

Subject :

IMO Conventions
enter into force
in 1999

NKTECHNICAL INFORMATION

No. : No:245

Date : Date: 5 February 1998

The conventions adopted by the IMO which will enter into force in 1999 are given hereunder.

With regard to the safety measures for bulk carriers, please also make reference to our Technical Information No. 234 (1 November 1998) and No. 264 (will be issued shortly).

1. Amendments to the MARPOL Convention

<u>entry into force</u>	<u>resolution No.</u>	<u>summary</u>
1 Feb 1999	MEPC.74(40)	Regulation 10: Methods for the prevention of oil pollution from ships while operating in special areas North West European waters including the North Sea and its approach have been added to the special area. Regulation 25A: Intact stability (new addition) Oil tankers of 5000dwt and above contracted on or after 1 February 1999 shall comply with the intact stability requirements given in this new regulation

2. Amendments to the SOLAS Convention and associated mandatory regulations

<u>entry into force</u>	<u>resolution No.</u>	<u>summary</u>
1 July 1999	MSC65(68)	Regulation II-1/8-3: Special requirements for passenger ships, other than ro-ro-passenger ships, carrying 400 persons or more Passenger ships other than ro-ro passenger ships certified to carry 400 persons or more constructed on or after 1 July 2002 shall comply with the damage stability requirements based upon the assumed damage applied anywhere along the ships' length (i.e., survivability when at least two adjacent main compartments are flooded must be ensured, as damage at the location of watertight bulkheads is to be considered.) (This regulation enters into force on 1 July 1999 but applies to ships constructed on or after 1 July 2002)

Regulation V/8-1: Vessel traffic service

Compliance with the guidelines developed by IMO in implementing Vessel Traffic Service (VTS) as well as participation in and compliance with the provision of VTS are newly regulated.

1997 SOLAS
Conference

Resolution 1

New Chapter XII: Additional Safety Measures for Bulk Carriers

A new set of additional requirements for the improvement of bulk carrier (including existing ships) regarding structural requirements as well as survey requirements are incorporated. (For details, please refer to the attachment)

Resolution 2

Amendments to A.744(18): The guidelines on the Enhanced Programme of Inspections during Survey of Bulk Carriers and Oil Tankers

Amendments to the Enhanced Survey Programme was made taking into account further improvement of the survey initiated by IACS.

2. Amendments to the STCW Convention and associated mandatory code

entry into force resolution No. summary
1 January 1999 MSC66(68) STCW Convention

Regulation V/2: Mandatory minimum requirements for the training and qualifications of masters, officers, ratings and other personnel on ro-ro passenger ships

Undertaking refresher training at the intervals not exceeding five years was previously required. However, provision of the evidence of having achieved such competence is now considered as acceptable.

Regulation V/3: Mandatory minimum requirements for the training and qualifications of masters, officers, ratings and other personnel on passenger ships other than ro-ro passenger ships

Special requirements for the crews of passenger ships, other than ro-ro passenger ships are to be introduced. (The requirements will apply to not only seafarers but also other member of ships' personnel such as those serving passengers.

1 January 1999 MSC67(68)

STCW Code (Part A)

Section A-V/2.5 Crisis management and human behaviour training

The details of the crisis management and human behaviour training was developed and incorporated in the code.

Section A-V/3: Mandatory minimum requirements for the training and qualification of masters, officers, ratings and other personnel on passenger ships other than ro-ro passenger ships

Details of the above amendments to the convention were introduced in the relevant section of the mandatory code.

Attachment Summary of the new SOLAS Chapter XII
Text of the amendments to the convention.

VOID

Brief introduction of regulations of new SOLAS chapter XII.

Regulation 1 Definitions

The terms “bulk carrier”, “bulk carrier of single side skin construction”, “length”, “solid bulk cargo”, “bulk carrier bulkhead and double bottom strength standards”, as well as “ships constructed” are defined in this regulation.

Regulation 2 Application

Bulk carriers shall comply with the requirements of this chapter in addition to the applicable requirements of other chapters.

Regulation 3 Implementation schedule

Existing bulk carriers to which regulations 4 and 6 apply shall comply with the provisions of such regulations according to the following schedule:

- .1 Bulk carriers which are 20 years of age and over on 1 July 1999 by the date of the first intermediate survey or the first periodical survey after 1 July 1999, whichever comes first;
- .2 Bulk carriers which are 15 years of age and over but less than 20 years of age on 1 July 1999 by the date of the first periodical survey after 1 July 1999 but not later than 1 July 2002; and
- .3 Bulk carriers which are less than 15 years of age on 1 July 1999 by the date of the first periodical survey after the date on which the ship reaches 15 years of age, but not later than the date on which the ship reaches 17 years of age.

Regulations 4 Damage stability requirements applicable to bulk carriers

- .1 New bulk carriers of 150m on length and above, of single side skin construction, shall be able to withstand flooding of any one cargo hold in all loading conditions and remain afloat in a satisfactory condition of equilibrium.
- .2 Existing bulk carriers of 150m in length or above, of single side skin construction, carrying solid bulk cargoes having a density of 1780 kg/m³ or above shall be able to withstand flooding of the foremost cargo hold in all loading conditions and remain afloat in a satisfactory condition.
- .3 The condition of equilibrium flooding shall satisfy the conditions of equilibrium laid down in the annex to Assembly Resolution A.320(IX), Regulation equivalent to regulation 27 of the international Convention on Load Lines, 1966, as amended by Resolution A.514(13). Further, it goes on to state that existing ships which have been assigned reduced freeboards B-60 or B-100, as appropriate, in compliance with regulation 27 of 1966LL may be considered as satisfying the above requirements.

