

Subject

Summary of the outcomes of MSC92

# **ClassNK**

## ***Technical Information***

No. TEC-0965

Date 30 September 2013

To whom it may concern

A summary of the decisions taken at the ninety-second session of the Maritime Safety Committee (MSC 92) held from 12 to 21 June 2013 is presented hereunder for your information.

1. Adopted mandatory requirements

The main mandatory requirements adopted at the session are as follows.

(1) Passenger ship safety (SOLAS III/19) (see Attachment 1)

To require that on a ship engaged on a voyage where passengers are scheduled to be on board for more than 24 hours, musters of newly-embarked passengers shall take place prior to or immediately upon departure.

Application:

- on and after 1 January 2015

(2) Enclosed space entry and rescue drills (SOLAS III/19 etc.) (see Attachment 1 & 2)

To require that crew members with enclosed space entry or rescue responsibilities shall participate in an enclosed space entry and rescue drill to be held on board the ship at least once every two months.

Application:

- on and after 1 January 2015

(3) Amendments to the IMSBC Code (see Attachment 3)

To amend the IMSBC Code to enhance the safety of carriage of cargoes that may liquefy.

Application:

- on and after 1 January 2015

(4) Amendments to the ISM Code Part A (see Attachment 4)

To require that company should ensure that each ship is manned appropriately and that company should periodically verify whether all those undertaking delegated ISM-related tasks are acting in conformity with the Company's responsibilities under the Code.

Application:

- on and after 1 January 2015

(To be continued)

NOTES:

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(5) Adoption of the RO Code (see Attachment 5)

A newly established code to provide guidance on a flag state's recognition and oversight of ROs (Recognized Organizations), which clarifies the responsibilities of flag states and ROs, and regulates minimum criteria against which organizations are assessed towards recognition and oversight by flag states.

Application:

- on and after 1 January 2015

2. Approved mandatory requirements

Mandatory requirements were approved at MSC92 as follows, which are expected to be considered for adoption at MSC93 (scheduled to be held in May 2014) and come into effect on 1 January 2016:

- (1) Amendments to SOLAS II-2 to expand the scope of application of current requirements for the installation of inert gas systems (IGS) on tankers of 20,000 tonnes deadweight and upwards to tankers of 8,000 tonnes deadweight and upwards, and revision of the FSS Code Chapter 15 on IGS.
- (2) Amendments to SOLAS II-2/13 to require two means of escape from machinery control rooms and main workshops.
- (3) Amendments to SOLAS II-2/10 to require that ships with open-top container holds shall be provided with Water Mist Lance and Mobile Water Monitor.
- (4) New regulation SOLAS II-2/20-1 to regulate additional requirements for ships carrying hydrogen and compressed natural gas vehicles.
- (5) Revision of the IGC Code taking into account novel technologies and methodologies for transportation as well as upsizing of ships in relation to liquefied gas.
- (6) Amendments to the IBC Code and the IGC Code concerning carriage requirements for stability instruments on board chemical tankers and gas carriers (including existing vessels). (Amendments to MARPOL Annex I concerning oil tankers have been approved at MEPC65 and are expected to be adopted at MEPC66 (March 2014).)
- (7) Amendments to SOLAS III to make the guidelines mandatory concerning periodical inspections and maintenance of launching appliances and on-load release gears of lifeboats.
- (8) Amendments to SOLAS II-1/29 to accept the alternative methods to verify the performance of steering gears when it is impracticable to demonstrate the turning test at the deepest seagoing draught.

3. Plans and procedures for recovery of persons from the water

SOLAS III/17-1, which was adopted at MSC91 (November 2012), requires plans and procedures for recovery of persons from the water to be kept on board both new ships and existing ships from 1 July 2014. (Ships constructed before 1 July 2014 shall comply with this requirement by the first periodical or renewal safety equipment survey of the ship to be carried out after 1 July 2014 whichever comes first.)

(To be continued)

In order to facilitate the preparation of these plans and procedures, ClassNK, in cooperation with the industry, developed a sample format and submitted it to MSC92 through the Japanese Government.

At this session, the sample format was well noted among member states without specific comments.

This sample format can be downloaded from our website:

([http://www.classnk.or.jp/hp/en/info\\_service/imo\\_and\\_iacs/topics\\_imo.html](http://www.classnk.or.jp/hp/en/info_service/imo_and_iacs/topics_imo.html))

4. GBS (Goal-Based Standards for the design and construction of new ships)

While SOLAS and other conventions allow the Administrations and classification societies to approve equivalents and/or alternative design, the unified methods to verify the equivalency have not yet been globally established.

Therefore, MSC90 agreed to develop guidelines for the approval of equivalents and alternatives based on Safety Level Approach (SLA), and a correspondence group (CG) has been discussing this matter.

MSC92 discussed the draft guidelines developed by the CG for finalization and approved them as non-mandatory guidelines.

5. Approval of guidelines etc.

The following guidelines were developed during MSC92. (IACS UIs shown as below are available from our website (<http://www.classnk.or.jp/hp/en/index.html>) or that of IACS (<http://www.iacs.org.uk/>).

- (1) Unified interpretations based on UI SC149 (Rev.2) were approved, clarifying the minimum number of portable instruments for measuring flammable vapor concentrations and oxygen to be provided as required in SOLAS II-2/4.5.7.1.
- (2) Unified interpretations were approved, clarifying that the current regulation does not require the installation of fire detection devices to cargo control spaces, in relation to SOLAS II-2/7.5.5.
- (3) Unified interpretations based on UI SC245 (corr.1) were approved, clarifying the areas to be insulated to A-60 class standards with regard to suction and delivery pipes.
- (4) Unified interpretations were approved, clarifying the place to be fitted with isolation valves for the fire main system in tankers, in relation to SOLAS II-2/10.2.1.4.4.
- (5) Unified interpretations were approved based on UI SC250 (Corr.1), clarifying that fixed gas fire-extinguishing systems within the cargo holds, required by SOLAS II-2/10.7.1.3 and 10.7.2, can be used to control the self-heating of the cargo.
- (6) Unified interpretations based on UI SC252 were approved, clarifying that in relation to FSS Code 5.2.2.2, the "positive means" for the sequential operation of fixed gas fire extinguishing systems is to be achieved by a mechanical and/or electrical interlock that does not depend on any operational procedures.

(To be continued)

- (7) Unified interpretations on the technical provisions for permanent means of access for inspections required by SOLAS II-1/3-6 were approved as the amendments to MSC.1/Circ.1176 and MSC.1/Circ.1197. The amendments are based on UI SC191 (Rev.4), however, it was agreed to delete the interpretations that openings for passage may be reduced (Technical Provision para. 3.10 and 3.11) and not to include them in the circular.
- (8) Unified interpretations based on UI SC179 (Rev.2) on the remote control of dewatering of forward spaces of bulk carriers required by SOLAS XII/13 were approved.
- (9) Unified interpretations on IMO performance standard for protective coatings (PSPC) for ballast tanks required by SOLAS II-1/3-2 were approved. While they are based on UI SC223 (Rev.2), some modifications are made such as deletion of interpretations on the acceptance of alternative systems.
- (10) Unified interpretations based on UI SC254 were approved, clarifying the strength and testing standards to be satisfied by fall preventer devices required by MSC.1/Circ.1392 and MSC.1/Circ.1327.
- (11) Unified interpretations based on UI SC255 were approved, clarifying the fuel pump arrangement when low sulphur fuel oils are used in emission control areas and other marine fuels are primarily used in non-restricted areas.
- (12) Unified interpretations on clarification of greatest launching height for a free-fall lifeboat in the LSA Code were approved with modifications to UI SC248 to add the interpretations on "water surface" and to correct the interpretations on heel angles.
- (13) Unified interpretations were approved, clarifying that the date of "delivery", referred to as an application date of conventions, means the completion date of the survey. The interpretations are based on UI SC256 and UI MPC100, adding the definition of the date of delivery to the interpretations of the date of contract in MSC-MEPC.5/Circ.4.
- (14) Guidelines for capacity of electric inclinometers were adopted.
- (15) Guidelines for verification of damage stability requirements for tankers based on IACS Rec.110 were approved.

## 6. Passenger ship safety

In responding to the Costa Concordia incident, which occurred in January 2012 in Italy, MSC90 discussed to enhance the safety measures for passenger ships. As a result, it was agreed to classify the countermeasures into two categories: operational safety measures to be implemented speedily (short-term measures) and safety measures to be implemented after the examination based on the outcome of the investigation (long-term measures).

At this session, based on the investigation report submitted from Italy, the tentative recommended voluntary measures developed as short-term measures at MSC91 (November 2012) were reviewed. Further, as long-term measures, the items to be technically examined were sorted out as follows:

(To be continued)

- (1) To expand the revision of damage stability regulations by the Sub-committee on Stability, Load Lines and Fishing Vessels Safety (SLF) to include consideration to limit the down flooding points on the bulkhead deck for passenger ships.
- (2) To consider the installation of onboard stability computer or having access to shore-based support.
- (3) To consider the redundancy of emergency power.
- (4) To review the adequacy of passenger ship specific safety training in the STCW Convention at the next session of the Sub-Committee on Standards of Training and Watchkeeping (STW).

#### 7. Review and reform of the organization

The IMO has been considering the review and reform of the sub-committees to facilitate efficient discussion and to reduce the cost. It was proposed by the Secretary-General to rearrange the existing nine sub-committees as seven committees as shown in the following table.

This proposal was agreed by MEPC65 (May 2013) and MSC92. The final discussion will be conducted at the incoming IMO Assembly in November 2013.

Table 1 Review and reform of the organization

New Sub-committees	Relations to the current sub-committees
SDC: Ship Design and Construction	The following three sub-committees are rearranged into two: (1) DE: Ship Design and Equipment (2) FP: Fire Protection (3) SLF: Stability, Load Lines and Fishing Vessels Safety
SSE: Ship System and Equipment	
PPR: Pollution Protection and Response	The following two sub-committees are rearranged into two: (1) BLG: Bulk Liquids and Gases (2) DSC: Dangerous Goods, Solid Cargoes and Containers
CCC: Carriage of Cargoes and Containers	
III: Implementation of IMO Instruments	FSI (Flag State Implementation) is renamed.
NCSR: Navigation, Communications and Search and Rescue	The following two sub-committees are rearranged into one: (1) NAV: Safety of Navigation (2) COMSAR: Radiocommunications and Search and Rescue
HTW: Human Element, Training and Watchkeeping	STW (Standards of Training and Watchkeeping) is renamed.

A summary of the outcomes of MSC92 is also available on the IMO web-site (<http://www.imo.org>).

(To be continued)

For any questions about the above, please contact:

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Attachment:

1. Amendments to SOLAS III, V and XI-1 (Resolution MSC.350(92))
2. Amendments relating to Enclosed Space Entry and Rescue Drills  
(Resolution MSC.351(92), 352(92), 357(92), 358(92) and 359(92))
3. Amendments to the International Maritime Solid Bulk Cargoes (IMSBC) Code  
(Resolution MSC.354(92))
4. Amendments to the International Management Code for the Safe Operation of Ships and for  
Pollution Prevention (ISM Code) (Resolution MSC.353(92))
5. Code for Recognized Organizations (RO Code) (Resolution MSC.349(92))

**ANNEX 2**

**RESOLUTION MSC.350(92)  
(Adopted on 21 June 2013)**

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

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO article VIII(b) of the International Convention for the Safety of Life at Sea (SOLAS), 1974 (hereinafter referred to as "the Convention"), concerning the amendment procedure applicable to the annex to the Convention, other than to the provisions of chapter I thereof,

HAVING CONSIDERED, at its ninety-second session, amendments to the Convention, proposed and circulated in accordance with article VIII(b)(i) thereof,

1. ADOPTS, in accordance with article VIII(b)(iv) of the Convention, amendments to the Convention, the text of which is set out in the annex to the present resolution;
2. DETERMINES, in accordance with article VIII(b)(vi)(2)(bb) of the Convention, that the said amendments shall be deemed to have been accepted on 1 July 2014, unless, prior to that date, more than one third of the Contracting Governments to the Convention or Contracting Governments the combined merchant fleets of which constitute not less than 50 per cent of the gross tonnage of the world's merchant fleet, have notified their objections to the amendments;
3. INVITES SOLAS Contracting Governments to note that, in accordance with article VIII(b)(vii)(2) of the Convention, the amendments shall enter into force on 1 January 2015 upon their acceptance in accordance with paragraph 2 above;
4. REQUESTS the Secretary-General, in conformity with article VIII(b)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the annex to all Contracting Governments to the Convention;
5. ALSO REQUESTS the Secretary-General to transmit copies of this resolution and its annex to Members of the Organization which are not Contracting Governments to the Convention.

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ANNEX

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

**CHAPTER III  
LIFE-SAVING APPLIANCES AND ARRANGEMENTS**

**Part B  
Requirements for ships and life-saving appliances**

**Regulation 19 – Emergency training and drills**

1 The existing text of paragraphs 2.2 and 2.3 is replaced with the following:

"2.2 On a ship engaged on a voyage where passengers are scheduled to be on board for more than 24 h, musters of newly-embarked passengers shall take place prior to or immediately upon departure. Passengers shall be instructed in the use of the lifejackets and the action to take in an emergency.

2.3 Whenever new passengers embark, a passenger safety briefing shall be given immediately before departure, or immediately after departure. The briefing shall include the instructions required by regulations 8.2 and 8.4, and shall be made by means of an announcement, in one or more languages likely to be understood by the passengers. The announcement shall be made on the ship's public address system, or by other equivalent means likely to be heard at least by the passengers who have not yet heard it during the voyage. The briefing may be included in the muster required by paragraph 2.2. Information cards or posters or video programmes displayed on ships video displays may be used to supplement the briefing, but may not be used to replace the announcement."

2 After existing paragraph 3.2, a new paragraph 3.3 is inserted as follows:

"3.3 Crew members with enclosed space entry or rescue responsibilities shall participate in an enclosed space entry and rescue drill to be held on board the ship at least once every two months."

3 Existing sections 3.3 and 3.4 are renumbered as 3.4 and 3.5, respectively. In the renumbered paragraph 3.4.2, the reference "paragraph 3.3.1.5" is replaced by the reference "paragraph 3.4.1.5"; and in the renumbered paragraph 3.4.3, the reference "paragraphs 3.3.4 and 3.3.5" is replaced by the reference "paragraphs 3.4.4 and 3.4.5"

4 After the renumbered section 3.5, the following new section is added:

"3.6 Enclosed space entry and rescue drills

3.6.1 Enclosed space entry and rescue drills should be planned and conducted in a safe manner, taking into account, as appropriate, the guidance provided in the recommendations developed by the Organization\*.

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\* Refer to the *Revised Recommendations for entering enclosed spaces aboard ships*, adopted by the Organization by resolution A.1050(27).



3.6.2 Each enclosed space entry and rescue drill shall include:

- .1 checking and use of personal protective equipment required for entry;
- .2 checking and use of communication equipment and procedures;
- .3 checking and use of instruments for measuring the atmosphere in enclosed spaces;
- .4 checking and use of rescue equipment and procedures; and
- .5 instructions in first aid and resuscitation techniques."

5 In paragraph 4.2, at the end of subparagraph .3, the word "and" is deleted; at the end of subparagraph .4, the period "." is replaced by the word "; and"; and after subparagraph .4, the following new subparagraph is added:

- "5 risks associated with enclosed spaces and onboard procedures for safe entry into such spaces which should take into account, as appropriate, the guidance provided in recommendations developed by the Organization .

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\* Refer to the *Revised Recommendations for entering enclosed spaces aboard ships*, adopted by the Organization by resolution A.1050(27)."

6 In paragraph 5, after the words "fire drills,", the words "enclosed space entry and rescue drills," are inserted.

## CHAPTER V SAFETY OF NAVIGATION

### Regulation 19 – Carriage requirements for shipborne navigational systems and equipment

7 In subparagraph 1.2.1, the words "1.2.2 and 1.2.3" are replaced with the words "1.2.2, 1.2.3 and 1.2.4".

8 In subparagraph 1.2.2, the word "and" at the end of the subparagraph is deleted and in subparagraph 1.2.3, the full stop "." is replaced with the word "; and".

9 After the existing subparagraph 1.2.3, the following new subparagraph is added:

- "4 be fitted with the system required in paragraph 2.2.3, as follows:
- .1 passenger ships irrespective of size, not later than the first survey\* after 1 January 2016;
  - .2 cargo ships of 3,000 gross tonnage and upwards, not later than the first survey\* after 1 January 2016;
  - .3 cargo ships of 500 gross tonnage and upwards but less than 3,000 gross tonnage, not later than the first survey\* after 1 January 2017; and

- .4 cargo ships of 150 gross tonnage and upwards but less than 500 gross tonnage, not later than the first survey after 1 January 2018.

The bridge navigational watch alarm system shall be in operation whenever the ship is underway at sea.

The provisions of paragraph 2.2.4 shall also apply to ships constructed before 1 July 2002.

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\* Refer to the Unified interpretation of the term first survey referred to in SOLAS regulations (MSC.1/Circ.1290)."

- 10 After the new subparagraph 1.2.4, the following new paragraph is added:

"1.3 Administrations may exempt ships from the application of the requirement of paragraph 1.2.4 when such ships will be taken permanently out of service within two years after the implementation date specified in subparagraphs 1.2.4.1 to 1.2.4.4."

## **CHAPTER XI-1 SPECIAL MEASURES TO ENHANCE MARITIME SAFETY**

### **Regulation 1 – Authorization of recognized organizations**

- 11 The existing text of regulation 1 is replaced with the following:

"The Administration shall authorize organizations, referred to in regulation I/6, including classification societies, in accordance with the provisions of the present Convention and with the Code for Recognized Organizations (RO Code), consisting of part 1 and part 2 (the provisions of which shall be treated as mandatory) and part 3 (the provisions of which shall be treated as recommendatory), as adopted by the Organization by resolution MSC.349(92), as may be amended by the Organization, provided that:

- (a) amendments to part 1 and part 2 of the RO Code are adopted, brought into force and take effect in accordance with the provisions of article VIII of the present Convention;
- (b) amendments to part 3 of the RO Code are adopted by the Maritime Safety Committee in accordance with its Rules of Procedure; and
- (c) any amendments adopted by the Maritime Safety Committee and the Marine Environment Protection Committee are identical and come into force or take effect at the same time, as appropriate."

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**ANNEX 3**

**RESOLUTION MSC.351(92)  
(Adopted on 21 June 2013)**

**AMENDMENTS TO THE INTERNATIONAL CODE OF SAFETY  
FOR HIGH-SPEED CRAFT, 1994 (1994 HSC CODE)**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

NOTING resolution MSC.36(63), by which it adopted the *International Code of Safety for High-Speed Craft* (hereinafter referred to as "the 1994 HSC Code"), which has become mandatory under chapter X of the International Convention for the Safety of Life at Sea (SOLAS), 1974 (hereinafter referred to as "the Convention"),

NOTING ALSO article VIII(b) and regulation X/1.1 of the Convention concerning the procedure for amending the 1994 HSC Code,

HAVING CONSIDERED, at its ninety-second session, amendments to the 1994 HSC Code proposed and circulated in accordance with article VIII(b)(i) of the Convention,

1. ADOPTS, in accordance with article VIII(b)(iv) of the Convention, amendments to the International Code of Safety for High-Speed Craft (1994 HSC Code), the text of which is set out in the annex to the present resolution;
2. DETERMINES, in accordance with article VIII(b)(vi)(2)(bb) of the Convention, that the amendments shall be deemed to have been accepted on 1 July 2014 unless, prior to that date, more than one third of the Contracting Governments to the Convention or Contracting Governments the combined merchant fleets of which constitute not less than 50 per cent of the gross tonnage of the world's merchant fleet, have notified their objections to the amendments;
3. INVITES Contracting Governments to note that, in accordance with article VIII(b)(vii)(2) of the Convention, the amendments shall enter into force on 1 January 2015 upon their acceptance in accordance with paragraph 2 above;
4. REQUESTS the Secretary-General, in conformity with article VIII(b)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the annex to all Contracting Governments to the Convention;
5. ALSO REQUESTS the Secretary-General to transmit copies of this resolution and its annex to Members of the Organization, which are not Contracting Governments to the Convention.

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ANNEX

**AMENDMENTS TO THE THE INTERNATIONAL CODE OF SAFETY  
FOR HIGH-SPEED CRAFT, 1994 (1994 HSC CODE)**

**CHAPTER 18  
OPERATIONAL REQUIREMENTS**

- 1 After existing paragraph 18.5.3, a new paragraph is inserted as follows:
- "18.5.4 Crew members with enclosed space entry or rescue responsibilities should participate in an enclosed space entry and rescue drill, to be held on board the craft, at least once every two months."
- 2 The existing paragraphs 18.5.4 to 18.5.10 are renumbered as 18.5.5 to 18.5.11, respectively.
- 3 The first sentence of the renumbered paragraph 18.5.8 is amended to read:
- "18.5.8 Records
- The date when musters are held, details of abandon craft drills and fire drills, drills of other life-saving appliances, enclosed space entry and rescue drills, and onboard training should be recorded in such logbook as may be prescribed by the Administration."
- 4 After renumbered paragraph 18.5.11, a new subsection is inserted as follows:
- "18.5.12 Enclosed space entry and rescue drills
- 18.5.12.1 Enclosed space entry and rescue drills should be planned and conducted in a safe manner, taking into account, as appropriate, the guidance provided in the recommendations developed by the Organization<sup>\*</sup>.
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- <sup>\*</sup> Refer to the *Revised Recommendations for entering enclosed spaces aboard ships*, adopted by the Organization by resolution A.1050(27).
- 18.5.12.2 Each enclosed space entry and rescue drill should include:
- .1 checking and use of personal protective equipment required for entry;
  - .2 checking and use of communication equipment and procedures;
  - .3 checking and use of instruments for measuring the atmosphere in enclosed spaces;
  - .4 checking and use of rescue equipment and procedures; and
  - .5 instructions in first aid and resuscitation techniques.
- 18.5.12.3 The risks associated with enclosed spaces and onboard procedures for safe entry into such spaces which should take into account, as appropriate, the guidance provided in recommendations developed by the Organization<sup>\*</sup>.
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- <sup>\*</sup> Refer to the *Revised Recommendations for entering enclosed spaces aboard ships*, adopted by the Organization by resolution A.1050(27)."

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**ANNEX 4**

**RESOLUTION MSC.352(92)  
(adopted on 21 June 2013)**

**AMENDMENTS TO THE INTERNATIONAL CODE OF SAFETY  
FOR HIGH-SPEED CRAFT, 2000 (2000 HSC CODE)**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

NOTING resolution MSC.97(73), by which it adopted the *International Code of Safety for High-Speed Craft, 2000* (hereinafter referred to as "the 2000 HSC Code"), which has become mandatory under chapter X of the International Convention for the Safety of Life at Sea (SOLAS), 1974 (hereinafter referred to as "the Convention"),

NOTING ALSO article VIII(b) and regulation X/1.2 of the Convention concerning the procedure for amending the 2000 HSC Code,

HAVING CONSIDERED, at its ninety-second session, amendments to the 2000 HSC Code proposed and circulated in accordance with article VIII(b)(i) of the Convention,

1. ADOPTS, in accordance with article VIII(b)(iv) of the Convention, amendments to the 2000 HSC Code, the text of which is set out in the annex to the present resolution;
2. DETERMINES, in accordance with article VIII(b)(vi)(2)(bb) of the Convention, that the amendments shall be deemed to have been accepted on 1 July 2014 unless, prior to that date, more than one third of the Contracting Governments to the Convention or Contracting Governments the combined merchant fleets of which constitute not less than 50 per cent of the gross tonnage of the world's merchant fleet, have notified their objections to the amendments;
3. INVITES Contracting Governments to the Convention to note that, in accordance with article VIII(b)(vii)(2) of the Convention, the amendments shall enter into force on 1 January 2015 upon their acceptance in accordance with paragraph 2 above;
4. REQUESTS the Secretary-General, in conformity with article VIII(b)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the annex to all Contracting Governments to the Convention;
5. ALSO REQUESTS the Secretary-General to transmit copies of this resolution and its annex to Members of the Organization, which are not Contracting Governments to the Convention.

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ANNEX

**AMENDMENTS TO THE INTERNATIONAL CODE OF SAFETY  
FOR HIGH-SPEED CRAFT, 2000 (2000 HSC CODE)**

**CHAPTER 18  
OPERATIONAL REQUIREMENTS**

- 1 After existing paragraph 18.5.3, a new paragraph is inserted as follows:
- "18.5.4 Crew members with enclosed space entry or rescue responsibilities shall participate in an enclosed space entry and rescue drill, to be held on board the craft, at least once every two months."
- 2 The existing paragraphs 18.5.4 to 18.5.10 are renumbered as 18.5.5 to 18.5.11, respectively.
- 3 The first sentence of the renumbered paragraph 18.5.8.1 is amended to read:
- "18.5.8.1 The date when musters are held, details of abandon craft drills and fire drills, drills of other life-saving appliances, enclosed space entry and rescue drills, and onboard training shall be recorded in such log-book as may be prescribed by the Administration."
- 4 After renumbered paragraph 18.5.11, a new subsection is inserted as follows:
- "18.5.12 Enclosed space entry and rescue drills
- 18.5.12.1 Enclosed space entry and rescue drills should be planned and conducted in a safe manner, taking into account, as appropriate, the guidance provided in the recommendations developed by the Organization\*.
- \* Refer to the *Revised Recommendations for entering enclosed spaces aboard ships*, adopted by the Organization by resolution A.1050(27).
- 18.5.12.2 Each enclosed space entry and rescue drill shall include:
- .1 checking and use of personal protective equipment required for entry;
  - .2 checking and use of communication equipment and procedures;
  - .3 checking and use of instruments for measuring the atmosphere in enclosed spaces;
  - .4 checking and use of rescue equipment and procedures; and
  - .5 instructions in first aid and resuscitation techniques.
- 18.5.12.3 The risks associated with enclosed spaces and onboard procedures for safe entry into such spaces which should take into account, as appropriate, the guidance provided in recommendations developed by the Organization .

