Introduction

The 2nd session of the IMO Sub-Committee on Ship Systems and Equipment (SSE 2) was held from 23 to 27 March 2015, at the IMO headquarters in London. The following is the summary of the discussions which are relevant to the work of Lloyd’s Register.

Summary of discussions

The following agenda items are relevant to the work of Lloyd’s Register.

Smoke control and ventilation (agenda item 3)
SSE 2 considered the report of the intersessional Correspondence Group on Fire Protection (FP) that had been established to develop performance standards related to smoke control and ventilation and possible amendments to SOLAS Chapter II-2.

After an extensive discussion the Sub-Committee agreed draft Performance standards, functional requirements and system requirements for the assessment of smoke management systems. These draft standards include definitions of smoke management and smoke extraction systems. They will be sent to MSC 95 for approval and once approved they will be applicable to new passenger ships only.

Associated amendments to SOLAS were not agreed at this session but may be discussed at a future session of the Sub-Committee.

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 (agenda item 4)
SSE 2 reviewed draft amendments to SOLAS Chapter II-2/20.3 previously approved by MSC 94, in conjunction with SOLAS regulation II-2/19 for the purposes of consistency. These amendments allow the optional use of an air quality management system in lieu of prescriptive requirements for ventilation of ro-ro and special category spaces. The Sub-Committee agreed to the amendments with minor editorial changes which will include changing the footnote relating to MSC/Circ.729. These will be sent to MSC 95 (June 2015) for adoption and will enter into force 1 Jan 2017. They will apply to all passenger and cargo ships both existing and new build.

The Sub-Committee also agreed to the draft revised guidelines that will supersede MSC/Circ.729 (Design guidelines and operational recommendations for ventilation in ro-ro spaces).

Development of life safety performance criteria for alternative design and arrangements for fire safety (MSC/Circ.1002) (agenda item 5)
SSE 1 considered proposals to revise MSC/Circ.1002 (Guidelines on alternative design and arrangements for fire safety). Consideration was given to current research and standards with regard to the allowable levels of fire effluents considered safe for human exposure and whether the safety margins employed in shore side building design are adequate for use on ships. An appropriate framework for the assessment of minimum life-safety performance criteria and safety margins was developed by an intersessional correspondence group to address the survivability of passengers and crew exposed to the effects of heat, smoke, toxicity, and reduced visibility in relation to evacuation time.

After an extensive debate which addressed concerns over the available safe egress time (ASET) in relation to the smoke layer height, SSE 2 agreed to set up a correspondence group in order to continue work. The correspondence group will be tasked with defining the life safety performance criteria against which the ASET will be measured and further
consider an appropriate type of method to determine the ASET time limit by using an appropriate smoke height layer, which will need to be agreed.

**New framework of requirements for life-saving appliances (agenda item 6)**

The Sub-Committee agreed that before there could be any further development of the functional requirements for SOLAS Chapter III clear instructions from MSC on the scope and direction of the work were needed. It was the general view that due to parallel activities by the MSC Working Group on GBS-SLA and development of the generic guidelines on goal-based standards (MSC.1/Circ.1394) and MSC.1/Circ.1455 some of the work initially foreseen has been overtaken. It was agreed that the loss of the clear scope of the Planned Output had significant impact on the work and the draft Goal-based guidelines on the framework of requirements for ship’s life-saving appliances. Therefore, there was general agreement that there was no benefit in any further development of this document as this stage. MSC 95 will be requested to clarify the scope and direction of the work to be considered by SSE 3.

**Safety objectives and functional requirements of the Guidelines on alternative design and arrangements for SOLAS chapters II-1 and III (agenda item 7)**

MSC 90 proposed to amend the Guidelines for alternative design and arrangements for fire safety by including life-saving performance criteria. SSE 1 established a Correspondence Group on life-saving appliances intersessionally, however, the group reported that little progress had been made and the Sub-Committee was invited to submit papers to SSE 3.

**Measures for onboard lifting appliances and winches (agenda item 8)**

Over the last 10 years there have been a number of accidents involving onboard lifting appliances, some of which have resulted in fatalities. Recognising that this is unacceptable the IMO has been looking at ways to improve the situation. It was reported that the root cause of the majority of accidents has been identified as lack of maintenance or poor/incorrect operation. SSE 1 decided that there should be a further period for collection and analysis of additional data and corroborative evidence before any decision could be taken on whether there is a need to take any preventative measures.