Regulation 5 Structural strength of new bulk carriers

This regulation stipulates that new bulk carriers (constructed on or after 1 July 1999), of single side skin construction, of 150m in length or above, designed to carry solid bulk cargoes having density of 1000kg/m³ or above, shall have sufficient strength to withstand flooding in any one cargo hold in all loading and ballast conditions with due regard for the recommendations recognized by the Organization (refer to IACS URs 17, 18 and 20 which were referred to in the Conference Resolution 3).

Regulation 6 Structural and requirements for existing bulk carriers

This regulation stipulates that the foremost cargo hold of existing bulk carriers of 150m in length or above of single side skin construction, carrying solid bulk cargo having density of, 1780kg/m³ or above, shall have sufficient strength to withstand flooding by the date given in Regulation 3. Compliance must be made to the Bulk carrier bulkhead and double bottom strength standards (Conference resolution 4: prepared based on IACS URs S19 and S22; the content is the same). In addition, consideration may also be given to any changes in the loading distribution and limits on the maximum loading capacity, in order to satisfy the requirements of these criteria.

Regulation 7 Survey of the cargo hold structure of bulk carriers

Bulk carriers of 150m in length and upwards, of single side skin construction, of 10 years of age and over, shall not carry solid bulk cargoes having a density of 1780kg/m³ and above unless they have satisfactorily undergone either:

- .1 a periodical survey in accordance with the enhanced survey programme of inspections (A.744(18) as amended thereto) required by regulation XI/2; or
- .2 a survey of all cargo holds to the same extent as required for periodical surveys in the enhanced survey programme of inspections (A.744(18) as amended thereto) required by regulation XI/2.

Regulation 8 Information on compliance with requirements for bulk carriers

1. This regulation stipulates that the booklet required by regulation 7.2 in Chapter VI (amendment to SOLAS effective from 1 July 1998) shall be endorsed by the Administration or, on its behalf, to indicate that regulations 4, 5, 6, and 7 of this chapter, as appropriate are complied with.
2. With regard to existing ships (those constructed before 1 July 1999), any restrictions that may be applied to comply with regulation 6 shall be so indicated in the above mentioned booklet. Further, such ships shall also be permanently marked on the side shell at amidships, port, and starboard with a solid equilateral triangle having sides of 500 mm.

Regulation 9 Requirements for existing bulk carriers not being capable of complying with regulation 4.2 due to design configuration of their cargo holds

This regulation stipulates that for existing bulk carriers constructed with an insufficient number of transverse watertight bulkheads, the relaxation of the application of regulations 4.2 and 6 may be given by the Administration on condition that these ships comply with the following requirements:

- .1 The degree of annual surveys of the foremost cargo hold is to be up-graded to the extent required by the inspection prescribed in the enhanced survey programme, therein for intermediate survey of cargo holds.
- .2 Such bulk carriers are to be provided with bilge well high water level alarms in all cargo holds, or in cargo conveyor tunnels, as appropriate. These alarms are to give an audible and visual alarm on the navigation bridge, as approved by the Administration or an organization recognized by it.
- .3 Detailed information is to be provided on specific cargo hold flooding scenarios. This information is to be accompanied by detailed instructions on evacuation preparedness based on the ISM Code, and is to be used as the basis for crew training and drills.

(Note: the details of .2 and .3 above will be further discussed at MSC 69 scheduled for May 1998)

Regulation 10 Solid bulk cargo density declaration

This regulation states that prior to the loading of any bulk cargo into bulk carriers, the shipper must declare the solid bulk cargo density. For bulk carriers to which regulation 6 applies, unless such bulk carriers comply with all relevant requirements of this chapter applicable to the of solid bulk cargo having density of 1780 kg/m³ and above, any cargo which is declared to have a density within the range from 1250kg/m³ to 1780kg/m³ is to have its density verified by an accredited testing organization.

Regulation 11 Loading instruments

This regulation states that all bulk carriers*, which are 150m in length or over, are to be fitted with a loading instrument which satisfies the requirements given in SOLAS Conference Resolution 5. The functional capabilities of the loading instrument are set forth in Conference resolution 5 which refers to IACS Recommendation No. 48.

(For existing bulk carriers, compliance shall be made not later than the date of the first intermediate or periodical survey of the ship to be carried out after 1 July 1999.)

- * For the application of this regulation, "all bulk carriers" means ships constructed with a single deck, top-side tanks and hopper side tanks in cargo spaces and intended primarily to carry dry cargo in bulk as well as ore carriers and combination carriers.

ANNEX 5

RESOLUTION MEPC.75(40)
adopted on 25 September 1997**AMENDMENTS TO THE ANNEX OF THE PROTOCOL OF 1978 RELATING
TO THE INTERNATIONAL CONVENTION FOR THE PREVENTION
OF POLLUTION FROM SHIPS, 1973****(Amendments to regulation 10 and new regulation 25A of Annex I of MARPOL 73/78)**

THE MARINE ENVIRONMENT PROTECTION COMMITTEE,

RECALLING Article 38(a) of the Convention on the International Maritime Organization concerning the function of the Committee conferred upon it by international conventions for the prevention and control of marine pollution,

NOTING article 16 of the International Convention for the Prevention of Pollution from Ships, 1973 (hereinafter referred to as the "1973 Convention") and article VI of the Protocol of 1978 relating to the 1973 Convention (hereinafter referred to as the "1978 Protocol") which together specify the amendment procedure of the 1978 Protocol and confers upon the appropriate body of the Organization the function of considering and adopting amendments to the 1973 Convention, as modified by the 1978 Protocol (MARPOL 73/78),

