 Draft amendments to SOLAS chapter II-2

4.28 The Sub-Committee agreed to the draft amendments to SOLAS chapter II-2, as set out in annex …, for submission to MSC 86 for approval and subsequent adoption, in conjunction with the adoption of the revised FTP Code referred to in paragraph 4.27.

Completion of the work item

4.29 Since work on the item has been completed, the Sub-Committee invited the Committee to delete it from its work programme.

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

General

5.1 The Sub-Committee recalled that at MSC 83, the Committee included, in the Sub-Committee’s work programme and the provisional agenda for FP 52, a high-priority item on “Measures to prevent explosions on oil and chemical tankers transporting low-flashpoint cargoes”, with a target completion date of 2009, in co-operation with the BLG and DE Sub-Committees as necessary and when requested by the FP Sub-Committee.

5.2 It was also recalled that MSC 83 agreed that, under the aforementioned work programme item, the Sub-Committee should first consider measures for new ships, taking into account the different operational demands on chemical tankers and the need that essential data is submitted and considered first and, depending on the outcome of their consideration, the Committee would then consider the extension of the item towards appropriate measures for existing oil and chemical tankers transporting low-flashpoint cargoes, taking into account the comments made during the discussion.

5.3 The Sub-Committee further recalled that at MSC 83, the Committee agreed to take into account the concerns raised in respect of dangerous atmospheres (FP 52/20, annex).

5.4 It was noted that at FP 52, the Sub-Committee decided to establish a working group at this session to progress the matter and urged Member Governments and international organizations to submit the essential data on the subject to FP 53 for consideration and action, as appropriate.
5.5 The Sub-Committee had the following documents for consideration under this agenda item:

.1 FP 53/5 (Secretariat), containing the outcome of FP 52 on matters related to this item;

.2 FP 53/5/1 (Secretariat), containing the relevant parts of the reports of investigation into the **Chassiron**, **Panam Serena** and **Bow Mariner**;

.3 FP 53/5/2 (Secretariat), containing a compilation of the analyses of tank related fire and explosion casualties on oil and chemical tankers considered by the FSI Sub-Committee since FSI 8, in order to provide essential data on this subject to assist the Sub-Committee with its work on this task;

.4 FP 53/5/3 (Norway), containing a formal safety assessment on the installation of inert gas systems on tankers of less than 20,000 dwt, in order to provide the Sub-Committee with further information and analysis on this issue, recommending that also smaller ships should have inert gas system fitted, in order not to lead to a lower safety standard for some types or sizes of ships. It should be noted that the port turnaround has not been taken into account when the study was performed;

.5 FP 53/5/4 (Japan), recommending that oil tankers, including product carriers, should follow the latest edition of the International Safety Guide for Oil Tankers and Terminals (ISGOTT) and proposing a draft recommendation for safe operation on tankers;

.6 FP 53/5/5 (IPTA and ICS), discussing different operation issues related to the introduction of mandatory requirements for the installation of inert gas systems (IGS) on chemical tankers;

.7 FP 53/5/6 (IPTA and ICS), providing two examples of actual voyages undertaken by parcel/chemical tankers during 2008, which could be considered as typical of the type of operations constantly being carried out in the chemical/parcel tanker trade;
.8 FP 53/5/7 (IPTA and ICS), commenting on document FP 53/5/3 (Norway) on the many issues raised to propose mandatory requirements for IGS; and

.9 FP 53/INF.3 (Japan), providing the result of analysis of fire and explosion casualties in cargo areas on oil and chemical tankers, and concluding from the analysis that safety measures against fire and explosion in cargo areas on tankers should be considered comprehensively.

**Standards for the design of in-tank pumps**

5.6 The Sub-Committee noted the information provided by IACS regarding the development of international safety standards for the design and operation of in-tank pumps and, in particular, that the above standards are currently under development and would be ready for circulation in March 2009. The observer from IACS also informed the Committee that relevant document on the matter would be submitted to FP 54.

**Discussion of submissions**

5.7 In the course of considering the documents referred to in paragraph 5.5 above, the Sub-Committee noted the following views expressed during the discussion:

.1 the results of the Inter-Industry Working Group report on fires and explosions on chemical and product tankers (MSC 81/8/1) should be included in the list documents to considered on the matter;

.2 industry guidance such as the International Safety Guide for Oil Tankers and Terminals (ISGOTT) should be considered as part of any measures to be developed, taking into account that the failure to follow procedures was the main cause for the fires and explosions identified by the Inter-Industry Working Group;

.3 enhanced training regarding cargo tank operating procedures should be included in the ongoing revision of the STCW Convention, in particular, concerning tanker endorsements;

.4 inert gas system should be installed on oil and chemical tankers to reduce the risk of fire and explosions;
most chemical cargoes entail a relatively high level of tank preparation, which will usually involve the crew entering the tank to complete cleaning operations, and the installation of inert gas systems on chemical tankers could increase the risk of asphyxiation;

the possibility of increased port time in areas where congestion is already a major factor needs to be taken into account when considering the application of inert gas to chemical carriers;

the potential for over pressurization of cargo tanks is possible if shore-supplied inerting is made mandatory;

the effectiveness of having inert gas on small ships engage in short voyages was doubted; and

it was noted that the FSA studies on effectiveness of installation of vent gas system came to a different conclusion due to different factors being taken into account.