SSE 2, after a lengthy debate, could not reach any agreement on whether measures should be either mandatory through amendments to SOLAS or non-mandatory but the majority who spoke favoured mandatory amendments to SOLAS and agreed that more robust guidelines for the safety of onboard lifting appliances and winches should be developed.

MSC 95 will be asked for a clear mandate to take the work forward by deciding whether mandatory measures should be prepared in addition to the proposed guidelines.

**Considerations related to the double sheathed low-pressure fuel pipes for fuel injection systems in engines on crude oil tankers (agenda item 9)**

MEPC requested that SSE 1 consider how to proceed with regard to Risk Control Option 9 (RCO 9) (double sheathed low-pressure fuel pipes for fuel injection systems in engines) of the Formal Safety Assessment (FSA) study on crude oil tankers, for application to new ships only. SSE 1 was asked to submit concrete proposals and comments on the way forward for this issue to SSE 2, restricting the scope to new build crude oil tankers.

SSE 2 considered analysis of the technical effectiveness of double sheathed low pressure fuel pipes in engine rooms (as per RCO 9) and that, compared with high pressure fuel oil pipes, the possibility of accidents caused by the breakage of low pressure fuel oil pipes is very low.

The Sub-Committee concluded that the risk of oil leakage of such pipes could be best controlled by measures such as reducing the number of pipe joints, improving the quality of joint wrapping and enhancing the maintenance of joints rather than by double sheathing low pressure fuel pipes.

No further action will be considered and this agenda item is now complete.

**Amendments to the requirements for foam-type fire extinguishers in SOLAS regulation II-2/10.5 (agenda item 10)**

An amendment to SOLAS regulation II-2/10.5.1.2.2 regarding the arrangements of 135 litre foam type extinguishers in boiler rooms was proposed at SSE 1 but not agreed.

SSE 2 further considered the amendments and agreed to the amendment of the SOLAS text to included boilers protected by fixed local water based firefighting systems. This will be sent to MSC 96 for approval with an effective date of 2020 and apply to new and existing ships.
The work on this item is now complete.

Unified interpretation of provisions of IMO safety, security, and environment related conventions (agenda item 11)
This is a continuous agenda item which appears under each technical Sub-Committee where unified interpretations are considered. SSE 2 will consider the unified interpretations and understandings submitted to the session with a view to developing relevant IMO circulars, as appropriate.

SSE 2 agreed to the following MSC Circulars which will go to MSC 96 for approval (May 2016).

- **Draft MSC Circular on Non-combustible material as "steel or equivalent" for ventilation ducts – SOLAS regulation II-2/9.7.1.1**
  An interpretation of SOLAS II-2/9.7.1.1 giving clarity on ventilation ducts made of material other than steel on the basis that the equivalent material is non-combustible and has passed a standard fire test in accordance with the relevant part of the FTP Code.

- **Draft MSC Circular on Arrangements for fixed hydrocarbon gas detection systems in double-hull and double-bottom spaces of oil tankers – SOLAS regulation II-2/4.5.7.3.1**
  Refers to SOLAS Chapter II-4/4.5.7.3.1 and clarifies the phrase ‘any other tanks and other spaces’.

- **Draft MSC Circular on unified interpretation of SOLAS regulation II-2/4 on application of materials other than steel on engine, turbine and gearbox installations**
  Clarifies the conditions under which materials other than steel may be permitted for components mounted on engines, turbines and gear boxes.

- **Draft MSC Circular on Fixed gas fire-extinguishing systems (FSS Code Chapter 5 Paragraph 2.2.1.7)**
  Refers to the number of setting points to the discharge control for the fire extinguishing medium.

- **Draft MSC Circular Implementation of the requirements related to lifeboat release and retrieval systems (paragraph 4.4.7.6 of the LSA Code, as amended by resolution MSC.320 (89))**
  Provides clarity on the corrosion tests to be applied as identified in paragraph 4.4.7.6.9 of the LSA Code on material that is corrosion resistant in the marine environment.

- **Draft MSC Circular General emergency alarms and public address systems in ro-ro spaces**
  Concerns the requirements in SOLAS II/6.4 & 6.5 and the LSA Code section 7.2 related to general emergency alarms and public address systems in ro-ro spaces.

- **Draft MSC Circular Fixed foam fire-extinguishing systems – foam-generating capacity (FSS Code, chapter 6, paragraphs 3.2.1.2 and 3.3.1.2)**
  An interpretation of the term ‘largest protected space’ in relation to Machinery spaces of category A protected by fixed high expansion foam extinguishing systems.