CONSIDERING the proposal of the littoral States to make North West European waters a special area under Annex I of MARPOL 73/78,

RECOGNIZING that there is a need to specify intact stability criteria for double hull tankers by adding an appropriate regulation to Annex I of MARPOL 73/78,

HAVING CONSIDERED the amendments to regulation 10 and the new regulation 25A of Annex I of MARPOL 73/78, which were approved by the thirty-ninth session by the Committee and circulated in accordance with article 16(2)(a) of the 1973 Convention,

1. ADOPTS, in accordance with article 16(2)(d) of the 1973 Convention, the amendments to regulation 10 and the new regulation 25A of Annex I of MARPOL 73/78, the text of which is set out in the Annex to the present resolution;
2. DETERMINES, in accordance with article 16(2)(f)(iii) of the 1973 Convention, that the amendments shall be deemed to have been accepted on 1 August 1998, unless prior to that date, not less than one-third of the Parties or the Parties, the combined merchant fleets of which constitute not less than fifty per cent of the gross tonnage of the world's merchant fleet, have communicated to the Organization their objections to the amendments;
3. INVITES the Parties to note that, in accordance with article 16(2)(g)(ii) of the 1973 Convention, the amendments shall enter into force on 1 February 1999 in accordance with paragraph 2 above;
4. REQUESTS the Secretary-General, in conformity with article 16(2)(e) of the 1973 Convention, to transmit to all Parties to MARPOL 73/78 certified copies of the present resolution and the text of the amendments contained in the Annex;
5. REQUESTS FURTHER the Secretary-General to transmit to the Members of the Organization which are not Parties to MARPOL 73/78 copies of the resolution and its Annex.

**AMENDMENTS TO REGULATION 10 AND NEW REGULATION 25A
OF ANNEX I OF MARPOL 73/78**

- 1 The existing text of regulation 10 of Annex I is amended as follows:

"Regulation 10

Methods for the prevention of oil pollution from ships while operating in special areas

- (1) For the purpose of this Annex, the special areas are the Mediterranean Sea area, the Baltic Sea area, the Black Sea area, the Red Sea area, the "Gulfs area", the Gulf of Aden area, the Antarctic area and the North West European waters, which are defined as follows:

- (a) to (g) No change.

- (h) The North West European waters include the North Sea and its approaches, the Irish Sea and its approaches, the Celtic Sea, the English Channel and its approaches and part of the North East Atlantic immediately to the west of Ireland. The area is bounded by lines joining the following points:

- (i) 48° 27'N on the French coast
- (ii) 48° 27'N; 6° 25'W
- (iii) 49° 52'N; 7° 44'W
- (iv) 50° 30'N; 12°W
- (v) 56° 30'N; 12°W
- (vi) 62°N; 3°W
- (vii) 62°N on the Norwegian coast
- (viii) 57° 44.8'N on the Danish and Swedish coasts

- (2) to (6) No change

- (7) Reception facilities within special areas:

- (a) No change

- (b) Red Sea area, Gulfs area, Gulf of Aden area and North West European waters:

- (i) to (vii) No change

- (8) No change"

- 2 The following new regulation 25A is added after regulation 25:

"Regulation 25A

Intact stability

- (1) This regulation shall apply to oil tankers of 5,000 tons deadweight and above:

- (a) for which the building contract is placed on or after 1 February 1999,

or

- (b) in the absence of a building contract, the keels of which are laid or which are at a similar stage of construction on or after 1 August 1999, or
- (c) the delivery of which is on or after 1 February 2002, or
- (d) which have undergone a major conversion:
 - (i) for which the contract is placed after 1 February 1999; or
 - (ii) in the absence of a contract, the construction work of which is begun after 1 August 1999; or
 - (iii) which is completed after 1 February 2002.

(2) Every oil tanker shall comply with the intact stability criteria specified in subparagraphs (a) and (b) of this paragraph, as appropriate, for any operating draught under the worst possible conditions of cargo and ballast loading, consistent with good operational practice, including intermediate stages of liquid transfer operations. Under all conditions the ballast tanks shall be assumed slack.

- (a) In port, the initial metacentric height GMO , corrected for free surface measured at 0° heel, shall be not less than 0.15 m;
- (b) At sea, the following criteria shall be applicable:
 - (i) the area under the righting lever curve (GZ curve) shall be not less than 0.055 m.rad up to $\theta = 30^\circ$ angle of heel and not less than 0.09 m.rad up to $\theta = 40^\circ$ or other angle of flooding θ_f if this angle is less than 40° . Additionally, the area under the righting lever curve (GZ curve) between the angles of heel of 30° and 40° or between 30° and θ_f if this angle is less than 40° , shall be not less than 0.03 m.rad;
 - (ii) the righting lever GZ shall be at least 0.20 m at an angle of heel equal to or greater than 30° ;
 - (iii) the maximum righting arm shall occur at an angle of heel preferably exceeding 30° but not less than 25° ; and
 - (iv) the initial metacentric height GMO , corrected for free surface measured at 0° heel, shall be not less than 0.15 m.

θ_f is the angle of heel at which openings in the hull, superstructures or deck-houses, which cannot be closed weathertight, immerse. In applying this criterion, small openings through which progressive flooding cannot take place need not be considered as open.

(3) The requirements of paragraph (2) shall be met through design measures. For combination carriers simple supplementary operational procedures may be allowed.

