2.5)	2 sections each of min 20 m x B ^{2,3}
D. Other systems (2.6, 2.15)	Equivalent to the above systems and to the satisfaction of the Administration

¹ The automatic release should comply with the requirements of paragraph 5.6.

² The pump should be sized to cover the largest section for type B systems and the two largest horizontally adjacent sections for type C systems.

³ B = full breadth of the protected space.

5.5 The section arrangement for a deluge system with automatic and manual release (system B) should be such that a fire in any location of the border zone between two or more sections would be completely surrounded by activated spray heads, either by activating more than one section or by overlapping sections (whereby two or more sections cover the same area in the vicinity of the border between sections). In case of overlapping sections, such overlap should be a minimum of two times the required spray head spacing of the section in question or five metres, whichever is larger. These overlapping sections need not comply with the minimum width and length requirements of paragraph 3.24.

5.6 For systems of type B (see Table 5-1) an efficient fire detection and fire confirmation system covering all parts of the ro-ro or special category spaces should be provided as follows:

- .1 the fire detection system shall consist of flame detectors and smoke detectors of approved types. The flame detectors shall be installed under fixed continuous decks according to the limitation and application defined by the maker and the approval certificate. The smoke detector arrangement shall comply with the FSS Code. Additional smoke detectors with a spacing not exceeding 11 m shall be installed under hoistable ramps;
- .2 a colour TV monitoring system should cover all parts of the ro-ro or special category spaces. Cameras need not be installed below hoistable decks if the camera arrangement can identify smoke (confirm fire) based on positions under a fixed continuous deck; and
- .3 the relevant section of the deluge system should be automatically released when two detectors covering this area activate. Systems being released when only one detector activates may also be accepted. Automatically released systems should also be capable of manual operation (both opening and closing) of the section valves. The automatic release may be disconnected during on- and off-loading operations, provided that this function is automatically reconnected after a pre-set time being appropriate for the operations in question.

APPENDIX

TEST METHOD FOR FIXED WATER-BASED FIRE-FIGHTING SYSTEMS FOR RO-RO SPACES AND SPECIAL CATEGORY SPACES

1 SCOPE

1.1 This test method is intended for evaluating the effectiveness of fixed water-based fire-fighting systems installed in ro-ro spaces and special category spaces with deck heights up to and including 5 m and/or up to and including 2.5 m.

1.2 The test programme has two objectives:

- .1 establishing nozzle location, nozzle characteristics, minimum water delivery rate and minimum water pressure for systems which will provide the required level of system response time, suppression and control; and
- .2 establishing the minimum area of operation of the system for the purpose of determining hydraulic design requirements for wet pipe, dry pipe and preaction systems.

2 GENERAL REQUIREMENTS

2.1 Sampling

The nozzles and other components to be tested should be supplied by the manufacturer together with design and installation criteria, operational instructions, drawings and technical data sufficient for the identification of the components.

2.2 Tolerances

Unless otherwise stated, the following tolerances should apply:

- .1 length: $\pm 2\%$ of value;
- .2 volume: $\pm 5\%$ of value;
- .3 pressure: $\pm 3\%$ of value; and
- .4 temperature: $\pm 2\%$ of value.

2.3 Observations

The following observations should be made during and after each test:

- .1 time of ignition;
- .2 activation time of first nozzle;
- .3 time when water flows out through first nozzle;
- .4 time when water flow is shut off;

- .5 time when the test is terminated; and
- .6 total number of activated nozzles.

2.4 Test hall and environmental conditions

The test hall where the tests are conducted should have a minimum floor area of 300 m² and a ceiling height in excess of 8 m. The test hall may be equipped with a forced ventilation system, or be natural ventilated, in order to ensure that there is no restriction in air supply to the test fires. The test hall should have an ambient temperature of between 10 and 25°C at the start of each test.

2.5 Measurement equipment

Temperatures should be measured using plain K-type thermocouple wires not exceeding 0.5 mm in diameter. The thermocouple head should be protected against direct water impingement, e.g. by tin cans.

System water pressure should be measured by using suitable equipment. Total water flow rate should be determined by a direct measurement or indirectly by using the pressure data and "k" factor of the nozzles.

The measurements should be made continuously throughout the tests.

2.6 System operational conditions

The tests should simulate the conditions of an actual installed system regarding objectives such as time delays between the activation of the system and minimum system water pressure or water delivery. In addition, the use of a pre-primed fire suppression enhancing additive, if applicable, should be taken into account.

3 DETERMINATION OF FIRE SUPPRESSION AND CONTROL CAPABILITIES

3.1 Principle

These test procedures test the effectiveness of a water-based fire-fighting system against two different scenarios: a cargo fire in a simulated freight truck, and a passenger vehicle fire.

3.2 Fire source

3.2.1 The primary fire source for both scenarios consists of EUR standard wood pallets (ISO 6780:2003), stored inside with the moisture content of $14 \pm 2\%$. Figure 3.2.1 shows details of a EUR pallet.

3.2.2 Plywood panels made of pine or spruce are used as targets. The panels should be approximately 12 mm thick. The ignition time of the panel should not be more than 35 s and the flame spread time at 350 mm position should not be more than 100 s as measured in accordance with resolution A.653(16).

3.2.3 For ignition, commercial heptane should be applied.

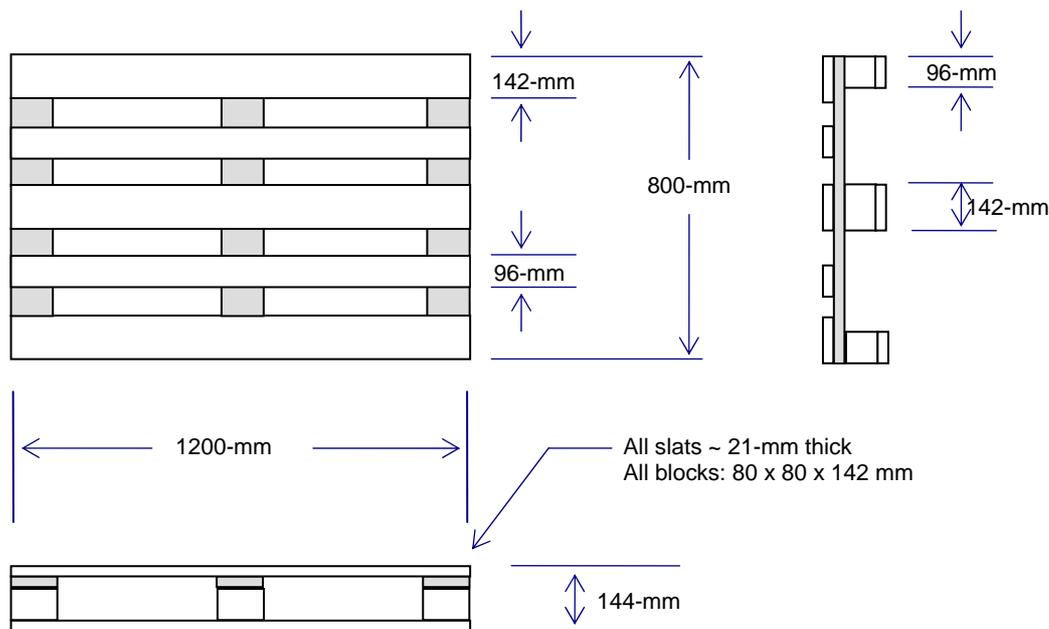


Figure 3.2.1 – Typical dimensions of the standard EUR pallet

3.3 Apparatus

3.3.1 Test area

The tests should be conducted in a test hall as specified in paragraph 2.4 above, under a flat, smooth, non-combustible ceiling of at least 100 m². There should be at least a 1 m space between the perimeters of the ceiling and any wall of the test hall.

3.3.2 Fire scenario 1: cargo fire in a simulated freight truck (see figures 3.3.2.1 to 3.3.2.3)

3.3.2.1 The primary fuel package consists of 112 wood pallets arranged in an array of 2 (wide) x 7 (high) x 8 (long) and raised up on a level of 2.8 m so that the top level of the fuel package is at 3.8 to 3.9 m above the floor.

3.3.2.2 The support frame for the wood pallet array of paragraph 3.3.2.1 should be constructed using open steel racks. The wood pallet piles should be standing freely on horizontal steel beams without any solid bottoms.

3.3.2.3 The fuel pallet array should be half-shielded by a 4.5 m long, 2.6 m wide steel plate (thickness at least 2 mm) at 4 m height. The plate should be properly fixed so that during a test it does not bend to provide an unobstructed passage of water onto the fuel package.

3.3.2.4 Plywood panel targets (acting also as obstructions) of dimensions 3.6 m (wide) x 2.4 m (high) should be arranged symmetrically on both sides of the fuel package at 1 m distance so that the top edge is at the same level as the top level of the wood pallet array.

3.3.2.5 The fire should be ignited by two steel trays centrally located under the fuel package as shown in figures 3.3.2.1 to 3.3.2.3. The square trays are 25 cm high and 0.1 m² of free surface area. The trays should be filled with water and 1 l of heptane so that the free rim height above the liquid surface is 4 cm. The distance between the bottom of the wood pallet piles and liquid surface is 29 cm.