- **IACS UI SC270 Fire pumps in ships designed to carry five or more tiers of containers on or above the weather deck**
  Following discussion SSE 2 noted IACS intention to further consider the need to amend UI SC270 with a view to clarifying the requirements on the diameter of the fire main. IACS will submit any modified interpretation for consideration at SSE 3.

- **Draft MSC Circular Additional indicating unit in the cargo control room**
  Provides an interpretation relating to the additional indicating unit of fire detection and fire alarm systems in cargo control rooms as required by Chapter 9 paragraph 2.5.1.3 of the FSS Code.

- **Corrigendum to MSC.1/Circ.1392 (Guidelines for Evaluation and Replacement of Lifeboat Release and Retrieval Systems)**
  SSE 2 agreed that amendments to appendix 4 annex of MSC.1/Circ. 1392 (Guidelines for Evaluation and Replacement of Lifeboat Release and Retrieval Systems) were required because the Statement of Acceptance had not been updated to bring it in line with the requirements of the Circular in relation to the post installation 5 knot test. This will be addressed through a Corrigendum.

- **Corrigendum to MSC.1/ Circ.1120 on Unified interpretations of SOLAS chapter II-2, the FSS Code, the FTP Code and related fire test procedures**
SSE 2 also agreed that a corrigendum should be issued to revise the paragraph numbers in MSC.1/Circ.1120 on Unified interpretations of SOLAS chapter II-2, the FSS Code, the FTP Code and related fire test procedures

**Review of the MODU Code, LSA Code and MSC.1/Circ.1206/Rev.1 (agenda item 12)**

SSE 2 considered proposed amendments to the 2009 MODU Code, the LSA Code and MSC.1/Circ.1206/Rev.1 and developed other appropriate guidance in light of the lessons learned from the explosion, fire, and sinking of the mobile offshore drilling unit *Deepwater Horizon* in the Gulf of Mexico in 2010.

While the draft amendments to the MODU Code were supported the Sub-Committee did not agree that the LSA Code, FTP Code or other mandatory instruments should be and that any new requirements should only apply to MODU’s.

The draft amendments will be developed by an intersessional correspondence group to report to SSE3.

**Amendments to the Guidelines for vessels with dynamic positioning (DP) systems (MSC/Circ.645) (agenda item 13)**

MSC 90 agreed to a proposal to amend the technical and operational guidelines for vessels with dynamic positioning systems (MSC/Circ.645) in order to reflect advances in technology and operations since the publication of the circular in 1994.

The Sub-Committee considered the proposed draft amended technical and operational guidelines but agreed that more work was required. It was decided that the target completion date should be extended to 2016 so that a correspondence group could work intersessionally and report to SSE 3.

**Review of flashpoint requirements for oil fuel in SOLAS chapter II-2 (agenda item 14)**

From 1 January 2015, 0.10% low sulphur fuel is required in the Emission Control Areas (North and Central America, North Sea and Baltic Sea under MARPOL Annex VI regulation 14 and European ports under EU initiatives). In addition, it is expected that global sulphur contents will be lowered from current 3.50% to 0.50% on 1 January 2020, subject to the review of the fuel availability.

One possible source for such low sulphur fuel is to use fuel used by land-based industries, e.g., diesel fuel oil for automotive. However, in general, their flashpoint is lower than 60°C which makes the use of such fuels non-compliant with SOLAS regulation II-2/4.2.

Following the proposal at MSC 94, SSE 2 was tasked to look into the possibility of allowing the use of such low flashpoint fuel on-board ships.

After an extensive discussion where it was noted that the effect of reducing the flashpoint would have far reaching consequences which would affect a substantial number of Conventions, Codes and IMO instruments. It was eventually decided that this work should be considered in the framework of the IGF Code and to avoid a duplication of work this issue should be considered in the IGF correspondence group established by the CCC Sub-Committee consequently SSE 2 suggested that comments and proposals should go directly to CCC 2.

**Revision of requirements for automatic sprinkler systems (agenda item 15)**

MSC 94 considered a report from the Bahamas that drew attention to the fact that during annual testing of automatic sprinkler systems on several passenger ships, several sprinklers had failed to operate. MSC 94 decided to issue an interim circular and guidance to raise awareness of the problem and referred the matter to SSE 2 (MSC.1/Circ.1493).

The Sub-Committee reviewed and agreed the proposed draft revised guidelines for the maintenance and inspection of fire protection systems and appliances (MSC.1/Circ.1432), and agreed associated amendments to chapter 8 of the FSS Code. Both will be sent to MSC 95 for approval.