(4) Simple supplementary operational procedures for liquid transfer operations referred to in paragraph (3) shall mean written procedures made available to the master which:

- (i) are approved by the Administration;
- (ii) indicate those cargo and ballast tanks which may, under any specific condition of liquid transfer and possible range of cargo densities, be slack and still allow the stability criteria to be met. The slack tanks may vary during the liquid transfer operations and be of any combination provided they satisfy the criteria;
- (iii) will be readily understandable to the officer-in-charge of liquid transfer operations;
- (iv) provide for planned sequences of cargo/ballast transfer operations;
- (v) allow comparisons of attained and required stability using stability performance criteria in graphical or tabular form;
- (vi) require no extensive mathematical calculations by the officer-in-charge;
- (vii) provide for corrective actions to be taken by the officer-in-charge in case of departure from recommended values and in case of emergency situations; and
- (viii) are prominently displayed in the approved trim and stability booklet and at the cargo/ballast transfer control station and in any computer software by which stability calculations are performed."

ANNEX 2

**RESOLUTION MSC.65(68)
(adopted on 4 June 1997)**

**ADOPTION OF 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 FURTHER article VIII(b) of the International Convention for the Safety of Life at Sea (SOLAS), 1974, hereinafter referred to as "the Convention", concerning the procedures for amending the Annex to the Convention, other than the provisions of chapter I thereof,

HAVING CONSIDERED, at its sixty-eighth 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 amendments shall be deemed to have been accepted on 1 January 1999, 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% 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 July 1999 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. FURTHER 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 CHAPTERS II-1 AND V OF THE INTERNATIONAL CONVENTION
FOR THE SAFETY OF LIFE AT SEA, 1974, AS AMENDED

CHAPTER II-1

CONSTRUCTION - SUBDIVISION AND STABILITY, MACHINERY
AND ELECTRICAL INSTALLATIONS

PART B - SUBDIVISION AND STABILITY

- 1 The following new regulation 8-3 is added after existing regulation 8-2:

"Regulation 8-3

**Special requirements for passenger ships, other than ro-ro passenger ships,
carrying 400 persons or more**

Notwithstanding the provisions of regulation 8, passenger ships, other than ro-ro passenger ships, certified to carry 400 persons or more constructed on or after 1 July 2002 shall comply with the provisions of paragraphs 2.3 and 2.4 of regulation 8, assuming the damage applied anywhere within the ship's length L".

CHAPTER V

SAFETY OF NAVIGATION

- 2 The following new regulation 8-2 is added after existing regulation 8-1:

"Regulation 8-2

Vessel traffic services

1 Vessel traffic services (VTS) contribute to the safety of life at sea, safety and efficiency of navigation and the protection of the marine environment, adjacent shore areas, work sites and offshore installations from possible adverse effects of maritime traffic.

2 Contracting Governments undertake to arrange for the establishment of VTS where, in their opinion, the volume of traffic or the degree of risk justifies such services.

3 Contracting Governments planning and implementing VTS shall, wherever possible, follow the guidelines developed by the Organization*. The use of a VTS may only be made mandatory in sea areas within the territorial seas of a coastal State.

4 Contracting Governments shall endeavour to secure participation in, and compliance with the provisions of, VTSs by ships entitled to fly their flags.

5 Nothing in this regulation or the guidelines adopted by the Organization shall prejudice the rights and duties of Governments under international law or the legal regimes of straits used for international navigation and archipelagic sea lanes."

VOID

* Refer to the Guidelines on Vessel Traffic Services, adopted by the Organization by resolution A....(20)

ANNEX 1

PROPOSED AMENDMENTS TO THE INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE AT SEA, 1974

The following new chapter XII is added after existing chapter XI:

"CHAPTER XII - ADDITIONAL SAFETY MEASURES FOR BULK CARRIERS

Regulation 1

Definitions

For the purpose of this chapter:

- 1 "Bulk carrier" means a bulk carrier as defined in regulation IX/1.6.
- 2 "Bulk carrier of single side skin construction" means a bulk carrier in which a cargo hold is bounded by the side shell.
- 3 "Length" of a bulk carrier means the length as defined in the International Convention on Load Lines in force.
- 4 "Solid bulk cargo" means any material, other than liquid or gas, consisting of a combination of particles, granules or any larger pieces of material, generally uniform in composition, which is loaded directly into the cargo spaces of a ship without any intermediate form of containment.
- 5 "Bulk carrier bulkhead and double bottom strength standards" means "Standards for the evaluation of scantlings of the transverse watertight vertically corrugated bulkhead between the two foremost cargo holds and for the evaluation of allowable hold loading of the foremost cargo hold" adopted by resolution [4] of the Conference of Contracting Governments to the International Convention for the Safety of Life at Sea, 1974 on 27 November 1997, as may be amended by the Organization, provided that such amendments are adopted, brought into force and take effect in accordance with the provisions of article VIII of the present Convention concerning the amendment procedures applicable to the annex other than chapter I.
- 6 The term "ships constructed" has the same meaning as defined in regulation II-1/1.1.3.1.

Regulation 2

Application

Bulk carriers shall comply with the requirements of this chapter in addition to the applicable requirements of other chapters.

Regulation 3

Implementation schedule

(This regulation applies to bulk carriers constructed before 1 July 1999)

Bulk carriers to which regulations 4 or 6 apply shall comply with the provisions of such regulations according to the following schedule, with reference to the enhanced programme of inspections required by regulation XI/2:

- .1 bulk carriers which are 20 years of age and over on 1 July 1999, by the date of the first intermediate survey or the first periodical survey after 1 July 1999, whichever comes first;
- .2 bulk carriers which are 15 years of age and over but less than 20 years of age on 1 July 1999, by the date of the first periodical survey after 1 July 1999, but not later than 1 July 2002; and
- .3 bulk carriers which are less than 15 years of age on 1 July 1999, by the date of the first periodical survey after the date on which the ship reaches 15 years of age, but not later than the date on which the ship reaches 17 years of age.