5.8 In summarizing, the Chairman emphasized is that the Sub-Committee needs to develop a positive response to the problem by addressing the issues highlighted in the documents submitted and the various interventions made on the subject. In this regard, he proposed that the working group should consider operational measures to deal with human element, technical measures for preventing fires and explosions; including the possibility of requiring inert gas systems on oil and chemical tankers.

**Establishment of the working group**

5.9 Recalling its relevant decision at FP 52 regarding a working group, 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:

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consider operational and technical measures to prevent fires and explosions on new oil and chemical tankers transporting low-flash point cargoes, taking into account the different operational demands on chemical tankers, the concerns raised in respect of dangerous atmospheres, and documents FP 53/5, FP 53/5/1, FP 53/5/2, FP 53/5/3, FP 53/5/4, FP 53/5/5, FP 53/5/6, FP 53/5/7, FP 53/INF.3, FP 52/20/1, FP 52/INF.2, FP 51/10/1, MSC 81/8/1 and MSC 81/INF.8, and prepare recommendations for new ships only, which should be composed of:

1.1 operational measures to deal with human element considerations;

1.2 technical measures which should have added value for preventing fires and explosions, in particular, considering loading and unloading operations and tank cleaning and inspections; and

1.3 exploring the possibility of requiring inert gas (IG) or equivalent systems, taking into account the different ship types and sizes.

Report of the working group

5.10 Having received the report of the working group (FP 53/WP.2), the Sub-Committee approved it in general and took action as outlined hereunder.

5.11 The Sub-Committee noted that views in the group were divided whether the discussions on the measures to prevent fires and explosions should be separated from the issue of tank entry and cargo operating procedures, i.e. measures to ensure a tank is safe before entry, but that, however, the majority of the group had agreed that the two issues should not be treated separately since the problems associated with tank entry were fundamental to the discussions.

5.12 The Sub-Committee also noted that concerns were raised regarding an increase in turnaround time in ports should inerting of tanks be required for all new oil and chemical tankers and also that such requirement would add another layer to an already very complex process for chemical tankers, and that it was also pointed out that inerting may increase the risk associated with tank entries and that technology to avoid entering tanks was not yet fully developed.
5.13 The Sub-Committee agreed that the results of the Inter-Industry Working Group formed to investigate fires and explosions on chemical and product tankers (MSC 81/8/1) should be further thoroughly considered in the work on the agenda item, together with any other relevant document.

5.14 The Sub-Committee noted that any tank entry was always hazardous, whether tanks had been inerted or not, and that an empty tank did not equal a safe tank. The importance of following established procedures for entering enclosed spaces was stressed.

5.15 The Sub-Committee also noted that the delivery of nitrogen to chemical tankers from shore facilities was considered by the group, whereby potential problems with a guaranteed supply and the quality of nitrogen and possible problems with over pressurization of ships’ tanks from shore nitrogen supply were mentioned.

**Operational measures to deal with human element considerations**

5.16 The Sub-Committee noted that the group had discussed the cargo-specific element of the training for chemical tanker endorsements and had agreed that more training on the specifics of hazardous chemicals, including low-flash point cargoes, was necessary, and agreed to invite the STW Sub-Committee to reconsider document STW/ISWG 1/5/12 in the context of the revision of the STCW Convention, in particular the draft amendments to chapter V proposed in the document so that enhanced training regarding tank entry and cargo operating procedures could be included in the revision. In this connection, the Sub-Committee noted that relevant training and experience of surveyors and other shore personnel may also need to be considered.

5.17 The Sub-Committee noted that guidance from the industry regarding the entry into enclosed spaces was readily available, such as the information contained in the International Safety Guide for Oil Tankers and Terminals (ISGOTT) by ICS/OCIMF/IAPH, the Tanker Safety Guide (Chemicals) by ICS and the Guidelines on safety management systems for hot work and entry into enclosed spaces by OCIMF, but was not always complied with, and agreed that such industry guidance should be taken into account in the further work. In this context, the Sub-Committee noted that the Recommendation for safe operation of tankers, developed by Japan (FP 53/5/4), could also assist in preventing fire and explosions on tankers. In this connection, the Sub-Committee noted information on asphyxiation incidents issued by various industry bodies.
5.18 The Sub-Committee also noted that, in the tank-related fire and explosions investigated by the IIWG (MSC 81/8/1), failure to follow established procedures was observed in a significant number of incidents, and that some delegations had pointed out that the objective should be to reduce the number of tank entries but that, at the same time, it would appear that commercial pressure was leading to an increase in tank inspections, thereby raising the number of entries.