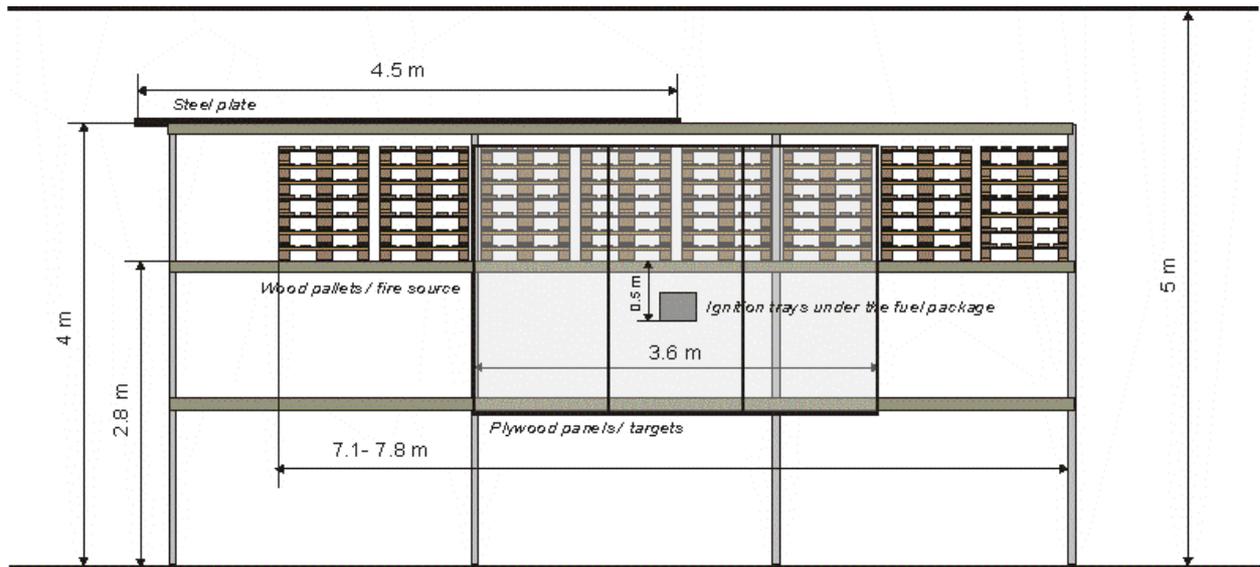


Figure 3.3.2.1 – Side view of the cargo fuel package in a simulated truck

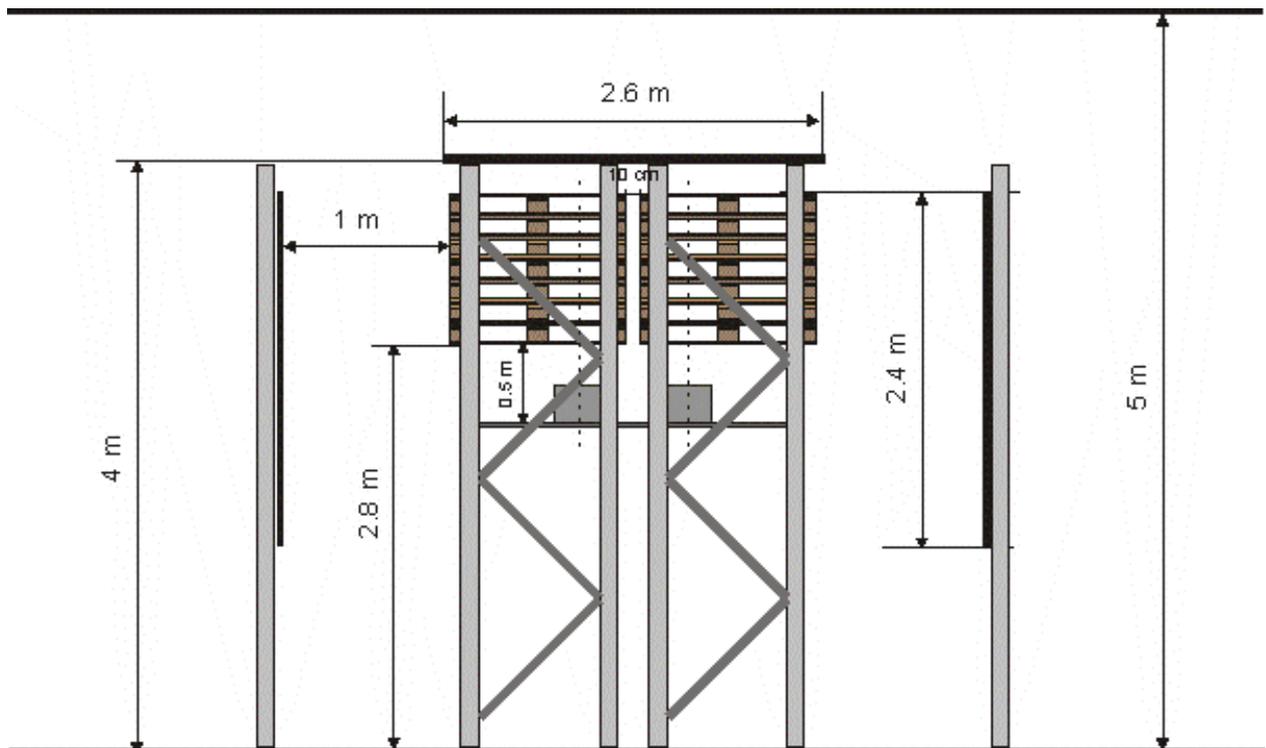


Figure 3.3.2.2 – End view of the cargo fuel package in a simulated truck

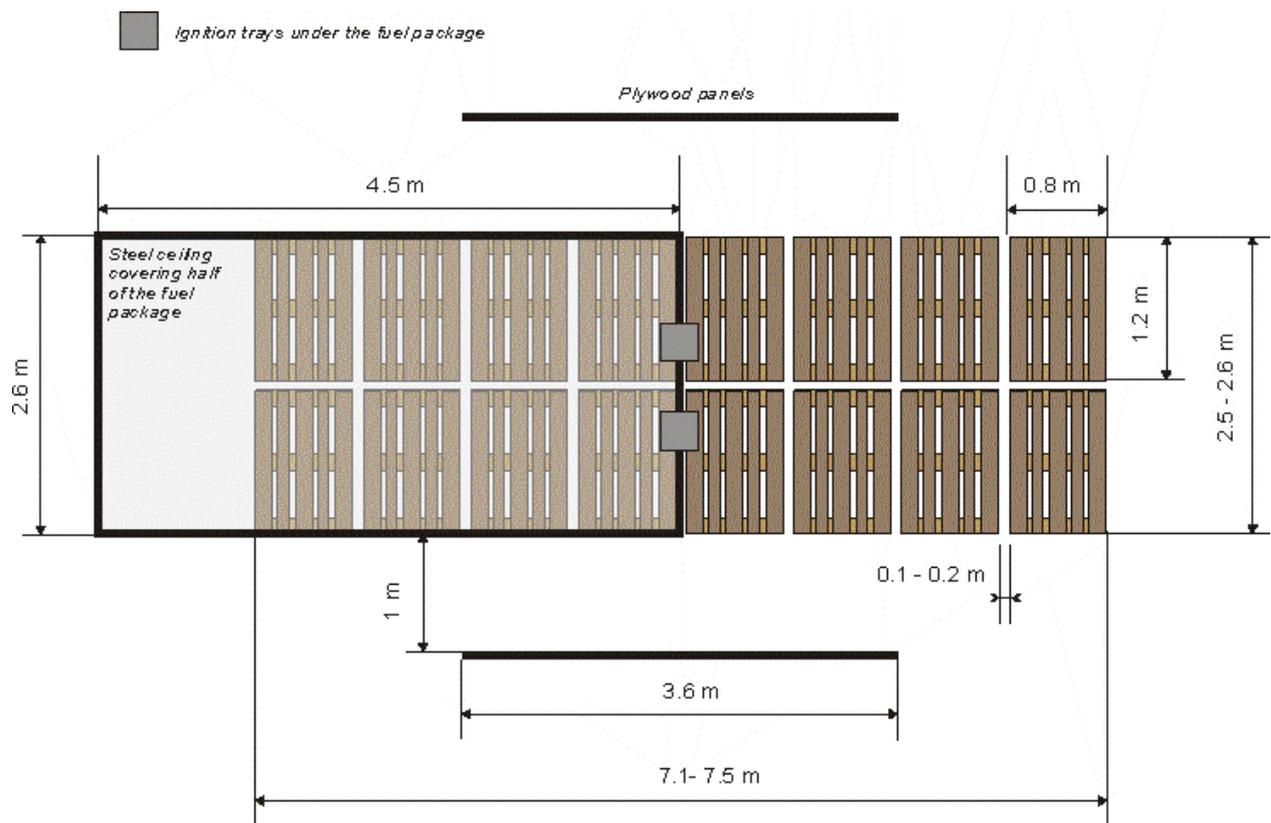


Figure 3.3.2.3 – Top view of the cargo fuel package in a simulated truck

3.3.3 **Fire scenario 2: passenger vehicle fire** (see figures 3.3.3.1 and 3.3.3.2)

3.3.3.1 The primary fuel package consists of 12 wood pallets arranged in an array of 1 pallet (wide) x 6 pallets (high) x 2 pallets (long) constructed inside a passenger vehicle mock-up.

3.3.3.2 The passenger vehicle mock-up is constructed of nominally 2 mm steel.

3.3.3.3 Plywood panel targets (acting also as obstructions) of dimensions 1.2 m (wide) x 1.75 m (high) should be arranged symmetrically on both sides of the mock-up at 0.6 m distance so that the top edge is at the same level as the top level of the mock-up car.

3.3.3.4 The fire should be ignited by a steel tray centrally located under the fuel package as shown in figures 3.3.3.1 and 3.3.3.2. The square tray is 10 cm high and 0.1 m² of free surface area. The tray should be filled with water and 1 l of heptane so that the free rim height above the liquid surface is 4 cm.

3.4 **Nozzle positioning**

3.4.1 Nozzles should be installed in an array at the ceiling level in accordance with the manufacturer's design and installation criteria. Tests should be repeated with three different relative locations between the nozzle array and the fuel package, i.e. centre of ignition under one nozzle, between two nozzles and between four nozzles, as shown in figure 3.4.1.

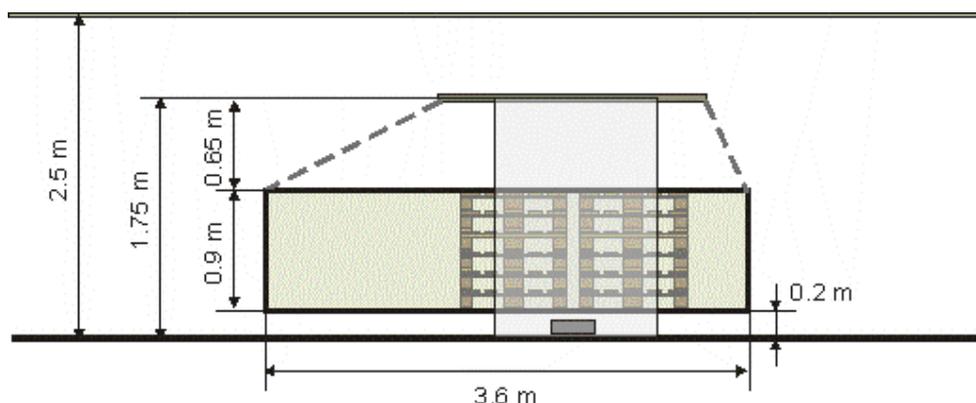


Figure 3.3.3.1 – Side view of the passenger vehicle fuel package
(The dashed lines visualize the shape of a car; the ceiling plate is to be fixed in its location as found most practical)

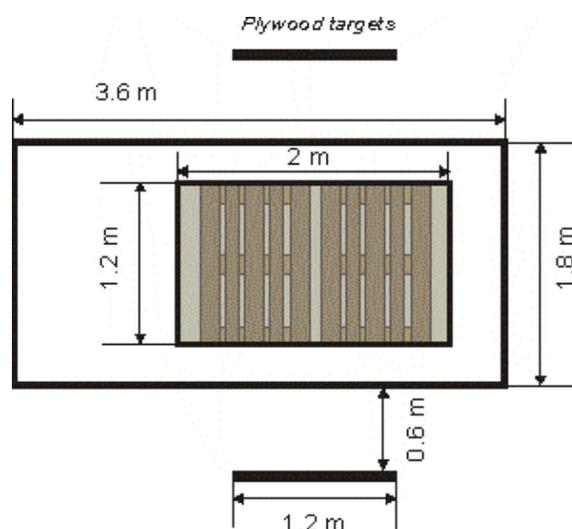


Figure 3.3.3.2 – Top view of the passenger vehicle fuel package

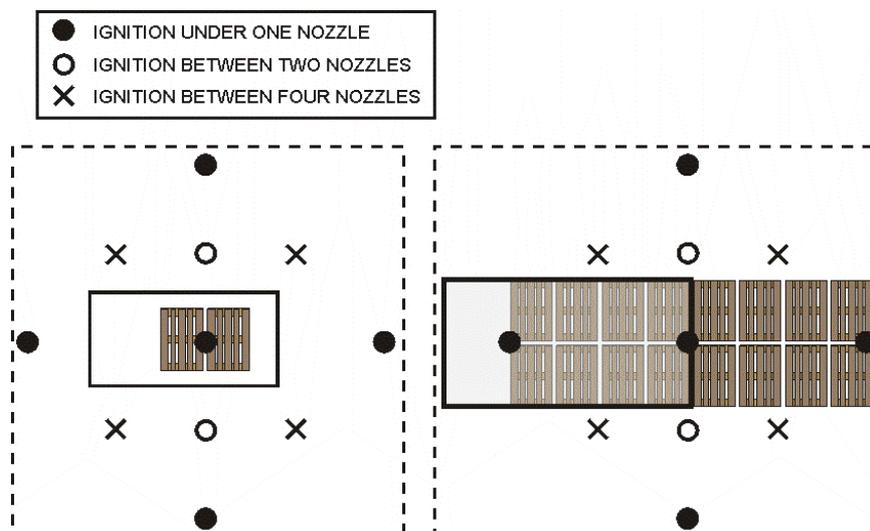


Figure 3.4.1 – Nozzle positioning in the two scenarios

3.5 Instrumentation

3.5.1 Instrumentation for the continuous measuring and recording of test conditions should be employed. At least the following measurements should be made:

- .1 gas temperature at 7.5 cm below the ceiling at locations shown in figure 3.5.1;
- .2 gas temperature at the targets to indicate ignition of targets as shown in figure 3.5.2; and
- .3 system water pressure near the centre of the piping array.