Regulation 4

Damage stability requirements applicable to bulk carriers

- 1 Bulk carriers of 150 m in length and upwards of single side skin construction, designed to carry solid bulk cargoes having a density of 1000 kg/m³ and above, constructed on or after 1 July 1999, shall, when loaded to the summer load line, be able to withstand flooding of any one cargo hold in all loading conditions and remain afloat in a satisfactory condition of equilibrium, as specified in paragraph 3.
- 2 Bulk carriers of 150 m in length and upwards of single side skin construction, carrying solid bulk cargoes having a density of 1780 kg/m³ and above, constructed before 1 July 1999 shall, when loaded to the summer load line, be able to withstand flooding of the foremost cargo hold in all loading conditions and remain afloat in a satisfactory condition of equilibrium, as specified in paragraph 3. This requirement shall be complied with in accordance with the implementation schedule specified in regulation 3.
- 3 Subject to the provisions of paragraph 6, the condition of equilibrium after flooding shall satisfy the condition of equilibrium laid down in the annex to resolution A.320(IX) - Regulation equivalent to regulation 27 of the International Convention on Load Lines, 1966, as amended by resolution A.514(13). The assumed flooding need only take into account flooding of the cargo hold space. The permeability of a loaded hold shall be assumed as 0.9 and the permeability of an empty hold shall be assumed as 0.95, unless a permeability relevant to a particular cargo is assumed for the volume of a flooded hold occupied by cargo and a permeability of 0.95 is assumed for the remaining empty volume of the hold.

4 Bulk carriers constructed before 1 July 1999, which have been assigned a reduced freeboard in compliance with regulation 27(7) of the International Convention on Load Lines, 1966, as adopted on 5 April 1966, may be considered as complying with paragraph 2 of this regulation.

5 Bulk carriers which have been assigned a reduced freeboard in compliance with the provisions of paragraph (8) of the regulation equivalent to regulation 27 of the International Convention on Load Lines, 1966, adopted by resolution A.320(IX), as amended by resolution A.514(13), may be considered as complying with paragraphs 1 or 2, as appropriate.

6 On bulk carriers which have been assigned reduced freeboard in compliance with the provisions of regulation 27(8) set out in Annex B of the Protocol of 1988 relating to the International Convention on Load Lines, 1966, the condition of equilibrium after flooding shall satisfy the relevant provisions of that Protocol.

Regulation 5

Structural strength of bulk carriers

(This regulation applies to bulk carriers constructed on or after 1 July 1999.)

Bulk carriers of 150 m in length and upwards of single side skin construction, designed to carry solid bulk cargoes having a density of 1000 kg/m³ and above, shall have sufficient strength to withstand flooding of any one cargo hold in all loading and ballast conditions, taking also into account dynamic effects resulting from the presence of water in the hold, taking into account the recommendations adopted by the Organization.

Regulation 6

Structural and other requirements for bulk carriers

(This regulation applies to bulk carriers constructed before 1 July 1999.)

1 Bulk carriers of 150 m in length and upwards of single side skin construction, carrying solid bulk cargoes having a density of 1780 kg/m³ and above, shall comply with the requirements of this regulation in accordance with the implementation schedule specified in regulation 3.

2 The transverse watertight bulkhead between the two foremost cargo holds and the double bottom of the foremost cargo hold shall have sufficient strength to withstand flooding of the foremost cargo hold, taking also into account dynamic effects resulting from the presence of water in the hold, in compliance with the Bulk carrier bulkhead and double bottom strength standards. For the purpose of this regulation, the Bulk carrier bulkhead and double bottom strength standards shall be treated as mandatory.

* Refer to resolution [3] on Recommendation on compliance with SOLAS regulation XII/5, adopted by the 1997 SOLAS Conference.

3 In considering the need for, and the extent of, strengthening of the transverse watertight bulkhead or double bottom to meet the requirements of paragraph 2, the following restrictions may be taken into account:

- .1 restrictions on the distribution of the total cargo weight between the cargo holds; and
- .2 restrictions on the maximum deadweight.

4 For bulk carriers using either of, or both, the restrictions given in paragraphs 3.1 and 3.2 above for the purpose of fulfilling the requirements of paragraph 2, these restrictions shall be complied with whenever solid bulk cargoes having a density of 1780 kg/m³ and above are carried.

Regulation 7

Survey of the cargo hold structure of bulk carriers

(This regulation applies to bulk carriers constructed before 1 July 1999)

A bulk carrier of 150 m in length and upwards of single side skin construction, of 10 years of age and over, shall not carry solid bulk cargoes having a density of 1780 kg/m³ and above unless it has satisfactorily undergone either:

- .1 a periodical survey in accordance with the enhanced programme of inspections required by regulation XI/2, or
- .2 a survey of all cargo holds to the same extent as required for periodical surveys in the enhanced survey programme of inspections required by regulation XI/2.

Regulation 8

Information on compliance with requirements for bulk carriers

1 The booklet required by regulation VI/7.2 shall be endorsed by the Administration or, on its behalf, to indicate that regulations 4, 5, 6 and 7 as appropriate, are complied with.

2 Any restrictions imposed on the carriage of solid bulk cargoes having a density of 1780 kg/m³ and above in accordance with the requirements of regulation 6 shall be identified and recorded in the booklet referred to in paragraph 1.

3 A bulk carrier to which paragraph 2 applies shall be permanently marked on the side shell at amidships, port and starboard, with a solid equilateral triangle having sides of 500 mm and its apex 300 mm below the deck line, and painted a contrasting colour to that of the hull.

