

Highlights of IMO's Maritime Safety Committee's 94<sup>th</sup> session, which met from 17 to 21 November, are provided below. A number of amendments to SOLAS and the MODU Code were adopted and will enter into force on 1 July 2016. A new Polar Code was adopted and a Code for Gas Fueled Ships was approved in principle. A more extensive report, the ABS International Regulatory News Update, on MSC 94 will be released on issuance of the formal report of the Committee by IMO.

## Adopted SOLAS Amendments

The MSC adopted a number of amendments:

- Container Weight Verification – SOLAS was amended to require the verification of the gross mass of cargo containers, except containers driven onboard ro-ro ships engaged in short international voyages (not more than 200 miles from port), by the shipper using calibrated and certified equipment on/after 1 July 2016.
- Portable Gas Detection – SOLAS was amended to require, on/after 1 July 2016, that cargo ships  $\geq$  500 gt and passenger ships carry portable atmosphere testing instrument(s) capable of measuring concentrations of oxygen, flammable gases or vapours, hydrogen sulphide and carbon monoxide prior to entry into enclosed spaces. Instruments required by other SOLAS requirements may be used to satisfy this regulation. Means to calibrate these instruments are also to be provided.
- ESP Code – the Enhanced Program of Inspections During Surveys of Bulk Carriers and Oil Tankers (ESP Code) was revised to allow cargo tank testing on oil tankers carried out within the special survey "window" by the vessel's crew under the direction of the Master to be accepted as fulfilling the testing requirement provided the RO's surveyor is satisfied that the tank testing has been satisfactorily carried out in accordance with an approved testing procedure. Acceptance of the testing is also contingent on there being no record of leakage, distortion or substantial corrosion that would affect the structural integrity of the tank.

## Polar Code

The Committee adopted a new chapter XIV of SOLAS which requires all SOLAS-certified cargo ships  $\geq$  500 gt and passenger ships operating in Arctic waters and the Antarctic area to comply with the Polar Code. New ships constructed on/after 1 January 2017 will need to comply on their delivery. Existing ships, constructed before 1 January 2017, will need to comply with relevant requirements by the first intermediate or renewal survey of the Safety Construction Certificate, whichever comes first, after 1 January 2017.

Safety provisions, including the extent of ice strengthening (which refers to IACS Unified Requirements for Polar Class Ships), are applied to three categories of ships which are dependent on the ice conditions within which the ship is designed to operate. Part I-A of the Code contains the mandatory safety provisions which include:

- a Polar Waters Operations Manual containing ship-specific capabilities and limitations with specific procedures to be followed in normal operations, avoiding conditions that exceed the ship's capabilities, and responding to incidents;
- maintaining adequate weathertight and watertight integrity through additional measures, such as preventing freezing of closing appliances;
- icing allowances for intact stability, and residual damage stability after withstanding flooding resulting from hull penetration due to ice impact based on the application of unique damage penetration extents;

- protection of machinery, life-saving arrangements/appliances and firefighting equipment with regard to ice accretion, snow accumulation, ice ingestion from seawater, freezing/increased viscosity of liquids and seawater intake temperature, with additional measures for ships intending to operate in low air temperatures and ice;
- advanced training for Master and Chief Mate and basic training for officers in charge of a navigational watch on ships operating in ice-covered waters;
- additional safety of navigation and communication provisions; and
- a conditional provision to allow an ice advisor (someone other than the Master, Chief Mate, or navigational watch officers) to satisfy the training requirements. The use of the ice advisor affords the added benefit of additional specialized knowledge and experience provided to those performing navigational duties.

In order to relieve some administrative burden, the Code also allows cargo ships to obtain a Polar Code Certificate without an onboard survey if no additional hardware (structural modifications/equipment) is required for compliance with the Code. This would typically be the case for ships that are only operating in warm seasons when no ice, low air temperature, or ice accretion is encountered.

Guidance is currently under development for a methodology to determine limitations for operation in ice for structural risk assessment and inclusion in the ship's operational documentation. IACS has been developing the Polar Operational Limit Assessment Risk Indexing System (POLARIS) which will be submitted to MSC 95, in June 2015, with the view that it be published as an MSC Circular.