3.5.2 System water flow rate should be defined with suitable means for the system.

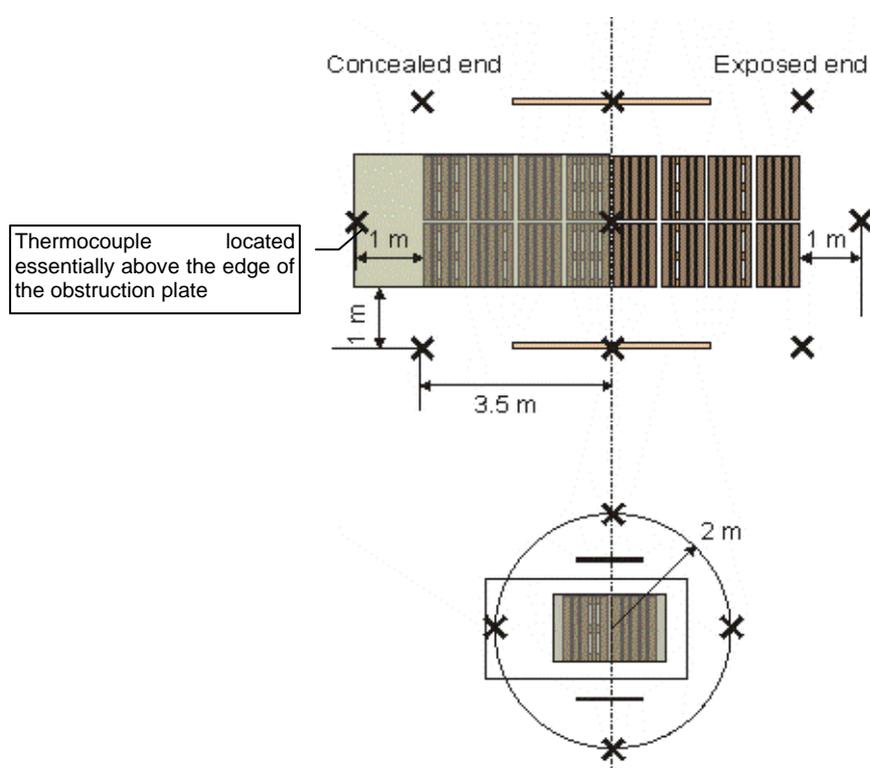


Figure 3.5.1 – Thermocouple locations in the two scenarios*

* For the truck fuel package the three locations at both ends are used for acceptance evaluation, the three locations at and around the centre of ignition are for safety purposes to define during the test whether the ceiling is at danger. For the passenger car fuel package all four locations are used for acceptance evaluation.

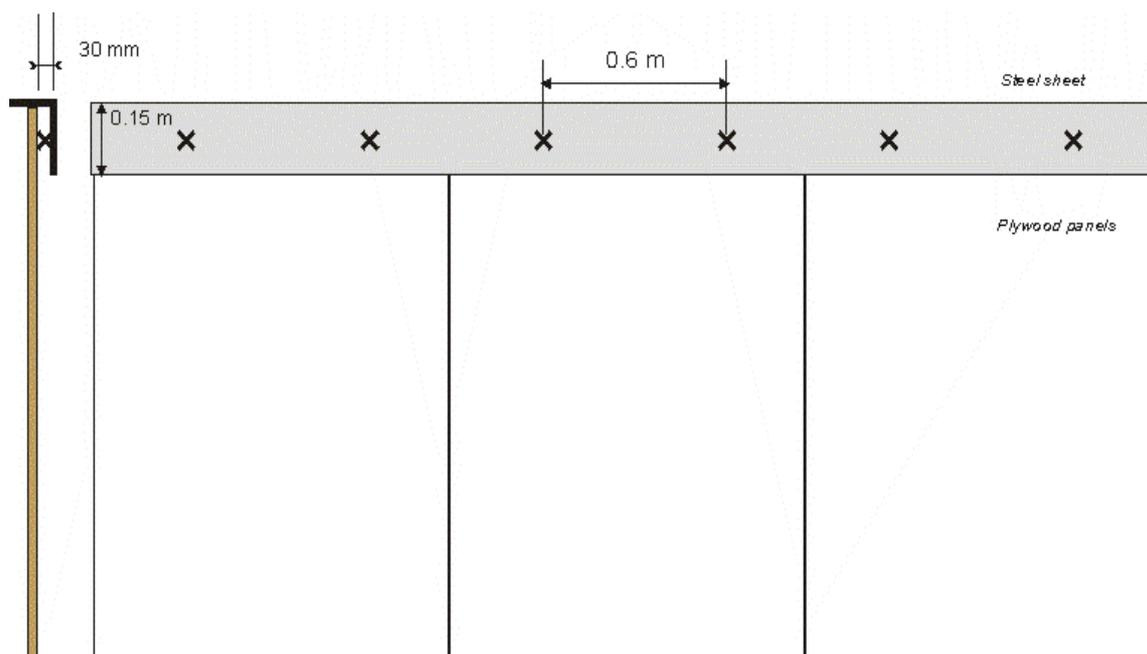


Figure 3.5.2 – Thermocouple locations at the plywood targets for determining ignition of targets*

3.6 Test programme and test procedure

3.6.1 Test programme

3.6.1.1 Tests should be conducted at the minimum system water pressure at the minimum distance between the lowest part of the nozzles and the ceiling, as specified by the manufacturer.

3.6.1.2 Three tests should be conducted at ceiling heights 5 m and/or 2.5 m, with different nozzle grid locations relative to the fuel package as specified in figure 3.4.1.

3.6.2 Test procedure

3.6.2.1 Prior to starting the test the moisture content of the fuel package should be measured at several locations along the full package with a probe-type moisture meter and the results should be reported.

3.6.2.2 The actual test procedure for all tests is as follows:

- .1 the water pressure used at the start of the test should be set at the minimum value for the system specified by the manufacturer, flowing six open nozzles. If more than six nozzles operate during the test, the water supply pressure should be adjusted accordingly, to keep the required minimum system water pressure;

* A thin (about 1 mm) steel sheet is bent on top of the plywood panels as shown in the figure. Plain charring of panels is seen as a sharp edge between the black charring on the exposed surface and intact surface under the metal sheet. When ignited in flames charring is seen also under the sheet and verified by significant increase in the gas temperature under the metal sheet.

- .2 the tray should be filled with 1 litre of heptane on the water base as described in paragraph 3.3.2.5 or 3.3.3.4;
- .3 the measurements are started;
- .4 the flammable liquid pool fire/s should be lit by means of a torch or a match;
- .5 the fire should be allowed to burn freely for a period of 2.5 min;*
- .6 the test is continued for 30 min after system activation;
- .7 any remaining fire should be manually extinguished; and
- .8 the test is terminated.

3.7 Acceptance criteria

The principal acceptance criteria are based on the following factors:

- .1 gas temperatures measured at locations not directly affected by impinging flames;
- .2 damage to the fuel package; and/or
- .3 ignition of targets.

Note 1: Damage to the fuel package is defined by the fraction of charring of the full package. The damage to each individual wood pallet should be evaluated separately and the total fraction calculated based on the detailed results. Totally black, i.e. totally charred pallet is denoted as 100% damage of the pallet (even though the pallet may have maintained its shape) and totally intact pallet is denoted as 0% damage. Partially charred pallets should be visually evaluated. Proper and adequate photographs of the damaged fuel package should be included in the test report.

Note 2: Ignition of targets is defined by the method described in figure 3.5.2, if the visibility during the test is such that it cannot be visually observed.

3.7.1 *Fire scenario 1: cargo fire in a simulated freight truck (ceiling height 5 m)*

The following four criteria should be met:

- .1 after system activation the maximum five minute average at any of the three measurement locations at the exposed end of the fuel package should not exceed 300°C;
- .2 after system activation the maximum five minute average at any of the three measurement locations at the concealed end of the fuel package should not exceed 350°C;

*

If automatic sprinklers activate already during the 2.5 min pre-burn period, feeding water to the system should be delayed till after the 2.5 min.

- .3 total damage to the wood pallet array should not exceed 45% as defined after the test; and
- .4 the plywood targets should not ignite during the test.

3.7.2 **Fire scenario 2: passenger vehicle fire**

The following two criteria should be met:

- .1 after system activation the maximum five minute average at any of the four measurement locations should not exceed 350°C; and
- .2 the plywood targets should not ignite during the test.

4 DETERMINATION OF AREA OF OPERATION

4.1 Both fire scenarios include hidden fires that burn intensely throughout the tests. The suppression tests as defined in paragraph 3.6.1 can be applied in establishing the area of operation of wet pipe, dry pipe and pre-action systems. The evaluation is based on the test with the largest number of nozzles activating.

4.2 The ceiling area of 100 m² as defined in paragraph 3.3.1 most likely is not sufficient for defining the area of operation. The ceiling should be large enough to allow installation of a sufficient number of nozzles so that it is unambiguous that the nozzles activating truly represent the maximum number of active nozzles.

4.3 The area of operation is determined by multiplying the largest number of nozzles activating in the tests by two and defining the corresponding coverage area.

5 TEST REPORT

The test report should, as a minimum, include the following information:

- .1 name and address of the test laboratory;
- .2 date of issue and identification number of the test report;
- .3 name and address of applicant;
- .4 name and address of manufacturer or supplier of the nozzles;
- .5 test method and purpose;
- .6 nozzle identification;
- .7 description of the tested nozzles and system performance;
- .8 detailed description of the test set-up including drawings and photos of the fuel package and targets before and after the tests;
- .9 date of tests;
- .10 measured nozzle pressure and flow characteristics;

- .11 identification of the test equipment and used instruments;
- .12 test results including observations and measurements made during and after the test;
- .13 deviations from the test method;
- .14 conclusions; and
- .15 date of the report and signature.

ANNEX 2

DRAFT MSC CIRCULAR

**GUIDELINES FOR THE APPROVAL OF HELICOPTER FACILITY
FOAM FIRE-FIGHTING APPLIANCES**

1 The Committee, at its [ninetieth session (16 to 25 May 2012)], having considered a proposal by the Sub-Committee on Fire Protection at its fifty-fifth session, approved the Guidelines for the approval of helicopter facility foam fire-fighting appliances, as set out in the annex.

2 Member Governments are invited to apply the annexed Guidelines when approving helicopter facility foam fire-fighting appliances in accordance with SOLAS regulation II-2/18, the 2009 MODU Code and the Recommendation on helicopter landing areas on ro-ro passenger ships (MSC/Circ.895) on or after [one year after date of approval] and bring them to the attention of ship designers, shipowners, equipment manufacturers, test laboratories and other parties concerned.

ANNEX

GUIDELINES FOR THE APPROVAL OF HELICOPTER FACILITY FOAM FIRE-FIGHTING APPLIANCES

1 Application

These Guidelines apply to foam fire-fighting appliances for the protection of helicopter facilities in accordance with SOLAS regulation II-2/18.5.1.3 to 5.1.5, chapter 9 of the 2009 Code for the Construction and Equipment of Mobile Offshore Drilling Units (2009 MODU Code) and the Recommendation on helicopter landing areas on ro-ro passenger ships (MSC/Circ.895).