Regulation 9

Requirements for bulk carriers not being capable of complying with regulation 4.2 due to the design configuration of their cargo holds

(This regulation applies to bulk carriers constructed before 1 July 1999 .)

For bulk carriers being within the application limits of regulation 4.2, which have been constructed with an insufficient number of transverse watertight bulkheads to satisfy that regulation, the Administration may allow relaxation from the application of regulations 4.2 and 6 on condition that they shall comply with the following requirements:

- .1 for the foremost cargo hold, the inspections prescribed for the annual survey in the enhanced programme of inspections required by regulation XI/2 shall be replaced by the inspections prescribed therein for the intermediate survey of cargo holds;
- .2 are provided with bilge well high water level alarms in all cargo holds, or in cargo conveyor tunnels, as appropriate, giving an audible and visual alarm on the navigation bridge, as approved by the Administration or an organization recognized by it in accordance with the provisions of regulation XI/1; and
- .3 are provided with detailed information on specific cargo hold flooding scenarios. This information shall be accompanied by detailed instructions on evacuation preparedness under the provisions of Section 8 of the International Safety Management (ISM) Code and be used as the basis for crew training and drills.

Regulation 10

Solid bulk cargo density declaration

- 1 Prior to loading bulk cargo on a bulk carrier, the shipper shall declare the density of the cargo, in addition to providing the cargo information required by regulation VI/2.
- 2 For bulk carriers to which regulation 6 applies, any cargo declared to have a density within the range 1250 kg/m³ to 1780 kg/m³ shall have its density verified by an accredited testing organization.

* Unless such bulk carriers comply with all relevant requirements of this chapter applicable to the carriage of solid bulk cargoes having a density of 1780 kg/m³ and above

Regulation 11

Loading instrument

(This regulation applies to bulk carriers regardless of their date of construction)

1 Bulk carriers of 150 m in length and upwards shall be fitted with a loading instrument capable of providing information on hull girder shear forces and bending moments, taking into account the recommendation adopted by the Organization*.

2 Bulk carriers of 150 m in length and upwards constructed before 1 July 1999 shall comply with the requirements of paragraph 1 not later than the date of the first intermediate or periodical survey of the ship to be carried out after 1 July 1999 .

VOID

* Refer to resolution [5] on Recommendation on loading instruments, adopted by the 1997 SOLAS Conference.

ANNEX 2

**DRAFT AMENDMENTS TO THE GUIDELINES ON THE ENHANCED PROGRAMME OF
INSPECTIONS DURING SURVEYS OF BULK CARRIERS
AND OIL TANKERS**

(RESOLUTION A.744(18))

**GUIDELINES ON THE ENHANCED PROGRAMME OF INSPECTIONS DURING SURVEYS
OF BULK CARRIERS (resolution A.744(18), Annex A)**

- 1 In the "Contents", the following text is added at the end:

"Annex 10 - Requirements for extent of thickness measurement at those areas of substantial corrosion. Periodical survey of bulk carriers within the cargo area"
- 2 Existing paragraph 1.2.10 is replaced by the following:

"1.2.10 A corrosion prevention system is normally considered either:
 - .1 a full hard coating; or
 - .2 a full hard coating supplemented by anodes

Protective coating should usually be epoxy coating or equivalent. Other coating systems may be considered acceptable as alternatives provided that they are applied and maintained in compliance with the manufacturer's specifications.

Where soft coatings have been applied, safe access should be provided for the surveyor to verify the effectiveness of the coating and to carry out an assessment of the conditions of internal structures which may include spot removal of the coating. When safe access cannot be provided, the soft coating should be removed."
- 3 The title "Tank corrosion - prevention system" of section 2.3 is changed to "Space protection".
- 4 Existing paragraph 2.3.1 is replaced by the following:

"2.3.1 Where provided, the condition of corrosion prevention system of ballast tanks should be examined. For ballast tanks, excluding double bottom tanks, where a coating is found in POOR condition as defined in 1.2.11, and it is not renewed, or where soft coating has been applied, or where a coating has not been applied, the tanks in question should be examined at annual intervals. When such breakdown of coating is found in ballast double bottom tanks, or where a soft coating has been applied, or where a coating has not been applied, the tanks in question may be examined at annual intervals. When considered necessary by the surveyor, or where extensive corrosion exists, thickness measurements should be carried out. Where a protective coating is provided in cargo holds and is found in good condition, the extent of close-up surveys and thickness measurements may be specially considered*."

NOTES:

All through the text, replace the sentence "Thickness measurement should be carried out as considered necessary by the surveyor" with the expression "When considered necessary by the surveyor, or where extensive corrosion exists, thickness measurements should be carried out."

Where the words "specially considered" are found, add a reference to the following footnote:

- * As a minimum, the words "specially considered" is taken to mean that sufficient close-up inspection and thickness measurements are taken to confirm the actual average condition of the structure under coating.

- 5 In paragraph 2.4.2, the word "random" is deleted and the word "all" is inserted between the words "operation of" and "mechanically".
- 6 The following sentence is added to paragraph 2.6.3:

"Provisions for extended measurements for areas with substantial corrosion as defined in 1.2.9 are given in annex 10."
- 7 The following sentence is added to paragraph 2.6.4:

"Where a protective coating is provided in cargo holds and is found in good condition, the extent of close-up surveys and thickness measurements may be specially considered."
- 8 In paragraph 3.3.2, the words ", including close-up survey of hatch cover plating" are inserted after the words "hatch cover".
- 9 In paragraph 3.3.3, the words ", including close-up survey of hatchcover plating" are inserted after the words "steel pontoons".
- 10 The following new paragraphs 3.3.5 and 3.3.6 are added:

"3.3.5 Checking the satisfactory condition of hatch coaming plating and their stiffener, including close-up survey should be made.