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\* Refer to the *Revised Recommendations for entering enclosed spaces aboard ships*, adopted by the Organization by resolution A.1050(27)."

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**ANNEX 9**

**RESOLUTION MSC.357(92)  
(Adopted on 21 June 2013)**

**AMENDMENTS TO THE CODE FOR THE CONSTRUCTION AND EQUIPMENT  
OF MOBILE OFFSHORE DRILLING UNITS (MODU CODE)**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO that the Assembly, when adopting resolution A.414(XI) on the *Code for the Construction and Equipment of Mobile Offshore Drilling Units* (MODU Code), authorized the Committee to amend the Code as necessary after due consultation with relevant organizations as the Committee deems necessary,

RECOGNIZING the need for introduction into this Code of provisions for enclosed space entry and rescue drills,

HAVING CONSIDERED, at its ninety-second session, the recommendations made by the Sub-Committee on Dangerous Goods, Solid Cargoes and Containers, at its seventeenth session,

1. ADOPTS amendments to the MODU Code, set out in the annex to the present resolution;
2. INVITES all Governments concerned to take appropriate steps to give effect to the annexed amendments to the Code by 1 January 2015.

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ANNEX

**AMENDMENTS TO THE CODE FOR THE CONSTRUCTION AND EQUIPMENT  
OF MOBILE OFFSHORE DRILLING UNITS (MODU CODE)**

- 1 After subsection 10.6.3 "Emergency drills", insert new subsection 10.6.4 as follows:  
**"10.6.4 Enclosed space entry and rescue drills**
  - .1 Crew members with enclosed space entry or rescue responsibilities should participate in an enclosed space entry and rescue drill to be held on board the unit, at least once every two months.
  - .2 Enclosed space entry and rescue drills should be planned and conducted in a safe manner, taking into account, as appropriate, the guidance provided in the recommendations developed by the Organization .  

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\* Refer to the *Revised recommendations for entering enclosed spaces aboard ships* (resolution A.1050(27)).
  - .3 Each enclosed space entry and rescue drill should include:
    - .1 checking and use of personal protective equipment required for entry;
    - .2 checking and use of communication equipment and procedures;
    - .3 checking and use of instruments for measuring the atmosphere in enclosed spaces;
    - .4 checking and use of rescue equipment and procedures; and
    - .5 instructions in first aid and resuscitation techniques."
- 2 Renumber existing subsection 10.6.4 as 10.6.5.
- 3 After existing section 14.4, insert new sections 14.5 and 14.6 as follows:  
**"14.5 Procedures for entry into enclosed spaces**

Written procedures for entry into enclosed spaces should be provided which should take into account, as appropriate, the guidance provided in recommendations developed by the Organization .

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\* Refer to the *Revised recommendations for entering enclosed spaces aboard ships* (resolution A.1050(27)).

**14.6 Records**

The date when musters and enclosed space entry and rescue drills are held, details of abandonment drills, drills of other life-saving appliances and onboard training should be recorded in such logbook as may be prescribed by the Administration. If a full muster, drill or training session is not held at the appointed time, an entry should be made in the logbook stating the circumstances and the extent of the muster, drill or training session held."
- 4 Renumber existing sections 14.5 to 14.7 as 14.7 to 14.9, respectively.

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**ANNEX 10**

**RESOLUTION MSC.358(92)  
(Adopted on 21 June 2013)**

**AMENDMENTS TO THE CODE FOR THE CONSTRUCTION AND EQUIPMENT OF  
MOBILE OFFSHORE DRILLING UNITS, 1989 (1989 MODU CODE)**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO that the Assembly, when adopting resolution A.649(16) on the *Code for the Construction and Equipment of Mobile Offshore Drilling Units, 1989* (1989 MODU Code), authorized the Committee to amend the Code, when appropriate, taking into consideration the developing design and safety features after due consultation with appropriate organizations,

RECOGNIZING the need for introduction into this Code of provisions for enclosed space entry and rescue drills,

HAVING CONSIDERED, at its ninety-second session, the recommendations made by the Sub-Committee on Dangerous Goods, Solid Cargoes and Containers, at its seventeenth session,

1. ADOPTS amendments to the 1989 MODU Code, set out in the annex to the present resolution;
2. INVITES all Governments concerned to take appropriate steps to give effect to the annexed amendments to the 1989 MODU Code by 1 January 2015.

\* \* \*

ANNEX

**AMENDMENTS TO THE CODE FOR THE CONSTRUCTION AND EQUIPMENT  
OF MOBILE OFFSHORE DRILLING UNITS, 1989 (1989 MODU CODE)**

- 1 After existing section 14.4, insert new section 14.5 as follows:

**"14.5 Procedures for entry into enclosed spaces**

Written procedures for entry into enclosed spaces should be provided which should take into account, as appropriate, the guidance provided in recommendations developed by the Organization .

\* Refer to the *Revised recommendations for entering enclosed spaces aboard ships* (resolution A.1050(27))."

- 2 Renumber existing sections 14.5 to 14.11 as 14.6 to 14.12, respectively.

- 3 After renumbered section 14.12, insert new section 14.13 as follows:

**"14.13 Enclosed space entry and rescue drills**

- .1 Crew members with enclosed space entry or rescue responsibilities should participate in an enclosed space entry and rescue drill to be held on board the unit at least once every two months.
- .2 Enclosed space entry and rescue drills should be planned and conducted in a safe manner, taking into account, as appropriate, the guidance provided in the recommendations developed by the Organization\*.

\* Refer to the *Revised recommendations for entering enclosed spaces aboard ships* (resolution A.1050(27)).

- .3 Each enclosed space entry and rescue drill should include:

- .1 checking and use of personal protective equipment required for entry;
- .2 checking and use of communication equipment and procedures;
- .3 checking and use of instruments for measuring the atmosphere in enclosed spaces;
- .4 checking and use of rescue equipment and procedures; and
- .5 instructions in first aid and resuscitation techniques."

4 Renumber existing section 14.13 as 14.14 and amend it to read:

**"14.14 Records**

The date when musters and enclosed space entry and rescue drills are held, details of abandonment drills, drills of other life-saving appliances and onboard training should be recorded in such logbook as may be prescribed by the Administration. If a full muster, drill or training session is not held at the appointed time, an entry should be made in the logbook stating the circumstances and the extent of the muster, drill or training session held."

5 In the existing paragraphs 14.8.9 and 14.11.3, references to the renumbered paragraphs are updated.

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**ANNEX 11**

**RESOLUTION MSC.359(92)  
(Adopted on 21 June 2013)**

**AMENDMENTS TO THE CODE FOR THE CONSTRUCTION AND EQUIPMENT  
OF MOBILE OFFSHORE DRILLING UNITS, 2009 (2009 MODU CODE)**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO that the Assembly, when adopting resolution A.1023(26) on the *Code for the Construction and Equipment of Mobile Offshore Drilling Units, 2009 (2009 MODU Code)*, authorized the Committee to amend the Code as appropriate, taking into consideration development in the design and technologies, in consultation with appropriate organizations,

RECOGNIZING the need for introduction into this Code of provisions for enclosed space entry and rescue drills,

HAVING CONSIDERED, at its ninety-second session, the recommendations made by the Sub-Committee on Dangerous Goods, Solid Cargoes and Containers, at its seventeenth session,

1. ADOPTS amendments to the 2009 MODU Code, set out in the annex to the present resolution;
2. INVITES all Governments concerned to take appropriate steps to give effect to the annexed amendments to the 2009 MODU Code by 1 January 2015.

\* \* \*

ANNEX

**AMENDMENTS TO THE CODE FOR THE CONSTRUCTION AND EQUIPMENT OF  
MOBILE OFFSHORE DRILLING UNITS, 2009 (2009 MODU CODE)**

- 1 After existing section 14.6, insert new section 14.7 as follows:

**"14.7 Procedures for entry into enclosed spaces**

Written procedures for entry into enclosed spaces should be provided which should take into account, as appropriate, the guidance provided in recommendations developed by the Organization .

\* Refer to the *Revised recommendations for entering enclosed spaces aboard ships* (resolution A.1050(27))."

- 2 Renumber existing sections 14.7 to 14.12 as 14.8 to 14.13, respectively.

- 3 After renumbered section 14.13, insert new section 14.14 to read:

**"14.14 Enclosed space entry and rescue drills**

.1 Crew members with enclosed space entry or rescue responsibilities should participate in an enclosed space entry and rescue drill to be held on board the unit at least once every two months. If a full drill is not held at the appointed time, an entry should be made in the official log or tour record stating the circumstances and the extent of the drill held.

.2 Enclosed space entry and rescue drills should be planned and conducted in a safe manner, taking into account, as appropriate, the guidance provided in the recommendations developed by the Organization .

\* Refer to the *Revised recommendations for entering enclosed spaces aboard ships* (resolution A.1050(27)).

- .3 Each enclosed space entry and rescue drill should include:

.1 checking and use of personal protective equipment required for entry;

.2 checking and use of communication equipment and procedures;

.3 checking and use of instruments for measuring the atmosphere in enclosed spaces;

.4 checking and use of rescue equipment and procedures; and

.5 instructions in first aid and resuscitation techniques."

- 4 Renumber existing sections 14.13 and 14.14 as 14.15 and 14.16, respectively.
- 5 In renumbered section 14.16 "Records", amend paragraph 14.16.1.2 to read:  
  
"14.16.1.2 drills and exercises under paragraph 14.10.2 and sections 14.13 and 14.14."
- 6 In the existing paragraphs 14.1.2, 14.9.9, 14.12.3 and 14.14.2, references to the renumbered paragraphs are updated.

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**ANNEX 6**

**RESOLUTION MSC.354(92)  
(Adopted on 21 June 2013)**

**AMENDMENTS TO THE INTERNATIONAL MARITIME  
SOLID BULK CARGOES (IMSBC) CODE**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

NOTING resolution MSC.268(85) by which it adopted the *International Maritime Solid Bulk Cargoes Code* (hereinafter referred to as "the IMSBC Code"), which has become mandatory under chapters VI and VII of the International Convention for the Safety of Life at Sea (SOLAS), 1974 (hereinafter referred to as "the Convention"),

NOTING ALSO article VIII(b) and regulation VI/1-1.1 of the Convention concerning the amendment procedure for amending the IMSBC Code,

HAVING CONSIDERED, at its ninety-second session, amendments to the IMSBC Code, proposed and circulated in accordance with article VIII(b)(i) of the Convention,

1. ADOPTS, in accordance with article VIII(b)(iv) of the Convention, amendments to the IMSBC Code, the text of which is set out in the annex to the present resolution;
2. DETERMINES, in accordance with article VIII(b)(vi)(2)(bb) of the Convention, that the said amendments shall be deemed to have been accepted on 1 July 2014, unless, prior to that date, more than one third of the Contracting Governments to the Convention or Contracting Governments the combined merchant fleets of which constitute not less than 50 per cent of the gross tonnage of the world's merchant fleet, have notified their objections to the amendments;
3. INVITES Contracting Governments to the Convention to note that, in accordance with article VIII(b)(vii)(2) of the Convention, the amendments shall enter into force on 1 January 2015 upon their acceptance in accordance with paragraph 2 above;
4. AGREES that Contracting Governments to the Convention may apply the aforementioned amendments in whole or in part on a voluntary basis as from 1 January 2014;
5. REQUESTS the Secretary-General, in conformity with article VIII(b)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the annex to all Contracting Governments to the Convention;
6. ALSO REQUESTS the Secretary-General to transmit copies of this resolution and its annex to Members of the Organization which are not Contracting Governments to the Convention.

\* \* \*

ANNEX

**AMENDMENTS TO THE INTERNATIONAL MARITIME  
SOLID BULK CARGOES (IMSBC) CODE**

**Section 1 – General provisions**

**1.3 Cargoes not listed in this Code**

**1.3.3 Format for the properties of cargoes not listed in this Code and conditions of the carriage**

1 At the end of the title, insert a footnote "\*" with the following:

"\* Refer to MSC.1/Circ.1453 on *Guidelines for the submission of information and completion of the format for the properties of cargoes not listed in the International Maritime Solid Bulk Cargoes (IMSBC) Code and their conditions of carriage*, according to subsection 1.3.3 of the IMSBC Code."

**1.4 Application and implementation of this Code**

2 Replace the last sentence of paragraph 1.4.2 with the following:

"The texts in the sections for "Description", "Characteristics (other than CLASS and GROUP)", "Hazard" and "Emergency procedures" of individual schedules of solid bulk cargoes in appendix 1."

**1.7 Definitions**

3 Insert the following new definitions in alphabetical order:

"*GHS* means the fourth revised edition of the Globally Harmonized System of Classification and Labelling of Chemicals, published by the United Nations as document ST/SG/AC.10/30/Rev.4."

"*Manual of Tests and Criteria* means the fifth revised edition of the United Nations publication entitled "Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria" (ST/SG/AC.10/11/Rev.5/Amendment 1)"

"*Potential sources of ignition* means, but is not limited to, open fires, machinery exhausts, galley uptakes, electrical outlets and electrical equipment unless they are of certified safe type\*."

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\* For cargo spaces, refer to SOLAS II-2/19.3.2."

"*Sources of heat* means heated ship structures, where the surface temperature is liable to exceed 55°C. Examples of such heated structures are steam pipes, heating coils, top or side walls of heated fuel and cargo tanks, and bulkheads of machinery spaces."

and all numerical references to definitions are deleted, keeping them in alphabetical order only.



- 4 Insert a new sentence at end of definition of *Competent authority* as follows:

"The competent authority shall operate independently from the shipper."

### **Section 3 – Safety of personnel and ship**

#### **3.6 Cargo under in-transit fumigation**

- 5 The existing text under 3.6 is renumbered as 3.6.1.

- 6 Insert new paragraphs 3.6.2 and 3.6.3 as follows:

"3.6.2 When a fumigant is used, such as phosphine gas, for fumigation-in-transit, due consideration shall be given to the severe toxicity of fumigants, taking into account that fumigants may enter into occupied spaces despite many precautions taken. In particular, in the case that fumigant leaks from a cargo hold under fumigation, the possibility should be kept in mind that it may enter the engine-room via pipe tunnels, ducts, and piping of any kind, including wiring ducts on or below deck, or dehumidifier systems that may be connected to parts of the cargo hold or compartments of the engine-room. Attention shall be given to potential problem areas such as bilge and cargo line systems and valves\*. In all cases, ventilation procedures on board the ship during the voyage, should be scrutinized with regard to the possibility of drawing in the fumigant gas such as by incorrect ventilation procedures and settings, vacuum creation due to incorrect closing devices or flap settings, air conditioning and closed loop ventilation of the accommodation. Prior to commencement of fumigation procedures, it should be verified that ventilation flaps and closing devices are set correctly and that means of closing and sealing of all the bulkhead openings (such as doors and manholes) leading from the engine-room to piping tunnels/duct keels and other spaces that in case of leaks could become unsafe to enter during the fumigation are effective, confirmed closed and have warning signs posted.

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\* Refer to subsection 3.3.2.10 of MSC.1/Circ.1264 as amended by MSC.1/Circ.1396.

3.6.3 Gas concentration safety checks shall also be made at all appropriate locations, which shall at least include: accommodation; engine-rooms; areas designated for use in navigation of the ship; and frequently visited working areas and stores, such as the forecastle head spaces, adjacent to cargo holds being subject to fumigation in transit, shall be continued throughout the voyage at least at eight-hour intervals or more frequently if so advised by the fumigator-in-charge. Special attention shall also be paid to potential problem areas such as bilge and cargo line systems. These readings shall be recorded in the ship's logbook."

### **Section 4 – Assessment of acceptability of consignments for safe shipment**

#### **4.3 Certificates of test**

- 7 Replace the first sentence of paragraph 4.3.2 with the following:

"When a concentrate or other cargo which may liquefy is carried, the shipper shall provide the ship's master or his representative with a signed certificate of the TML, and a signed certificate or declaration of the moisture content, each issued by an entity recognized by the Competent Authority of the port of loading."

8 Insert new paragraph 4.3.3 with the accompanying footnote as follows:

"4.3.3 When a concentrate or other cargo which may liquefy is carried, procedures for sampling, testing and controlling moisture content to ensure the moisture content is less than the TML when it is on board the ship shall be established by the shipper, taking account of the provisions of this Code. Such procedures shall be approved and their implementation checked by the competent authority of the port of loading\*. The document issued by the competent authority stating that the procedures have been approved shall be provided to the master or his representative.

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\* Refer to MSC.1/Circ1454 on *Guidelines for developing and approving procedures for sampling, testing and controlling the moisture content for solid bulk cargoes which may liquefy.*"

9 Insert new paragraph 4.3.4 as follows:

"4.3.4 If the cargo is loaded on to the ship from barges, in developing the procedures under 4.3.3 the shipper shall include procedures to protect the cargo on the barges from any precipitation and water ingress."

and renumber the existing paragraphs 4.3.3 and 4.3.4 as 4.3.5 and 4.3.6, respectively.

10 A new sentence is inserted to the end of the new paragraph 4.3.6 as follows:

"However, it is important to ensure that the samples taken are representative of the whole depth of the stockpile."

#### **4.4 Sampling procedures**

11 Insert new paragraph 4.4.3 as follows:

"4.4.3 For a concentrate or other cargo which may liquefy, the shipper shall facilitate access to stockpiles for the purpose of inspection, sampling and subsequent testing by the ship's nominated representative."

12 Renumber the existing paragraphs 4.4.3, 4.4.4, 4.4.5 and 4.4.6 as 4.4.4, 4.4.5, 4.4.6 and 4.4.7, respectively.

13 In the renumbered paragraph 4.4.6, replace the sentence "Samples shall be immediately placed in suitable sealed containers which are properly marked" with the sentence "Samples for moisture testing shall be immediately placed in suitable airtight, non-absorbent containers with a minimum of free air space to minimize any change in moisture content, such containers being properly marked".

14 Insert a new paragraph 4.4.8 as follows:

"4.4.8 For unprocessed mineral ores the sampling of stationary stockpiles shall be carried out only when access to the full depth of the stockpile is available and samples from the full depth of the stockpile can be extracted."

- 15 In subsection 4.7, the existing reference "ISO 3082:1998" is replaced with the following:  
"ISO 3082:2009 – Iron ores – Sampling and sample preparation procedures.  
(Note: Under this Standard the in situ sampling of ships and stockpiles is not permitted)."
- 16 A new reference in subsection 4.7 is inserted after "ISO 3082:2009" as follows:  
"IS1405:2010 – Iron Ores – Sampling & Sample Preparation – Manual Method.  
(Note: This Indian Standard covers the in situ sampling of stockpiles up to a height of 3 m)."

## **Section 7 – Cargoes that may liquefy**

### **7.2 Conditions for hazards**

- 17 The existing paragraph 7.2.2 is replaced with the following:  
"7.2.2 Liquefaction does not occur when the cargo consists of large particles or lumps and water passes through the spaces between the particles and there is no increase in the water pressure."

## **Section 8 – Test procedures for cargoes that may liquefy**

### **8.4 Complementary test procedure for determining the possibility of liquefaction**

- 18 The existing paragraph under subsection 8.4 is numbered as 8.4.1.
- 19 Insert a new paragraph 8.4.2 as follows:  
"8.4.2 If samples remain dry following a can test, the moisture content of the material may still exceed the Transportable Moisture Limit (TML)."

## **Section 9 – Materials possessing chemical hazards**

### **9.2 Hazard classification**

#### **9.2.3 *Materials hazardous only in bulk (MHB)***

- 20 In paragraph 9.2.3, replace the existing text under the heading with the following:

##### **"9.2.3.1 General**

9.2.3.1.1 These are materials which possess chemical hazards when transported in bulk other than materials classified as packaged dangerous goods in the IMDG Code. These materials present a significant risk when carried in bulk and require special precautions.

9.2.3.1.2 A material shall be classified as MHB if the material possesses one or more of the chemical hazards as defined below. When a test method is prescribed, representative samples of the cargo to be carried shall be used for testing. Samples shall be taken 200 to 360 mm inward from the surface at 3 m intervals over the length of a stockpile.

9.2.3.1.3 A material may also be classified as MHB by analogy with similar cargoes with known hazardous properties or by records of accidents.

### 9.2.3.2 Combustible solids

9.2.3.2.1 These are materials which are readily combustible or easily ignitable when transported in bulk and do not meet the established criteria for inclusion in class 4.1 (see 9.2.2.1 of the IMSBC Code).

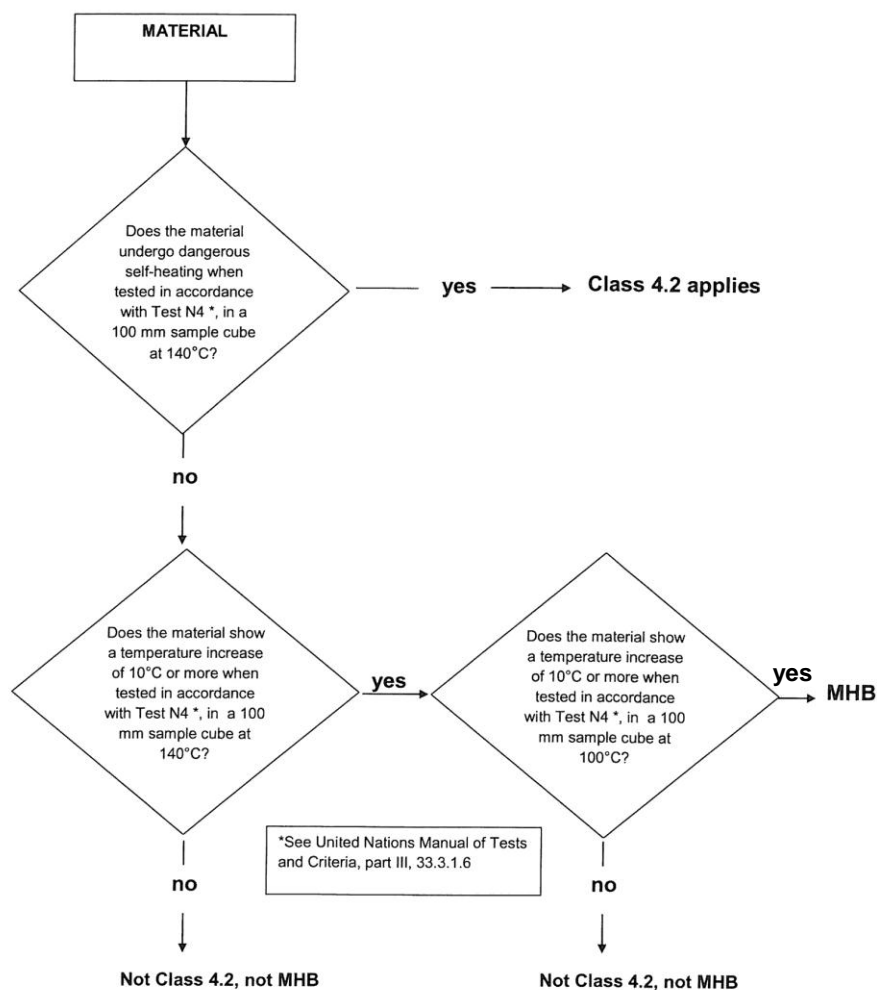
9.2.3.2.2 Powdered, granular or pasty materials shall be classified as MHB when the time of burning of one or more of the test runs, performed in accordance with the preliminary screening test method described in the United Nations Manual of Tests and Criteria, part III, 33.2.1.4.3.1, is less than 2 minutes. Powders of metals or metal alloys shall be classified as MHB when they can be ignited and the reaction spreads over the whole length of the sample in 20 minutes or less. The test sample in the preliminary screening test is 200 mm in length. A summary of this approach is presented in the table below:

<b>Solid Cargo</b>	<b>Hazard Class 4.1, PG III Burn time, Burn distance</b>	<b>MHB Burn time, Burn distance</b>
Powdered Metal	more than 5 minutes but not more than 10 minutes, 250 mm	≤20 minutes, 200 mm
Solid Material	<45 seconds, 100 mm	≤2 minutes, 200 mm

### 9.2.3.3 Self-heating solids

9.2.3.3.1 These are materials that self-heat when transported in bulk and do not meet the established criteria for inclusion in class 4.2 (see 9.2.2.2).

9.2.3.3.2 A material shall be classified as MHB if, in the tests performed in accordance with the test method given in the United Nations Manual of Tests and Criteria, part III, 33.3.1.6, the temperature of the test sample rises by more than 10°C when using a 100 mm cube sample at 140°C and at 100°C. The flow chart below illustrates the test procedure.



9.2.3.3.3 In addition, a material shall be classified as MHB if a temperature rise of 10°C or more over ambient temperature is observed during any portion of the test performed in accordance with the test method described in United Nations Manual of Tests and Criteria, part III, 33.4.1.4.3.5. When performing this test, the temperature of the sample should be measured continuously over 48 hours. If, at the end of the 48-hour period the temperature is increasing, the test period shall be extended in accordance with the test method.

#### 9.2.3.4 Solids that evolve into flammable gas when wet

9.2.3.4.1 These are materials that emit flammable gases when in contact with water when transported in bulk and do not meet established criteria for inclusion in class 4.3 (see 9.2.2.3).