2 Definitions

2.1 *D-value* means the largest dimension of the helicopter used for assessment of the helideck when its rotors are turning. It establishes the required area of foam application.

2.2 *Deck integrated foam nozzles* are foam nozzles recessed into or edge mounted on the helideck.

2.3 *Foam-making branch pipes* are air-aspirating nozzles in tube shape for producing and discharging foam, usually in straight stream only.

2.4 *Helicopter landing area* is an area on a ship designated for occasional or emergency landing of helicopters, for example as referred to in SOLAS regulation II-2/18.2.2 and not designed for routine helicopter operations.

2.5 *Helideck* is a purpose-built helicopter landing platform or other deck area including all structure, fire-fighting appliances and other equipment necessary for the safe operation of helicopters, as referred to in SOLAS regulations II-2/3.26 and 18.5 and the 2009 MODU Code (chapter 1, paragraph 1.3.27).

2.6 *Hose reel foam station* is a hose reel fitted with a foam-making branch pipe and non-collapsible hose, together with fixed foam proportioner and fixed foam concentrate tank, mounted on a common frame.

2.7 *Monitor foam station* is a foam monitor, either self inducing, or together with separate fixed foam proportioner, and fixed foam concentrate tank, mounted on a common frame.

2.8 *Obstacle free sector* is the take-off and approach sector which totally encompasses the safe landing area and extends over a sector of at least 210°, within which only specified obstacles are permitted.

2.9 *Limited obstacle sector* is a 150° sector outside the take-off and approach sector that extends outward from a helideck where objects of limited height are permitted.

2.10 *Winching area* is a pick-up area provided for the transfer by helicopter of personnel or stores to or from the ship, while the helicopter hovers above the deck, for example as referred to in SOLAS regulation III/28.

3 Principal requirements for the system

3.1 The system should be capable of manual release, and may be arranged for automatic release.

3.2 For helidecks the foam system should contain at least two fixed foam monitors or deck integrated foam nozzles. In addition, at least two hose reels fitted with a foam-making branch pipe and non-collapsible hose sufficient to reach any part of the helideck should be provided. The minimum foam system discharge rate should be determined by multiplying the D-value area by 6 l/min/m². The minimum foam system discharge rate for deck integrated foam nozzle systems should be determined by multiplying the overall helideck area by 6 l/min/m². Each monitor should be capable of supplying at least 50% of the minimum foam system discharge rate, but not less than 500 l/min. The minimum discharge rate of each hose reel should be at least 400 l/min. The quantity of foam concentrate should be adequate to allow operation of all connected discharge devices for at least 5 min.

3.3 Where foam monitors are installed, the distance from the monitor to the farthest extremity of the protected area should be not more than 75% of the monitor throw in still air conditions.

3.4 For helicopter landing areas, at least two portable foam applicators or two hose reel foam stations should be provided, each capable of discharging a minimum foam solution discharge rate, in accordance with the following table.

Category	Helicopter overall length (D- value)	Minimum foam solution discharge rate (l/min)
H1	up to but not including 15 m	250
H2	from 15 m up to but not including 24 m	500
H3	from 24 m up to but not including 35 m	800

The quantity of foam concentrate should be adequate to allow operation of all connected discharge devices for at least 10 min. For tankers fitted with a deck foam system, the Administration may consider an alternative arrangement, taking into account the type of foam concentrate to be used.

3.5 Winching areas should comply with SOLAS regulation II-2/18.2.2.

3.6 Manual release stations capable of starting necessary pumps and opening required valves, including the fire main system, if used for water supply, should be located at each monitor and hose reel. In addition, a central manual release station should be provided at a protected location. The foam system should be designed to discharge foam with nominal flow and at design pressure from any connected discharge devices within 30 s of activation.

3.7 Activation of any manual release station should initiate the flow of foam solution to all connected hose reels, monitors, and deck integrated foam nozzles.

3.8 The system and its components should be designed to withstand ambient temperature changes, vibration, humidity, shock impact and corrosion normally encountered on the open deck, and should be manufactured and tested to the satisfaction of the Administration.

3.9 A minimum nozzle throw of at least 15 m should be provided with all hose reels and monitors discharging foam simultaneously. The discharge pressure, flow rate, and discharge pattern of deck integrated foam nozzles should be to the satisfaction of the Administration, based on tests that demonstrate the nozzle's capability to extinguish fires involving the largest size helicopter for which the helideck is designed.

3.10 Monitors, foam-making branch pipes, deck integrated foam nozzles and couplings should be constructed of brass, bronze or stainless steel. Piping, fittings and related components, except gaskets, should be designed to withstand 925°C.

3.11 The foam concentrate should be demonstrated effective for extinguishing aviation fuel spill fires and should conform to performance standards not inferior to those acceptable to the Organization*. Where the foam storage tank is on the exposed deck, freeze protected foam concentrates should be used, if appropriate, for the area of operation.

3.12 Any equipment installed within the take-off and approach obstacle free sector should not exceed a height of 0.25 m. Any equipment installed in the limited obstacle sector should not exceed the height permitted for objects in this area.

3.13 All manual release stations, monitor foam stations, hose reel foam stations, hose reels and monitors should be provided with a means of access that does not require travel across the helideck or helicopter landing area.

3.14 Oscillating monitors, if used, should be preset to discharge foam in a spray pattern and have a means of disengaging the oscillating mechanism to allow rapid conversion to manual operation.

3.15 If a foam monitor with flow rate up to 1,000 l/min is installed, it should be equipped with an air-aspirating nozzle. If a deck integrated nozzle system is installed, then the additionally installed hose reel should be equipped with an air-aspirating handline nozzles (foam branch pipes). Use of non air-aspirating foam nozzles (on both: monitors and the additional hose reel) is permitted only where foam monitors with a flow rate above 1,000 l/min are installed. If only portable foam applicators or hose reel stations are provided, these should be equipped with an air-aspirating handline nozzles (foam branchpipes).

* Refer to the International Civil Aviation Organization Airport Services Manual, part 1, Rescue and Fire-Fighting, chapter 8, Extinguishing Agent Characteristics, paragraph 8.1.5, foam Specifications table 8-1, level "B", or to the Revised Guidelines for the performance and testing criteria, and surveys of foam concentrates for fixed fire-extinguishing systems (MSC.1/Circ.1312).

ANNEX 3

DRAFT AMENDMENTS TO THE INTERNATIONAL CODE FOR FIRE SAFETY SYSTEMS (FSS CODE)

CHAPTER 3 PERSONNEL PROTECTION

2.1.2 Breathing apparatus

- 1 The existing paragraph 2.1.2 is replaced by the following:

"This paragraph applies to ships constructed on or after [date of entry into force]. Ships constructed before [date of entry into force] shall comply with the requirements of this paragraph by [five years after date of entry into force].

Breathing apparatus shall be a self-contained compressed air-operated breathing apparatus for which the volume of air contained in the cylinders shall be at least 1,200 l, or other self-contained breathing apparatus which shall be capable of functioning for at least 30 min. The breathing apparatus shall be fitted with an audible alarm and a visual or other device which will alert the user before the volume of the air in the cylinder has been reduced to no less than 200 l. All air cylinders for breathing apparatus shall be interchangeable."

CHAPTER 5 FIXED GAS FIRE-EXTINGUISHING SYSTEMS

- 2 In paragraph 2.1.1.1, after the second sentence, the following new sentence is inserted:

"Adjacent spaces not separated by at least A-0 class divisions with independent ventilation systems should be considered as the same space."

- 3 In paragraph 2.1.1.3, after the first sentence, the following new sentence is inserted:

"It shall not be necessary to move the containers completely from their fixing position for this purpose. For carbon dioxide systems, hanging bars for a weighing device above each bottle row, or other means shall be provided. For other types of extinguishing media, suitable surface indicators may be used."

- 4 In paragraph 2.1.3.2, the first sentence is replaced by the following:

"Means shall be provided for automatically giving audible and visual warning of the release of fire-extinguishing medium into any ro-ro spaces, container holds equipped with integral reefer containers, spaces accessible by doors or hatches, and other spaces in which personnel normally work or to which they have access."

- 5 In paragraph 2.2.2, the first sentence is replaced by the following:

"Carbon dioxide systems for the protection of ro-ro spaces, container holds equipped with integral reefer containers, spaces accessible by doors or hatches,

and other spaces in which personnel normally work or to which they have access shall comply with the following requirements."

CHAPTER 8 AUTOMATIC SPRINKLER, FIRE DETECTION AND FIRE ALARM SYSTEMS

6 In paragraph 2.5.2.3, after the first sentence, the following new sentence is inserted:

"For this purpose, nominal area shall be taken as the gross horizontal projection of the area to be covered."

CHAPTER 9 FIXED FIRE DETECTION AND FIRE ALARM SYSTEMS

7 In paragraph 2.2.1, after the third sentence, the following new sentence is inserted:

"The changeover switch shall be arranged such that a fault will not result in the loss of both power supplies."

8 The following new paragraph is inserted after paragraph 2.2.1 and the existing paragraph 2.2.2 is renumbered as paragraph 2.2.3:

"2.2.2 Operation of the automatic changeover switch or a failure of one of the power supplies shall not result in loss of fire detection capability. Where a momentary loss of power would cause degradation of the system, a battery of adequate capacity shall be provided to ensure continuous operation during changeover."

9 The existing paragraph 2.2.3 is deleted and the following new paragraphs are added after the renumbered paragraph 2.2.3:

"2.2.4 The emergency source of power specified in paragraph 2.2.1 above may be supplied by accumulator batteries or from the emergency switchboard. The power source shall be sufficient to maintain the operation of the fire detection and fire alarm system for the periods required under SOLAS chapter II-1, regulations 42 and 43, and at the end of that period, shall be capable of operating all connected visual and audible fire alarm signals for a period of at least 30 min.

2.2.5 Where the system is supplied from accumulator batteries, they shall be located in or adjacent to the control panel for the fire detection system, or in another location suitable for use in an emergency. The rating of the battery charge unit shall be sufficient to maintain the normal output power supply to the fire detection system while recharging the batteries from a fully discharged condition."

10 In paragraphs 2.3.1.2, 2.3.1.3 and 2.3.1.5, the referenced standard "IEC 60092 505:2001" is replaced by "IEC 60092-504".

11 In paragraph 2.5.1.3, after the second sentence, the following new sentence is inserted:

"In ships with a cargo control room, an additional indicating unit shall be located in the cargo control room."

12 In paragraph 2.5.2.1, after the second sentence, the following new sentence is inserted:

"Detectors installed within cold spaces such as refrigerated compartments shall be tested using procedures having due regard for such locations.*"

* Refer to the recommendations of the International Electrotechnical Commission, in particular publication IEC 60068-2-1 - Section one -Test Ab, *Environmental Testing – Part 2-1: Tests – Test A: Cold.*"

CHAPTER 12 FIXED EMERGENCY FIRE PUMPS

13 The existing paragraph 2.2.2.1 is replaced by the following:

"2.2.2.1 Starting of diesel engine

Any diesel-driven power source for the pump shall be capable of being readily started in its cold condition down to the temperature of 0°C by hand (manual) cranking. Where ready starting cannot be assured, if this is impracticable, or if lower temperatures are likely to be encountered, and if the room for the diesel driven power source is not heated, electric heating of the diesel engine cooling water or lubricating oil system shall be fitted, to the satisfaction of the Administration. If hand (manual) starting is impracticable, the Administration may permit compressed air, electricity, or other sources of stored energy, including hydraulic power or starting cartridges to be used as a means of starting. These means shall be such as to enable the diesel-driven power source to be started at least six times within a period of 30 min and at least twice within the first 10 min."