3.3.6 Random checking of the satisfactory operation of mechanically operated hatch covers should be made, including:

 .1 stowage and securing in open condition;

 .2 proper fit and efficiency of sealing in closed condition;

 .3 operational testing of hydraulic and power components, wires, chains, and link drives."

11 Existing paragraphs 3.4.1 and 3.4.2 are replaced by the following:

"3.4.1 For bulk carriers over 10 years of age, the following should be carried out:

- .1 overall survey of all cargo holds. Where a protective coating is provided in cargo holds and is found in good condition, the extent of close-up surveys and thickness measurements may be specially considered;
- .2 close-up examination of sufficient extent, minimum 25% of frames, to establish the condition of the lower region of the shell frames including approx. lower one third length of side frame at side shell and side frame end attachment and the adjacent shell plating in the forward cargo hold. Where this level of survey reveals the need for remedial measures, the survey is to be extended to include a close-up survey of all of the shell frames and adjacent shell plating of that cargo hold as well as a close-up survey of sufficient extent of all remaining cargo holds;
- .3 when considered necessary by the surveyor, thickness measurement is to be carried out. If the results of these thickness measurements indicate that Substantial Corrosion is found, the extent of thickness measurements should be increased in accordance with annex 10.

3.4.2 For bulk carriers over 15 years of age, the following should be carried out:

- .1 overall survey of all cargo holds. Where a protective coating is provided in cargo holds and is found in good condition, the extent of close-up surveys and thickness measurements may be specially considered;
- .2 close-up examination of sufficient extent, minimum 25% of frames, to establish the condition of the lower region of the shell frames including approx. lower one third length of side frame at side shell and side frame end attachment and the adjacent shell plating in the forward cargo hold and one other selected cargo hold. Where this level of survey reveals the need for remedial measures, the survey is to be extended to include a close-up survey of all of the shell frames and adjacent shell plating of that cargo hold as well as a close-up survey of sufficient extent of all remaining cargo holds;
- .3 when considered necessary by the surveyor, thickness measurement should be carried out. If the results of these thickness measurements indicate that Substantial Corrosion is found, the extent of thickness measurements should be increased in accordance with annex 10."

- 12 Add a new paragraph 3.4.3 as follows:

"3 all piping and penetrations in cargo holds, including overboard piping, should be examined."

- 13 Existing paragraph 3.5.1 is replaced by the following:

"3.5.1 Examination of ballast tanks should be carried out when required as a consequence of the results of the periodical survey and intermediate enhanced survey. When considered necessary by the surveyor, thickness measurement should be carried out. If the results of these thickness measurements indicate that substantial corrosion is found, the extent of thickness measurements should be increased in accordance with annex 10."

- 14 Existing paragraph 4.2.3 is replaced by the following:

"4.2.3 For ballast tanks excluding double bottom tanks, where a coating is found in POOR condition as defined in 1.2.11, and it is not renewed, or where soft coating has been applied, or where a coating has not been applied, the tanks in question should be examined at annual intervals. When such breakdown of coating is found in ballast double bottom tanks, or where soft coating has been applied, or where a coating has not been applied, the tanks in question may be examined at annual intervals. When considered necessary by the surveyor, or where extensive corrosion exists, thickness measurements should be carried out."

- 15 Existing paragraphs 4.3.1 and 4.3.2 are replaced by the following:

"4.3.1 For bulk carriers over 5 years of age, the following should be carried out:

- .1 An overall survey of all cargo holds, including a close-up survey of sufficient extent, minimum 25% of frames, should be carried out to establish the condition of:
 - shell frames including their upper and lower end attachments, adjacent shell plating, and transverse bulkheads in the forward cargo hold and one other selected cargo hold;
 - areas found suspect according to chapter 1.2.8 at the previous periodical survey.
- .2 Where considered necessary by the surveyor as a result of the overall and close-up survey as described in 4.3.1.1, the survey should be extended to include a close-up survey of all of the shell frames and adjacent shell plating of that cargo hold as well as a close-up survey of sufficient extent of all remaining cargo holds.

4.3.2 For bulk carriers over 10 years of age, the following should be carried out:

- .1 an overall survey of all cargo holds, including a close-up survey of sufficient extent, minimum 25% of frames, is to be carried out to establish the condition of:
 - shell frames including their upper and lower end attachments, adjacent shell plating, and transverse bulkheads in all cargo holds; and
 - areas found suspect according to chapter 1.2.8 at the previous periodical survey.
- .2 where considered necessary by the surveyor as a result of the overall and close-up survey as described in 4.3.2.1, the survey is to be extended to include a close-up survey of all of the shell frames and adjacent shell plating of all cargo holds."

16 The following new paragraph 4.3.3 is added:

"4.3.3 For bulk carriers over 15 years of age, the following should be carried out:

- .1 an overall survey of all cargo holds, including a close-up survey, is to be carried out to establish the condition of:
 - all shell frames including their upper and lower end attachments, adjacent shell plating, and transverse bulkheads in all cargo holds; and
 - areas found suspect according to chapter 1.2.8 at the previous Periodical Survey."

17 The following sentences are added to paragraph 4.4.1:

"The minimum requirement for thickness measurements at the Intermediate Enhanced Survey are areas found to be suspect areas according to 1.2.8 at the previous Periodical Survey. Where substantial corrosion as defined in 1.2.9 is found, the extent of thickness measurements should be increased with the requirements of annex 10."