9.2.3.4.2 A material shall be classified as MHB if, in tests performed in accordance with the test method given in the United Nations Manual of Tests and Criteria, part III, 33.4.1, the flammable gas evolution rate is greater than zero. When performing this test, the rate of evolution of gas shall be calculated over 48 hours at one-hour intervals. If at the end of the 48-hour period the rate of evolution is increasing, the test period shall be extended in accordance with the test method.

### **9.2.3.5 Solids that evolve toxic gas when wet**

9.2.3.5.1 These are materials that emit toxic gases when in contact with water when transported in bulk.

9.2.3.5.2 A material shall be classified as MHB if, in tests performed in accordance with the test method given in the United Nations Manual of Tests and Criteria, part III, 33.4.1, the toxic gas evolution rate is greater than zero. Toxic gas evolution shall be measured using the same test procedure for flammable gas evolution as prescribed in the test method. When performing this test, the rate of evolution of gas shall be calculated over 48 hours at 1-hour intervals. If at the end of the 48-hour period the rate of evolution is increasing, the test period shall be extended in accordance with the test method.

9.2.3.5.3 The gas shall be collected over the test period prescribed above. The gas shall be chemically analysed and tested for toxicity if the gas is unknown and no acute inhalation toxicity data is available. If the gas is known, inhalation toxicity shall be assessed based on all information available, using testing as a last resort option for concluding this hazard. Toxic gases in this respect are gases showing acute inhalation toxicity (LC<sub>50</sub>) of or below 20,000 ppmV or 20 mg/l by 4 hours' testing (GHS Acute Toxicity Gases/Vapours Category 4).

### **9.2.3.6 Toxic solids**

9.2.3.6.1 These are materials that have toxic hazards to humans if inhaled or with contact with skin when loaded, unloaded, or transported in bulk and do not meet the established criteria for inclusion in class 6.1 (see 9.2.2.5).

9.2.3.6.2 A material shall be classified as MHB in accordance with the criteria laid down within part 3 of the GHS:

- .1 cargoes developing cargo dust with an acute inhalation toxicity (LC<sub>50</sub>) of 1-5 mg/l by 4 hours testing (GHS Acute Toxicity Dusts Category 4);
- .2 cargoes developing cargo dust exhibiting an inhalation toxicity of equal to or less than 1 mg/litre/4h (GHS Specific Target Organ Toxicity Single Exposure Inhalation Dust Category 1) or below 0.02 mg/litre/6h/d (GHS Specific Target Organ Toxicity Repeated Dose Inhalation Dust Category 1);
- .3 cargoes exhibiting an acute dermal toxicity (LD<sub>50</sub>) of 1,000-2,000 mg/kg (GHS Acute Toxicity Dermal Category 4);
- .4 cargoes exhibiting a dermal toxicity of or below 1000 mg (GHS Specific Target Organ Toxicity Single Exposure Dermal Category 1) or below 20 mg/kg bw/d by 90 days testing (GHS Specific Target Organ Toxicity Repeated Dose Dermal Category 1);
- .5 cargoes exhibiting carcinogenicity (GHS Category 1A and 1B), mutagenicity (GHS Category 1A and 1B) or reprotoxicity (GHS Category 1A and 1B).

### 9.2.3.7 Corrosive solids

9.2.3.7.1 These are materials that are corrosive to skin, eye or to metal or are respiratory sensitizers and do not meet the established criteria for inclusion in class 8 (see 9.2.2.7).

9.2.3.7.2 A material shall be classified as MHB in accordance with the criteria laid down within part 3 of the GHS:

- .1 cargoes which are known to be a respiratory sensitizer (GHS Respiratory Sensitization Category 1);
- .2 cargoes exhibiting skin irritation with a mean value of or higher than 2.3 for erythema/eschar or oedema (GHS Skin Corrosion/Irritation Category 2);
- .3 cargoes exhibiting eye irritation with a mean value of or higher than 1 for corneal opacity/irititis or 2 for conjunctival redness/oedema (GHS Serious Eye Damage Category 1 or Eye Irritation Category 2A).

9.2.3.7.3 A material shall be classified as MHB when the corrosion rate on either steel or aluminium surfaces is between 4 mm and 6.25 mm a year at a test temperature of 55°C when tested on both materials. For the purposes of testing steel, type S235JR+CR (1.0037 resp. St 37-2), S275J2G3+CR (1.0144 resp. St 44-3), ISO 3574:199, Unified Numbering Systems (UNS) G10200 or SAE 1020, and for testing aluminium, non-clad, types 7075-T6 or AZ5GU T6 shall be used. An acceptable test is prescribed in the United Nations Manual of Tests and Criteria, part III, section 37. When this test is performed the sample shall contain at least 10% moisture by mass. If the representative sample of the cargo to be shipped does not contain more than 10% moisture by mass, water shall be added to the sample."

## Appendix 1 – Individual schedules of solid bulk cargoes

### AMMONIUM NITRATE UN 1942

**with not more than 0.2% total combustible material, including any organic substance, calculated as carbon to the exclusion of any other added substance**

21 In the section for Stowage and Segregation replace the sentence "There shall be no sources of heat or ignition in the cargo space." with the sentence "Separated from" sources of heat or ignition (see also **Loading**)."

22 In the section for Loading, insert as the first sentence the following:

"This cargo shall not be loaded in cargo spaces adjacent to fuel oil tank(s), unless heating arrangements for the tank(s) are disconnected and remain disconnected during the entire voyage."

### **AMMONIUM NITRATE-BASED FERTILIZER UN 2067**

23 The following text contained in the section for Description, is moved under the Bulk Cargo Shipping Name:

"Ammonium nitrate-based fertilizers classified as UN 2067 are uniform mixtures containing ammonium nitrate as the main ingredient within the following composition limits:

- .1 not less than 90% ammonium nitrate with not more than 0.2% total combustible/organic material calculated as carbon and with added matter, if any, which is inorganic and inert towards ammonium nitrate; or
- .2 less than 90% but more than 70% ammonium nitrate with other inorganic materials or more than 80% but less than 90% ammonium nitrate mixed with calcium carbonate and/or dolomite and/or mineral calcium sulphate and not more than 0.4% total combustible/organic material calculated as carbon; or
- .3 ammonium nitrate-based fertilizers containing mixtures of ammonium nitrate and ammonium sulphate with more than 45% but less than 70% ammonium nitrate and not more than 0.4% total combustible organic material calculated as carbon such that the sum of the percentage compositions of ammonium nitrate and ammonium sulphate exceeds 70%."

24 In the section for Stowage and Segregation, the text "Not to be stowed immediately adjacent to any tank, double bottom or pipe containing fuel oil heated to more than 50°C" is replaced with the following:

"Not to be stowed immediately adjacent to any tank, double bottom or pipe containing heated fuel oil unless there are means to monitor and control the temperature so that it does not exceed 50°C."

### **AMMONIUM NITRATE-BASED FERTILIZER UN 2071**

25 The following text contained in the section for Description, is moved under the Bulk Cargo Shipping Name:

"Ammonium nitrate-based fertilizers classified as UN 2071 are uniform ammonium nitrate based fertilizer mixtures of the nitrogen, phosphate or potash, containing not more than 70% ammonium nitrate and not more than 0.4% total combustible organic material calculated as carbon or with not more than 45% ammonium nitrate and unrestricted combustible material. Fertilizers within these composition limits are not subject to the provisions of this schedule when shown by a trough test\* that they are not liable to self-sustaining decomposition.

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\* See UN Manual of Tests and Criteria, part III, subsection 38.2."



26 In the section for Stowage and Segregation, the text "Not to be stowed immediately adjacent to any tank or double bottom containing fuel oil heated to more than 50°C" is replaced with the following:

"Not to be stowed immediately adjacent to any tank, double bottom or pipe containing heated fuel oil unless there are means to monitor and control the temperature so that it does not exceed 50°C."

#### **AMMONIUM NITRATE-BASED FERTILIZER (non-hazardous)**

27 The following text contained in the section for Description, is moved under the Bulk Cargo Shipping Name:

"Ammonium nitrate based fertilizers transported in conditions mentioned in this schedule are uniform mixtures containing ammonium nitrate as the main ingredient within the following composition limits:

- .1 not more than 70% ammonium nitrate with other inorganic materials;
- .2 not more than 80% ammonium nitrate mixed with calcium carbonate and/or dolomite and/or mineral calcium sulphate and not more than 0.4% total combustible organic material calculated as carbon;
- .3 nitrogen type ammonium nitrate based fertilizers containing mixtures of ammonium nitrate and ammonium sulphate with not more than 45% ammonium nitrate and not more than 0.4% total combustible organic material calculated as carbon; and
- .4 uniform ammonium nitrate based fertilizer mixtures of nitrogen, phosphate or potash, containing not more than 70 % ammonium nitrate and not more than 0.4% total combustible organic material calculated as carbon or with not more than 45% ammonium nitrate and unrestricted combustible material. Fertilizers within these composition limits are not subject to the provisions of this schedule when shown by a trough test that they are liable to self-sustaining decomposition or if they contain an excess of nitrate greater than 10% by mass."

and its corresponding footnote is amended as follows:

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\* See UN Manual of Tests and Criteria, part III, subsection 38.2."

28 In the section Stowage and Segregation the text "Not to be stowed immediately adjacent to any tank, double bottom or pipe containing fuel oil heated to more than 50°C" is replaced with the following:

"Not to be stowed immediately adjacent to any tank, double bottom or pipe containing heated fuel oil unless there are means to monitor and control the temperature so that it does not exceed 50°C."

### **CALCIUM NITRATE UN 1454**

29 The following text contained in the section for Description, is moved under the Bulk Cargo Shipping Name:

"The provisions of this Code shall not apply to the commercial grades of calcium nitrate fertilizers consisting mainly of a double salt (calcium nitrate and ammonium nitrate) and containing not more than 10% ammonium nitrate and at least 12% water of crystallization."

### **CALCIUM NITRATE FERTILIZER**

30 The following text is inserted under the Bulk Cargo Shipping Name:

"The provisions of this schedule shall apply only for cargoes containing not more than 15.5% total nitrogen and at least 12% water."

31 The following text is deleted from the section for Description:

"and containing not more than 15.5% total nitrogen and at least 12% water".

### **CHARCOAL**

32 The following text contained in the section for Hazard, is moved at the end in the section for Loading:

"Hot charcoal screenings in excess of 55°C shall not be loaded."

### **FERROUS METAL BORINGS, SHAVINGS, TURNINGS or CUTTINGS UN 2793**

33 The following text contained in the section for Description is moved under the Bulk Cargo Shipping Name:

"This schedule shall not apply to consignments of materials which are accompanied by a declaration submitted prior to loading by the shipper and stating that they have no self-heating properties when transported in bulk."

### **METAL SULPHIDE CONCENTRATES**

34 The following text contained in the section for Hazard, is moved at the end in the section for Precautions:

"When a Metal Sulphide Concentrate is considered as presenting a low fire-risk, the carriage of such cargo on a ship not fitted with a fixed gas fire extinguishing system shall be subject to the Administration's authorization as provided by SOLAS regulation II-2/10.7.1.4."

### **PEAT MOSS**

35 The following text contained in the section for Hazard, is moved at the end in the section for Loading:

"Peat Moss having a moisture content of more than 80% by weight shall only be carried on specially fitted or constructed ships (see paragraph 7.3.2 of this Code)."

## SAND

36 The following text is inserted under the Bulk Cargo Shipping Name:

"Sands included in this schedule are:

Foundry sand	Silica sand
Potassium felspar sand	Soda felspar sand"
Quartz sand	

37 The following text in the section for Description is deleted:

"Sands included in this schedule are:

FOUNDRY SAND	SILICA SAND
POTASSIUM FELSPAR SAND	SODA FELSPAR SAND"
QUARTZ SAND	

## SEED CAKE

**containing vegetable oil UN 1386(b) solvent extractions and expelled seeds, containing not more than 10% of oil and when the amount of moisture is higher than 10%, not more than 20% of oil and moisture combined.**

38 The following text is inserted under the Bulk Cargo Shipping Name:

"The provisions of this schedule shall not apply to:

- .1 solvent extracted rape seed meal, soya bean meal, cotton seed meal and sunflower seed meal, containing not more than 4% oil and 15% oil and moisture combined and being substantially free from flammable solvents;
- .2 mechanically expelled citrus pulp pellets containing not more than 2.5% oil and 14% oil and moisture combined;
- .3 mechanically expelled corn gluten meal containing not more than 11.0% oil and 23.6% oil and moisture combined;
- .4 mechanically expelled corn gluten feed pellets containing not more than 5.2% oil and 17.8% oil and moisture combined; and
- .5 mechanically expelled beet pulp pellets containing not more than 2.8% oil and 15.0% oil and moisture combined.

A certificate from a person recognized by the competent authority of the country of shipment shall be provided by the shipper, prior to loading, stating that the provisions of the exemption are met."

39 In the section for Description, the following paragraph is deleted:

"The provisions of this schedule should not apply to solvent extracted rape seed meal, pellets, soya bean meal, cotton seed meal and sunflower seed meal, containing not more than 4% oil and 15% oil and moisture combined and being substantially free from flammable solvents. The provisions of this schedule also apply to mechanically expelled citrus pulp pellets containing not more than 2.5% oil and 14% oil and moisture combined. A certificate from a person recognized by the competent authority of the country of shipment should be provided by the shipper, prior to loading, stating that the provisions of the exemption are met."

### **SEED CAKE (non-hazardous)**

40 The following text is inserted under the Bulk Cargo Shipping Name:

"The provisions of this schedule shall only apply to:

- .1 solvent extracted rape seed meal, soya bean meal, cotton seed meal and sunflower seed meal, containing not more than 4% oil and 15% oil and moisture combined and being substantially free from flammable solvents;
- .2 mechanically expelled citrus pulp pellets containing not more than 2.5% oil and 14% oil and moisture combined;
- .3 mechanically expelled corn gluten meal containing not more than 11.0% oil and 23.6% oil and moisture combined;
- .4 mechanically expelled corn gluten feed pellets containing not more than 5.2% oil and 17.8% oil and moisture combined; and
- .5 mechanically expelled beet pulp pellets containing not more than 2.8% oil and 15.0% oil and moisture combined."

41 In the section for Description, the following text is deleted:

"The provisions of this schedule apply to solvent extracted rape seed meal, pellets, soya bean meal, cotton seed meal and sunflower seed meal, containing not more than 4% oil and 15% oil and moisture combined and being substantially free from flammable solvents. The provisions of this schedule also apply to mechanically expelled citrus pulp pellets containing not more than 2.5% oil and 14% oil and moisture combined."

and the following text contained in the section for Description, is moved at the end of the section for Loading:

"A certificate from a person recognized by the competent authority of the country of shipment shall be provided by the shipper, prior to loading, stating that the requirements for exemption as set out either in the schedule for seed cake UN 1386 (b) or UN 2217, whichever is applicable, are met."

**SILICOMANGANESE (low carbon)**

**with known hazard profile or known to evolve gases with silicon content of 25% or more**

42 In the Bulk Cargo Shipping Name, delete the words "**with known hazard profile or known to evolve gases with silicon content of 25% or more**".

43 Replace the existing text under the section for Description, with the following:

"A ferroalloy comprising principally manganese and silicon, mainly used as a deoxidizer and alloying element in the steel-making process. Particle or lump of blackish brown, silver white metal."

44 The existing table of Characteristics is replaced with the following:

<b>Angle of repose</b>	<b>Bulk density (kg/m<sup>3</sup>)</b>	<b>Stowage factor (m<sup>3</sup>/t)</b>
Not applicable	3,000 to 3,300	0.30 to 0.33
<b>Size</b>	<b>Class</b>	<b>Group</b>
10 mm to 150 mm	MHB	B

45 Replace the existing text under the section for Hazard, with the following:

"This cargo is non-combustible and has a low fire-risk. However, in contact with water this cargo may evolve hydrogen, a flammable gas that may form explosive mixtures with air and may, under similar conditions, produce phosphine and arsine, which are highly-toxic gases. This cargo is liable to reduce oxygen content in a cargo space. May cause long-term health effect."

46 In the section for Precautions, the following text is deleted:

"Prohibition of smoking in dangerous areas shall be enforced, and clearly legible "NO SMOKING" signs shall be displayed. Electrical fittings and cables shall be in good condition and properly safeguarded against short circuits and sparking. Where a bulkhead is required to be suitable for segregation purposes, cable and conduit penetrations of the decks and bulkheads shall be sealed against the passage of gas and vapour. Ventilation systems shall be shut down or screened and air condition systems, if any, placed on recirculation during loading or discharge, in order to minimize the entry of dust into living quarters or other interior spaces of the ship. Precautions shall be taken to minimize the extent to which dust may come in contact with moving parts of deck machinery and external navigation aids (e.g. navigation lights)."

**SULPHUR (formed, solid)**

47 The following text contained in the section for Description, is moved under the Bulk Cargo Shipping Name:

"This schedule shall not apply to crushed, lump and coarse-grained sulphur (see SULPHUR UN 1350), or to co-products from sour gas processing or oil refinery operations NOT subjected to the above-described forming process."

48 Insert the following new individual schedules accordingly in alphabetical order:

**"ALUMINA HYDRATE**

**Description**

Alumina hydrate is a fine, moist, white (light coloured), odourless powder. Insoluble in water and organic liquids.

**Characteristics**

<b>Angle of repose</b>	<b>Bulk density (kg/m<sup>3</sup>)</b>	<b>Stowage factor (m<sup>3</sup>/t)</b>
Not applicable	500 to 1,500	0.67 to 2.0
<b>Size</b>	<b>Class</b>	<b>Group</b>
Fine powder	MHB	A and B

**Hazard**

This cargo may liquefy if shipped at moisture content in excess of its Transportable Moisture Limit (TML). See sections 7 and 8 of the Code. Alumina Hydrate dust is very abrasive and penetrating. Irritating to eyes, skin and mucous membranes. This cargo is non-combustible or has low fire-risks.

**Stowage and segregation**

Separated from oxidizing materials.

**Hold cleanliness**

Clean and dry as relevant to the hazards of the cargo.

**Weather precautions**

When a cargo is carried in a ship other than a specially constructed or fitted cargo ship complying with the requirements in subsection 7.3.2 of this Code, the following provisions shall be complied with:

- .1 the moisture content of the cargo shall be kept less than its TML during loading operations and the voyage;
- .2 unless expressly provided otherwise in this individual schedule, the cargo shall not be handled during precipitation;
- .3 unless expressly provided otherwise in this individual schedule, during handling of the cargo, all non-working hatches of the cargo spaces into which the cargo is loaded or to be loaded shall be closed;
- .4 the cargo may be handled during precipitation under the conditions stated in the procedures required in subsection 4.3.3 of this Code; and
- .5 the cargo in a cargo space may be discharged during precipitation provided that the total amount of the cargo in the cargo space is to be discharged in the port.

### **Loading**

Trim in accordance with the relevant provisions required under sections 4 and 5 of the Code.

### **Precautions**

Bilge wells shall be clean, dry and covered as appropriate, to prevent ingress of the cargo. Bilge system of a cargo space to which this cargo is to be loaded shall be tested to ensure it is working. Appropriate precautions shall be taken to protect machinery and accommodation spaces from the dust of the cargo. Due consideration shall be paid to protect equipment from the dust of the cargo. Persons who may be exposed to the dust of the cargo shall wear goggles or other equivalent dust eye-protection and dust filter masks. Those persons shall wear protective clothing, as necessary.

### **Ventilation**

No special requirements.

### **Carriage**

The appearance of the surface of this cargo shall be checked regularly during voyage. If free water above the cargo or fluid state of the cargo is observed during voyage, the master shall take appropriate actions to prevent cargo shifting and potential capsizing of the ship, and give consideration to seeking emergency entry into a place of refuge.

### **Discharge**

No special requirements.

### **Clean-up**

The water used for the cleaning of the cargo spaces, after discharge of this cargo, shall not be pumped by the fixed bilge pumps. A portable pump shall be used, as necessary, to clear the cargo spaces of the water.

### **Emergency procedures**

<p style="text-align: center;"><b>Special emergency equipment to be carried</b> Protective clothing (gloves, boots, coveralls, headgear). Self-contained breathing apparatus.</p>
<p style="text-align: center;"><b>Emergency procedures</b> Wear protective clothing and self-contained breathing apparatus</p> <p style="text-align: center;"><b>Emergency action in the event of fire</b> Nil (non-combustible)</p> <p style="text-align: center;"><b>Medical First Aid</b> Refer to the Medical First Aid Guide (MFAG), as amended.</p>

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## "ALUMINIUM SMELTING / REMELTING BY-PRODUCTS, PROCESSED"

*The provisions of this schedule shall not apply to ALUMINIUM SMELTING BY-PRODUCTS or ALUMINIUM REMELTING BY-PRODUCTS UN 3170.*

### Description

Product obtained by treating the by-products of merging/recasting of aluminium with water and/or alkalis solutions to render the material less reactive with water. A damp powder with a slight smell of ammonia.

### Characteristics

Angle of repose	Bulk density (kg/ m <sup>3</sup> )	Stowage factor (m <sup>3</sup> /t)
Not applicable	1,080 to 1,750	0.57 to 0.93
Size	Class	Group
Less than 1 mm	MHB	A and B

### Hazard

This cargo may develop small amount of hydrogen, a flammable gas which may form explosive mixtures with air, and of ammonia, which is a highly toxic gas.

This cargo may liquefy if shipped at moisture content in excess of its transportable moisture limit (TML). See sections 7 and 8 of the Code. Corrosive to eyes.

### Stowage and segregation

"Separated from" foodstuffs and all Class 8 liquids. Segregation as for Class 4.3 materials.

### Hold cleanliness

Clean and dry as relevant to the hazards of the cargo.

### Weather precautions

This cargo shall be kept as dry as practicable and the moisture content shall be kept less than its TML during loading operations and the voyage. This cargo shall not be handled during precipitation. During handling of this cargo, all non-working hatches of the cargo spaces into which this cargo is loaded or to be loaded shall be closed.

### Loading

Trim in accordance with the relevant provisions of sections 4 and 5 of this Code.

### Precautions

Persons who may be exposed to the cargo shall wear personal protective equipment, including goggles and/or skin protection as necessary. Prior to loading this cargo, a weathering certificate shall be provided by the manufacturer or shipper stating that, after manufacture, the material was stored under cover, but exposed to the weather in the particle size to be shipped, for not less than four weeks prior to shipment. Whilst the ship is alongside and the hatches of the cargo spaces containing this cargo are closed, the mechanical ventilation shall be operated continuously as weather permits. During handling of this cargo, "NO SMOKING" signs shall be posted on decks and in areas adjacent to cargo spaces and no naked lights shall be permitted in these areas. Bulkheads between the cargo spaces and the engine-room shall be gastight. Inadvertent pumping through machinery spaces shall be avoided. Bilge wells shall be clean, dry and covered as appropriate, to prevent ingress of the cargo.



**Ventilation**

Continuous mechanical ventilation shall be conducted during the voyage for the cargo spaces carrying this cargo. If maintaining ventilation endangers the ship or the cargo, it may be interrupted unless there is a risk of explosion or other danger due to interruption of the ventilation. In any case, mechanical ventilation shall be maintained for a reasonable period prior to discharge. Ventilation shall be arranged such that any escaping gases are minimized from reaching living quarters on or under the deck.

**Carriage**

For quantitative measurements of hydrogen, ammonia and acetylene, suitable detectors for each gas or combination of gases shall be on board while this cargo is carried. The detectors shall be of certified safe type for use in explosive atmosphere. The concentrations of these gases in the cargo spaces carrying this cargo shall be measured regularly, during voyage, and the results of the measurements shall be recorded and kept on board. The appearance of the surface of this cargo shall be checked regularly during voyage. If free water above the cargo or fluid state of the cargo is observed during voyage, the master shall take appropriate actions to prevent cargo shifting and potential capsize of the ship, and give consideration to seeking emergency entry into a place of refuge. Hatches of the cargo spaces carrying this cargo shall be weathertight to prevent the ingress of water.

**Discharge**

No special requirements.

**Clean-up**

Persons who may be exposed to the cargo shall wear personal protective equipment including goggles and/or skin protection as necessary. After discharge of this cargo, the bilge wells and scuppers of the cargo spaces shall be checked and any blockage shall be removed.

Prior to using water for hold cleaning, holds should be swept to remove as much cargo residues as practicable.

**Emergency procedures**

<p><b>Special emergency equipment to be carried</b></p> <p>Nil</p>
<p><b>Emergency procedures</b></p> <p>Nil</p>
<p><b>Emergency action in the event of fire</b></p> <p>Batten down and use CO<sub>2</sub> if fitted</p>
<p><b>Medical first aid</b></p> <p>Refer to the Medical First Aid Guide (MFAG), as amended</p>

## "CLINKER ASH, WET

### Description

Coal ash discharged from coal-fired power stations. Grey-coloured, possibly ranging from near-white to near-black, and odourless substance collected from the bottom of boilers, and resembles sand. Moisture content is about 15% to 23%. Insoluble in water.

### Characteristics

Angle of repose	Bulk density (kg/m <sup>3</sup> )	Stowage factor (m <sup>3</sup> /t)
Not applicable	600 to 1,700	0.6 to 1.7
Size	Class	Group
Up to 90 mm	MHB	A and B

### Hazard

The material may liquefy if shipped at a moisture content in excess of its Transportable Moisture Limit (TML). See sections 7 and 8 of the Code. May cause long-term health effects. This cargo is non-combustible or has a low fire-risk.