CHAPTER 13 ARRANGEMENT OF MEANS OF ESCAPE

14 The existing paragraph 2.2.4 is replaced by the following:

"2.2.4 With the exception of intermediate landings, landings at each deck level shall be not less than 2 m² in area and shall increase by 1 m² for every 10 persons provided for in excess of 20 persons, but need not exceed 16 m², except for those landings servicing public spaces having direct access onto the stairway enclosure. Intermediate landings shall be sized in accordance with paragraph 2.3.1."

CHAPTER 14 FIXED DECK FOAM SYSTEMS

15 The existing chapter 14 is replaced by the following:

"1 Application

1.1 This chapter details the specification of fixed deck foam systems which are required to be provided by chapter II-2 of the Convention.

2 Engineering specifications

2.1 General

2.1.1 The arrangements for providing foam shall be capable of delivering foam to the entire cargo tanks deck area as well as into any cargo tank the deck of which has been ruptured.

2.1.2 The deck foam system shall be capable of simple and rapid operation.

2.1.3 Operation of a deck foam system at its required output shall permit the simultaneous use of the minimum required number of jets of water at the required pressure from the fire main. Where the deck foam system is supplied by a common line from the fire main, additional foam concentrate shall be provided for operation of 2 nozzles for the same period of time required for the foam system. The simultaneous use of the minimum required jets of water shall be possible on deck over the full length of the ship, in the accommodation, service spaces, control stations and machinery spaces.

2.2 Component requirements

2.2.1 Foam solution and foam concentrate

2.2.1.1 For tankers carrying:

- .1 crude oil or petroleum products having a flashpoint not exceeding 60°C (closed cup), as determined by an approved flashpoint apparatus, and a Reid vapour pressure which is below atmospheric pressure or other liquid products having a similar fire hazard, including cargoes in chapter 18 of the IBC Code, having a flashpoint not exceeding 60°C (closed cup) for which a regular foam fire-fighting system is effective (refer to SOLAS regulations II-2/1.6.1 and 10.8); or
- .2 petroleum products with a flashpoint exceeding 60°C (closed cup), as determined by an approved flashpoint apparatus (refer to SOLAS regulation II-2/1.6.4); or
- .3 IBC Code chapter 17 products with a flashpoint exceeding 60°C (closed cup) determined by an approved flashpoint apparatus (refer to paragraph 11.1.3 of the IBC Code and SOLAS regulation II-2/1.6.4),

the rate of supply of foam solution shall be not less than the greatest of the following:

- .1 0.6 l/min per square metre of cargo tanks deck area, where cargo tanks deck area means the maximum breadth of the ship multiplied by the total longitudinal extent of the cargo tank spaces;
- .2 6 l/min per square metre of the horizontal sectional area of the single tank having the largest such area; or

- .3 3 //min per square metre of the area protected by the largest monitor, such area being entirely forward of the monitor, but in no case should the output of any monitor be less than 1,250 //min.

2.2.1.2 For tankers carrying chemicals in bulk listed in chapter 17 of the IBC Code having a flashpoint not exceeding 60°C (closed cup), the rate of supply of foam solution shall be as required by the IBC Code.

2.2.1.3 Sufficient foam concentrate shall be supplied to ensure at least 20 min of foam generation in tankers fitted with an inert gas installation or 30 min of foam generation in tankers not fitted with an inert gas installation or not required to use an inert gas system.

2.2.1.4 The foam concentrate supplied on board shall be approved by the Administration* for the cargoes intended to be carried. Type B foam concentrates shall be supplied for the protection of crude oil, petroleum products and non-polar solvent cargoes. Type A foam concentrates shall be supplied for polar solvent cargoes, as listed in the table of chapter 17 of the IBC Code. Only one type of foam concentrate shall be supplied, and it shall be effective for the maximum possible number of cargoes intended to be carried. For cargoes for which foam is not effective or is incompatible, additional arrangements to the satisfaction of the Administration shall be provided.

2.2.1.5 Liquid cargoes with a flashpoint not exceeding 60°C for which a regular foam fire-fighting system is not effective shall comply with the provisions of SOLAS regulation II-2/1.6.2.1.

2.2.2 *Monitors and foam applicators*

2.2.2.1 Foam from the fixed foam system shall be supplied by means of monitors and foam applicators. Prototype tests of the monitors and foam applicators shall be performed to ensure the foam expansion and drainage time of the foam produced does not differ more than $\pm 10\%$ of that determined in 2.2.1.4. When medium expansion ratio foam (between 21 to 1 and 200 to 1 expansion ratio) is employed, the application rate of the foam and the capacity of a monitor installation shall be to the satisfaction of the Administration. At least 50% of the foam solution supply rate required shall be delivered from each monitor. On tankers of less than 4,000 tonnes deadweight the Administration may not require installation of monitors but only applicators. However, in such a case the capacity of each applicator shall be at least 25% of the foam solution supply rate required.

2.2.2.2 The capacity of any applicator shall be not less than 400 //min and the applicator throw in still air conditions shall be not less than 15 m.

2.3 ***Installation requirements***

2.3.1 *Main control station*

2.3.1.1 The main control station for the system shall be suitably located outside the cargo area, adjacent to the accommodation spaces and readily accessible and operable in the event of fire in the areas protected.

* Refer to the Guidelines for performance and testing criteria and surveys of foam concentrates for fixed fire-extinguishing systems (MSC.1/Circ.1312).

2.3.2 *Monitors*

2.3.2.1 The number and position of monitors shall be such as to comply with paragraph 2.1.1.

2.3.2.2 The distance from the monitor to the farthest extremity of the protected area forward of that monitor shall not be more than 75% of the monitor throw in still air conditions.

2.3.2.3 A monitor and hose connection for a foam applicator shall be situated both port and starboard at the front of the poop or accommodation spaces facing the cargo tanks deck. The monitors and hose connections shall be aft of any cargo tanks, but may be located in the cargo area above pump-rooms, cofferdams, ballast tanks and void spaces adjacent to cargo tanks if capable of protecting the deck below and aft of each other. On tankers of less than 4,000 tonnes deadweight a hose connection for a foam applicator shall be situated both port and starboard at the front of the poop or accommodation spaces facing the cargo tanks deck.

2.3.3 *Applicators*

2.3.3.1 At least four foam applicators shall be provided on all tankers. The number and disposition of foam main outlets shall be such that foam from at least two applicators can be directed on to any part of the cargo tanks deck area.

2.3.3.2 Applicators shall be provided to ensure flexibility of action during fire-fighting operations and to cover areas screened from the monitors.

2.3.4 *Isolation valves*

2.3.4.1 Valves shall be provided in the foam main, and in the fire main when this is an integral part of the deck foam system, immediately forward of any monitor position to isolate damaged sections of those mains."

16 **Footnote to be added in paragraph 2.1.1.4 of chapter 3**

In paragraph 2.1.1.4, after the second sentence, a footnote is added as follows:

"
*

Refer to the recommendations of the International Electrotechnical Commission, in particular publication IEC 60079, *Electrical Apparatus for Explosive Gas Atmospheres*."

ANNEX 4

DRAFT MSC CIRCULAR

**REVISED GUIDELINES FOR THE MAINTENANCE AND INSPECTION OF
FIRE PROTECTION SYSTEMS AND APPLIANCES**

1 The Maritime Safety Committee, at its [ninetieth session (16 to 25 May 2012)], having considered the proposal by the Sub-Committee on Fire Protection, at its fifty-fifth session, and recognizing the need to include maintenance and inspection guidelines for the latest advancements in fire-protection systems and appliances, approved the Revised Guidelines for the maintenance and inspection of fire protection systems and appliances, as set out in the annex.

2 Member Governments are invited to apply the annexed Guidelines when performing maintenance, testing and inspections in accordance with SOLAS regulation II-2/14.2.2.1 on or after [one year after the date of approval] and bring the annexed Guidelines to the attention of shipowners, shipmasters, ships' officers and crew and all other parties concerned.

3 This circular supersedes MSC/Circ.850.

ANNEX

REVISED GUIDELINES FOR THE MAINTENANCE AND INSPECTION OF FIRE PROTECTION SYSTEMS AND APPLIANCES

1 Application

These Guidelines apply to all ships and provide the minimum recommended level of maintenance and inspections for fire protection systems and appliances. This information may be used as a basis for the ship's onboard maintenance plan required by SOLAS regulation II-2/14. These Guidelines do not address maintenance and inspection of fixed carbon dioxide systems or portable fire extinguishers. Refer to the comprehensive instructions provided in the Guidelines for the maintenance and inspections of fixed carbon dioxide fire-extinguishing systems (MSC.1/Circ.1318) for fixed carbon dioxide systems, and in the Improved Guidelines for marine portable fire extinguishers (resolution A.951(23)) for portable fire extinguishers.

2 Operational readiness

All fire protection systems and appliances should at all times be in good order and readily available for immediate use while the ship is in service. If a fire protection system is undergoing maintenance, testing or repair, then suitable arrangements should be made to ensure safety is not diminished through the provision of alternate fixed or portable fire protection equipment or other measures. The onboard maintenance plan should include provisions for this purpose.

3 Maintenance and testing

3.1 Onboard maintenance and inspections should be carried out in accordance with the ship's maintenance plan, which should include the minimum elements listed in sections 4 to 10 of these Guidelines.

3.2 Certain maintenance procedures and inspections may be performed by competent crew members who have completed an advanced fire-fighting training course, while others should be performed by persons specially trained in the maintenance of such systems. The onboard maintenance plan should indicate which parts of the recommended inspections and maintenance are to be completed by trained personnel.

3.3 Inspections should be carried out by the crew to ensure that the indicated weekly, monthly, quarterly, annual, two-year, five-year and ten-year actions are taken for the specified equipment, if provided. Records of the inspections should be carried on board the ship, or may be computer-based. In cases where the inspections and maintenance are carried out by trained service technicians other than the ship's crew, inspection reports should be provided at the completion of the testing.

3.4 In addition to the onboard maintenance and inspections stated in these Guidelines, manufacturer's maintenance and inspection guidelines should be followed.

3.5 Where particular arrangements create practical difficulties, alternative testing and maintenance procedures should be to the satisfaction of the Administration.

4 Weekly testing and inspections

4.1 Fixed fire detection and alarm systems

Verify all fire detection and fire alarm control panel indicators are functional by operating the lamp/indicator test switch.

4.2 Fixed gas fire-extinguishing systems

- .1 verify all fixed fire-extinguishing system control panel indicators are functional by operating the lamp/indicator test switch; and
- .2 verify all control/section valves are in the correct position.

4.3 Fire doors

Verify all fire door control panel indicators, if provided, are functional by operating the lamp/indicator switch.

4.4 Public address and general alarm systems

Verify all public address systems and general alarm systems are functioning properly.

4.5 Breathing apparatus

Examine all breathing apparatus and EEED cylinder gauges to confirm they are in the correct pressure range.

4.6 Low-location lighting

Verify low-location lighting systems are functional by switching off normal lighting in selected locations.

4.7 Water mist, water spray and sprinkler systems

- .1 verify all control panel indicators and alarms are functional;
- .2 visually inspect pump unit and its fittings; and
- .3 check the pump unit valve positions, if valves are not locked, as applicable.

5 Monthly testing and inspections

Monthly inspections should be carried out to ensure that the indicated actions are taken for the specified equipment.

5.1 Fire mains, fire pumps, hydrants, hoses and nozzles

- .1 verify all fire hydrants, hose and nozzles are in place, properly arranged, and are in serviceable condition;
- .2 operate all fire pumps to confirm that they continue to supply adequate pressure; and

- .3 emergency fire pump fuel supply adequate, and heating system in satisfactory condition, if applicable.