Part I-B contains non-mandatory safety recommendations on personal and group survival equipment, safety of navigation, life-saving arrangements/appliances, determining equivalency of ship structure, contents of the Polar Water Operations Manual, icebreaker assistance and assignment of limiting ice capabilities.

In October, the Marine Environment Protection Committee (MEPC) approved the environment-related provisions of the Polar Code (Parts II-A and II-B) and associated amendments to MARPOL which will be considered for adoption at MEPC 68 in May 2015 -- so that the Code could enter into force as early as 1 January 2017 through amendments to MARPOL Annexes I, II, III, IV and V (see the ABS MEPC 67 Brief, 17 October 2014).

## Approved SOLAS Amendments

The following amendments to SOLAS were approved and, subject to adoption at MSC 95 in June 2015, will enter into force on 1 January 2017 and apply to new ships constructed on/after this date.

- Cargo tank venting arrangements have been revised for new oil tankers that will require secondary means of venting to allow full flow relief of cargo or inert gas vapors at all times including in the event of damage to, or inadvertent closing of, the primary means of venting.

More specifically:

*Isolating valves* - fitted in cargo tank venting arrangements that are combined with other cargo tanks are to be so arranged to permit the passage of large volumes of vapour, air or inert gas mixtures during cargo loading and ballasting, or during discharging.

*Secondary means for pressure/vacuum relief* - in the event of damage to, or inadvertent closing of, the required tank isolation valve arrangement noted above, either:

- a secondary means of venting capable of preventing over-pressure or under-pressure is to be provided; or
- pressure sensors are to be fitted in each tank which are to be monitored and alarmed at the ship's cargo control room or the position from which cargo operations are normally carried out.

*Openings for small flow by thermal variations*— the requirement has been revised such that a minimum discharge velocity of 30 m/s is now required and that flammable vapors are to be released at least 6 m above the cargo tank deck (for free flow of vapor mixtures) or at least 2 m above the cargo tank deck (for high-velocity discharges). Previously, the release needed to be 2 m above the cargo tank deck and 5 m from the nearest air intakes and openings to enclosed spaces containing a source of ignition.

- Power ventilation systems serving vehicle, special category and ro-ro spaces on new passenger and cargo ships are to deliver the specified number of air changes (6 or 10 air changes per hour depending on ship type and space served as specified in SOLAS) at all times when vehicles are in such spaces, which can be reduced if an air quality control system complying with the provisions in MSC/Circ.729 is provided. Such systems, when fitted onboard passenger ships, are to be separate from other ventilation systems.

## IGF Code

The Committee approved “in principle” the Code of Safety for Ships Using Gases or Other Low-Flashpoint Fuels, IGF Code, as well as two amendments to SOLAS Chapter II-1:

- one amendment introduces a new Part G which mandates the application of the IGF Code to cargo ships  $\geq 500$ gt and passenger ships using natural gas fuel; and
- a second amendment revises Part F Regulation 55 to account for the IGF Code requirement that ships using other low-flashpoint fuels (methanol, propane, butane, ethanol, hydrogen, dimethyl ether, etc.) need to comply with the functional requirements of the Code through the alternative design regulation based on an engineering analysis. Operationally-dependent alternatives are not permitted.

If adopted at MSC 95 in June 2015, it is expected that the mandatory provisions will enter into force on 1 January 2017 and will apply to new ships:

- with a building contract placed on or after 1 January 2017; or
- in the absence of a building contract, the keel of which is laid or which is at a similar stage of construction on or after 1 July 2017; or
- regardless of the building contract or keel laying date, the delivery is on or after 1 January 2020.

Ships which commence a conversion on/after 1 January 2017 to use low-flashpoint fuels or use additional or different low-flashpoint fuels other than those for which it was originally certified will need to comply with the IGF Code. IMO plans to develop additional parts of the IGF Code to provide detailed requirements for other specific low flashpoint fuels, such as methanol, LPG, etc., at a later date and as industry experience develops. It was clarified the IGF Code is not intended to apply to gas carriers.