### Stowage and Segregation

No special requirements.

### Hold cleanliness

No special requirements.

### Weather precautions

This cargo shall be kept as dry as practicable before loading, during loading and while on the voyage. When a cargo is carried in a ship other than a specially constructed or fitted cargo ship complying with the requirements in subsection 7.3.2 of this Code, the following provisions shall be complied with:

- .1 the moisture content of the cargo shall be kept less than its TML during loading operations and the voyage;
- .2 unless expressly provided otherwise in this individual schedule, the cargo shall not be handled during precipitation;
- .3 unless expressly provided otherwise in this individual schedule, during handling of the cargo, all non-working hatches of the cargo spaces into which the cargo is loaded or to be loaded shall be closed;
- .4 the cargo may be handled during precipitation under the conditions stated in the procedures required in subsection 4.3.3 of this Code; and
- .5 the cargo in a cargo space may be discharged during precipitation provided that the total amount of the cargo in the cargo space is to be discharged in the port.

**Loading**

Trim in accordance with the relevant provisions required under sections 4 and 5 of the Code.

**Precautions**

Persons who may be exposed to the dust of the cargo shall wear gloves, goggles or other equivalent dust eye-protection and dust filter masks.

**Ventilation**

No special requirements.

**Carriage**

No special requirements.

**Discharge**

No special requirements.

**Clean-Up**

No special requirements.

**Emergency procedures**

<p style="text-align: center;"><b>Special emergency equipment to be carried</b> Protective clothing (goggles, dust filter masks, gloves, coveralls).</p>
<p style="text-align: center;"><b>Emergency procedures</b> Wear protective clothing.</p> <p style="text-align: center;"><b>Emergency action in the event of fire</b> Nil (non-combustible)</p> <p style="text-align: center;"><b>Medical First Aid</b> Refer to the Medical First Aid Guide (MFAG), as amended.</p>

**"COAL TAR PITCH****Description**

A coarse distilled residue of Coal Tar, a by-product of Cokes production. Mostly comprises many kinds of polycyclic aromatic hydrocarbon. A black solid at ambient temperature. It is insoluble in water. A raw material in use for electrodes and materials covering pitch bound on metallurgy coke. The moisture content is up to 6%.

### Characteristics

Angle of repose	Bulk density (kg/m <sup>3</sup> )	Stowage factor (m <sup>3</sup> /t)
Not applicable	600 to 1,100	0.9 to 1.7
Size	Class	Group
Up to 100mm 0 to 10% of fine particles: less than 1 mm	MHB	B

### Hazard

This cargo is non-combustible or has a low fire-risk. When heated, it melts and turns into inflammable liquid. It softens between 70°C and 120°C. Corrosive to eyes. May cause long-term health effects.

### Stowage and segregation

No special requirements.

### Hold cleanliness

No special requirements.

### Weather precautions

No special requirements.

### Loading

Trim in accordance with the relevant provisions required under sections 4 and 5 of the Code.

### Precautions

Persons who may be in contact with this cargo shall be supplied with protective gloves, dust masks, protective clothing and goggles.

### Ventilation

No special requirements.

### Carriage

No special requirements.

### Discharge

No special requirements.

### Clean-up

No special requirements.

## Emergency procedures

<p><b><u>Special emergency equipment to be carried</u></b></p> <p>Protective clothing (gloves, boots, overalls, headgear, dust masks and goggles).</p>
<p><b><u>Emergency procedures</u></b></p> <p>Wear protective clothing, protective gloves, dust masks and goggles.</p> <p><b><u>Emergency action in the event of fire</u></b></p> <p>Batten down: use ship's fixed fire-fighting installation if fitted. Exclusion of air may be sufficient to control fire.</p> <p><b><u>Medical first aid</u></b></p> <p>Refer to the Medical First Aid Guide (MFAG), as amended.</p>

## "COARSE IRON AND STEEL SLAG AND ITS MIXTURE

### Description

A coarse slag arising from iron and steel manufacture, and a coarse slag mixed with one of the following substances or a combination thereof: concrete debris, fly-ash, firebricks, dust collected from iron/steel-making processes, refractory material debris and fine raw materials of iron making.

This cargo includes shaped blocks made of iron and steel slag with one of the additives or a combination of additives: cement, ground granulated blast furnace slag and fly-ash, and its debris, and their mixture with iron and steel slag.

The colour is in the range from greyish-white to dark grey, and the appearance is in the range from granulated, pebble to block shaped.

### Characteristics

Angle of repose	Bulk density (kg/m <sup>3</sup> )	Stowage factor (m <sup>3</sup> /t)
Not applicable	1,200 to 3,000	0.33 to 0.83
Size	Class	Group
90 to 100% of lumps: up to 300 mm 0 to 10% fine particles: less than 1 mm	Not applicable	C

**Hazard**

No special requirements.  
This cargo is non-combustible or has a low fire-risk.

**Stowage and segregation**

No special requirements.

**Hold cleanliness**

No special requirements.

**Weather precautions**

No special requirements.

**Loading**

Trim in accordance with the relevant provisions required under sections 4 and 5 of the Code.

When the stowage factor of this cargo is equal or less than 0.56 m<sup>3</sup>/t, the tank top may be overstressed unless the cargo is evenly spread across the tank top to equalize the weight distribution. Due consideration shall be given to ensure that the tank top is not overstressed during the voyage and during loading by a pile of the cargo.

**Precautions**

Persons who may be exposed to the dust of the cargo shall wear goggles or other equivalent dust eye-protection and dust filter masks, as necessary.

**Ventilation**

No special requirements.

**Carriage**

No special requirements.

**Discharge**

No special requirements.

**Clean-up**

No special requirements."

**"CRUSHED CARBON ANODES****Description**

Crushed Carbon Anodes are spent carbon anodes that are crushed into smaller pieces to permit their shipment for recycling. Carbon anodes are used to introduce electricity into the aluminium smelter pots. This cargo is mainly composed of black crushed lumps and pieces principally containing carbon and other impurities. The material is odourless.

<b>Angle of repose</b>	<b>Bulk density (kg/m<sup>3</sup>)</b>	<b>Stowage factor (m<sup>3</sup>/t)</b>
Not applicable	800 to 1,000	1.00 to 1.25
<b>Size</b>	<b>Class</b>	<b>Group</b>
Mainly coarse pieces up to 60 cm +	Not applicable	C

**Hazard**

This cargo may generate dust. This cargo is non-combustible or has a low fire-risk.

**Stowage and segregation**

No special requirements.

**Hold cleanliness**

No special requirements.

**Weather precautions**

No special requirements.

**Loading**

Trim in accordance with the relevant provisions required under sections 4 and 5 of the Code.

**Precautions**

Persons who may be exposed to the dust of the cargo shall wear protective clothing, goggles or other equivalent dust eye-protection, dust filter mask and barrier creams as necessary.

**Ventilation**

No special requirements.

**Carriage**

No special requirements.

**Discharge**

No special requirements.

**Clean-up**

No special requirements."

**"GRAIN SCREENING PELLETS**

*The provision of this schedule shall apply only to Grain Screening Pellets material containing not more than 6.2% oil content and not more than 17.5% oil and moisture content combined.*

**Description**

Grain Screening Pellets are animal feed products, pelletized animal feed derived from dockage removed from grains. Screenings means dockage that has been removed from grain that does not qualify for any other grain grades. Depending

upon their quality, screenings vary in level of parent and volunteer grain material, broken or shrunken kernels, hulls, weed seeds, chaff, dust and other plant material. The colour ranges from brown to yellow.

### Characteristics

Angle of repose	Bulk density (kg/m <sup>3</sup> )	Stowage factor (m <sup>3</sup> /t)
less than 30°	478 to 719	1.39 to 2.09
Size	Class	Group
Length: 12 to 38 mm Diameter: 4 to 7 mm	Not applicable	C

### Hazard

This cargo flows freely like grain. This cargo is non-combustible or has a low fire-risk.

### Stowage and segregation

No special requirements.

### Hold cleanliness

No special requirements.

### Weather precautions

This cargo shall be kept as dry as practicable. This cargo shall not be handled during precipitation. During handling of this cargo, all non-working hatches of the cargo spaces into which the cargo is loaded or to be loaded shall be closed.

### Loading

Trim in accordance with the relevant provisions required under sections 4, 5 and 6 of the Code in accordance with the shipper's declaration of the angle of repose.

A certificate from a person recognized by the competent authority of the country of shipment shall be provided by the shipper to the master, prior to loading, confirming that the oil and the moisture contents as described in the schedule have been met.

### Precautions

Persons who may be exposed to the dust of the cargo shall wear a dust filter mask, protective eyewear, and protective clothing as necessary.

### Carriage

Hatches of the cargo spaces shall be weather tight to prevent water ingress.

### Discharge

No special requirements.

### Ventilation

No special requirements.



**Clean-up**

No special requirements.

**Emergency Procedures**

No special requirements."

**"GRANULATED NICKEL MATTE (LESS THAN 2% MOISTURE CONTENT)**

**Description**

Crude dark grey nickel product composed of about 55% nickel, 20% copper and 25% other mineral impurities. The material is odourless.

**Characteristics**

Angle of repose	Bulk density (kg/m <sup>3</sup> )	Stowage factor (m <sup>3</sup> /t)
Not applicable	2,800 to 4,000	0.25 to 0.36
Size	Class	Group
Up to 3 mm	MHB	B

**Hazard**

Contact with the skin may give rise to irritation.  
This cargo is non-combustible or has a low fire-risk.  
This cargo is moderately toxic by inhalation.

**Stowage and segregation**

Separated from foodstuffs.

**Hold cleanliness**

No special requirements.

**Weather precautions**

No special requirements.

**Loading**

Trim in accordance with the relevant provisions required under sections 4 and 5 of the Code. As the density of the cargo is extremely high, the tank top may be overstressed unless the cargo is evenly spread across the tank top to equalize the weight distribution. Due consideration shall be paid to ensure that the tank top is not overstressed during voyage and during loading process by a pile of the cargo.

**Precautions**

Persons who may be exposed to the dust component of the cargo shall wear personal protective equipment including goggles or other equivalent dust eye-protection, respiratory protection, and/or skin protection as necessary. Due consideration shall be paid to prevent dust entering living quarters and enclosed working area. Eating and drinking is prohibited in the cargo work areas. Appropriate precautions shall be taken to protect machinery and accommodation spaces from the dust of the cargo.

**Carriage**

No special requirements.

**Discharge**

No special requirements.

**Ventilation**

No special requirements.

**Clean-up**

No special requirements.

**Emergency procedures**

<p><b>Special emergency equipment to be carried</b> Protective clothing ( gloves, boots, coveralls ) Self-contained breathing apparatus</p>
<p><b>Emergency procedures</b> Wear protective clothing and self-contained breathing apparatus.</p> <p><b>Emergency action in the event of fire</b> Nil (non-combustible)</p> <p><b>Medical First Aid</b> Refer to the <i>Medical First Aid Guide (MFAG)</i>, as amended.</p>

**"GYPSUM GRANULATED**

**Description**

Gypsum Granulated made from calcium sulphate hydrate which is produced artificially or industrial by-product. It is produced by granulating and processing such calcium sulphate hydrate until its grain size becomes 10 mm diameter or more. Insoluble in water.

**Characteristics**

<b>Angle of repose</b>	<b>Bulk density (kg/m<sup>3</sup>)</b>	<b>Stowage factor (m<sup>3</sup>/t)</b>
Not applicable	310 to 1,200	0.83 to 3.23
<b>Size</b>	<b>Class</b>	<b>Group</b>
Greater than 10 mm	Not applicable	C

**Hazard**

No special hazards.

This cargo is non-combustible or has a low fire-risk.

**Stowage and segregation**

No special requirements.

**Hold cleanliness**

No special requirements.

**Weather precautions**

No special requirements.

**Loading**

Trim in accordance with the relevant provisions required under sections 4 and 5 of the Code.

**Precautions**

No special requirements.

**Ventilation**

No special requirements.

**Carriage**

No special requirements.

**Discharge**

No special requirements.

**Clean-up**

No special requirements."

**"ILMENITE (ROCK)**

**Description**

Ilmenite (Rock) is obtained from mine blasting followed by crushing. It has a black colour. It may be smelted in electric arc furnaces or can be used in blast furnaces.

**Characteristics**

Angle of repose	Bulk density (kg/m <sup>3</sup> )	Stowage factor (m <sup>3</sup> /t)
Not applicable	2,400 to 3,200	0.31 to 0.42
Size	Class	Group
Up to 100 mm	Not applicable	C

**Hazard**

This cargo has no special hazards.  
This cargo is non-combustible or has a low fire-risk.

**Stowage and segregation**

No special requirements.

**Hold cleanliness**

No special requirements.

### **Weather precautions**

No special requirements.

### **Loading**

Trim in accordance with the relevant provisions required under sections 4 and 5 of the Code. As the density of the cargo is extremely high, the tank top may be overstressed unless the cargo is evenly spread across the tank top to equalize the weight distribution. Due consideration shall be paid to ensure that the tank top is not overstressed during voyage and during loading by a pile of the cargo.

### **Precautions**

Avoid breathing dust. Persons who may be exposed to the dust of the cargo shall wear a dust filter mask, protective eyewear and clothing as necessary.

### **Ventilation**

No special requirements.

### **Carriage**

No special requirements.

### **Discharge**

No special requirements.

### **Clean-up**

No special requirements."

## **"ILMENITE (UPGRADED)**

### **Description**

Ilmenite (upgraded), is obtained from the smelting of rock or sand Ilmenite into electric arc furnaces. Ilmenite (upgraded) has a granular form and its colour varies from black (normal grades) to brown-orange for its purified grade.

Ilmenite (upgraded) is also known as Titanium slag, Titanium Ore Concentrate, Chloride Slag, Sulphate Slag, High Grade Sulphate Slag, Slag fines, Slag ilmenite electro thermal smelting or TiO<sub>2</sub> slag.

### **Characteristics**

<b>Angle of repose</b>	<b>Bulk density (kg/m<sup>3</sup>)</b>	<b>Stowage factor (m<sup>3</sup>/t)</b>
Not applicable	1,860 to 2,400	0.41 to 0.54
<b>Size</b>	<b>Class</b>	<b>Group</b>
Up to 12 mm	Not applicable	A

### **Hazard**

This material may liquefy if shipped at moisture content in excess of its Transportable Moisture Limit (TML). See sections 7 and 8 of this Code.

This cargo is non-combustible or has a low fire-risk.

### **Stowage and segregation**

No special requirements.

### **Hold cleanliness**

No special requirements.

### **Weather precautions**

This cargo shall be kept as dry as practicable before loading, during loading and while on the voyage. When a cargo is carried in a ship other than a specially constructed or fitted cargo ship complying with the requirements in subsection 7.3.2 of this Code, the following provisions shall be complied with:

- .1 the moisture content of the cargo shall be kept less than its TML during loading operations and the voyage;
- .2 unless expressly provided otherwise in this individual schedule, the cargo shall not be handled during precipitation;
- .3 unless expressly provided otherwise in this individual schedule, during handling of the cargo, all non-working hatches of the cargo spaces into which the cargo is loaded or to be loaded shall be closed;
- .4 the cargo may be handled during precipitation under the conditions stated in the procedures required in subsection 4.3.3 of this Code; and
- .5 the cargo in a cargo space may be discharged during precipitation provided that the total amount of the cargo in the cargo space is to be discharged in the port.

### **Loading**

Trim in accordance with the relevant provisions required under sections 4 and 5 of the Code. As the density of the cargo is extremely high, the tank top may be overstressed unless the cargo is evenly spread across the tank top to equalize the weight distribution. Due consideration shall be paid to ensure that the tank top is not overstressed during voyage and during loading by a pile of the cargo.

### **Precautions**

Bilge wells shall be clean, dry and covered as appropriate to prevent ingress of the cargo. Avoid breathing dust. Persons who may be exposed to the dust component of the cargo shall wear personal protective equipment including goggles or other equivalent dust eye-protection and respiratory protection as necessary. Wash hands and face before eating, drinking or smoking.

### **Ventilation**

No special requirements.

### **Carriage**

The appearance of the cargo shall be checked regularly during voyage. If free water above the cargo or fluid state of the cargo is observed during voyage, the master shall take appropriate actions to prevent cargo shifting and potential capsize of the ship, and give consideration to seeking emergency entry into a place of refuge.

### **Discharge**

No special requirements.

### **Clean-up**

No special requirements."

## "NICKEL ORE

### Description

Nickel ore varies in colour. There are several types of ore of variable particle size and moisture content. Some may contain clay-like ores. For concentrates, see NICKEL CONCENTRATE.

### Characteristics

Angle of repose	Bulk density (kg/m <sup>3</sup> )	Stowage factor (m <sup>3</sup> /t)
Not applicable	1,400 to 1,800	0.55 to 0.71
Size	Class	Group
Various	Not applicable	A

### Hazard

This material may liquefy if shipped at a moisture content in excess of its Transportable Moisture Limit (TML). See sections 7 and 8 of this Code. This cargo is non-combustible or has a low fire-risk.

### Stowage and segregation

No special requirements.

### Hold cleanliness

Cargo spaces must be clean and dry.

### Weather precautions

When a cargo is carried in a ship other than a specially constructed or fitted cargo ship complying with the requirements in subsection 7.3.2 of this Code, the following provisions shall be complied with:

- .1 all measures shall be taken during loading operations and the voyage to avoid an increase in the moisture content of the cargo;
- .2 unless expressly provided otherwise in this individual schedule, the cargo shall not be handled during precipitation;
- .3 unless expressly provided otherwise in this individual schedule, during handling of the cargo, all non-working hatches of the cargo spaces into which the cargo is loaded or to be loaded shall be closed;
- .4 the cargo may be handled during precipitation under the conditions stated in the procedures required in subsection 4.3.3 of this Code; and
- .5 the cargo in a cargo space may be discharged during precipitation provided that the total amount of the cargo in the cargo space is to be discharged in the port.

### Loading

Trim in accordance with the relevant provisions required under sections 4 and 5 of the Code.

When the stowage factor of this cargo is equal or less than 0.56 m<sup>3</sup>/t, the tank top may be overstressed unless the cargo is evenly spread across the tank top to equalize the weight distribution. Due consideration shall be given to ensure that the tank top is not overstressed during the voyage and during loading by a pile of the cargo.

### Precautions

Bilge wells shall be clean, dry and covered as appropriate, to prevent ingress of the cargo. The bilge system of a cargo space to which this cargo is to be loaded shall be tested to ensure that it is working.

### Ventilation

The cargo spaces carrying this cargo shall not be ventilated during voyage.

### Carriage

The appearance of the surface of this cargo shall be checked regularly during voyage. If free water above the cargo or fluid state of the cargo is observed during voyage, the master shall take appropriate actions to prevent cargo shifting and potential capsize of the ship, and give consideration to seeking emergency entry into a place of refuge.

### Discharge

No special requirements.

### Clean-up

No special requirements."

## "SAND, HEAVY MINERAL

### Description

The cargo is generally a blend of two or more heavy mineral sands. Such sands are characterized by their heavy bulk density and relatively fine grain size. Abrasive. May be dusty.

### Characteristics

Angle of repose	Bulk density (kg/m <sup>3</sup> )	Stowage factor (m <sup>3</sup> /t)
Not applicable	2,380 to 3,225	0.31 to 0.42
Size	Class	Group
Up to 5 mm	Not applicable	A

### Hazard

This cargo may liquefy if shipped at a moisture content in excess of its TML. See sections 7 and 8 of this Code.

This cargo is non-combustible or has a low fire-risk.

### **Stowage and segregation**

No special requirements.

### **Hold cleanliness**

No special requirements.

### **Weather precautions**

When a cargo is carried in a ship other than a specially constructed or fitted cargo ship complying with the requirements in subsection 7.3.2 of this Code, the following provisions shall be complied with:

- .1 the moisture content of the cargo shall be kept less than its TML during loading operations and the voyage;
- .2 unless expressly provided otherwise in this individual schedule, the cargo shall not be handled during precipitation;
- .3 unless expressly provided otherwise in this individual schedule, during handling of the cargo, all non-working hatches of the cargo spaces into which the cargo is loaded or to be loaded shall be closed;
- .4 the cargo may be handled during precipitation under the conditions stated in the procedures required in subsection 4.3.3 of this Code; and
- .5 the cargo in a cargo space may be discharged during precipitation provided that the total amount of the cargo in the cargo space is to be discharged in the port.

### **Loading**

Trim in accordance with the relevant provisions required under sections 4 and 5 of the Code.

As the density of the cargo is extremely high, the tank top may be overstressed unless the cargo is evenly spread across the tank top to equalize the weight distribution. Due consideration shall be paid to ensure that tank top is not overstressed during voyage and during loading by a pile of the cargo.

### **Precautions**

Bilge wells shall be clean, dry and covered as appropriate, to prevent ingress of the cargo.

### **Ventilation**

No special requirements.

### **Carriage**

The appearance of the surface of this cargo shall be checked regularly during voyage. If free water above the cargo or fluid state of the cargo is observed during voyage, the master shall take appropriate actions to prevent cargo shifting and potential capsizing of the ship, and give consideration to seeking emergency entry into a place of refuge.



**Discharge**

No special requirements.

**Clean-up**

No special requirements."

**"SILICON SLAG**

**Description**

Silicon slag is an odourless greyish metallic material mainly in lump. It is composed of silicon and silicon dioxide in variable proportions.

**Characteristics**

Angle of repose	Bulk density (kg/m <sup>3</sup> )	Stowage factor (m <sup>3</sup> /t)
Not applicable	2,300 to 3,000	0.33 to 0.43
Size	Class	Group
Up to 150 mm	Not applicable	C

**Hazard**

The dust may cause irritation of eyes, skin and upper respiratory tract. This cargo is non-combustible or has a low fire-risk.

**Stowage and segregation**

"Separated from" acids or base materials.

**Hold cleanliness**

No special requirements.

**Weather precautions**

No special requirements.

**Loading**

Trim in accordance with the relevant provisions required under sections 4 and 5 of the Code. As the density of the cargo is extremely high, the tank top may be overstressed unless the cargo is evenly spread across the tank top to equalize the weight distribution. Due consideration shall be paid to ensure that the tank top is not overstressed during the voyage and during the loading process by a pile of the cargo.

**Precautions**

Persons who may be exposed to the dust of the cargo shall wear protective clothing, goggles or other equivalent dust eye-protection and dust filter mask as necessary.

**Ventilation**

No special requirements.

**Carriage**

No special requirements.

**Discharge**

No special requirements.

**Clean-up**

No special requirements."

## "SOLIDIFIED FUELS RECYCLED FROM PAPER AND PLASTICS"

This schedule shall not apply to material classified as dangerous goods (Class 4.2).

### Description

Solidified fuels comprising papers and plastics by compressing or extruding in moulds. The main raw materials of this cargo are waste paper and plastic. Moisture content is 5% or less. Ash content is 10% or less. Total chlorine is 0.3% or less.

### Characteristics

Angle of repose	Bulk density (kg/m <sup>3</sup> )	Stowage factor (m <sup>3</sup> /t)
Not applicable	400 to 500	2.0 to 2.5
Size	Class	Group
Length: 30 to 100 mm Diameter: 15 to 30 mm	MHB	B

### Hazard

Spontaneous ignition is not liable to occur up to 200°C. When ignited, it burns violently. When melted, it generates flammable and toxic gases. Spontaneous-heating may take place and may deplete oxygen in the cargo spaces.

### Stowage and segregation

No special requirements.

### Hold cleanliness

No special requirements.

### Weather precautions

No special requirements.

### Loading

Prior to loading, the manufacturer or shipper shall give the master a certificate stating that the cargo is not class 4.2. Trim in accordance with the relevant provisions required under sections 4 and 5 of the Code.

### Precautions

During handling and carriage, no hot work, burning and smoking shall be permitted in the vicinity of the cargo spaces containing this cargo. After discharging this cargo, entry into cargo spaces shall not be permitted unless they have been sufficiently ventilated.

### Ventilation

The hatches of the cargo spaces shall be closed and the spaces shall not be ventilated during voyage.

### Carriage

Entry into the cargo spaces shall not be permitted during voyage.

### Discharge

The hatches of the cargo spaces shall be opened and sufficiently ventilated prior to entry.

**Clean-up**

No special requirements.

**Emergency procedures**

<p><b>Special emergency equipment to be carried</b> Protective clothing (protective glasses, heat-resistant gloves, coveralls).</p>
<p><b>Emergency procedures</b> Wear protective clothing.</p>
<p><b>Emergency action in the event of fire</b> Batten down; use ship's fixed fire-fighting installation, if fitted. Extinguish fire with water, foam or dry chemicals.</p>
<p><b>Medical First Aid</b> Refer to the Medical First Aid Guide (MFA), as amended.</p>

**"WOOD TORREFIED**

**Description**

Wood torrefied is wood that has been partially burned or roasted and formed into pellets or briquettes. Chocolate brown or black in colour. May contain up to 3% binder.

**Characteristics**

Angle of repose	Bulk density (kg/m <sup>3</sup> )	Stowage factor (m <sup>3</sup> /t)
35° or less	650 to 800	1.25 to 1.54
Size	Class	Group
Pellets with a diameter of 6 to 12 mm. Briquettes with a thickness of 12 to 50 mm and a length and width up to 75 mm.	MHB	B

**Hazard**

Shipments may be subject to oxidation leading to depletion of oxygen and increase of carbon monoxide and carbon dioxide in cargo and adjacent spaces.

Wood torrefied is readily combustible and may self-heat and spontaneously combust.