5.2 Fixed gas fire-extinguishing systems

Verify containers/cylinders fitted with pressure gauges are in the proper range and the installation free from leakage.

5.3 Foam fire-extinguishing systems

Verify all control and section valves are in the proper open or closed position, and all pressure gauges are in the proper range.

5.4 Water mist, water spray and sprinkler systems

- .1 verify all control, pump unit and section valves are in the proper open or closed position;
- .2 verify sprinkler pressure tanks or other means have correct levels of water;
- .3 test automatic starting arrangements on all system pumps so designed;
- .4 verify all standby pressure and air/gas pressure gauges are within the proper pressure ranges; and
- .5 test a selected sample of system section valves for flow and proper initiation of alarms.
(**Note** – The valves selected for testing should be chosen to ensure that all valves are tested within a one year period.)

5.5 Fire-fighter's outfits

Verify lockers providing storage for fire-fighting equipment contain their full inventory and equipment is in serviceable condition.

5.6 Fixed dry chemical powder systems

Verify all control and section valves are in the proper open or closed position, and all pressure gauges are in the proper range.

5.7 Fixed aerosol extinguishing systems

- .1 verify all electrical connections and/or manual operating stations are properly arranged, and are in proper condition; and
- .2 verify the actuation system/control panel circuits are within manufacturer's specifications.

5.8 Portable foam applicators

Verify all portable foam applicators are in place, properly arranged, and are in proper condition.

5.9 Wheeled (mobile) fire extinguishers

Verify all extinguishers are in place, properly arranged, and are in proper condition.

5.10 Fixed fire detection and alarm systems

Test a sample of detectors and manual call points so that all devices have been tested within 5 years. For very large systems the sample size should be determined by the Administration.

6 Quarterly testing and inspections

Quarterly inspections should be carried out to ensure that the indicated actions are taken for the specified equipment:

6.1 Fire mains, fire pumps, hydrants, hoses and nozzles

Verify international shore connection(s) is in serviceable condition.

6.2 Foam fire-extinguishing systems

Verify the proper quantity of foam concentrate is provided in the foam system storage tank.

6.3 Ventilation systems and fire dampers

Test all fire dampers for local operation.

6.4 Fire doors

Test all fire doors located in main vertical zone bulkheads for local operation.

7 Annual testing and inspections

Annual inspections should be carried out to ensure that the indicated actions are taken for the specified equipment:

7.1 Fire mains, fire pumps, hydrants, hoses and nozzles

- .1 visually inspect all accessible components for proper condition;
- .2 flow test all fire pumps for proper pressure and capacity. Test emergency fire pump with isolation valves closed;
- .3 test all hydrant valves for proper operation;
- .4 pressure test a sample of fire hoses at the maximum fire main pressure, so that all fire hoses are tested within 5 years;
- .5 verify all fire pump relief valves, if provided, are properly set;
- .6 examine all filters/strainers to verify they are free of debris and contamination; and
- .7 nozzle size/type correct, maintained and working.

7.2 Fixed fire detection and fire alarm systems

- .1 test all fire detection systems and fire detection systems used to automatically release fire-extinguishing systems for proper operation, as appropriate;
- .2 visually inspect all accessible detectors for evidence of tampering obstruction, etc., so that all detectors are inspected within one year; and
- .3 test emergency power supply switchover.

7.3 Fixed gas fire-extinguishing systems

- .1 visually inspect all accessible components for proper condition;
- .2 externally examine all high pressure cylinders for evidence of damage or corrosion;
- .3 check the hydrostatic test date of all storage containers;
- .4 functionally test all fixed system audible and visual alarms;
- .5 verify all control/section valves are in the correct position;
- .6 check the connections of all pilot release piping and tubing for tightness;
- .7 examine all flexible hoses in accordance with manufacturer's recommendations;
- .8 test all fuel shut-off controls connected to fire-protection systems for proper operation;
- .9 the boundaries of the protected space should be visually inspected to confirm that no modifications have been made to the enclosure that have created uncloseable openings that would render the system ineffective; and
- .10 if cylinders are installed inside the protected space, verify the integrity of the double release lines inside the protected space, and check low pressure or circuit integrity monitors on release cabinet, as applicable.

7.4 Foam fire-extinguishing systems

- .1 visually inspect all accessible components for proper condition;
- .2 functionally test all fixed system audible alarms;
- .3 flow test all water supply and foam pumps for proper pressure and capacity, and confirm flow at the required pressure in each section. (Ensure all piping is thoroughly flushed with fresh water after service.);
- .4 test all system cross connections to other sources of water supply for proper operation;

- .5 verify all pump relief valves, if provided, are properly set;
- .6 examine all filters/strainers to verify they are free of debris and contamination;
- .7 verify all control/section valves are in the correct position;
- .8 blow dry compressed air or nitrogen through the discharge piping or otherwise confirm the pipework and nozzles of high expansion foam systems are clear of any obstructions, debris and contamination. This may require the removal of nozzles, if applicable;
- .9 take samples from all foam concentrates carried on board and subject them to the periodical control tests in MSC.1/Circ.1312, for low expansion foam, or MSC/Circ.670 for high expansion foam.
(Note: except for non-alcohol resistant foam, the first test need not be conducted until 3 years after being supplied to the ship.);
- .10 test all fuel shut-off controls connected to fire-protection systems for proper operation; and

7.5 Water mist, water spray and sprinkler systems

- .1 verify proper operation of all water mist, water-spray and sprinkler systems using the test valves for each section;
- .2 visually inspect all accessible components for proper condition;
- .3 externally examine all high pressure cylinders for evidence of damage or corrosion;
- .4 check the hydrostatic test date of all high pressure cylinders;
- .5 functionally test all fixed system audible and visual alarms;
- .6 flow test all pumps for proper pressure and capacity;
- .7 test all antifreeze systems for adequate freeze protection;
- .8 test all system cross connections to other sources of water supply for proper operation;
- .9 verify all pump relief valves, if provided, are properly set;
- .10 examine all filters/strainers to verify they are free of debris and contamination;
- .11 verify all control/section valves are in the correct position;
- .12 blow dry compressed air or nitrogen through the discharge piping of dry pipe systems, or otherwise confirm the pipework and nozzles are clear of any obstructions. This may require the removal of nozzles, if applicable;

- .13 test emergency power supply switchover, where applicable;
- .14 visually inspect all sprinklers focusing in areas where sprinklers are subject to aggressive atmosphere (like saunas, spas, kitchen areas) and subject to physical damage (like luggage handling areas, gyms, play rooms, etc.) so that all sprinklers are inspected within one year;
- .15 check for any changes that may affect the system such as obstructions by ventilation ducts, pipes, etc.;
- .16 test a minimum of one section in each open head water mist system by flowing water through the nozzles. The sections tested should be chosen so that all sections are tested within a five-year period; and
- .17 test a minimum of two automatic sprinklers or automatic water mist nozzles for proper operation.

7.6 Ventilation systems and fire dampers

- .1 test all fire dampers for remote operation;
- .2 verify galley exhaust ducts and filters are free of grease build-up; and
- .3 test all ventilation controls interconnected with fire-protection systems for proper operation.

7.7 Fire doors

Test all remotely controlled fire doors for proper release.

7.8 Breathing apparatus

- .1 check breathing apparatus air recharging systems, if fitted, for air quality;
- .2 check all breathing apparatus face masks and air demand valves are in serviceable condition; and
- .3 check EEBDs according to maker's instructions.

7.9 Fixed dry chemical powder systems

- .1 visually inspect all accessible components for proper condition;
- .2 verify the pressure regulators are in proper order and within calibration; and
- .3 agitate the dry chemical powder charge with nitrogen in accordance with system manufacturer's instructions.
(**Note:** Due to the powder's affinity for moisture, any nitrogen gas introduced for agitation must be moisture free.)

7.10 Fixed aerosol extinguishing systems

Verify condensed or dispersed aerosol generators have not exceeded their mandatory replacement date. Pneumatic or electric actuators should be demonstrated working, as far as practicable.

7.11 Portable foam applicators

- .1 verify all portable foam applicators are set to the correct proportioning ratio for the foam concentrate supplied and the equipment is in proper order;
- .2 verify all portable containers or portable tanks containing foam concentrate remain factory sealed, and the manufacturer's recommended service life interval has not been exceeded;
- .3 portable containers or portable tanks containing foam concentrate, excluding protein based concentrates, less than 10 years old, that remain factory sealed can normally be accepted without the periodical foam control tests required in MSC.1/Circ.1312 being carried out;
- .4 protein based foam concentrate portable containers and portable tanks should be thoroughly checked and, if more than 5 years old, the foam concentrate should be subjected to the periodical foam control tests required in MSC.1/Circ.1312, or renewed; and
- .5 the foam concentrates of any non-sealed portable containers and portable tanks, and portable containers and portable tanks where production data is not documented, should be subjected to the periodical foam control tests required in MSC.1/Circ.1312.

7.12 Wheeled (mobile) fire extinguishers

- .1 perform periodical inspections in accordance with the manufacturer's instructions;
- .2 visually inspect all accessible components for proper condition;
- .3 check the hydrostatic test date of each cylinder; and
- .4 for dry powder extinguishers, invert extinguisher to ensure powder is agitated.

7.13 Galley and deep fat cooking fire-extinguishing systems

Check galley and deep fat cooking fire-extinguishing systems in accordance with the manufacturer's instructions.

8 Two-year testing and inspections

Two-year inspections should be carried out to ensure that the indicated actions are taken for the specified equipment.

8.1 Fixed gas fire-extinguishing systems

- .1 all high pressure extinguishing agents cylinders and pilot cylinders should be weighed or have their contents verified by other reliable means to confirm that the available charge in each is above 95% of the nominal charge. Cylinders containing less than 95% of the nominal charge should be refilled; and
- .2 blow dry compressed air or nitrogen through the discharge piping or otherwise confirm the pipe work and nozzles are clear of any obstructions. This may require the removal of nozzles, if applicable.

8.2 Fixed dry chemical powder systems

- .1 blow dry nitrogen through the discharge piping to confirm that the pipe work and nozzles are clear of any obstructions;
- .2 operationally test local and remote controls and section valves;
- .3 verify the contents of propellant gas cylinders (including remote operating stations);
- .4 test a sample of dry chemical powder for moisture content; and
- .5 subject the powder containment vessel, safety valve and discharge hoses to a full working pressure test.

9 Five-year service

At least once every five years, the following inspections should be carried out for the specified equipment.

9.1 Fixed gas fire-extinguishing systems

Perform internal inspection of all control valves.

9.2 Foam fire-extinguishing systems

- .1 perform internal inspection of all control valves;
- .2 flush all high expansion foam system piping with fresh water, drain and purge with air;
- .3 check all nozzles to prove they are clear of debris; and
- .4 test all foam proportioners or other foam mixing devices to confirm that the mixing ratio tolerance is within +30 to -10% of the nominal mixing ratio defined by the system approval.

9.3 Water mist, water spray and sprinkler systems

- .1 flush all ro-ro deck deluge system piping with water, drain and purge with air;
- .2 perform internal inspection of all control/section valves; and

- .3 check condition of any batteries, or renew in accordance with manufacturer's recommendations.

9.4 Breathing apparatus

Perform hydrostatic testing of all steel self-contained breathing apparatus cylinders. Aluminium and composite cylinders should be tested to the satisfaction of the Administration.

9.5 Low-location lighting

Test the luminance of all systems in accordance with the procedures in resolution A.752(18).

9.6 Wheeled (mobile) fire extinguishers

Visually examine at least one extinguisher of each type manufactured in the same year and kept on board.