Currently, low-flashpoint fuel means gaseous or liquid fuel having a flashpoint lower than 60°C. However, IMO agreed to ask the Sub-committee on Ship Systems and Equipment to review the flashpoint requirements for oil fuel considering a proposal to lower this to 52°C. That proposal was made by the USA and Canada in light of the permissible sulphur content for oil fuels being reduced to 0.10% m/m for ships operating in any of the four designated ECAs as of 1 January 2015 and that low-sulphur fuels are known to have flashpoints slightly less than 60°C. Despite the debate around the SOLAS threshold of 60°C for low flashpoint fuels, it has been recognized by the IGF Code working group that it is not the intent to apply the IGF Code to conventional liquid low flashpoint fuels, such as those permitted under SOLAS II-2/4.2.1.2 in emergency generators at the 43°C threshold.

The more significant provisions of the Code include:

- Risk assessment – is to be conducted to ensure that risks arising from the use of gas-fuel or low-flashpoint fuels affecting persons on board, the environment, the structural strength or the integrity of the ship are addressed. Consideration is to be given to the hazards associated with physical layout, operation and maintenance, following any reasonably foreseeable failure. The scope and methodology of this risk assessment remains to be clarified and IACS is in the process of developing a unified requirement on this.
- Machinery spaces – are to be either “gas safe” (a single failure cannot lead to release of fuel gas) or “ESD-protected” (in the event of an abnormal gas hazard, all non-safe equipment/ignition sources and machinery is automatically shutdown while equipment or machinery in use or active during these conditions is to be of a certified safe type). Engines for generating propulsion power and electric power shall be located in two or more machinery spaces.

- Fuel system protection – the IGF Code includes deterministic tank location criteria requiring that tanks are not to be located within:
  - B/5 or 11.5 m, whichever is less, from the side shell;
  - B/15 or 2.0 m, whichever is less, from of the bottom shell plating; and
  - 8% of the forward length of the ship.

The IGF Code also includes a probabilistic alternative that may permit tank location closer to the side shell with different acceptability threshold (fcu) values for passenger and cargo ships of 0.02 and 0.04, respectively. As previously decided by the IMO, the location of fuel tanks below accommodations is not excluded, subject to satisfactory risk assessment. Fuel pipes are not to be located less than 800 mm from the ship's side. Single fuel supply systems are to be fully redundant and segregated so that a leakage in one system does not lead to an unacceptable loss of power.

- Limit state design - structural elements of the fuel containment system are to be evaluated with respect to possible failure modes taking into account the possibility of plastic deformation, buckling, fatigue and loss of liquid and gas tightness.
- Air locks - direct access between non-hazardous and hazardous spaces is prohibited except where necessary for operational reasons, through a mechanically ventilated air lock with self-closing doors. Such an air lock is also required for accesses between ESD-protected machinery spaces and other enclosed spaces.
- Hazardous areas - the IGF Code applies IEC principles for the classification of hazardous areas. It should be noted that the hazardous areas associated with tank relief valve vents are smaller than those in the IGC Code.
- Gas detection – is required at ventilation inlets to accommodation and machinery spaces if required by the risk assessment.

## **MODU Code Revisions**

- Portable atmosphere testing instrument - all three versions of the MODU Code (1979, 1989 and 2009) have been revised to required MODUS to carry onboard, as of 1 July 2016, portable atmosphere testing instrument(s) capable of measuring concentrations of oxygen, flammable gases or vapours, hydrogen sulphide and carbon monoxide prior to entry into enclosed spaces. Means to calibrate these instruments are also to be provided.
- Lifeboat launching – was revised to allow, as of 1 July 2016, alternative provisions for the requirements to launch and maneuver davit-launched lifeboats at least once every three months when conditions permit. A new MSC Circular contains guidelines for these alternative provisions and recommends that:
  - lifeboats be lowered to just above the water and returned to the original stowed position on a monthly basis;
  - a comprehensive maintenance and inspection plan as per MSC.1/Circ.1206/Rev.1 be reviewed by the Administration, included in unit's operating procedures and implemented onboard; and
  - the crew undergo specified training and familiarization.