Handling of wood torrefied may cause dust to develop with a subsequent risk of dust explosion when loading. Dust may cause eye, skin and respiratory irritation.

**Stowage and segregation**

Segregation as for class 4.1 materials.

**Hold cleanliness**

Clean and dry as relevant to the hazards of the cargo.

**Weather precautions**

This cargo shall be kept as dry as practicable. This cargo shall not be handled during precipitation. During handling of this cargo, all non-working hatches of the cargo spaces into which this cargo is loaded or to be loaded shall be closed.

**Loading**

Trim in accordance with the relevant provisions required under sections 4, 5 and 6 of the Code.

**Precautions**

Entry of personnel into cargo and adjacent confined spaces shall not be permitted until tests have been carried out and it has been established that the oxygen content and carbon monoxide levels have been restored to the following levels: oxygen 20.7% and carbon monoxide <100 ppm. If these conditions are not met, additional ventilation shall be applied to the cargo hold or adjacent confined spaces and remeasuring shall be conducted after a suitable interval. An oxygen and carbon monoxide meter shall be worn and activated by all crew when entering cargo and adjacent enclosed spaces.

Persons who may be exposed to the dust of the cargo shall wear protective clothing, goggles or other equivalent dust eye-protection and dust filter masks, as necessary.

**Ventilation**

Ventilation of enclosed spaces adjacent to a cargo hold before entry may be necessary even if these spaces are apparently sealed from the cargo hold.

**Carriage**

Hatches of the cargo spaces carrying this cargo shall be weathertight to prevent the ingress of water.

**Discharge**

No special requirements.

**Clean-up**

No special requirements.

**Emergency procedures**

<p style="text-align: center;"><b>Special emergency equipment to be carried</b> Self-contained breathing apparatus and combined or individual oxygen and carbon monoxide meters should be available.</p>
<p style="text-align: center;"><b>Emergency procedures</b> Nil</p>
<p style="text-align: center;"><b>Emergency action in the event of fire</b> Batten down; use ship's fixed fire-fighting installation, if fitted. Exclusion of air may be sufficient to control fire. Extinguish fire with carbon dioxide, foam or water.</p>
<p style="text-align: center;"><b>Medical First Aid</b> Refer to the Medical First Aid Guide (MFAG), as amended.</p>

**Appendix 3 – Properties of solid bulk cargoes**

**1 Non-cohesive cargoes**

49 In paragraph 1.1, the new following Bulk Cargo Shipping Names are inserted in alphabetical order:

"GRAIN SCREENING PELLETS"

"WOOD TORREFIED"

**Appendix 4 – Index**

50 Include in ALUMINA HYDRATE a synonym as:

"Aluminium hydroxide"

51 Insert an additional name under SAND as:

"

Material	Group	References
Spodumene	C	see SAND

"

52 In the line for SILICOMANGANESE in the line for Material, amend the Bulk Shipping Name to read "SILICOMANGANESE (low carbon)".

53 Include the following names in the alphabetical index:

"

Material	Group	References
ALUMINA HYDRATE	A and B	
ALUMINIUM SMELTING / REMELTING BY-PRODUCTS, PROCESSED	A and B	
CLINKER ASH, WET	A and B	
COAL TAR PITCH	B	
COARSE IRON AND STEEL SLAG AND ITS MIXTURE	C	
CRUSHED CARBON ANODES	C	
GRAIN SCREENING PELLETS	C	
GRANULATED NICKEL MATTE (LESS THAN 2% MOISTURE CONTENT)	B	
GYPSUM GRANULATED	C	
ILMENITE (ROCK)	C	
ILMENITE (UPGRADED)	A	
NICKEL ORE	A	
SAND, HEAVY MINERAL	A	
SILICON SLAG	C	
SOLIDIFIED FUELS RECYCLED FROM PAPER AND PLASTICS	B	
WOOD TORREFIED	B	

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**ANNEX 5**

**RESOLUTION MSC.353(92)  
(Adopted on 21 June 2013)**

**AMENDMENTS TO THE INTERNATIONAL MANAGEMENT CODE FOR THE  
SAFE OPERATION OF SHIPS AND FOR POLLUTION PREVENTION  
(INTERNATIONAL SAFETY MANAGEMENT (ISM) CODE)**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

NOTING resolution A.741(18), by which the Assembly adopted the *International Management Code for the Safe Operation of Ships and for Pollution Prevention (International Safety Management (ISM) Code)* (hereinafter referred to as "the ISM Code"), which has become mandatory under chapter IX of the International Convention for the Safety of Life at Sea (SOLAS), 1974 (hereinafter referred to as "the Convention"),

NOTING ALSO article VIII(b) and regulation IX/1.1 of the Convention concerning the procedure for amending the ISM Code,

HAVING CONSIDERED, at its ninety-second session, amendments to the ISM Code proposed and circulated in accordance with article VIII(b)(i) of the Convention,

1. ADOPTS, in accordance with article VIII(b)(iv) of the Convention, amendments to the ISM Code, the text of which is set out in the annex to the present resolution;
2. DETERMINES, in accordance with article VIII(b)(vi)(2)(bb) of the Convention, that the amendments shall be deemed to have been accepted on 1 July 2014 unless, prior to that date, more than one third of the Contracting Governments to the Convention or Contracting Governments the combined merchant fleets of which constitute not less than 50 per cent of the gross tonnage of the world's merchant fleet, have notified their objections to the amendments;
3. INVITES Contracting Governments to note that, in accordance with article VIII(b)(vii)(2) of the Convention, the amendments shall enter into force on 1 January 2015 upon their acceptance in accordance with paragraph 2 above;
4. REQUESTS the Secretary-General, in conformity with article VIII(b)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the annex to all Contracting Governments to the Convention;
5. ALSO REQUESTS the Secretary-General to transmit copies of this resolution and its annex to Members of the Organization, which are not Contracting Governments to the Convention.

\* \* \*

ANNEX

**AMENDMENTS TO THE INTERNATIONAL MANAGEMENT CODE  
FOR THE SAFE OPERATION OF SHIPS AND FOR POLLUTION PREVENTION  
(INTERNATIONAL SAFETY MANAGEMENT (ISM) CODE)**

**PART A – IMPLEMENTATION**

**6 RESOURCES AND PERSONNEL**

1 The existing text of paragraph 6.2 is replaced with the following:

"6.2 The Company should ensure that each ship is:

- .1 manned with qualified, certificated and medically fit seafarers in accordance with national and international requirements; and
- .2 appropriately manned in order to encompass all aspects of maintaining safe operations on board\*.

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\* Refer to the *Principles of minimum safe manning*, adopted by the Organization by resolution A.1047(27)."

**12 COMPANY VERIFICATION, REVIEW AND EVALUATION**

2 The following new paragraph 12.2 is inserted after existing paragraph 12.1 and the existing paragraphs 12.2 to 12.6 are renumbered as 12.3 to 12.7:

"12.2 The Company should periodically verify whether all those undertaking delegated ISM-related tasks are acting in conformity with the Company's responsibilities under the Code."

**Footnotes and paragraph for foreword of the publication of the Code**

1 In paragraph 1.1.10, the following footnote is added after the words "Major non-conformity":

---

"Refer to the *Procedures concerning observed ISM Code major non-conformities* (MSC/Circ.1059-MEPC/Circ.401)."

2 In paragraph 1.2.3.2, the following footnote is added after the word "account":

---

"Refer to the *List of codes, recommendations, guidelines and other safety and security-related non-mandatory instruments* (MSC.1/Circ.1371)."

3 The following footnote is added at the end of the title of section 3:

---

"Refer to the *Guidelines for the operational implementation of the International Safety Management (ISM) Code by Companies* (MSC-MEPC.7/Circ.5)."

4 The following footnote is added at the end of the title of section 4:

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"Refer to the *Guidance on the qualifications, training and experience necessary for undertaking the role of the Designated Person under the provisions of the International Safety Management (ISM) Code* (MSC-MEPC.7/Circ.6)."





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**ANNEX 1**

**RESOLUTION MSC.349(92)  
(Adopted on 21 June 2013)**

**CODE FOR RECOGNIZED ORGANIZATIONS (RO CODE)**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO resolution A.739(18) entitled *Guidelines for the authorization of organizations acting on behalf of the Administration*, as amended by resolution MSC.208(81), and resolution A.789(19) entitled *Specifications on the survey and certification functions of recognized organizations acting on behalf of the Administration*, which have become mandatory under chapter XI-1 of the International Convention for the Safety of Life at Sea (SOLAS), 1974 (hereinafter referred to as "the 1974 SOLAS Convention"), under chapter I of annex I to annex B of the Protocol of 1988 relating to the International Convention on Load Lines, 1966 (hereinafter referred to as "the 1988 Load Lines Protocol"), and under Annex I and Annex II of the MARPOL Convention,

RECOGNIZING the need to update the aforementioned resolutions, gather all the applicable requirements for recognized organizations in a single IMO mandatory instrument and assist in achieving harmonized and consistent global implementation of requirements established by IMO instruments for the assessment and authorization of recognized organizations,

RECOGNIZING ALSO the need for a code to provide, as far as national laws allow, a standard approach to assist the Administrations in meeting their responsibilities in recognizing, authorizing and monitoring their recognized organizations,

NOTING resolutions MSC.350(92) and MSC.356(92), by which it adopted, inter alia, amendments to the 1974 SOLAS Convention and to the 1988 Load Lines Protocol, respectively, to make the provisions of part 1 and part 2 of the Code for recognized organizations mandatory under the 1974 SOLAS Convention and the 1988 Load Lines Protocol,

NOTING ALSO resolution MEPC.237(65) by which the Marine Environment Protection Committee adopted the Code for recognized organizations to be made mandatory under annex I and annex II of the Protocol of 1978 relating to the International Convention for the Prevention of Pollution from Ships, 1973,

HAVING CONSIDERED, at its ninety-second session, the text of the proposed Code for recognized organizations,

CONSIDERING that it is highly desirable for the Code for recognized organizations made mandatory under the MARPOL Convention, the 1974 SOLAS Convention and the 1988 Load Lines Protocol to remain identical,

1. ADOPTS the Code for recognized organizations (RO Code), the text of which is set out in the annex to the present resolution;

2. INVITES Contracting Governments to the 1974 SOLAS Convention and Parties to the 1988 Load Lines Protocol to note that the RO Code will take effect on 1 January 2015 upon the entry into force of the respective amendments to the 1974 SOLAS Convention and 1988 Load Lines Protocol;

3. REQUESTS the Secretary-General to transmit certified copies of the present resolution and the text of the RO Code contained in the annex to all Contracting Governments to the 1974 SOLAS Convention and Parties to the 1988 Load Lines Protocol;

4. ALSO REQUESTS the Secretary-General to transmit copies of this resolution and the annex to all Members of the Organization which are not Contracting Governments to the 1974 SOLAS Convention or Parties to the 1988 Load Lines Protocol;

5. RECOMMENDS Governments concerned to use the recommendatory provisions contained in part 3 of the RO Code as a basis for relevant standards, unless their national requirements provide at least an equivalent degree of safety.

\* \* \*

ANNEX

**CODE FOR RECOGNIZED ORGANIZATIONS (RO CODE)**

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## **PREAMBLE**

The *Code for Recognized Organizations (RO Code)* was adopted by the Organization by resolutions MSC.349(92) and MEPC.237(65).

This Code:

- .1 provides flag States with a standard that will assist in achieving harmonized and consistent global implementation of requirements established by the instrument of the International Maritime Organization (IMO) for the assessment and authorization of recognized organizations (ROs);
- .2 provides flag States with harmonized, transparent and independent mechanisms, which can assist in the consistent oversight of ROs in an efficient and effective manner; and
- .3 clarifies the responsibilities of organizations authorized as ROs for a flag State and overall scope of authorization.

## **PART 1**

### **GENERAL**

#### **1 PURPOSE**

The Code serves as the international standard and consolidated instrument containing minimum criteria against which organizations are assessed towards recognition and authorization and the guidelines for the oversight by flag States.

#### **2 SCOPE**

2.1 The Code applies to:

- .1 all organizations being considered for recognition or that are recognized by a flag State to perform, on its behalf, statutory certification and services under mandatory IMO instruments and national legislation; and
- .2 all flag States that intend to recognize an organization to perform, on their behalf, statutory certification and services under mandatory IMO instruments.

2.2 The Code establishes:

- .1 the mandatory requirements that an organization shall fulfil to be recognized by a flag State (part 1);
- .2 the mandatory requirements that an RO shall fulfil when performing statutory certification and services on behalf of its authorizing flag States (part 2);
- .3 the mandatory requirements that flag States shall adhere to when authorizing an RO (part 2); and
- .4 guidelines for flag State oversight of ROs (part 3).

2.3 The Code defines the functional, organizational and control requirements that apply to ROs conducting statutory certification and services performed under mandatory IMO instruments, such as, but not limited to, SOLAS, MARPOL and the Load Lines Conventions.

2.4 All requirements of the Code are generic and applicable to all ROs, regardless of their type and size and the statutory certification and services provided.

2.5 ROs subject to this Code need not offer all types of statutory certification and services and may have a limited scope of recognition, provided that the requirements of this Code are applied in a manner that is compatible with the limited scope of recognition. Where any requirement of this Code cannot be applied due to the scope of services delivered by an RO, this shall be clearly identified by the flag State and recorded in the RO's quality management system.

### **3 CONTENTS**

The Code consists of three parts. Part 1 contains general provisions. Part 2 contains mandatory provisions for the flag State and RO as already contained in relevant IMO instruments and applicable international standards. Part 3 contains guidelines for the oversight of ROs by flag States.

### **4 DELEGATION OF AUTHORITY**

4.1 A flag State may delegate authority to an organization recognized as complying with the provisions of this Code to perform, on its behalf, statutory certification and services under mandatory IMO instruments and its national legislation.

4.2 The flag State shall not authorize functions beyond RO's capabilities. In this respect, the flag State shall take into consideration appendix 2 of this Code for authorization.

4.3 Flag States should cooperate with each other with the objective of ensuring that ROs to whom they delegate authority adhere to the provisions of this Code.

### **5 COMMUNICATION OF INFORMATION**

The flag State shall communicate to, and deposit with, the Secretary-General of IMO a list of ROs for circulation to the interested parties for information of their officers, and a notification of the specific responsibilities and conditions of the authority delegated to ROs.

### **6 REFERENCES**

The Code is based on the following referenced documents:

- .1 mandatory IMO instruments and IMO Guidelines and recommendations (i.e. Codes, guidelines and standards recommended by the Organization);
- .2 ISO 9000:2005, Quality Management Systems – Fundamentals and vocabulary;
- .3 ISO 9001:2008, Quality Management Systems – Requirements;
- .4 ISO/IEC 17020:1998, General criteria for the operation of various types of bodies performing inspection;

- .5 ISO 19011:2002, Guidelines for quality and/or environmental management systems auditing;
- .6 International Association of Classification Societies (IACS) Quality Management System Requirements (QMSR); and
- .7 national legislation.

## PART 2

### RECOGNITION AND AUTHORIZATION REQUIREMENTS FOR ORGANIZATIONS

#### 1 TERMS AND DEFINITIONS

1.1 *Recognized organization (RO)* means an organization that has been assessed by a flag State, and found to comply with this part of the RO Code.

1.2 *Authorization* means the delegation of authority to an RO to perform statutory certification and services on behalf of a flag State as detailed in an agreement or equivalent legal arrangement taking into account the " Elements to be included in an Agreement" as set out in appendix 3 of this Code.

1.3 *Statutory certification and services* means certificates issued, and services provided, on the authority of laws, rules and regulations set down by the Government of a sovereign State. This includes plan review, survey, and/or audit leading to the issuance of, or in support of the issuance of, a certificate by or on behalf of a flag State as evidence of compliance with requirements contained in an international convention or national legislation. This includes certificates issued by an organization recognized by the flag State in accordance with the provisions of SOLAS regulation XI-1/1, and which may incorporate demonstrated compliance with the structural, mechanical and electrical requirements of the RO under the terms of its agreement of recognition with the flag State.

1.4 *Assessment* means any activity to determine that the assessed entity fulfils the requirements of the relevant rules and regulations.

1.5 *Interested parties* means any person or legal entity who can demonstrate a justified interest in the survey and certification process and includes, inter alia, clients of the RO, shipowners, ship operators, shipbuilders, equipment manufacturers, shipping industry interests or associations, marine insurance interests or associations, trade associations, governmental regulatory bodies or other governmental services and non-governmental organizations.

1.6 *Location* is a place from which surveys are carried out and managed, or where plan approval is carried out, or from which processes are managed.

1.7 *Site* is the place at which a surveyor is based to cover a specific contract or a series of contracts including; but not limited to, a port, shipyard, firm, and company. All statutory certification and services at sites are to be controlled by a location.

1.8 A *Vertical Contract Audit (VCA)* is a contract/order specific audit of production processes, including witnessing work during attendance at a survey, audit or plan approval in progress and, as applicable, including relevant sub-processes. A VCA is carried out at a location or a site (Survey Station/Approval Office/Site) to verify the correct application of

relevant requirements in service realization for the specific work in that contract/order, and their interactions (relevant sub-processes include e.g. previous part surveys or UTM processes connected to the survey). Plan approval VCA may be carried out for completed tasks.

## **2 GENERAL REQUIREMENTS FOR RECOGNIZED ORGANIZATIONS**

### **2.1 General**

Delegation of authority by a flag State to an organization shall be subject to the confirmation of the capability of that organization to demonstrate that it has the capacity to deliver high standards of service and its compliance with the requirements of this Code and applicable national legislation.

### **2.2 Rules and regulations**

The RO shall establish, publish and systematically maintain its rules or regulations, a version of which shall be provided in the English language, for the design, construction and certification of ships and their associated essential engineering systems as well as provide for adequate research capability to ensure appropriate updating of the published criteria.

### **2.3 Independence**

The RO and its staff shall not engage in any activities that may conflict with their independence of judgement and integrity in relation to their statutory certification and services. The RO and its staff responsible for carrying out the statutory certification and services shall not be the designer, manufacturer, supplier, installer, purchaser, owner, user or maintainer of the item subject to the statutory certification and services, nor the authorized representative of any of these parties. The RO shall not be substantially dependent on a single commercial enterprise for its revenue.

### **2.4 Impartiality**

2.4.1 The personnel of ROs shall be free from any pressures, which might affect their judgement in performing statutory certification and services. Procedures shall be implemented to prevent persons or organizations external to the organization from influencing the results of services carried out.

2.4.2 All potential customers shall have access to statutory certification and services provided by the RO without undue financial or other conditions. The procedures under which the RO operates shall be administered in a non-discriminatory manner.

### **2.5 Integrity**

The RO shall be governed by the principles of ethical behaviour, which shall be contained in a Code of Ethics. The Code of Ethics shall recognize the inherent responsibility associated with a delegation of authority to include assurance of adequate performance of services.

### **2.6 Competence**

The RO shall perform statutory certification and services by the use of competent surveyors and auditors who are duly qualified, trained and authorized to execute all duties and activities incumbent upon their employer, within their level of work responsibility.

## **2.7 Responsibility**

The RO shall define and document the responsibilities, authorities, qualifications and interrelation of personnel whose work affects the quality of its services.

## **2.8 Transparency**

2.8.1 Transparency reflects the principle of access to, or disclosure of, all information related to the statutory certification and services carried out by the RO on behalf of a flag State.

2.8.2 The ROs shall communicate information to the flag State as described in the section on communication/cooperation with the flag State.

2.8.3 Information concerning the status of ships certified by ROs shall be made available to the public.

## **3 MANAGEMENT AND ORGANIZATION**

### **3.1 General**

The RO shall, based on the provisions of this Code, develop and implement a quality management system and shall continually improve its effectiveness.

### **3.2 Quality, safety and pollution prevention policy**

The RO shall define and document its policy and objectives for, and commitment to, quality, safety and pollution prevention. In particular, the RO's management shall:

- .1 ensure that the policy and objectives are established;
- .2 ensure the policy and objectives are appropriate for the purpose of the organization;
- .3 communicate the policy and objectives; including provisions applicable to the statutory certification and services, to the organization and ensure that it is understood within the organization;
- .4 ensure sufficient availability of resources;
- .5 include a commitment to comply with all applicable requirements and continually improve the effectiveness of the quality management system;
- .6 conduct management reviews; which includes a framework for reviewing quality objectives; and
- .7 review the quality policy, objectives and the quality management system for continuing suitability.

### **3.3 Documentation requirements**

3.3.1 The quality management system shall include the following documentation:

- .1 quality policy and quality objectives;
- .2 quality manual (refer to section 3.4);
- .3 procedures and records required by this Code and the national legislation of the recognizing flag State;
- .4 procedures to ensure the effective planning, operation, and control of the RO's processes;
- .5 rules and regulations as applicable to the RO's areas of authorization;
- .6 list of ships for which statutory certification and services are provided;
- .7 other documented process procedures that are considered necessary (these include any circulars or letters, which provide the surveyors and administrative staff with up-to-date information on classification, statutory and related matters);
- .8 specifications and diagrams defining or amplifying service processes; and
- .9 pro-forma reports, checklists and certificates appropriate to the activities covered by this certification.

3.3.2 The quality management system shall also include external documents, such as:

- .1 national and international standards necessary for the activities governed by this instrument;
- .2 IMO Conventions and resolutions;
- .3 national shipping regulations and standards appropriate to the authorization of the RO;
- .4 documents and data submitted to the RO for verification and/or approval; and
- .5 specified correspondence defined by the RO to be of an important nature.

### **3.4 Quality manual**

The RO shall establish and maintain a quality manual that includes:

- .1 scope of the quality management system, including details of, and justification for any exclusions;
- .2 management statement on its policy and objectives for, and commitment to, quality;

- .3 description of the RO's areas of activity and competence;
- .4 general information about the organization and its head office (name, address, phone number, etc., and legal status);
- .5 information on the RO's relationship to its parent or associated organizations (where applicable);
- .6 charts describing the organization's structure;
- .7 management statement assigning a person designated who is responsible for the organization's quality management system;
- .8 relevant job descriptions;
- .9 policy statement on qualification and training of personnel;
- .10 documented procedures established for the quality management system, or reference to them;
- .11 description of the interaction between processes of the quality management system; and
- .12 description of all other documents required by the quality management system.

### **3.5 Control of documents**

3.5.1 Documents required by the quality management system shall be controlled. The provision of document control shall apply to any type of document, including but not limited to; electronic media and IT applications where said electronic media may affect the reliability of the service or of the recorded data.

3.5.2 A documented procedure shall be established to define the controls needed to:

- .1 approve documents for adequacy prior to issue;
- .2 review and update as necessary and re-approve documents;
- .3 ensure that changes and the current revision status of documents are identified;
- .4 ensure that relevant versions of applicable documents are available at points of use;
- .5 ensure that documents remain legible and readily identifiable;
- .6 ensure that documents of external origin determined by the RO to be necessary for the planning and operation of the quality management system are identified and their distribution is controlled; and
- .7 prevent the unintended use of obsolete documents, and to apply suitable identification if they are retained for any purpose.

### **3.6 Control of records**

3.6.1 Records shall be established to provide evidence of conformity to requirements of this Code and of the effective operation of the quality management system. The records shall be controlled.

3.6.2 The RO shall establish a documented procedure to define the controls needed for the identification, storage, protection, retrieval, retention, and disposition of records. Records shall remain legible, readily identifiable and retrievable.

3.6.3 The RO shall ensure that records are maintained, demonstrating achievement of the required standards in the terms covered by the statutory certification and services performed as well as the effective operation of the quality management system. Records, other than those set out in 3.6.4.2, shall be retained at least for the period for which statutory certification and services are provided by the RO. Records specified in 3.6.4.2 for a ship shall be retained for a minimum period of three years beyond the period for which statutory certification and services are provided by the RO to that ship, or a longer period if specified in the agreement between the flag State and the RO.

3.6.4 Records shall include at least those relevant to:

- .1 rules and regulations development and associated research;
- .2 the application of the rules and regulations and statutory requirements through:
  - .1 verification and/or approval of documents and/or drawings relevant to the design;
  - .2 approval and survey of materials and equipment;
  - .3 survey during construction and installation;
  - .4 survey during service; and
  - .5 issuance of certificates;
- .3 the list of ships; and
- .4 all other records required by this quality management system and any additional requirements established by the recognizing flag State.

### **3.7 Planning**

3.7.1 The RO shall ensure that quality objectives, including those needed to meet the requirements for statutory certification and services are established at relevant functions and levels within the organization.

3.7.2 The quality objectives shall be measurable and consistent with the quality policy.

3.7.3 The RO shall in its planning consider the elements identified below, and use the result to evaluate the effectiveness of its standards and procedures and their impact on safety of life and property and the marine environment:



- .1 that the planning of the quality management system is carried out in order to meet the requirements of the mandatory IMO Instruments, including but not limited to this Code, its quality management system and the authorizing flag State's national legislation;
- .2 that the integrity of the quality management system is maintained when changes to the quality management system are planned and implemented;
- .3 that the needs and expectations of the customers and other interested parties are taken into account, e.g. feedback from IMO, flag States and industry associations;
- .4 the effectiveness of services based on statistics from port State control, casualties, loss trends and feedback obtained from internal and external users;
- .5 the performance of the quality management system processes based on feedback from internal audits, non-conformities and internal comments;
- .6 lessons learned from previous experience and deriving from an examination of survey reports, casualty investigations or external sources; and
- .7 other sources of information which identifies opportunities for improvement.

3.7.4 The RO shall identify and plan the processes required for the quality management system, and determine the sequence and interaction of these processes.