10 Ten-year service

At least once every ten years, the following inspections should be carried out for the specified equipment:

10.1 Fixed gas fire-extinguishing systems

- .1 perform a hydrostatic test and internal examination of 10% of the system's extinguishing agent and pilot cylinders. If one or more cylinders fail, a total of 50% of the onboard cylinders should be tested. If further cylinders fail, all cylinders should be tested;
- .2 flexible hoses should be replaced at the intervals recommended by the manufacturer and not exceeding every 10 years; and
- .3 if permitted by the Administration, visual inspection and NDT (non-destructive testing) of halon cylinders may be performed in lieu of hydrostatic testing.

10.2 Water mist, water spray and sprinkler systems

Perform a hydrostatic test and internal examination for gas and water pressure cylinders according to flag Administration guidelines or, where these do not exist, EN 1968:2002 + A1.

10.3 Fixed dry chemical powder systems

Subject all powder containment vessels to hydrostatic or non-destructive_testing carried out by an accredited service agent.

10.4 Fixed aerosol extinguishing systems

Condensed or dispersed aerosol generators to be renewed in accordance with manufacturer's recommendations.

10.5 Wheeled (mobile) fire extinguishers

All extinguishers together with propellant cartridges should be hydrostatically tested by specially trained persons in accordance with recognized standards or the manufacturer's instructions.

ANNEX 5

DRAFT MSC CIRCULAR

**UNIFIED INTERPRETATIONS OF SOLAS REGULATION II-2/10.6.4 AND
CHAPTER 9 OF THE FSS CODE**

1 The Maritime Safety Committee, at its [ninetieth session (16 to 25 May 2012)], having considered a proposal by the Sub-Committee on Fire Protection, at its fifty-fifth session, approved the following unified interpretations of SOLAS regulation II-2/10.6.4 and the FSS Code (chapter 9):

- .1 With regard to the footnote to SOLAS regulation II-2/10.6.4.1, referring to the recommendations by the International Organization for Standardization, it should be interpreted as follows:

"Refer to the recommendations 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. For ships constructed before 1 July 2013, ISO 15371:2000, Fire-extinguishing systems for protection of galley deep-fat cooking equipment – fire tests, may be used."

- .2 In paragraphs 2.3.1.2, 2.3.1.3 and 2.3.1.5 of chapter 9 of the FSS Code, as amended by resolution MSC.311(88), the referenced standard IEC 60092-505:2001 should be interpreted as IEC 60092-504.

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

ANNEX 6

DRAFT MSC CIRCULAR

UNIFIED INTERPRETATIONS OF SOLAS CHAPTER II-2

1 The Maritime Safety Committee, at its [ninetieth session (16 to 25 May 2012)], with a view to providing more specific guidance for the application of the relevant requirements of the 1974 SOLAS Convention, approved the unified interpretations of SOLAS chapter II-2 prepared by the Sub-Committee on Fire Protection, at its fifty-fifth session, as set out in the annex.

2 Member Governments are invited to use the annexed unified interpretations as guidance when applying relevant provisions of SOLAS chapter II-2 for ships constructed on or after [*one year after the date of approval of the circular*] and to bring them to the attention of all parties concerned.

ANNEX

UNIFIED INTERPRETATIONS OF SOLAS CHAPTER II-2

Regulation II-2/3.2.3 – Definitions

Insulated "A" class bulkheads and decks used on board ships, including the means of affixing the insulation to the "A" class structural members, should be consistent with the materials, details and arrangements used during, and documented in the test reports issued for, the approval test for that insulating material.

Regulation II-2/5.2.1.1 – Closing appliances and stopping devices of ventilation

- 1 Battery room ventilators should be fitted with a means of closing whenever:
 - .1 the battery room does not open directly onto an exposed deck;
 - .2 the ventilation opening for the battery room is required to be fitted with a closing device according to the Load Line Convention (i.e. the height of the opening does not extend to more than 4.5 m (14.8 feet) above the deck for position 1 or to more than 2.3 m (7.5 feet) above the deck in position 2; or
 - .3 the battery room is fitted with a fixed gas fire-extinguishing system.
- 2 Where a battery room ventilator is fitted with a closing device, then a warning notice stating, for example "This closing device is to be kept open and only closed in the event of fire or other emergency – Explosive gas", should be provided at the closing device to mitigate the possibility of inadvertent closing.

Regulation II-2/19.3.4 – Ventilation

- 1 If adjacent spaces are not separated from cargo spaces by gastight bulkheads or decks, then they should be considered as part of the enclosed cargo space and the ventilation requirements should apply to the adjacent space as for the enclosed cargo space itself.
- 2 Where the IMSBC Code requires:
 - .1 two (2) fans per hold, a common ventilation system with 2 fans connected is acceptable; and
 - .2 continuous ventilation, this does not prohibit ventilators from being fitted with a means of closure as required for fire protection purposes under SOLAS regulation II-2/5.2.1.1, provided the minimum height to the ventilator opening is to be in accordance with regulation 19.3 of the 1966 International Convention on Load Lines (4.5 m for position 1 and 2.3 m for position 2).

Regulation II-2/20.3.1.4.1 – Closing appliances and ducts

1 Access routes to the controls for closure of the ventilation system "permit a rapid shutdown" and adequately "take into account the weather and sea conditions" if the routes:

- .1 are clearly marked and at least 600 mm clear width;
- .2 are provided with a single handrail or wire rope lifeline not less than 10 mm in diameter, supported by stanchions not more than 10 m apart in way of any route which involves traversing a deck exposed to weather; and
- .3 are fitted with appropriate means of access (such as ladders or steps) to the closing devices of ventilators located in high positions (i.e. 1.8 m and above).

2 Alternatively, remote closing and position indicator arrangements from the bridge or a fire control station for those ventilator closures is acceptable.

ANNEX 7

DRAFT MSC CIRCULAR

UNIFIED INTERPRETATION OF THE FTP CODE

1 The Maritime Safety Committee, at its [ninetieth session (16 to 25 May 2012)], with a view to providing more specific guidance for application of the relevant requirements of Part 3 of the FTP Code, approved a unified interpretation of the FTP Code, prepared by the Sub-Committee on Fire Protection, at its fifty-fifth session, as set out in the annex.

2 Member Governments are invited to use the annexed unified interpretation as guidance when applying relevant provisions of Part 3 of the FTP Code for ships constructed on or after [*date of approval of the circular*] and to bring the unified interpretation to the attention of all parties concerned.

ANNEX

UNIFIED INTERPRETATION OF THE FTP CODE

Part 3, Appendix 1 – Testing and approval of "A" class divisions – fastening of insulation material and details of joints

To demonstrate that the tested "A" class assemblies are representative of that used on board ships, the following details should, as a minimum, when applicable, be clearly indicated in test reports and included in type approvals:

- .1 type, thickness, density and number of layers of insulation material;
- .2 size, types, materials and fixing methods of pins and washers;
- .3 spacing between pins;
- .4 maximum spacing between pins and adjacent joints;
- .5 stepping of joints for multi-layers if applicable;
- .6 insulation and pinning details on and around stiffeners;
- .7 details of wire mesh, aluminium tape, etc, if used in the test;
- .8 type approval test report should contain the information required by paragraphs 2.1.3, 2.2.3, 6.1 and 10.4 of resolution A.754(18); and
- .9 type approval certificate should refer to drawing numbers of the test sample.

ANNEX 8

**DRAFT AMENDMENTS TO THE INTERNATIONAL CONVENTION FOR THE SAFETY OF
LIFE AT SEA, 1974, AS AMENDED**

**CHAPTER II-2
CONSTRUCTION – FIRE PROTECTION, FIRE DETECTION AND FIRE EXTINCTION**

Part E – Operational requirements

Regulation 15 – Instructions, on-board training and drills

After the existing paragraph 2.2.5, the following new paragraph is added:

"2.2.6 An onboard means of recharging breathing apparatus cylinders used during drills shall be provided or a suitable number of spare cylinders shall be carried to replace those used."

ANNEX 9

**DRAFT AMENDMENTS TO THE INTERNATIONAL CONVENTION FOR THE SAFETY OF
LIFE AT SEA, 1974, AS AMENDED**

**CHAPTER II-2
CONSTRUCTION – FIRE PROTECTION, FIRE DETECTION AND FIRE EXTINCTION**

Part C – Suppression of fire

Regulation 10 – Fire fighting

After the existing paragraph 10.3, the following new paragraph is added:

"10.4 Fire-fighter's communication

A minimum of two two-way portable radiotelephone apparatus for fire-fighter's communication shall be carried. These two-way portable radiotelephone apparatus on tankers and those intended to be used in hazardous areas shall be of an explosion-proof type."

ANNEX 10

PROPOSED BIENNIAL AGENDA OF THE SUB-COMMITTEE FOR THE 2012-2013 BIENNIUM IN SMART TERMS*

SUB-COMMITTEE ON FIRE PROTECTION (FP)					
PLANNED OUTPUTS 2012-2013 (resolution A.....(27))		Parent organ(s)	Coordinating organ(s)	Involved organ(s)	Target completion year
Number**	Description				
1.1.2.2	Consideration of IACS unified interpretations	MSC			Ongoing
2.0.1.3	Means for recharging air bottles for air breathing apparatuses	MSC	FP		2011
2.0.1.9	Performance testing and approval standards for fire safety systems	MSC	FP		2011
2.0.1.30	Development of unified interpretations for chapter 7 of the 2000 HSC Code	MSC	FP		2012
5.1.1.4	Review of fire protection requirements for on-deck cargo areas	MSC	FP	DSC	2011 2012
5.1.1.7	Safety provisions applicable to tenders operating from passenger ships	MSC	DE	FP, COMSAR, NAV, SLF, STW	2013
5.1.1.10	Guidelines for a visible element to general emergency alarm systems on passenger ships	MSC	DE	FP	2012
5.1.1.11	Review of the recommendations on evacuation analysis for new and existing passenger ships	MSC	FP		2011 2012
5.2.1.2	Development of requirements for the fire resistance of ventilation ducts	MSC	FP		2011 2012

* Items printed in bold have been selected for the draft provisional agenda for FP 56. 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.

** Numbers refer to the planned outputs for the 2010-2011 biennium. New output numbers will be assigned by the Council in due course.