**Revision of requirements for escape route signs and equipment location markings in SOLAS and related instruments (agenda item 16)**

As part of the recommendations following the Costa Concordia incident and the decision by the Ad Hoc Working Group on Passenger Ship Safety to include a review of the adequacy of shipboard safety signs and markings in their work, MSC 94 agreed to a new unplanned output to clarify and harmonise existing requirements for escape route signs and equipment location markings in SOLAS regulations II-2/13.3.2.5.1, III/11.5, and III/20.10 and to develop a new chapter of the International Code for Fire Safety Systems (FSS Code) for this purpose.

The Sub-Committee was invited to consider any proposals and submit papers to SSE 3 with a view to completing this item at that session.
Any other business (agenda item 19)

SSE 2 will consider the following under this agenda item:

Code for the transport and handling of limited amounts of hazardous and noxious liquid substances in bulk on offshore support vessels (OSV Chemical Code)

PPR 1 agreed to refer the text of Chapter 8 (Firefighting Requirements) of the OSV Chemical Code to SSE 2 for consideration with a view to providing general advice and input.

Although the Sub-Committee discussed the text they found that no clear definition of the term ‘cargo space’ is given as this is still under consideration by PPR. Since this is crucial in order to define the exact scope needed for the application of foam firefighting systems a consensus could not be reached at this session. SSE 2 however largely endorsed draft of Chapter 8 and referred it back to PPR3.

SDC 2 also forwarded the text of Chapter 5 (Cargo Transfer) to SSE 2 for similar review and advice. The Sub-Committee agreed to various editorial changes and it will be referred back to PPR3.

Scope of application and drafting of amendments to the LSA Code

This has been a long standing issue in IMO with regard to the application criteria of the amendment to the code, i.e., whether any amendment to the code applies to ships constructed (keel laid) on or after the entry into force of the convention or, actual installation of the equipment on or after the entry into force.

SSE 2 considered that this discussion had been overtaken by the approval of MSC.1/Circ.1500 and agreed that any new amendments should follow the guidance in paragraphs 4.1.6 and 4.2.6 when finalising amendments to the LSA Code.

This work is considered complete.

Proposed consequential amendments to SOLAS regulation II-2/18.5 and related instruments to remove inconsistencies with the Guidelines for the approval of helicopter facility foam fire-fighting appliances (MSC.1/Circ.1431)

SSE 2 agreed to a draft new Chapter 17 of the FSS Code for Helicopter Facility Foam Firefighting appliances as well as draft amendments to SOLAS Regulation II-2/18.5 for submission and potential adoption at MSC 95.

The Sub-Committee agreed consequential amendments for submission and subsequent adoption at MSC 95, draft amendments to Chapter 9 of the 2009 MODU Code and the MSC/Circ.895 Recommendation on helicopter landing areas on ro-ro passenger ships, which refer to back to the foam application system provisions as detailed in the Fire Safety Systems Code.

Requirements for periodic servicing and maintenance of lifeboats, launching appliances and release gear

MSC 93 noted a number of inconsistencies between the requirements of the draft amendments to SOLAS regulations III/3 and III/20 and the draft MSC resolution on Requirements for periodic servicing and maintenance of lifeboats and rescue boats, launching appliances and release gear previously agreed by SSE 1. The proposed draft amendments to SOLAS regulation III/20 made use of phrases that are unclear in their intent to describe maintenance requirements and the personnel required to carry out this maintenance. SSE 2 will consider proposals to resolve these issues.

After a prolonged discussion SSE 2 decided that more work was needed to resolve the issues in the draft requirements and the draft amendments to SOLAS regulations III/3 and III/20. MSC 95 will be asked to note the progress made and the work will be finalised at SSE 3 with a view to approval at MSC 96. Any amendments will not enter into force until 2020.


SSE 2 considered proposed amendments to paragraph 9.2 of appendix 1 to part 2 of annex 1 to the 2010 FTP Code and it was agreed that there was an omission in the text of the Code. A corrigen to Resolution MSC.307(88), the 2010 FTP Code, will be issued with the following amended text:

For each specimen, record the value of the “clear beam” reading Tc (see paragraph 8.7.4) to determine the correction factor Dc. Calculate Dc as for Ds max in paragraph 9.1.1. Dc shall not be subtracted from Ds max. Do not record the correction factor Dc if it is less than 5% of Ds max.
This report has been produced and disseminated immediately after the closure of the meeting in order to provide timely advice to the reader. Subsequently we apologise if it has not been fully proof read to remove grammatical errors.

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