3.7.5 The RO shall determine the requirements to be complied with and the criteria to ensure both the operation and control of these processes, including the criteria for acceptance, and evaluate the resources needed.

3.7.6 The RO shall plan and develop the processes required for statutory certification and services. Planning of the delivery of statutory certification and services shall be consistent with the requirements of other processes of the quality management system.

3.7.7 In planning the delivery of statutory certification and services, the RO shall determine the following as appropriate:

- .1 quality objectives and requirements for statutory certification and services;
- .2 the need to establish processes and documents, and to provide resources specific to the activity;
- .3 required verification, validation, monitoring, measurement, inspection and test activities and the criteria for acceptance; and
- .4 records needed to provide evidence that statutory certification and services meet the quality management system requirements; the requirements set out in the Code and the national legislation of the recognizing flag State.

3.7.8 The output of this planning shall be in a form suitable for the RO's structure and method of operations. The output of the planning should consider:

- .1 responsibility and authority for developing improvement plans;
- .2 skills and knowledge needed;
- .3 improvement approaches, methodology and tools;
- .4 resource requirements;
- .5 alternative planning needs;
- .6 indicators for performance achievements; and
- .7 the need for documentation and records.

### **3.8 Organization**

3.8.1 The relative size, structure, experience, and capability of the RO shall be commensurate with the type and degree of the statutory certification and services authorized by the flag State.

3.8.2 The RO shall demonstrate that it has the technical, administrative, and managerial competence and capacity to ensure the provision of quality services in a timely manner.

3.8.3 The RO shall appoint a member of its management who, irrespective of other responsibilities, shall have responsibility and authority that includes:

- .1 ensuring that processes needed for the quality management system are established, implemented, and maintained;
- .2 ensuring that processes required for the effective delivery of statutory certification and services are established, implemented and maintained;
- .3 reporting to top management on the performance of the quality management system; the delivery of statutory certification and services and any need for improvement; and
- .4 ensuring the promotion of awareness of all requirements throughout the RO.

3.8.4 The RO shall ensure that the responsibilities and authorities are defined and communicated within the RO.

### **3.9 Communication**

#### **3.9.1 *Internal communication***

The RO shall ensure that appropriate communication processes are established within the RO and that communication takes place regarding the effectiveness of the quality management system and statutory certification and services provided.

### **3.9.2 *Communication/cooperation with flag State***

3.9.2.1 The RO shall establish appropriate communication processes with the authorizing flag State that, inter alia, address the following:

- .1 information specified by the flag State in terms of authorization;
- .2 classification of ships (assignments of class, changes and withdrawals), as applicable;
- .3 cases where a ship did not in all respects remain fit to proceed to sea without danger to the ship or persons on board or presenting unreasonable threat of harm to the marine environment;
- .4 information on all overdue surveys, overdue recommendations or overdue conditions of class, operating conditions or operating restrictions issued against their classed ships that shall be made available upon request by the authorizing flag State; and
- .5 other information as so specified by the authorizing flag State.

3.9.2.2 The RO shall allow participation in the development of its rules and/or regulations by the flag State.

3.9.2.3 The RO shall determine, propose and, if agreed by the flag State, implement effective arrangements for communicating with a flag State in relation to:

- .1 enquiries, contracts or other handling, including amendments; and
- .2 flag State feedback, including conformity issues pertaining to statutory certification and services.

### **3.9.3 *Cooperation between ROs***

3.9.3.1 Under the framework established by the flag State, the ROs shall cooperate and share relevant experience with other ROs with the view to standardizing processes concerning statutory certification and services for the flag State, as appropriate.

3.9.3.2 Under the framework established by a flag State or a group of flag States, the organizations recognized by this State or these States shall establish and maintain appropriate technical and safety-related cooperation processes regarding statutory certification and services of ships, which may affect the validity of certificates issued by other ROs either in whole or in part on behalf of the said flag State(s). Flag States shall seek to mutually cooperate in order to ensure, as far as practicable, the compatibility of their respective frameworks.

3.9.3.3 No flag State shall mandate its ROs to apply to ships, other than those entitled to fly its flag, any requirement pertaining to their classification rules, requirements, procedures or performance of other statutory certification processes, beyond convention requirements and the mandatory instruments of the IMO.

3.9.3.4 In cases of transfer of the certification of the ship from one RO to another, the losing organization shall, without undue delay, provide the gaining organization access to the history file of the ship including:

- .1 any overdue surveys;
- .2 any overdue recommendations and overdue conditions of class;
- .3 operating conditions issued against the ship;
- .4 operating restrictions issued against the ship; and
- .5 technical information, drawings, plans and documents taking into account the relevant guidelines developed by the Organization<sup>1</sup>.

3.9.3.5 New certificates for the ship can be issued by the gaining organization only after all overdue surveys have been satisfactorily completed and all overdue recommendations or overdue conditions of class previously issued in respect of the ship have been completed as specified by the losing organization.

3.9.3.6 Within one month from the issuance of the certificates, the gaining organization shall advise the losing organization of the date of issue of the certificates and confirm the date, place and action taken to satisfy each overdue survey, overdue recommendation and overdue condition of class.

3.9.3.7 ROs shall establish and implement appropriate common requirements concerning cases of transfer of the certification of a ship where special precautions are necessary. Those cases shall, as a minimum, include the certification of ships of 15 years of age or over and the transfer of a ship from an organization not recognized by the flag State of the ship.

### **3.10 Management review**

#### **3.10.1 General**

The management of an RO shall review its quality management system; including a review of the RO's performance of statutory certification and services, at planned intervals, which shall not exceed 13 months, to ensure its continuing suitability, adequacy, and effectiveness. This review shall include assessing opportunities for improvement and the need for changes to the quality management system, including the quality policy and quality objectives.

#### **3.10.2 Review input**

The input to management review shall include the following information:

- .1 results of audits;
- .2 feedback from interested parties;
- .3 process performance and consistency of compliance with statutory requirements;

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<sup>1</sup> MSC-MEPC.5/Circ.2 – *Guidelines for Administrations to ensure the adequacy of transfer of class-related matters between recognized organizations (ROs).*

- .4 status of preventive and corrective actions;
- .5 follow-up actions from previous management reviews;
- .6 changes that could affect the quality management system; and
- .7 recommendations for improvement.

Any output of management reviews containing information relevant to quality objectives, customer complaints and activity monitoring, throughout the RO, shall be used as input to the top management review.

### **3.10.3 Review output**

3.10.3.1 The output from management review shall include any decisions and actions related to:

- .1 improvement of the effectiveness of the quality management system and its processes;
- .2 improvement of services related to the requirements established in the authorization agreement; and
- .3 resource requirements.

3.10.3.2 Top management shall ensure that the results of the top management review of the quality management system, including the derived quality objectives, are documented and communicated throughout the organization, as appropriate.

3.10.3.3 Records from management reviews shall be maintained.

## **4 RESOURCES**

### **4.1 General**

4.1.1 The RO shall determine and provide the adequate resources in terms of technical, managerial and survey capabilities to accomplish the tasks being assigned and resources needed to implement the quality management system and to continually improve its effectiveness; and to enhance its performance in the delivery of statutory certification and services.

4.1.2 The RO shall be able to document extensive experience in assessing the design, construction and equipment of ships and the capability to effectively perform statutory certification and services on behalf of a flag State.

4.1.3 The RO shall have the capacity to:

- .1 provide for the publication and systematic maintenance of rules and/or regulations for the design, construction and certification of ships and their associated essential engineering systems as well as the provision of an adequate research capability to ensure appropriate updating of the published criteria. The RO is required to maintain an up-to-date version of this publication in the English language; and

- .2 allow participation in the development of its rules and/or regulations by representatives of the flag State and other interested parties.

## **4.2 Personnel**

4.2.1 The RO shall be equipped, at all times, with significant managerial, technical, support and research staff commensurate with the size of the fleet in its class, its composition and the organization's involvement in the construction, repair and conversion of ships. The RO shall be capable of assigning to every place of work, when and as needed, the means and staff commensurate with the tasks to be carried out in accordance with the requirements of this Code and those of the flag State.

4.2.2 The management of an RO shall have the competence, capability and capacity to organize, manage and control the performance of statutory certification and services in order to verify compliance with requirements relevant to the tasks delegated and shall, inter alia:

- .1 possess an adequate number of competent supervisory, technical appraisal and survey personnel;
- .2 develop and maintain appropriate procedures and instructions;
- .3 maintain up-to-date documentation on interpretation of the relevant instruments;
- .4 give technical and administrative support to field staff; and
- .5 review survey reports and plan approval letters for accuracy, compliance with requirements and to provide experience feedback for continual improvement.

4.2.3 The RO shall be established with a qualified staff to provide the required service representing an adequate geographical coverage and local representation as required.

4.2.4 The RO shall perform statutory certification and services by the use of only exclusive surveyors and auditors, being persons solely employed by the RO, duly qualified, trained and authorized to execute all duties and activities incumbent upon their employer, within their level of work responsibility. While still remaining responsible for the certification on behalf of the flag State, the RO may subcontract radio surveys to non-exclusive surveyors in accordance with section 5.9 of part 2 of this Code.

4.2.5 The RO's personnel performing and responsible for statutory certification and services shall have, as a minimum, the following formal education:

- .1 qualifications from a tertiary institution within a relevant field of engineering or physical science (minimum two-year programme); or
- .2 qualifications from a marine or nautical institution and relevant seagoing experience as a certificated ship officer, and
- .3 proficiency in the English language commensurate with the scope of statutory certification and services.

4.2.6 Other personnel assisting in the performance of statutory work shall have education, training and supervision commensurate with the tasks they are authorized to perform.

4.2.7 The RO shall have a documented system to track the qualifications of personnel; including continuous updating of their knowledge as appropriate to the tasks they are authorized to undertake. This system shall comprise appropriate training courses, including, inter alia, international instruments and appropriate procedures related to the delivery of statutory certification and services, as well as practical tutored training; it shall provide documented evidence of satisfactory completion of the training. As a minimum, the provisions in appendices 1 and 2 shall be met.

### **4.3 Infrastructure**

4.3.1 The RO shall determine, provide, and maintain the infrastructure required to perform statutory certification and services in accordance with the requirements of the mandatory IMO instruments. Infrastructure includes, as applicable:

- .1 building, workspaces and associated utilities;
- .2 process equipment (both hardware and software); and
- .3 supporting services, including but not limited to transport, communication, training and information systems.

4.3.2 Systems (hardware and software) provided to the surveyor shall be identified and relevant training on their use shall be carried out and documented. Special consideration should be given to the situation where a surveyor is working out of a home-based office.

### **4.4 Work environment**

4.4.1 The RO shall be satisfied that the work environment is safe and effective to perform statutory certification and services. While it is understood that such environmental conditions are not provided by the RO, the environmental conditions under which the survey will be permitted to take place shall be made clear to the customer prior to survey commencing.

4.4.2 The RO shall determine the necessary working procedures required to perform statutory certification and services safely and effectively. Training of staff on personal safety shall be carried out and documented.

4.4.3 Requirements for personal protective equipment to be used while performing statutory certification and services and procedures for personal safety of surveyors at work shall be established and documented.

## **5 STATUTORY CERTIFICATION AND SERVICES PROCESSES**

### **5.1 General**

It should be recognized that statutory certification and services are service delivery development processes for flag State and RO compliance verification activities rather than the design process for a ship or its equipment.

## **5.2 Design and development**

5.2.1 The RO shall plan and control the design and development of statutory certification and services processes. During the design and development planning, the organization shall determine:

- .1 the design and development stages;
- .2 the review, verification and validation that are appropriate to each service design and development stage; and
- .3 the responsibilities and authorities for design and development.

5.2.2 The RO shall allow participation in the development and review of its rules, procedures and/or regulations, specifically in the review process prior to finalization, by representatives of the flag State and interested parties.

5.2.3 The RO shall include in its rules and/or procedures:

- .1 requirements specified and communicated to ROs by the flag State, specifically for statutory certification and services<sup>2</sup>;
- .2 requirements not stated by the flag State but necessary for specified or intended use, as determined by the RO.

5.2.4 Implementation of requirements may be in the form of adoption into the RO's internal requirements or by use of the original documents from IMO or the flag State.

5.2.5 The RO shall not issue statutory certificates to a ship, irrespective of its flag, which has been declassified or is changing class for safety reasons, before giving the opportunity to the competent Administration of the flag State to give its opinion within a reasonable time as to whether a full inspection is necessary.

## **5.3 Design and development inputs**

5.3.1 Inputs relating to service requirements shall be determined and records maintained.

These inputs shall include:

- .1 applicable statutory and regulatory requirements;
- .2 where applicable, information derived from previous similar designs;
- .3 other requirements essential for design and development, such as functional and performance requirements; and
- .4 in-service experience with ships and mobile offshore drilling units obtained from within the RO itself and external sources.

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<sup>2</sup> Refer to the *Code for the implementation of mandatory IMO instruments, 2011*, adopted by resolution A.1054(27), as may be amended.



5.3.2 The inputs shall be reviewed for adequacy. Requirements shall be complete, unambiguous and not in conflict with each other.

#### **5.4 Design and development outputs**

At suitable stages, systematic reviews of design and development of rules and standards shall be performed in accordance with planned arrangements to evaluate the ability of the results to meet requirements; and to identify any problems and propose necessary actions.

#### **5.5 Design and development verification**

Verification shall be performed in accordance with planned arrangements to ensure that the design and development outputs have met the design and development input requirements. Records of the results of the verification and any necessary actions shall be maintained.

#### **5.6 Control of design and development changes**

Design and development changes shall be identified and records maintained. The changes shall be reviewed, verified and validated, as appropriate, and approved before implementation. The review of the design and development changes shall include evaluation of the effect of the changes on the constituent parts and product already delivered. Records of the results of the review of changes and any necessary actions shall be maintained.

#### **5.7 Control of production and service provisions**

5.7.1 The RO shall ensure that all statutory certification and services are carried out under controlled conditions.

5.7.2 Controlled conditions shall include, as applicable:

- .1 the availability of information that describes the status and condition of ships surveyed and certified;
- .2 the availability of rules, regulations, work instructions, and other applicable standards, as necessary;
- .3 the use of suitable equipment;
- .4 the availability and use of monitoring and measuring equipment;
- .5 the implementation of monitoring and measurement;
- .6 the implementation of controls to ensure the accuracy of survey reports and certificates both before and after issuance; and
- .7 a safe work environment.

5.7.3 An RO shall conduct the statutory certification and services of the ship in conformity with all relevant international requirements and the requirements of this Code. When accepting a ship on behalf of the flag State that was constructed originally without a known flag State the RO shall verify that the ship complies with national requirements of that flag State prior to certification.

## **5.8 Property of clients**

The RO shall identify, verify, protect and safeguard property provided by the clients for performance of statutory certification and services. If property is lost, damaged or otherwise found to be unsuitable for use, the RO shall report this to the property owner and maintain relevant records.

## **5.9 Subcontracting and service suppliers**

5.9.1 Where an RO chooses to outsource any service that affects conformity to requirements or accepts work of a third party approved by the RO, the RO shall ensure that it fully controls the performance of such services. The flag State may increase the scope of control to be applied to these outsourced services. The process for outsourcing shall be defined within the RO's quality management system. For the purpose of accountability to the flag State, the work performed by the sub-contracted organization or service supplier constitutes the work of the RO and shall be subject to the requirements incumbent upon the RO under this Code.

5.9.2 Firms providing services on behalf of the owner of a ship or a mobile offshore drilling unit, the results of which are used by the RO in making decisions affecting the statutory certification and services shall be subject to approval and control by either the flag State or the RO in accordance with the procedures under their respective quality management system or the flag State requirements.

## **5.10 Control of monitoring and measuring devices**

5.10.1 The RO shall determine the monitoring and measurement to be undertaken and the monitoring and measurement equipment needed to provide evidence of conformity to the applicable requirements.

5.10.2 The RO shall establish processes to ensure that monitoring and measurement can be carried out in a manner that is consistent with the monitoring and measurement requirements.

5.10.3 Where necessary to ensure valid results, measuring equipment shall:

- .1 be calibrated or verified, or both, at specified intervals, or prior to use, against measurement standards traceable to international or national measurement standards; where no such standards exist, the basis used for calibration or verification shall be recorded;
- .2 be adjusted or re-adjusted as necessary;
- .3 have identification in order to determine its calibration status;
- .4 be safeguarded from adjustments that would invalidate the measurement result; and
- .5 be protected from damage and deterioration during handling, maintenance, and storage.

5.10.4 The RO shall assess and record the validity of previous measuring results when the equipment is found not to conform to requirements. The RO shall take appropriate action on the equipment affected. Records of results of calibration and verification shall be maintained.

5.10.5 When used in monitoring and measurement of specific requirements, the ability of computer software to satisfy the intended application shall be confirmed. This shall be undertaken prior to initial use and reconfirmed as necessary.

5.10.6 Where an RO is verifying testing at manufacturers, builders, repairers or owners premises and reporting the same, the RO shall ensure that the measuring devices used in the process are identified and that evidence of calibration is obtained. Where an RO is witnessing testing of service equipment installed or available on board a ship, a means shall be established so that the RO is satisfied as to the appropriate accuracy of the measuring equipment.

### **5.11 Complaints**

The RO shall have a documented process to address complaints related to statutory certification and services.

### **5.12 Appeals**

The RO shall have a documented process to address appeals related to statutory certification and services in accordance with the requirements of the flag State.

## **6 PERFORMANCE MEASUREMENT, ANALYSIS AND IMPROVEMENT**

### **6.1 General**

6.1.1 The RO shall plan and implement the monitoring, measurement, analysis and improvement processes needed to demonstrate conformity to statutory certification and services requirements, to ensure conformity of the quality management system, and to continually improve the effectiveness of the quality management system. This shall include the determination of applicable methods, including statistical techniques, and the extent of their use. The measurements employed by the RO shall be reviewed periodically, and data shall be verified on a continual basis for accuracy and completeness.

6.1.2 The RO shall develop key performance indicators with respect to the performance of statutory certification and services.

### **6.2 Internal audit**

6.2.1 The RO shall implement an audit programme; including the completion of internal audits at planned intervals to determine whether the authorized activity conforms to the planned arrangements and that the quality management system is effectively implemented and maintained, and that a supervisory system is in place, which monitors statutory certification and services.

6.2.2 The audit programme shall take into consideration the status and importance of the processes and areas to be audited, as well as the results of previous audits, flag State feedback, complaints and appeals including port State and flag State inspections. When planning the internal audits, consideration shall be given to complaints received in the past (either related to the location or in general) and to the results of previous internal audits and to the operation of the locations.

6.2.3 The RO shall define the audit criteria, scope, frequency, and methods. Auditors shall be suitably qualified and selected in order to ensure objectivity and impartiality of the audit process. Auditors shall not audit their own work. The audit scope shall cover the processes for the statutory certification and services at various locations with a focus on verification of the efficient and effective implementation of the quality management system and applicable work processes at the individual location. The audit periods, which may be established according to the findings, shall ensure that each location is audited at least once per three years. Audits at locations shall also include visits to selected sites, which operate under the control of the location.

6.2.4 A documented procedure shall be established to define the responsibilities and requirements for planning and conducting audits, establishing records and reporting results. Records of audits and their results shall be maintained.

6.2.5 The management responsible for the area being audited shall ensure that any necessary corrections and corrective actions are taken without undue delay to eliminate detected nonconformities, observations (potential non-conformities) and their root causes.

### **6.3 Vertical Contract Audit**

6.3.1 The RO shall carry out Vertical Contract Audits annually for each of the following processes:

- .1 plan approval;
- .2 new construction survey;
- .3 in-service periodical survey/audit; and
- .4 type approval (where applicable) or survey of other materials and equipment.

6.3.2 Evidence of completion of VCAs and findings thereof, shall be formally recorded.

### **6.4 Monitoring and measurement of processes**

6.4.1 The RO shall apply suitable methods for monitoring, including a supervisory system that monitors the work activities carried out, and where applicable, measurement of the quality management system processes. These methods shall demonstrate the ability of the processes to achieve sustained compliance with the requirements of this Code and the agreement with the flag State, in particular that:

- .1 the RO's rules and/or regulations are complied with; and
- .2 the requirements of the statutory certification and services are satisfied.

6.4.2 When planned results are not achieved, correction and corrective action shall be taken, as appropriate.

6.4.3 The implemented methods should consider issues such as, but not limited to:

- .1 port State control detentions;
- .2 casualties; and
- .3 rework of plan approval letters and survey reports.

## **6.5 Control, monitoring and measurement of non-conformities, including statutory deficiencies**

6.5.1 The RO shall monitor and measure the service delivery with statutory requirements and the RO's rules to verify that all requirements have been met. This shall be carried out at appropriate stages of the statutory certification and services process in accordance with the planned arrangements. Evidence of conformity with the statutory requirements and RO rules shall be maintained. Records shall indicate the person(s) approving or verifying compliance with the statutory requirements and the RO's rules.

6.5.2 The RO shall make provisions to ensure that non-conformities are identified and controlled. The controls and related responsibilities and authorities for dealing with non-conformities shall be defined in a documented procedure.

6.5.3 Where applicable, the RO shall deal with a non-conformity by one or more of the following ways:

- .1 by taking action to eliminate the detected non-conformity;
- .2 by authorizing its use, release or acceptance under the terms determined by the flag State;
- .3 when accepting with or without correction by exemption or equivalence, consideration should be given to the non-conformities with rules and regulations or statutory requirements during:
  - .1 drawing approval,
  - .2 survey of materials and equipment,
  - .3 survey during construction and installation,
  - .4 survey during service;
- .4 by taking action to preclude its original intended use or application; and
- .5 by taking action appropriate to the effects, or potential effects, of the non-conformity when a non-conformity is detected.

6.5.4 When a non-conformity is corrected, it shall be subject to reverification to demonstrate conformity to the requirements.

6.5.5 Records of the nature of non-conformities and any subsequent actions taken, including exemption or equivalences obtained, shall be maintained.

6.5.6 The RO shall comply with the instructions of the flag State detailing actions to be followed in the event that a ship is found not fit to proceed to sea without danger to the ship or persons on board, or presenting unreasonable threat of harm to the marine environment.

6.5.7 The ROs shall cooperate with port State control Administrations where a ship to which the RO issued the certificates is concerned, in particular, in order to facilitate the rectification of reported deficiencies or other discrepancies.

6.5.8 The RO responsible for issuing the relevant certificate shall, upon receiving a report of an accident or discovering a defect to a ship which affects the safety of the ship or the efficiency or completeness of its life saving appliances or other equipment, cause investigations to be initiated to determine whether a survey is necessary.

## **6.6 Improvement**

### **6.6.1 General**

The RO shall continually improve the effectiveness of its quality management system through the use of the quality policy, quality objectives, audit results, analysis of data, corrective and preventive actions and management review.

### **6.6.2 Data analysis**

6.6.2.1 The objective of data analysis is to determine the cause of problems to guide effective corrective and preventive action. The RO shall:

- .1 analyse data from various sources to assess performance against plans and goals and to identify areas for improvement;
- .2 make use of statistical methodologies for data analysis, which can help in assessing, controlling, and improving performance of processes; and
- .3 analyse the product requirements, as well as analysis of relevant processes, operations and quality records.

6.6.2.2 Information and data from all parts of the RO shall be integrated and analysed to evaluate the overall performance of the quality management system.

6.6.2.3 The results of analysis shall be documented and used to determine:

- .1 trends;
- .2 operational performance;
- .3 customer satisfaction and/or dissatisfaction through complaints or other quality indicators (PSC detentions, flag State non-conformities, etc.);
- .4 effectiveness and/or efficiency of processes; and
- .5 performance of suppliers.

### **6.6.3 Sources of information**

The RO shall identify sources of information and establish processes for collection of information for planning continual improvement, corrective and preventive actions. Such information shall include, inter alia:

- .1 customer complaints;
- .2 non-conformance reports;

- .3 outputs from management reviews;
- .4 internal audit reports;
- .5 outputs from data analysis;
- .6 relevant records;
- .7 outputs from customer feedback and satisfaction measurements;
- .8 process measurements;
- .9 results of self-assessment; and
- .10 in-service experience.

#### **6.6.4 Corrective action**

6.6.4.1 The RO shall without undue delay take action to eliminate the causes of non-conformities in order to prevent recurrence. Corrective actions shall be appropriate to the effects of the non-conformities encountered and address all actual or potential effects of these.

6.6.4.2 A documented procedure shall be established to define requirements for:

- .1 reviewing non-conformities (including complaints);
- .2 determining the cause of non-conformities;
- .3 evaluating the need for action to ensure that non-conformities do not recur;
- .4 determining and implementing action needed;
- .5 records of the results of action taken; and
- .6 reviewing the effectiveness of the corrective action taken.

#### **6.6.5 Preventive action**

6.6.5.1 The RO shall take action to identify and eliminate the causes of potential non-conformities in order to prevent their occurrence. Preventive actions shall be appropriate to the nature and effects of the potential problems.

6.6.5.2 A documented procedure shall be established to define requirements for:

- .1 determining potential non-conformities and their causes;
- .2 evaluating the need for action to prevent occurrence of non-conformities;
- .3 determining and implementing action needed;
- .4 records of results of action taken; and
- .5 reviewing the effectiveness of the preventive action taken.

6.6.5.3 Examples of such methodologies may include risk analyses, trend analyses, statistical process control, fault-tree analyses, failure modes and effects and criticality analyses.

## **7 QUALITY MANAGEMENT SYSTEM CERTIFICATION**

7.1 The RO shall develop, implement and maintain an effective internal quality management system that complies with the requirements of this Code and is based on appropriate parts of internationally recognized quality standards no less effective than the ISO 9000 series.