SUB-COMMITTEE ON FIRE PROTECTION (FP)					
PLANNED OUTPUTS 2012-2013 (resolution A.....(27))		Parent organ(s)	Coordinating organ(s)	Involved organ(s)	Target completion year
Number**	Description				
5.2.1.6	Development of requirements for additional means of escape from machinery spaces	MSC	FP		2011 2012
5.2.1.9	Harmonization of the requirements for the location of entrances, air inlets and openings in the superstructures of tankers	MSC	FP	BLG	2011 2012
5.2.1***	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
5.2.1***	Development of amendments to the requirements for foam-type fire-extinguishers in SOLAS regulation II-2/10.5	MSC	FP		2013
5.2.1.12	Development of requirements for ships carrying hydrogen and compressed natural gas vehicles	MSC	FP		2011 2012
5.2.1.25	Revision of the Recommendations for entering enclosed spaces aboard ships	MSC	DSC	STW, BLG, FP	2011
5.2.1.32	Development of guidelines for use of Fibre Reinforced Plastic (FRP) within ship structures	MSC	DE	FP	2013
5.2.2.9	Development of amendments to the FSS Code for communication equipment for fire-fighting teams	MSC	FP		2011
5.2.3.15	Development of measures to prevent explosions on oil and chemical tankers transporting low-flash point cargoes	MSC	FP	BLG, DE	2011 2012
7.3.1***	Consideration of amendments to SOLAS chapter II-2 on location of EEBDs	MSC	FP		2013

*** Transferred from the MSC's post-biennial agenda

SUB-COMMITTEE ON FIRE PROTECTION (FP)					
PLANNED OUTPUTS 2012-2013 (resolution A.....(27))		Parent organ(s)	Coordinating organ(s)	Involved organ(s)	Target completion year
Number**	Description				
7.3.1***	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
12.1.2.2	Analysis of fire casualty records	MSC	FSI		Ongoing

*** Transferred from the MSC's post-biennial agenda

ANNEX 11

DRAFT PROVISIONAL AGENDA FOR FP 56

- Opening of the session and election of Chairman and Vice-Chairman for 2013
- 1 Adoption of the agenda
 - 2 Decisions of other IMO bodies
 - 3 Development of measures to prevent explosions on oil and chemical tankers transporting low-flash point cargoes
 - 4 Development of requirements for the fire resistance of ventilation ducts
 - 5 Review of fire protection requirements for on-deck cargo areas
 - 6 Review of the recommendations on evacuation analysis for new and existing passenger ships
 - 7 Development of requirements for additional means of escape from machinery spaces
 - 8 Development of requirements for ships carrying hydrogen and compressed natural gas vehicles
 - 9 Consideration of IACS unified interpretations
 - 10 Harmonization of the requirements for the location of entrances, air inlets and openings in the superstructures of tankers
 - 11 Development of unified interpretations for chapter 7 of the 2000 HSC Code
 - 12 Development of guidelines for use of Fibre Reinforced Plastic (FRP) within ship structures
 - 13 Analysis of fire casualty records
 - 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
 - 15 Consideration of amendments to SOLAS chapter II-2 on location of EEBDs
 - 16 Development of amendments to the requirements for foam-type fire-extinguishers in SOLAS regulation II-2/10.5
 - 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

- 18 Biennial agenda and provisional agenda for FP 57
- 19 Election of Chairman and Vice-Chairman for 2014
- 20 Any other business
- 21 Report to the Maritime Safety Committee

ANNEX 12

REPORT ON THE STATUS OF PLANNED OUTPUTS OF THE HIGH-LEVEL ACTION PLAN OF THE ORGANIZATION
AND PRIORITIES FOR THE 2010-2011 BIENNIUM RELEVANT TO THE SUB-COMMITTEE

SUB-COMMITTEE ON FIRE PROTECTION								
Planned output number in the HLAP for 2010-2011	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			Ongoing	Ongoing	FP 55/23, section 8; MSC 78/26, paragraph 22.12
2.0.1.3	Mandatory instruments: means for recharging air bottles for air breathing apparatuses	2011	MSC	FP		In progress	Completed	FP 55/23, section 15
2.0.1.9	Non-mandatory instruments: performance testing and approval standards for fire safety systems	2011	MSC	FP		In progress	Completed	FP 55/23, section 3
2.0.1.30	Non-mandatory instruments: development of unified interpretations for chapter 7 of the 2000 HSC Code	2012	MSC	FP		In progress	In progress	FP 55/23, section 17; MSC 87/26, paragraph 24.16
2.1.1.1	Mandatory instruments: comprehensive review of the fire test procedures code	2010	MSC	FP		Completed	Completed	FP 54/25, section 4; MSC 88/26, paragraphs 3.31 to 3.33
5.1.1.4	Mandatory instruments: review of fire protection requirements for on-deck cargo areas	2011 2012	MSC	FP	DSC	In progress	In progress	FP 55/23, section 11; MSC 83/28, paragraph 25.21

SUB-COMMITTEE ON FIRE PROTECTION								
Planned output number in the HLAP for 2010-2011	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
5.1.1.7	Non-mandatory instruments: safety provisions applicable to tenders operating from passenger ships	2011	MSC	DE	FP, COMSAR, NAV, SLF, STW	In progress	Completed	FP 55/23, section 16; MSC 84/24, paragraphs 22.14 and 22.50
5.1.1.10	Non-mandatory instruments: guidelines for a visible element to general alarm systems on passenger ships	2012	MSC	DE	FP	In progress	Completed	FP 55/23, section 14; MSC 86/26, paragraphs 23.9 and 23.35
5.1.1.11	Non-mandatory instruments: review of the recommendations on evacuation analysis for new and existing passenger ships	2011 2012	MSC	FP		In progress	In progress	FP 55/23, section 7; MSC 73/21, paragraph 4.16
5.2.1.2	Mandatory instruments: development of requirements for the fire resistance of ventilation ducts	2011 2012	MSC	FP		In progress	In progress	FP 55/23, section 5; MSC 81/25, paragraph 23.12
5.2.1.6	Mandatory instruments: development of requirements for additional means of escape from machinery spaces	2011 2012	MSC	FP		In progress	In progress	FP 55/23, section 10; MSC 83/28, paragraph 25.23
5.2.1.9	Non-mandatory instruments: harmonization of the requirements for the location of entrances, air inlets and openings in the superstructures of tankers	2011 2012	MSC	FP	BLG	In progress	In progress	FP 55/23, section 9; MSC 83/28, paragraph 25.24.2

SUB-COMMITTEE ON FIRE PROTECTION								
Planned output number in the HLAP for 2010-2011	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
5.2.1.12	Mandatory instruments: development of requirements for ships carrying hydrogen and compressed natural gas vehicles	2011 2012	MSC	FP		In progress	In progress	FP 55/23, section 4; MSC 85/26, paragraph 23.13
5.2.1.25	Non-mandatory instruments: revision of the Recommendations for entering enclosed spaces aboard ships	2011	MSC	DSC	FP, STW, BLG	In progress	Completed	FP 55/23, section 13; MSC 89/25, paragraphs 11.12 and 22.12
5.2.1.32	Non-mandatory instruments: development of guidelines for use of fibre reinforced plastic (FRP) within ship structures	2013	MSC	DE	FP		In progress	FP 55/23, section 19; MSC 87/26, paragraphs 24.14 and 24.31
5.2.2.9	Mandatory instruments: development of amendments to the FSS Code for communication equipment for fire-fighting teams	2012	MSC	FP			Completed	FP 55/23, section 18
5.2.3.15	Mandatory instruments: measures to prevent explosions on oil and chemical tankers transporting low-flash point cargoes	2011 2012	MSC	FP	DE, BLG	In progress	In progress	FP 55/23, section 6; MSC 83/28, paragraphs 8.13 to 8.15 and 9.26
12.1.2.2	Non-mandatory instruments: analysis of fire casualty records	-	MSC	FSI	FP	Ongoing	Ongoing	FP 55/23, section 12

ANNEX 13

DRAFT MSC CIRCULAR

**AMENDMENTS TO THE UNIFIED INTERPRETATIONS OF SOLAS CHAPTER II-2,
THE FSS CODE, THE FTP CODE AND RELATED FIRE TEST PROCEDURES
(MSC/CIRC.1120)**

1 The Maritime Safety Committee, at its [ninetieth session (16 to 25 May 2012)], with a view to providing more specific guidance for the application of the relevant requirements of the 1974 SOLAS Convention, approved unified interpretations of SOLAS chapter II-2, prepared by the Sub-Committee on Fire Protection at its fifty-fifth session, as set out in the annex, in the form of amendments to MSC/Circ.1120.

2 Member Governments are invited to use the unified interpretations set out below as guidance when applying relevant provisions of SOLAS chapter II-2, to fire protection of ship pantries and to bring them to the attention of all parties concerned.

ANNEX

**AMENDMENTS TO THE UNIFIED INTERPRETATIONS
CONTAINED IN THE ANNEX TO MSC/CIRC.1120**

- 1 The Interpretation to SOLAS regulation II-2/3.1 is replaced by the following:

"Devices in pantries or isolated pantries containing no cooking appliances

Pantries or isolated pantries containing no cooking appliances may contain:

- .1 toasters, microwave ovens, induction heaters and similar appliances each of them with a maximum power of 5 kW; and
- .2 electrically heated cooking plates and hot plates for keeping food warm each of them with a maximum power of 2 kW and a surface temperature not above 150°C.

These pantries may also contain coffee automats, dish washers and water boilers with no exposed hot surfaces regardless of their power.

A dining room containing such appliances should not be regarded as a pantry.

This interpretation also covers regulations 9.2.2.3.2.2(9), 9.2.2.4.2.2(3), 9.2.3.3.2.2(3) and 9.2.4.2.2.2(3)."

- 2 The Interpretation to SOLAS regulation II-2/3.45 is replaced by the following:

"Devices in main pantries, pantries containing cooking appliances and galleys

1 Main pantries and pantries containing cooking appliances may contain:

- .1 toasters, microwave ovens, induction heaters and similar appliances each of them with a power of more than 5 kW; and
- .2 electrically heated cooking plates and hot plates for keeping food warm each of them with a maximum power of 5 kW.

These pantries may also contain coffee automats, dish washers and water boilers regardless of their power.

This interpretation also covers regulations 9.2.2.3.2.2(13) and 9.2.2.4.2.2(9).

2 Spaces containing any electrically heated cooking plate or hot plate for keeping food warm with a power of more than 5 kW should be regarded as galleys."

ANNEX 14

DRAFT MSC CIRCULAR

UNIFIED INTERPRETATIONS TO SOLAS REGULATION II-2/21.4, TO BE USED IN CONJUNCTION WITH THE INTERIM EXPLANATORY NOTES FOR THE ASSESSMENT OF PASSENGER SHIP SYSTEMS' CAPABILITIES AFTER A FIRE OR FLOODING CASUALTY (MSC.1/CIRC.1369)

1 The Maritime Safety Committee, at its [ninetieth session (16 to 25 May 2012)], with a view to providing more specific guidance for the assessment of passenger ship systems' capabilities after a fire or flooding casualty, approved the unified interpretations to SOLAS regulation II-2/21.4, prepared by the Sub-Committee on Fire Protection, at its fifty-fifth session, as set out in the annex, for use in conjunction with the Interim explanatory notes for the assessment of passenger ship systems' capabilities after a fire or flooding casualty (MSC.1/Circ.1369), when conducting an assessment of critical systems.

2 Member Governments are invited to use the annexed unified interpretations as guidance when applying relevant provisions of SOLAS regulation II-2/21 and to bring them to the attention of all parties concerned.

ANNEX

UNIFIED INTERPRETATIONS TO SOLAS REGULATION II-2/21.4 FOR DETAILED ASSESSMENT OF CRITICAL SYSTEMS

Regulation II-2/21.4 – Fire and flooding casualty, pipes and vent ducts

All pipes and vent ducts passing through (not serving) a compartment affected by a flooding casualty are considered to remain operational provided they, together with relevant fittings, are capable of withstanding the head of water expected at their location.

Regulation II-2/21.4 – Fire and flooding casualty, electrical cables

Electrical cables complying with standard IEC 60092-359 may be considered to remain operational in a space affected by a flooding casualty, provided they have no connections, no joints, no equipment connected to them, etc., within such space or such connections, joints and devices have a degree of protection IPX8 in accordance with standard IEC 60529 (head of water expected at their location for a period not inferior to that estimated for the safe return to port).

Regulation II-2/21.4.4 – Systems for fill, transfer and service of fuel oil

Systems for internal fill, transfer and service of:

- .1 fuel;
- .2 other flammable hydrocarbons; or
- .3 any fluid that may be flammable or dangerous if heated to a very high temperature (both within the pipe and on going through pumps, orifices or other equipment),

should be established as being capable of remaining operational when crossing flooded watertight compartments, considering in particular consequences of low sea water temperature on liquids behaviour.

Regulation II-2/21.4.6 – External communications

- .1 Portable radio communication equipment might be accepted; and
 - .2 charging capability for any portable devices should be available in more than one main vertical zone (MVZ).
-