**Technical measures to prevent fires and explosions**

5.19 The Sub-Committee agreed that the fitting of appropriate inert gas systems (IGS) to new oil tankers below 20,000 dwt and new chemical tankers carrying low-flash cargoes would minimize the risk of fires and explosions. The Sub-Committee recognized, however, that it was pointed out that the benefits of such fitting should outweigh any negative effects of the introduction of IG systems, such as increased fuel consumption; increased CO₂ emissions; increased building costs; increased complexity of procedures; and possible increase of the risk associated with tank entries.

5.20 The Sub-Committee noted that the majority of the group had agreed that a lower size limit should be set for new oil tankers to which the IGS requirement would apply, and had also felt that it may be appropriate to apply the same size limit to chemical tankers, but that, however, other delegations had been of the view that any new requirements should not be subject to a size limit. The Sub-Committee also noted that views in the group had been divided at which dwt value the cut-off should be set, taking into account the two FSA studies by Japan and Norway, and that some delegations had been proposing a lower limit of 4,000 dwt, 6,000 dwt or 8,000 dwt. Noting that the group had not reached agreement in the matter, the Sub-Committee agreed that the lower size limit for new tankers, to which the requirement of fitting IGS would apply, needed to be further considered.

5.21 The observer from OCIMF stated that requirements should be in line with the principle of the SOLAS Convention and that there should be no other lower limit to the size of new tankers to which the requirements for inert gas apply other than that established in SOLAS, i.e. 500 gross tonnage, indicating that, for example, the requirement for inert gas in the IGC Code applies to all gas carriers above 500 gross tonnage. They further stated that they knew that fitting of IGS to new tankers below 20,000 tonnes deadweight would minimize the risk of fires and explosions; that it was technically feasible to install inert gas systems on all new build tankers, regardless of
size, and that no one had disagreed with this point; and that there had been over 30 years of experience with inert gas in the tanker industry.

5.22 The Sub-Committee noted the views that the size limit should be settled after MEPC 59 has agreed on the “oil spill cost per unit volume” threshold (CATS value) which would enable a proper analysis of the cost-benefit ratio of the introduction of inert gas to tankers as described above.

New oil tankers

5.23 The Sub-Committee agreed that new oil tankers of below 20,000 tonnes deadweight but equal to or greater than [8,000] [6,000] [4,000] dwt should be fitted with inert gas systems, recognizing that such requirements could be introduced by suitably modifying the provisions of SOLAS regulation II-2/4.5.5.

New chemical tankers

5.24 The Sub-Committee agreed that requirements should be developed for the application of inert gas systems to new chemical tankers, and that, since chemical tankers presented much more complex problems than oil tankers, separate requirements may need to be developed to cover them, which would necessarily also include modifications to SOLAS regulation II-2/4.5.5.2.

5.25 The delegation of the Bahamas, supported by the observers of ITF, IAPH, OCIMF and INTERTANKO, stated their opinion that, taking into account the risks involved in the carriage of low-flash point cargoes, the same carriage requirements should apply to new oil tankers and new chemical tankers.

Extension of the work programme item

5.26 The Sub-Committee agreed that further intensive debate on the issue for two more sessions of the Sub-Committee is necessary and, consequently, invited the Committee to extend the target completion date of the work programme item to 2011.
5.27 The Sub-Committee invited Members and international organizations to submit proposals for concrete amendments to relevant IMO instruments and any other information regarding the matter to FP 54 and agreed that a working group should be established at that session to consider such proposals and any other information submitted.

6 FIRE RESISTANCE OF VENTILATION DUCTS

6.1 The Sub-Committee recalled that, at MSC 83, the Committee, having considered document MSC 83/25/11 (Denmark), had agreed to expand the Sub-Committee’s existing work programme item on “Fire resistance of ventilation ducts” to cover all SOLAS regulations for ventilation systems and agreed to extend the target completion date to 2009.

6.2 The Sub-Committee also recalled that, at FP 52, it had agreed to the draft amendments to SOLAS regulation II-2/9.7 on matters related to fire resistance of ventilation ducts, which were approved by MSC 84 and subsequently adopted by MSC 85, by means of resolution MSC.269(85). In this context, the aforementioned amendments apply to new ships only.

6.3 Following consideration of documents:

.1 FP 53/6 (United States), containing proposed amendments to SOLAS regulation II-2/9.7, in order to clarify and harmonize the SOLAS ventilation system requirements. The proposed amendments address the problem by requiring automatic fire dampers for all ventilation duct penetrations of “A” class divisions; and

.2 FP 53/INF.5 (Republic of Korea), containing the results of tests, which were carried out in order to observe the behaviour of the ventilation duct and carbon dioxide gas when the carbon dioxide fire-extinguishing system is activated,

the Sub-Committee agreed with the proposed amendments to SOLAS regulation II-2/9.7, in general, noting the view of several delegations that more detailed consideration was necessary. In this context, the Sub-Committee agreed with the views expressed that the fitting of automatic fire dampers in “A” class divisions would be very costly for passenger ships and would not substantially improve safety.