7.2 The RO's quality management system shall be periodically assessed and certified in accordance with the applicable international quality standards by a qualified body, accredited to comply with ISO/IEC 17021:2006 standard by an accreditation body that is signatory to the International Accreditation Forum (IAF) Multinational Recognition Agreement (MRA), recognized by the flag State as having the necessary governance and competences to act independently of the ROs or their associations and having the necessary means to carry out its duties effectively and to the highest professional standards, safeguarding the independence of the persons performing them.

7.3 In pursuance of continually improving RO and flag State services, IMO endeavours to closely monitor the certification and audit process of the RO and its implementation to ensure its continued relevance and validity to the maritime industry in general and to the ROs, in particular. IMO will establish the working methods and rules of procedure for such monitoring.

## **8 AUTHORIZATION OF RECOGNIZED ORGANIZATIONS**

### **8.1 General**

Under the provisions of regulation I/6 of SOLAS 1974, article 13 of LL 66, regulation 6 of MARPOL Annex I and regulation 8 of MARPOL Annex II and article 6 of TONNAGE 69, a flag State may authorize an RO to act on its behalf in statutory certification and services and determination of tonnages only to ships entitled to fly its flag as required by these conventions. Such authorizations shall not require ROs to perform actions that impinge on the rights of another flag State.

### **8.2 Legal basis of the functions under authorization**

The flag State shall establish the legal basis under which the authorization of statutory certification and services is administered. The following items shall be considered:

- .1 the formal written agreement with the RO;
- .2 acts, regulations and supplementary information;
- .3 interpretations; and
- .4 deviations and equivalent solutions.



### **8.3 Specification of authorization**

The flag State shall specify the scope of authorization granted to an RO. The following specifications shall be considered:

- .1 ship types and sizes;
- .2 conventions and other instruments, including relevant national legislation;
- .3 approval of drawings;
- .4 approval of materials and equipment;
- .5 surveys, audits, inspections;
- .6 issuance, endorsement and/or renewal of certificates;
- .7 corrective actions;
- .8 withdrawal or cancellation of certificates; and
- .9 reporting requirements.

### **8.4 Resources**

The flag State shall ensure that an RO has adequate resources in terms of technical, managerial and research capabilities to accomplish the tasks being assigned, in accordance with the minimum standards for ROs acting on behalf of the flag State set out in part 2 of this Code.

### **8.5 Instruments**

The flag State shall provide the RO with access to all appropriate instruments of national law giving effect to the provisions of the conventions, notify the RO of any additions, deletions or revisions thereto in advance of their effective date and specify whether the flag State's standards go beyond convention requirements in any respect.

### **8.6 Instructions**

8.6.1 The flag State shall issue specific instructions detailing the procedures to be followed in carrying out statutory certification and services, and actions to be followed in the event that a ship is found not fit to proceed to sea without danger to the ship or persons on board, or presenting unreasonable threat of harm to the marine environment.

8.6.2 Flag States shall ensure by appropriate means that ROs cooperate with each other in accordance with the provisions of this Code.

### **8.7 Records**

The flag State shall specify that the RO maintain records, which can provide the flag State with data to assist in interpretation of convention regulations.

## PART 3

### OVERSIGHT OF RECOGNIZED ORGANIZATIONS

#### 1 PURPOSE

Part 3 of the RO Code provides guidance on flag State's oversight of ROs authorized to perform statutory certification and services on its behalf. Part 3 also provides guidance on the principles of oversight that may include ship inspection, auditing, and monitoring activities.

#### 2 SCOPE

Part 3 of the RO code is applicable to all flag States that have authorized ROs to perform statutory certification and services. Part 3 includes flag State oversight provisions and provides guidance, which is non-mandatory, to assist flag States in the development and implementation of an effective oversight programme of ROs.

#### 3 REFERENCES

The following documents are referenced:

- .1 mandatory IMO instruments;
- .2 ISO 9000:2005, Quality Management Systems – Fundamentals and vocabulary;
- .3 ISO 9001:2008, Quality Management Systems – Requirements;
- .4 ISO/IEC 17020:1998, General Criteria for the operation of various types of bodies performing inspection;
- .5 ISO 19011:2002, Guidelines for quality and/or environmental management systems auditing; and
- .6 national legislation.

#### 4 TERMS AND DEFINITIONS

4.1 *Audit* means a systematic, independent, and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which the audit criteria are fulfilled. Auditing is characterized by reliance on a number of principles. These make the audit an effective and reliable tool in support of management policies and controls, providing information on which an RO can act to improve its performance. Adherence to these principles is a prerequisite for providing audit conclusions that are relevant and sufficient and for enabling auditors working independently from one another to reach similar conclusions in similar circumstances.

4.2 *Audit criteria* means a set of policies, procedures or requirements.

4.3 *Audit evidence* means records, statements of fact, or other information, which are relevant to the audit criteria and verifiable. Audit evidence may be qualitative or quantitative.

4.4 *Audit findings* means results of the evaluation of the collected audit evidence against audit criteria. Audit findings can indicate conformity, observation (potential non-conformity) or non-conformity with audit criteria or opportunities for improvement.

4.5 *Audit conclusion* means an outcome of an audit, provided by the audit team, after consideration of the audit objectives and all audit findings.

4.6 *Audit client* means an organization or person requesting an audit.

4.7 *Auditee* is an organization recognized by a flag State that may be subject to an audit by the authorizing flag State.

4.8 *Auditor* means a person with the competence to conduct an audit.

4.9 *Audit team* means one or more auditors conducting an audit, supported if required by technical experts.

4.10 *Technical expert* means a person who provides specific knowledge or expertise to the audit team.

4.11 *Audit programme* means a set of one or more audits planned for a specific period and directed towards a specific purpose. An audit programme includes all activities necessary for planning, organizing, and conducting the audits.

4.12 *Audit plan* means a description of the activities and arrangements for an audit.

4.13 *Audit scope* means extent and boundaries of an audit. The audit scope generally includes a description of the physical locations, organizational units, activities and processes, as well as the time period covered.

4.14 *Competence* means demonstrated personal attributes and demonstrated ability to apply knowledge and skills.

4.15 *Oversight* means any activity by a flag State carried out to assure an RO's service complies with IMO and national requirements of the recognizing flag State.

4.16 *Monitoring* means any activity by a flag State where a flag State witnesses services by an RO or reviews documentation used by the RO and which is carried out to assure that RO services are in compliance with IMO and national requirements. Monitoring may be considered as a component of oversight.

## **5 ESTABLISHING AN OVERSIGHT PROGRAMME**

### **5.1 Oversight**

The flag State should establish or participate in an oversight programme with adequate resources for monitoring of, and communication with, its RO(s) in order to ensure that its international obligations are fully met, by:

- .1 exercising its authority to conduct supplementary surveys to ensure that ships entitled to fly its flag in fact comply with the requirements of the applicable international instruments;

- .2 conducting supplementary surveys as it deems necessary to ensure that ships entitled to fly its flag comply with national requirements, which supplement the international mandatory requirements; and
- .3 providing staff who have a good knowledge of the rules and regulations of the flag State and the ROs and who are available to carry out effective oversight of the ROs.

## **5.2 Flag State's supervision of duties delegated to an RO**

The flag State's supervision of duties delegated to an RO should consider, inter alia, the following:

- .1 documentation of the RO's quality management system;
- .2 access to internal instructions, circulars and guidelines;
- .3 access to the RO's documentation relevant to the flag State's fleet;
- .4 cooperation with the flag State's inspection and verification work; and
- .5 provision of information and statistics; such as, but not limited to, damage and casualties relevant to the flag State's fleet.

## **5.3 Verification and monitoring**

The flag State should establish a system to ensure the adequacy of statutory certification and services provided. Such a system should, inter alia, include the following items:

- .1 procedures for communication with the RO;
- .2 procedures for reporting to the flag State by the RO and the processing of such reports by the flag State. The following reporting requirements should be considered:
  - .1 the RO should notify the flag State immediately upon becoming aware of a situation involving a major deficiency, or serious safety-related issue, that would normally be considered sufficient to detain a ship from proceeding to sea pending correction;
  - .2 the RO should notify the flag State(s) immediately upon becoming aware of a situation aboard ship or within a company involving a major non-conformity, as defined in the *Guidelines on the Implementation of the International Safety Management (ISM) Code by Administrations* (resolution A.1022(26), as amended);
  - .3 the notification above should contain the name of the company or ship, the IMO number, the official number, if applicable, and a description of the major non-conformity, deficiency or issue;
  - .4 the RO should inform the flag State, as soon as possible, of any dangerous occurrences, accidents, machinery or structural breakdowns, or failures that they are aware of on a ship; and

- .5 the RO should report to the flag State in writing the names and official numbers, if applicable, of any ships removed from the RO's list of classed/certified ships for which the RO has performed statutory certification and services. The report should contain a description of the reason(s) for removal from class, and this should be made within thirty (30) days of the removal becoming effective;
- .3 additional ship's inspections by the flag State;
- .4 appropriate technical and/or safety related consultations between ROs regarding statutory certification and services, which may affect the validity of certificates issued either in whole or in part on behalf of the flag State(s);
- .5 the flag State's evaluation/acceptance of the certification of the RO's quality management system by an independent body of auditors accepted by the flag State;
- .6 monitoring and verification of statutory certification and services, which contribute either in whole or in part to compliance with a mandatory IMO instrument. The flag State should consider the implementation of the following:
  - .1 flag State's oversight of RO quality management systems;
  - .2 observation of or systematic review of reports of the quality management system audits conducted by other qualified persons or organizations external to and independent of the RO;
  - .3 verification and inspection of ships that are subject to statutory certification and services; and
  - .4 complaint and feedback system and corrective action follow-up;
- .7 a flag State accepting ships constructed without its involvement should establish that an RO conducting statutory certification and services of the ship conforms to this Code; and
- .8 for ships constructed without an identified flag State, the flag State specific requirements should be verified prior to certification.

## **6 PRINCIPLES OF AUDITING**

6.1 The flag State should be satisfied that the RO has an effective quality management system in place. The flag State may rely upon the audits carried out by an accredited certification body or equivalent organizations. Intergovernmental cooperation in establishing common auditing practices is encouraged.

6.2 A flag State auditor should advance the following principles:

- .1 ethical conduct: the foundation of professionalism. Trust, integrity, confidentiality and discretion are essential to auditing;
- .2 fair presentation: the obligation to report truthfully and accurately. Audit findings, audit conclusions, and audit reports reflect truthfully and accurately the audit activities. Significant obstacles encountered during the

audit and unresolved diverging opinions between the audit team and the auditee are reported; and

- .3 due professional care: the application of diligence and judgment in auditing. Auditors exercise care in accordance with the importance of the task they perform and the confidence placed in them by audit clients and other interested parties. Having the necessary competence is an important factor.

6.3 Further principles relate to the audit, which is by definition independent and systematic.

- .1 independence: the basis for the impartiality of the audit and objectivity of the audit conclusions. Auditors are independent of the activity being audited and are free from bias and conflict of interest. Auditors maintain an objective state of mind throughout the audit process to ensure that the audit findings and conclusions will be based only on the audit evidence;
- .2 evidence-based approach: the rational method for reaching reliable and reproducible audit conclusions in a systematic audit process. Audit evidence is verifiable. It is based on samples of the information available, since an audit is conducted during a finite period of time and with finite resources. The appropriate use of sampling is closely related to the confidence that can be placed in the audit conclusions.

6.4 The guidance given in this Code is based on the principles set out above.

## **7 MANAGING AN OVERSIGHT PROGRAMME**

### **7.1 General**

7.1.1 The flag States are required to verify that the organizations recognized to perform statutory certification and services on their behalf fulfil the requirements of this Code. The purpose of this verification is to ensure that the RO is performing its statutory certification and service in compliance with this Code and its agreement with the flag State.

7.1.2 The flag State should develop, implement, and manage an effective oversight programme of the ROs that act on its behalf.

7.1.3 An oversight programme should include various monitoring activities, which may inter alia consist of audits, inspections and audit observations (potential non-conformities). The flag States' oversight programme of their ROs should be developed after carefully assessing the factors associated with the RO as well as the extent of access to the RO's records of statutory certification and services that are made available to the flag State. The programme should also consider the delivery of statutory certification and services with respect to the provisions of the Conventions and with respect to the national requirements and instructions published by the flag State. Factors should include:

- .1 the scope and frequency of high level audits of the RO carried out by flag States and independent accredited bodies, and of internal audits carried out by the RO;
- .2 the extent to which audit findings, observations (potential non-conformities) and corrective actions are made available to the flag State;

- .3 the extent to which remote monitoring of the RO can be undertaken by the flag State which can manifest itself in several different ways depending on the scope of information that is electronically available to the flag State. Remote monitoring can include:
  - .1 review of the contents of survey reports associated with statutory certificates issued by the RO;
  - .2 review of the effectiveness of the control and rectification of deficiencies and outstanding requirements within the deadlines established by the flag State through the RO; and
  - .3 review of the RO's country-specific instructions to determine that the flag State's national requirements are properly and completely addressed by the RO;
- .4 flag State inspections carried out on board ships to check the end-result of the certification process, with a specific interest in their national requirements and/or implementation of instructions issued to the RO; and
- .5 port State control detentions and deficiencies allocated to the responsibility of the RO.

7.1.4 An oversight programme should also include all activities necessary for planning and organizing the types and number of monitoring activities, and for providing resources to conduct them effectively and efficiently within the specified periods.

7.1.5 Those assigned the responsibility for managing the oversight programme should:

- .1 establish, implement, monitor, review and improve the oversight programme; and
- .2 identify the necessary resources and ensure they are available and provided, as required.

7.1.6 An oversight programme should also include planning, the provision of resources and the establishment of procedures to conduct monitoring activities within the programme.

## **7.2 Oversight programme objectives and extent**

### **7.2.1 Objectives of an oversight programme**

7.2.1.1 The flag State should establish objectives for an oversight programme, to direct the planning and conduct of monitoring activities.

7.2.1.2 The following objectives should be considered:

- .1 management priorities;
- .2 flag State intentions;
- .3 flag State system requirements;

- .4 statutory, regulatory and contractual requirements;
- .5 need for ROs to be evaluated;
- .6 flag State, ROs, and other requirements;
- .7 needs of other interested parties; and
- .8 risks to the flag State.

## **7.2.2 Extent of an oversight programme**

7.2.2.1 The flag State's oversight programme should reflect the size, nature and complexity of the flag State's authorization programme, as well as the following factors:

- .1 the scope, objective and duration of monitoring activities to be conducted;
- .2 the frequency of monitoring activities to be conducted;
- .3 the number, importance, complexity, similarity, and locations of the ROs;
- .4 standards, statutory, regulatory, and contractual requirements and other monitoring criteria;
- .5 the need for accreditation or registration/certification of ROs;
- .6 conclusions of previous monitoring activities;
- .7 the concerns of interested parties; and
- .8 significant changes to an RO or its operations.

7.2.2.2 A flag State may enter into a written agreement to participate in combined monitoring/oversight activities with another flag State or States that have authorizations with the same RO provided that the level of detail regarding individual flag State requirements and individual flag State performance are addressed at a level equivalent to an oversight programme conducted by each of the individual flag State. Conversely no flag State may be compelled by another flag State or organization to accept oversight of an RO by others in lieu of conducting its own individual flag State oversight unless it so elects by written agreement or is so provided in the law of that State. A copy of all such agreements should be submitted to IMO for the information of the Member States.

## **7.3 Oversight programme responsibilities, resources and procedures**

### **7.3.1 Oversight programme responsibilities**

7.3.1.1 The flag State is responsible for managing its oversight programme. The flag State should utilize competent individuals that have an understanding of the oversight requirements, audit principles, and the application of audit techniques. They should have management skills as well as technical and business understanding relevant to the activities to be monitored.



7.3.1.2 Those assigned the responsibility for managing the oversight programme should:

- .1 establish the objectives and extent of the oversight programme;
- .2 establish the responsibilities and procedures, and ensure resources are provided;
- .3 ensure the implementation of the oversight programme;
- .4 ensure that appropriate oversight programme records are maintained; and
- .5 monitor, review and improve the oversight programme.

### **7.3.2 Oversight programme resources**

When identifying resources for the oversight programme, the flag State should consider the following:

- .1 financial resources necessary to develop, implement, manage, and improve oversight activities;
- .2 auditing techniques;
- .3 processes to achieve and maintain the competence of staff, and to improve oversight performance;
- .4 the availability of staff and technical experts having competence appropriate to the particular oversight programme objectives;
- .5 the extent of the oversight programme; and
- .6 travelling time, accommodation and other oversight needs.

### **7.3.3 Oversight programme procedures**

7.3.3.1 The flag State's oversight programme procedures should address the following:

- .1 planning and scheduling of oversight activities;
- .2 assuring the competence of assigned personnel;
- .3 selecting appropriate personnel and assigning their roles and responsibilities;
- .4 conducting monitoring activities;
- .5 conducting follow-up, if applicable;
- .6 maintaining oversight programme records;
- .7 monitoring the performance and effectiveness of the oversight programme; and
- .8 reporting on the overall achievements of the oversight programme.

7.3.3.2 For flag States with a limited authorization programme, the activities above may be addressed in a single procedure.

#### **7.3.4 Oversight programme implementation**

The implementation of a flag State oversight programme should include the following factors:

- .1 communicating the objectives of the oversight programme to relevant parties;
- .2 coordinating and scheduling monitoring activities relevant to the oversight programme;
- .3 establishing and maintaining a process for the evaluation of assigned personnel and their continual professional development;
- .4 selecting and appointing assigned personnel;
- .5 providing necessary resources to the oversight programme, specifically the corresponding monitoring activities;
- .6 robust execution of monitoring activities according to the oversight programme;
- .7 ensuring the control of records of the monitoring activities;
- .8 ensuring review and approval of monitoring activity reports, and ensuring their distribution to interested parties; and
- .9 ensuring follow-up, if applicable.

#### **7.3.5 Oversight programme records**

7.3.5.1 The flag State's monitoring records should be maintained to demonstrate the implementation of the oversight programme and should include the following:

- .1 all records related to monitoring activities, such as:
  - .1 plans;
  - .2 reports;
  - .3 non-conformity reports;
  - .4 corrective and preventive action reports, and
  - .5 follow-up reports, if applicable;
- .2 results of oversight programme review; and
- .3 records related to personnel covering subjects, such as:
  - .1 assigned personnel competence and performance evaluation;

- .2 monitoring and/or audit team selection; and
- .3 maintenance and improvement of competence.

7.3.5.2 Records should be retained and suitably safeguarded.

#### **7.4 Oversight programme monitoring and reviewing**

7.4.1 The implementation of a flag State oversight programme should be monitored and, at appropriate intervals, reviewed to assess whether its objectives have been met and to identify opportunities for improvement.

7.4.2 The flag State should develop and use performance indicators to monitor the effectiveness of its oversight programme for ROs. The following factors should be considered:

- .1 the ability of assigned personnel to implement the oversight plan;
- .2 conformity with the requirements of the RO Code, monitoring activities, and schedules; and
- .3 feedback from clients, ROs and assigned personnel.

7.4.3 The flag State should consider the following performance indicators when evaluating the performance of the ROs:

- .1 port State performance of ROs;
- .2 results of RO's internal audits;
- .3 results of quality management system audits performed by third-party organizations (ACBs);
- .4 the results of previous performance monitoring; and
- .5 condition/compliance of ships that receive survey and certification from the ROs.

7.4.4 The flag State should, on a periodic basis, evaluate its overall performance with respect to the implementation of administrative processes, procedures and resources necessary to meet its obligations as required by the conventions to which it is party.

7.4.5 Other measures to evaluate the performance of the flag States may include, inter alia, the following:

- .1 port State control detention rates;
- .2 flag State inspection results;
- .3 casualty statistics;
- .4 communication and information processes;
- .5 annual loss statistics (excluding constructive total losses (CTLs)); and

- .6 other performance indicators as may be appropriate, to determine whether staffing, resources and administrative procedures are adequate to meet their flag State obligations. Other performance measurement indicators may consist of the following:
  - .1 fleet loss and accident ratios to identify trends over selected time periods;
  - .2 the number of verified cases of detained ships in relation to the size of the fleet;
  - .3 the number of verified cases of incompetence or wrongdoing by individuals holding certificates or endorsements issued under its authority;
  - .4 responses to port State deficiency reports or interventions;
  - .5 investigations into very serious and serious casualties and lessons learned from them;
  - .6 technical and other resources committed;
  - .7 results of inspections, surveys and controls of the ships in the fleet;
  - .8 investigation of occupational accidents;
  - .9 the number of incidents and violations under MARPOL, as amended; and
  - .10 the number of suspensions or withdrawals of certificates, endorsements and approvals.

7.4.6 The oversight programme review should also consider:

- .1 results and trends from monitoring;
- .2 conformity with procedures;
- .3 evolving needs and expectations of interested parties;
- .4 oversight programme records;
- .5 alternative or new auditing practices or monitoring activities; and
- .6 consistency in performance between audit teams in similar situations.

7.4.7 Results of oversight programme reviews can lead to corrective and preventive actions and the improvement of the oversight programme.

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## Appendix 1

### REQUIREMENTS FOR TRAINING AND QUALIFICATION OF RECOGNIZED ORGANIZATION'S TECHNICAL STAFF

#### A1.1 Definitions

A1.1.1 *Survey staff* are the personnel authorized to carry out surveys and to conclude whether or not compliance has been achieved.

A1.1.2 *Plan approval staff* are the personnel authorized to carry out design assessment and to conclude whether or not compliance has been achieved.

A.1.1.3 *Audit staff* are the personnel authorized to carry out audits and to conclude whether compliance has been achieved.

A1.1.4 *Trainee* is a person receiving theoretical and practical training under the supervision of a trainer/tutor.

A1.1.5 *Trainer* is a designated person having experience within a relevant area or a proficient expert in a special field recognized by the RO to give theoretical training through classroom teaching, special seminars or individual training.

A1.1.6 *Tutor* is a qualified and designated person from among the RO's staff having appropriate experience and capability in the relevant areas of activities in which they assist, consult and supervise the practical training of a trainee until the latter is qualified.

A1.1.7 *Technical staff* are the personnel qualified to carry out technical activity as survey staff or plan approval staff or, Marine Management Systems audit staff.

A1.1.8 *Support staff* are the personnel assisting survey and/or plan approval staff in connection with classification and statutory work.

#### A1.2 Trainee entry requirements

RO personnel performing, and responsible for, statutory work shall have as a minimum the formal education requirements defined in part 2, section 4.2.5.

#### A1.3 Modules

A1.3.1 The RO shall define the required competence criteria for each relevant type of survey, and type of plan approval activity and audit to be performed.

A1.3.2 The RO shall define the necessary theoretical and practical training modules required to meet the competence criteria defined for survey, plan approval and marine management systems audit staff. The training modules shall cover as a minimum:

- .1 learning and competence objectives;
- .2 scope of training; and
- .3 evaluation criteria and pass requirements.

A1.3.3 Through studying the training modules, trainees shall acquire and develop general knowledge and understanding applicable to different types of ships and types of work according to the flag State requirements, RO's rules and regulations and international conventions and codes.

#### **A1.4 Theoretical training for survey and plan approval staff**

A1.4.1 The objective of theoretical training is to ensure that familiarization with rules, technical standards or statutory regulations and any additional requirement specific to the type of survey or ships is sufficient for the areas of activity.

A1.4.2 Theoretical training shall include:

- .1 general modules for theoretical training; and
- .2 special modules for theoretical training in the particular specialty.

A1.4.3 General modules for theoretical training shall include general subjects with respect to:

- .1 activity and functions of IMO and maritime Administrations;
- .2 activity and functions of classification societies;
- .3 classification of ships and mobile offshore drilling units;
- .4 types of certificates and reports issued on completion of class and statutory surveys;
- .5 quality management system;
- .6 personal safety regulations; and
- .7 legal and ethical issues.

A1.4.4 The programmes of theoretical training for survey and plan approval staff shall be documented in a training plan and developed according to the areas of activity (types or categories of surveys, types of ships, subjects such as hull, machinery, electrical engineering, etc.).

A1.4.5 In case of an existing gap in the formal educational background in some particular field of activity, theoretical training shall be extended.

A1.4.6 In case survey or plan approval staff have obtained particular qualifications through their previous work experience prior to their joining the RO, the training plan may be reduced.

A1.4.7 Additions or reductions in the individual training plans shall be documented.

A1.4.8 In case of extension of areas of activity the training plan shall be developed and documented accordingly.

A1.4.9 Theoretical training may be received through classroom teaching, special seminars, individual training, self-study or computer-assisted training.

**A1.5 Practical training for survey and plan approval staff (see appendix 2 for specific criteria for each certificate)**

**A1.5.1 General**

Practical training shall ensure the trainee is sufficiently proficient to carry out survey or design assessment work independently.

**A1.5.2 Plan approval staff**

A1.5.2.1 Practical training shall be commensurate with the complexity of design assessment (review of technical design of ships, review of technical documentation on materials and equipment) and shall be carried out under the supervision of a tutor.

A1.5.2.2 Practical training carried out shall be recorded.

**A1.5.3 Survey staff**

A1.5.3.1 Practical training shall be commensurate with the complexity of the survey (types or categories of surveys, types of ships, specific subjects (hull, machinery, and electrical engineering)) and shall be carried out under the supervision of a tutor.

A1.5.3.2 Selection of particular surveys depends on the specialty/qualification to be granted and shall include classification and statutory types of surveys of the following, as appropriate:

- .1 new construction;
- .2 ships and mobile offshore drilling units in operation; and
- .3 materials and equipment.

A1.5.3.3 Practical training carried out shall be recorded.

**A1.5.4 Examinations and tests for survey and plan approval staff**

A1.5.4.1 Competence gained through the theoretical training shall be demonstrated through written or oral examination or through suitable computer tests.

A1.5.4.2 Examinations and tests shall cover the sets of modules attended by the trainee, as applicable.

A1.5.4.3 With respect to competence gained through practical training being demonstrated by:

- .1 a surveyor, this shall be accomplished by the surveyor satisfactorily completing the surveys associated with the competence whilst under the supervision of the tutor. The surveyor would be expected to be able to answer associated technical questions raised as thought necessary by the tutor to confirm levels of understanding. The results of the tutor's review shall be annotated on the respective training record; and

- .2 a plan approval staff member, this shall be accomplished by the staff member satisfactorily completing the appraisal of drawings against the relevant classification rules and statutory regulations as verified through a review by the tutor of the staff member's work. The results of the tutor's review shall be annotated on the respective training record.

A1.5.4.4 A competent person shall perform examinations of theoretical training or witnessing practical competence.

A1.5.4.5 During examinations and tests, use of the relevant working documents (rules, conventions, checklists, etc.) by the trainee shall be considered allowable.

### **A1.5.5 Audit staff**

#### *A1.5.5.1 Theoretical training*

A1.5.5.1.1 Theoretical training should address the following:

- .1 principles and practice of management systems auditing;
- .2 the requirements of the International Safety Management (ISM) Code and its interpretation and application;
- .3 mandatory rules and regulations and applicable codes, guidelines and standards recommended by the IMO, flag States, classification societies and maritime industry organization; and
- .4 basic shipboard operations including emergency preparedness and response. The time spent on each topic and the level of detail that it is necessary to include will depend on the qualifications and experience of the trainees, their existing competence in each subject, and the number of training audits to be carried out.

A1.5.5.1.2 The training may be modular in structure, in which case the period over which the theoretical training is delivered shall not exceed 12 months.

A1.5.5.1.3 Where appropriate, some elements may be delivered by means such as distance learning and e-learning. However, at least fifty per cent of the total theoretical training days shall be classroom-based in order to allow for discussion and debate and to allow candidates to benefit from the experience of the trainer.

#### *A1.5.5.2 Examination*

A1.5.5.2.1 Confirmation that the learning objectives have been met shall be demonstrated by written examination at the end of the theoretical training, or at the end of each module if the training is not delivered in a single training course.

A1.5.5.2.2 If the trainee fails the written examination, or any part thereof; a single resist will be permitted. A candidate who fails the resist will be required to undergo the corresponding theoretical training again before being allowed to make another attempt at the examination.

A1.5.5.2.3 A candidate who passes a written examination shall receive a certificate, statement or other record indicating which of the competences have been addressed, and the dates on which the corresponding training took place.



### *A1.5.5.3 Practical training*

A1.5.5.3.1 A person authorized to carry out ISM audits shall have completed at least the minimum number of training audits under supervision as specified by the RO.

A1.5.5.3.2 The RO shall establish procedures for ensuring and demonstrating that the required competence has been achieved.

## **A1.6 Qualification**

A1.6.1 After completion of the theoretical and practical training, with positive results, the trainee is granted the appropriate authorizations to work independently. The activities they are qualified to perform (types of surveys, types of ships, types of design approval, etc.) are identified.

A1.6.2 The criteria adopted by the RO for granting qualifications shall be documented in the appropriate quality management system documents.

## **A1.7 Assessment of training effectiveness**

A1.7.1 The methods of training effectiveness assessment may include monitoring, testing, etc., on the regular basis according to the RO's system.

A1.7.2 The criteria adopted by the RO for training effectiveness assessment shall be documented in the appropriate RO quality management system documents.

A1.7.3 Evidence of training effectiveness assessment shall be provided.

## **A1.8 Maintenance of qualification**

A1.8.1 The criteria adopted by the RO for maintenance or updating of qualifications shall be in accordance with and documented in the appropriate RO quality management system documents.

A1.8.2 Updating of qualifications may be done through the following methods:

- .1 self-study (unassisted study);
- .2 different courses and seminars organized in local offices and/or in the main offices of the RO;
- .3 extraordinary technical seminars in case of significant changes in the RO's rules or international conventions, codes, etc. (with examination if required); and
- .4 special training on specific works or type of survey in some areas of the activity, which are determined by activity monitoring or by a long time absence of practical experience.

A1.8.3 Maintenance of qualifications in accordance with these criteria shall be verified at annual performance review.

## **A1.9 Activity monitoring**

### **A1.9.1 Purpose**

Activity monitoring has the purpose:

- .1 to assess whether the individuals are competent and capable of carrying out their authorized and assigned work independently, consistent with the RO's policies and practices;
- .2 to identify needs for continual improvement in aligning the technical services across the organization; and
- .3 to identify need for improvements in the guidance processes and/or tools provided for the staff.

### **A1.9.2 Monitoring**

A1.9.2.1 Headquarters, regional or local offices, may initiate activity monitoring. It shall be carried out by persons who are qualified in the survey or audit being monitored.

A1.9.2.2 It shall be carried out to the extent that the work of each surveyor or auditor engaged in survey or audit work will be monitored at least once every other calendar year. Where a person carries out both survey and audit work, they shall be monitored in both work activities at least once every other calendar year. Only one type of survey for a qualified surveyor and one type of audit for a qualified auditor need be monitored within the two-year cycle. Persons doing plan approval shall be monitored at least once every other calendar year.

A1.9.2.3 Subsequent to the monitoring, the monitoring surveyor or auditor shall report the activity.

A1.9.2.4 Should any comments be necessary, or findings made, these will be included in the report, for review and corrective action.

### **A1.9.3 Method**

A1.9.3.1 Activity monitoring shall be performed by personnel authorized to undertake activity monitoring.

A1.9.3.2 Preparation shall include familiarization with the processes, requirements and tools (e.g. software) associated with the activity to be witnessed during the activity monitoring.

A1.9.3.3 The monitoring process shall include a review of relevant performance information related to the individual's work. This may include: report and certificate accuracy, meeting objectives, received complaints, PSC detention feedback.

A1.9.3.4 Survey, audit or plan approval activity selected for monitoring shall have an extent such as to cover a maximum possible range of activity and qualifications that can be monitored during the attendance.

A1.9.3.5 Monitoring shall include, but not be limited to, evaluation of the individual's:

- .1 personal safety awareness;
- .2 understanding and application of the relevant requirements;
- .3 technical capabilities;
- .4 understanding of the related requirements; and
- .5 standards of reporting and communication.

#### **A1.9.4 Reporting**

Subsequent to the monitoring, a report shall be made with conclusions with respect to:

- .1 whether the individuals assessed are capable of carrying out their authorized and assigned work (including particularly positive aspects);
- .2 any areas of improvement; and
- .3 any recommended training requirements.

#### **A1.9.5 Evaluation**

The monitoring report shall be evaluated by management who will determine the individual's continued authorization or possible training requirements to obtain further authorization. The report shall be completed and reviewed annually.

#### **A1.9.6 Implementation**

The RO shall:

- .1 document the activity monitoring methodology, including how it is reported;
- .2 document how the authorization to undertake activity monitoring is achieved;
- .3 document consequence and actions to undertake if activity-monitoring timing is exceeded;
- .4 maintain records to demonstrate that all relevant staff has been monitored in the prescribed period; and
- .5 maintain records to demonstrate level of technical performance and the effect of possible improvement activities across the organization through the analysis of activity monitoring.

#### **A1.10 Training of support staff**

Support staff shall have training and/or supervision commensurate with the tasks they are authorized to perform.

### **A1.11 Records**

Records shall be maintained for each surveyor/plan approval staff member, indicating:

- .1 formal education background;
- .2 professional experience prior to joining the RO;
- .3 evidence of theoretical training completed;
- .4 evidence of practical training completed;
- .5 evidence of examinations and tests;
- .6 professional experience during employment at the RO; and
- .7 periodical updating of knowledge.

\* \* \*

## Appendix 2

### SPECIFICATIONS ON THE SURVEY AND CERTIFICATION FUNCTIONS OF RECOGNIZED ORGANIZATIONS ACTING ON BEHALF OF THE FLAG STATE

#### A2.1 SCOPE

A2.1.1 This document contains minimum specifications for organizations recognized as capable of performing statutory work on behalf of a flag State in terms of certification and survey functions connected with the issuance of international certificates.

A2.1.2 The principle of the system described below is to divide the specifications required into different elementary modules with a view to selecting the relevant modules for each function of certification and survey.

#### A2.2 AREAS OF INTEREST COVERED BY ELEMENTARY MODULES

- .1 Management
- .2 Technical appraisal
- .3 Surveys
- .4 Qualifications and training.

##### A2.2.1 Management

###### ***Module 1A: Management functions***

The management of the RO shall have the competence, capability and capacity to organize, manage and control the performance of survey and certification functions in order to verify compliance with requirements relevant to the tasks delegated and shall, inter alia:

- .1 possess an adequate number of competent supervisory, technical appraisal and survey personnel;
- .2 provide for the development and maintenance of appropriate procedures and instructions;
- .3 provide for the maintenance of up-to-date documentation on interpretation of the relevant instruments;
- .4 give technical and administrative support to field staff; and
- .5 provide for the review of survey reports and provision of experience feedback.

##### A2.2.2 Technical appraisal

###### ***Module 2A: Hull structure***

The RO shall have the appropriate competence, capability and capacity to perform the following technical evaluations and/or calculations pertaining to:

- .1 longitudinal strength;
- .2 local scantlings such as plates and stiffeners;
- .3 structural stress, fatigue and buckling analyses; and
- .4 materials, welding and other pertinent methods of material-joining, for compliance with relevant rules and convention requirements pertaining to design, construction and safety.

**Module 2B: Machinery systems**

The RO shall have the appropriate competence, capability and capacity to perform technical evaluations and/or calculations pertaining to:

- .1 propulsion, auxiliary machinery and steering gear;
- .2 piping; and
- .3 electrical and automation systems,

for compliance with relevant rules and convention requirements pertaining to design, construction and safety.

**Module 2C: Subdivision and stability**

The RO shall have the appropriate competence, capability and capacity to perform technical evaluations and/or calculations pertaining to:

- .1 intact and damage stability;
- .2 inclining test assessment;
- .3 grain loading stability; and
- .4 watertight and weathertight integrity.

**Module 2D: Load line**

The RO shall have the appropriate competence, capability and capacity to perform the following technical evaluations and/or calculations pertaining to:

- .1 freeboard calculation; and
- .2 conditions of assignment of freeboard.

**Module 2E: Tonnage**

The RO shall have the appropriate competence, capability and capacity to perform technical evaluations and/or calculations pertaining to tonnage computation.

**Module 2F: Structural fire protection**

The RO shall have the appropriate competence, capability, and capacity to perform technical evaluations and/or calculations pertaining to:

- .1 structural fire protection and fire isolation;
- .2 use of combustible materials;
- .3 means of escape; and
- .4 ventilation systems.

**Module 2G: Safety equipment**

The RO shall have the appropriate competence, capability and capacity to perform technical evaluations and/or calculations pertaining to:

- .1 life-saving appliances and arrangements;
- .2 navigation equipment;
- .3 fire detection and fire alarm systems and equipment;
- .4 fire-extinguishing system and equipment;
- .5 fire control plans;
- .6 pilot ladders and pilot hoists;
- .7 lights, shapes and sound signals; and
- .8 inert gas systems.

**Module 2H: Oil pollution prevention**

The RO shall have the appropriate competence, capability and capacity to perform technical evaluations and/or calculations pertaining to:

- .1 monitoring and control of oil discharge;
- .2 segregation of oil and ballast water;
- .3 crude oil washing;
- .4 protective location of segregated ballast spaces;
- .5 pumping, piping and discharge arrangements; and
- .6 shipboard oil pollution emergency plans (SOPEPs).

### ***Module 2I: NLS pollution prevention***

The RO shall have the appropriate competence, capability and capacity to perform technical evaluations and/or calculations pertaining to:

- .1 list of substances the ship may carry;
- .2 pumping system;
- .3 stripping system;
- .4 tank-washing system and equipment; and
- .5 underwater discharge arrangements.

### **Module 2J: Radio**

The RO shall have the appropriate competence, capability and capacity to perform technical evaluations pertaining to:

- .1 radiotelephony;
- .2 radiotelegraphy; and
- .3 GMDSS.

Alternatively, a professional radio installation inspection service company approved and monitored by the RO according to an established and documented programme may perform these services. This programme is to include the definition of the specific requirements the company and its radio technicians shall satisfy.

### ***Module 2K: Carriage of dangerous chemicals in bulk***

The RO shall have the appropriate competence, capability and capacity to perform technical evaluations and/or calculations pertaining to:

- .1 ship arrangement and ship survival capacity;
- .2 cargo containment and material of construction;
- .3 cargo temperature control and cargo transfer;
- .4 cargo tank vent systems and environmental control;
- .5 personnel protection; operational requirements; and
- .6 list of chemicals the ship may carry.



### ***Module 2L: Carriage of liquefied gases in bulk***

The RO shall have the appropriate competence, capability and capacity to perform technical evaluations and/or calculations pertaining to:

- .1 ship arrangement and ship survival capacity;
- .2 cargo containment and material of construction;
- .3 process pressure vessels and liquid, vapour and pressure piping systems;
- .4 cargo tank vent systems and environmental control;
- .5 personnel protection;
- .6 use of cargo as fuel; and
- .7 operational requirements.

#### **A2.2.3 Surveys**

##### ***Module 3A: Survey functions***

The RO shall have the appropriate competence, capability and capacity to perform the required surveys under controlled conditions as per the RO's internal quality management system and, representing an adequate geographical coverage and local representation as required. The work to be covered by the staff is described in the relevant sections of the appropriate survey guidelines developed by the Organization.

#### **A2.2.4 Qualifications and training**

##### ***Module 4A: General qualifications***

RO personnel performing, and responsible for, statutory work shall meet, as a minimum, the requirements defined in part 2, section 4.2.5.

##### ***Module 4B: Radio survey qualifications***

A professional radio installation inspection service company, approved and monitored by the RO according to an established and documented programme, may do surveys. This programme is to include the definition of the specific requirements the company and its radio technicians shall satisfy, including, inter alia, requirements for internal tutored training covering at least:

- .1 radiotelephony;
- .2 radiotelegraphy;
- .3 GMDSS; and
- .4 initial and renewal surveys.

Radio technicians carrying out surveys shall have successfully completed, as a minimum, at least one year of relevant technical school training, the internal tutored training programme of his/her employer and at least one year of experience as an assistant radio technician. For exclusive radio surveyors to the RO, equivalent requirements as above apply.

## **A2.3 SPECIFICATIONS PERTAINING TO THE VARIOUS CERTIFICATES**

### **A2.3.1 Passenger ship safety certificate**

#### ***Initial certification, renewal survey***

A2.3.1.1 Module Nos. 1A, 2A, 2B, 2C, 2D, 2F, 2G, 2J, 3A, 4A and 4B apply.

A2.3.1.2 For this certification, the system shall cover practical tutored training on the following issues as appropriate for Technical Appraisal and Support staff (TS) and Field Surveyors (FS), respectively:

- .1 TS: SOLAS 74, as amended.
- .2 FS: SOLAS 74, as amended:
  - .1 initial survey, report, and issuance of certificate; and
  - .2 renewal survey, report- and issuance of certificate.

### **A2.3.2 Cargo ship safety construction certificate**

#### ***Initial certification, annual/intermediate, renewal surveys***

A2.3.2.1 Module Nos. 1A, 2A, 2B, 2C, 2F, 3A and 4A apply.

A2.3.2.2 For this certification the system shall cover practical tutored training on the following issues as appropriate for Technical Appraisal and Support staff (TS) and Field Surveyors (FS), respectively:

- .1 TS: SOLAS 74 chapters II-1, II-2 and XII with any amendments and appropriate classification rules.
- .2 FS: Pertinent technical surveys (class surveys or similar), newbuilding:
  - .1 hull structure and equipment; and
  - .2 machinery and systems installation and testing.
- .3 FS: Pertinent technical surveys (class surveys or similar), ships in operation:
  - .1 annual/intermediate survey;
  - .2 renewal survey; and
  - .3 bottom survey.
- .4 FS: SOLAS 74 chapters II-1, II-2 and XII, as amended:
  - .1 initial survey, report, issuance of certificate;
  - .2 annual/intermediate survey and report; and
  - .3 renewal survey, report and issuance of certificate.

### **A2.3.3 Cargo ship safety equipment certificate**

#### ***Initial certification, annual, periodical, renewal surveys***

A2.3.3.1 Module Nos. 1A, 2G, 3A and 4A apply.

A2.3.3.2 For this certification the system shall cover practical tutored training on the following issues as appropriate for Technical Appraisal and Support staff (TS) and Field Surveyors (FS), respectively:

- .1 TS: SOLAS 74 chapters II-1, II-2, III and V, as amended, and applicable aspects of COLREG 72, as amended.
- .2 FS: SOLAS 74 chapters II-1, II-2, III and V, as amended, and applicable aspects of COLREG 72, as amended:
  - .1 initial survey, report and issuance of certificate;
  - .2 annual/periodical survey and report; and
  - .3 renewal survey, report and issuance of certificate.

### **A2.3.4 Cargo ship safety radio certificate**

#### ***Initial certification, periodical, renewal surveys***

A2.3.4.1 Module Nos. 1A, 2J, 3A and 4B apply.

A2.3.4.2 For this certification the system shall cover practical tutored training on the following issues for Technical Appraisal and Support staff (TS) and Field Surveyors (FS) respectively:

- .1 TS: SOLAS 74 chapter IV, as amended.
- .2 FS: Reference Module 4B.

### **A2.3.5 International Safety Management Code certification**

#### ***Initial certification, annual/intermediate verifications, renewal certification***

A2.3.5.1 All of the modules, with the exception of 2E (tonnage), apply to the extent that they relate to an RO's ability to identify and evaluate the mandatory rules and regulations with which a company's safety management system and ships shall comply.

A2.3.5.2 For this certification, the system shall comply with the qualification and training requirements for ISM Code assessors contained in the *Guidelines on Implementation of the International Safety Management (ISM) Code by Administrations*.

### **A2.3.6 International load line certificate**

#### ***Initial certification, annual, renewal surveys***

A2.3.6.1 Module Nos. 1A, 2A, 2C, 2D, 3A and 4A apply.

A2.3.6.2 For this certification, the system shall cover practical tutored training on the following issues as appropriate for Technical Appraisal and Support staff (TS) and Field Surveyors (FS), respectively:

- .1 TS: Calculation of freeboard and approval of drawings for conditions of assignment according to ILLC 1966.
- .2 FS: Pertinent technical surveys (class surveys or similar), newbuilding:
  - .1 hull structural survey;
  - .2 hull penetrations and closing appliances; and
  - .3 stability/inclining test.
- .3 FS: Pertinent technical surveys (class surveys or similar), ships in operation:
  - .1 annual survey;
  - .2 renewal survey; and
  - .3 bottom survey.
- .4 FS: Measurement for load line/initial survey report.
- .5 FS: Conditions for assignment/initial survey report.
- .6 FS: Load line marking verification/initial survey report.
- .7 FS: Load line annual survey.
- .8 FS: Load line renewal survey, report and issuance of certificate.

### **A2.3.7 International oil pollution prevention certificate**

#### ***Initial certification, annual, intermediate, renewal surveys***

A2.3.7.1 Module Nos. 1A, 2A, 2B, 2C, 2H, 3A and 4A apply.

A2.3.7.2 For this certification, the system shall cover practical tutored training on the following issues as appropriate for Technical Appraisal and Support staff (TS) and Field Surveyors (FS), respectively:

- .1 TS: Approval of drawings and manuals according to MARPOL, Annex I.
- .2 FS: MARPOL, Annex I, as amended:
  - .1 initial survey, report and issuance of certificate;
  - .2 annual/intermediate survey and report; and
  - .3 renewal survey, report and issuance of certificate.

### **A2.3.8 International pollution prevention certificate for the carriage of noxious liquid substances in bulk**

#### ***Initial certification, annual, intermediate, renewal surveys***

A2.3.8.1 Module Nos. 1A, 2A, 2B, 2C, 2I, 3A and 4A apply.

A2.3.8.2 For this certification the system shall cover practical tutored training on the following issues as appropriate for Technical Appraisal and Support staff (TS) and Field Surveyors (FS), respectively:

- .1 TS: Approval of drawings and manuals according to MARPOL, Annex II and appropriate codes.
- .2 FS: MARPOL, Annex II and appropriate codes:
  - .1 initial survey, report and issuance of certificate;
  - .2 annual/intermediate survey and report; and
  - .3 renewal survey, report and issuance of certificate.

### **A2.3.9 International certificate of fitness for the carriage of dangerous chemicals in bulk**

#### ***Initial certification, annual, intermediate, renewal surveys***

A2.3.9.1 Module Nos. 1A, 2A, 2B, 2C, 2K, 3A and 4A apply.

A2.3.9.2 For this certification the system shall cover practical tutored training on the following issues as appropriate for Technical Appraisal and Support staff (TS) and Field Surveyors (FS), respectively:

- .1 TS: Approval of drawings and manuals according to International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code).
- .2 FS: IBC Code:
  - .1 initial survey, report and issuance of certificate;
  - .2 annual/intermediate survey and report; and
  - .3 renewal survey, report and issuance of certificate.

### **A2.3.10 International certificate of fitness for the carriage of liquefied gases in bulk**

#### ***Initial certification, annual, intermediate, renewal surveys***

A2.3.10.1 Module Nos. 1A, 2A, 2B, 2C, 2L, 3A and 4A apply.

A2.3.10.2 For this certification the system shall cover practical tutored training on the following issues as appropriate for Technical Appraisal and Support staff (TS) and Field Surveyors (FS), respectively:

- .1 TS: Approval of drawings and manuals according to International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (IGC Code).
- .2 FS: IGC Code:
  - .1 initial survey, report and issuance of certificate;
  - .2 annual/intermediate survey and report; and
  - .3 renewal survey, report and issuance of certificate.

### **A2.3.11 International tonnage certificate (1969)**

#### ***Initial certification***

A2.3.11.1 Module Nos. 1A, 2E and 4A apply.

A2.3.11.2 For this certification the system shall cover practical tutored training on the following issues as appropriate for Technical Appraisal and Support staff (TS) and Field Surveyors (FS), respectively:

- .1 TS: Measurement and computation of tonnage according to:
  - .1 1969 Tonnage Measurement Convention; and
  - .2 Pertinent IMO resolutions.
- .2 FS: Marking survey and report.

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### Appendix 3

#### ELEMENTS TO BE INCLUDED IN AN AGREEMENT

A formal written agreement or equivalent between the flag State and the RO should, as a minimum, cover the following items:

- 1 Application
- 2 Purpose
- 3 General conditions
- 4 The execution of functions under authorization:
  - .1 Functions in accordance with the general authorization
  - .2 Functions in accordance with special (additional) authorization
  - .3 Relationship between the organization's statutory and other related activities
  - .4 Functions to cooperate with port States to facilitate the rectification of reported port State control deficiencies or the discrepancies within the organization's purview
- 5 Legal basis of the functions under authorization:
  - .1 Acts, regulations and supplementary provisions
  - .2 Interpretations
  - .3 Deviations and equivalent solutions
- 6 Reporting to the flag State:
  - .1 Procedures for reporting in the case of general authorization
  - .2 Procedures for reporting in the case of special authorization
  - .3 Reporting on classification of ships (assignment of class, alterations and cancellations), as applicable
  - .4 Reporting of cases where a ship did not in all respects remain fit to proceed to sea without danger to the ship or persons on board or presenting unreasonable threat of harm to the environment
  - .5 Other reporting

- 7 Development of rules and/or regulations – Information:
  - .1 Cooperation in connection with development of rules and/or regulations – liaison meetings
  - .2 Exchange of rules and/or regulations and information
  - .3 Language and form
- 8 Other conditions:
  - .1 Remuneration
  - .2 Rules for administrative proceedings
  - .3 Confidentiality
  - .4 Liability<sup>3</sup>
  - .5 Financial responsibility
  - .6 Entry into force
  - .7 Termination
  - .8 Breach of agreement
  - .9 Settlement of disputes
  - .10 Use of subcontractors
  - .11 Issue of the agreement
  - .12 Amendments
- 9 Specification of the authorization from the flag State to the organization:
  - .1 Ship types and sizes
  - .2 Conventions and other instruments, including relevant national legislation
  - .3 Approval of drawings
  - .4 Approval of material and equipment
  - .5 Surveys

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<sup>3</sup> ROs and its employees who are involved in or responsible for delivery of statutory certification and services may be required by the law of the flag State to be covered by professional indemnity or professional liability insurance in the event that liability is finally and definitively imposed on the flag State for loss or damage which is proved in a court of law to have been caused by any negligent act or omission by its RO. In this connection, the flag State may also consider placing a limitation on the level of liability and indemnification to be covered under that insurance or other compensation arrangements.



- .6 Issuance of certificates
  - .7 Corrective actions
  - .8 Withdrawal of certificates
  - .9 Reporting
- 10 The flag State's supervision of duties delegated to the organization:
- .1 Documentation of quality assurance system
  - .2 Access to internal instructions, circulars and guidelines
  - .3 Access by the flag State to the organization's documentation relevant to the flag State's fleet
  - .4 Cooperation with the flag State's inspection and verification work
  - .5 Provision of information and statistics on, e.g. damage and casualties relevant to the flag State's fleet.

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