18 The following new paragraph 4.4.3 is added:

"4.4.3 Where a protective coating is provided in cargo holds and is found in good condition, the extent of close-up surveys and thickness measurements may be specially considered."

19 Existing sections 6, 7 and 8 are renumbered as sections 7, 8 and 9, including all relevant paragraphs, and the following new section 6 is inserted:

"6 PROMPT AND THOROUGH REPAIRS OF BULK CARRIERS RELATIVE TO DAMAGES AND WASTAGE IN CARGO HOLDS

6.1 General

6.1.1. Any damage or excessive wastage beyond allowable limits to side shell frames, their end attachments and/or adjacent shell plating, and deck structure and deck plating between hatches, watertight bulkheads and hatch covers and hatch coamings that affect the structural strength or integrity of the hull of the vessel, is to be promptly and thoroughly repaired.

"Prompt" is defined as to be done without delay at the time of the survey.

"Thorough" is defined as satisfactory in all respects and permanent.

6.1.2 For locations where adequate repair facilities are not immediately available, consideration may be given to allow a vessel to proceed directly to a repair facility. This may require discharging of the cargo and/or temporary repairs for the intended voyage.

6.1.3 Damages or excessive wastage in the areas noted above which are considered by the attending Surveyor to be of a nature not immediately affecting the vessel's structural or watertight integrity may be temporarily repaired for a limited period."

20 Add the following sentence to paragraph 7.1.2 of both annexes A and B:

"In all cases, regardless of the pattern, the extent of thickness measurements should be sufficient as to represent the actual average condition of the plate."

21 Existing annex 1 is replaced by the following:

"ANNEX 1

REQUIREMENTS FOR CLOSE-UP SURVEY AT PERIODICAL SURVEYS

Age ≤ 5 years	5 < Age ≤ 10 years	10 < Age ≤ 15 years	Age > 15 years
(A) 25% of shell frames in the forward cargo hold at representative positions. Selected frames in remaining cargo holds	(A) 25% of shell frames in all cargo holds including upper and lower end attachments and adjacent shell plating.	(A) All shell frames in the forward cargo hold and 25% of frames in remaining cargo holds, including upper and lower end attachments and adjacent shell plating.	(A) All shell frames in all cargo holds including upper and lower end attachments and adjacent shell plating.
(B) One transverse web with associated plating and longitudinals in two representative water ballast tanks of each type (i.e. topside, hopper side or side tank.)	(B) One transverse web with associated plating and longitudinals in each water ballast tank (i.e. topside, hopper side or side tank).	(B) All transverse webs with associated plating and longitudinals in each water ballast tank (i.e. topside, hopper side or side tank).	Areas (B)-(E) as for column 3.

- | | | |
|---|---|---|
| (C) Two selected cargo hold transverse bulkheads, including internal structure of upper and lower stools, where fitted. | (B) Forward and aft transverse bulkhead in one side ballast tank, including stiffening system. | (B) All transverse bulkheads in ballast tanks, including stiffening systems. |
| | (C) One transverse bulkhead in each cargo hold, including internal structure of upper and lower stools, where fitted. | (C) All cargo hold transverse bulkheads including internal structure of upper and lower stools, where fitted. |
| (D) All cargo hold hatch covers and coamings | (D) All cargo hold hatch covers and coamings. | (D) All cargo hold hatch covers and coamings. |
| | (E) Selected areas of deck plating inside line of hatch openings between cargo hold hatches. | (E) All deck plating inside line of hatch openings between cargo hold hatches. |
| (A) - Cargo hold transverse frame | (B) - Transverse web frame or water tight transverse bulkhead in water ballast tanks | (C) - Cargo hold transverse bulkheads plating, stiffeners and girders |
| (D)- Cargo hold hatch covers and coamings | (E) - Deck plating inside line of hatch openings between cargo hold hatches | |

Note: Close-up survey of transverse bulkheads to be carried out at four levels:

Level (a) - Immediately above the inner bottom and immediately above the line of gussets (if fitted) and shedders for ships without lower stool.

Level (b) - Immediately above and below the lower stool shelf plate (for those ships fitted with lower stools), and immediately above the line of the shedder plates.

Level (c) - About mid-height of the bulkhead.

Level (d) - Immediately below the upper deck plating and immediately, adjacent to the upper wing tank, and immediately below the upper stool shelf plate for those ships fitted with upper stools, or immediately, below the topside tank."

- 22 In Annex 8 to Annex A - "Recommended procedures for thickness measurements", General, the following words are added at the end of paragraph 2:

"and the maximum allowable diminution should be stated."

- 23 In Appendix 2 to Annex 8 to Annex A - "Reports on thickness measurement", a new column headed "Maximum allowable diminution (mm) is added".

24 The following new annex 10 is added:

"ANNEX 10

**REQUIREMENTS FOR EXTENT OF THICKNESS MEASUREMENT
AT AREAS OF SUBSTANTIAL CORROSION**

PERIODICAL SURVEY OF BULK CARRIERS WITHIN THE CARGO AREA

SHELL PLATING

STRUCTURAL MEMBER	EXTENT OF MEASUREMENT	PATTERN OF MEASUREMENT
1. Bottom and side shell Plating	a. Suspect plate, plus four adjacent plates b. See other tables for particulars on gauging in way tanks and cargo holds	a. 5 point pattern for each panel between longitudinals
2. Bottom/side shell longitudinals	Minimum of three longitudinals in way of suspect areas	3 measurements in line across web 3 measurements on flange

TRANSVERSE BULKHEADS IN CARGO HOLDS

STRUCTURAL MEMBER	EXTENT OF MEASUREMENT	PATTERN OF MEASUREMENT
1. Lower Stool	a. Transverse band within 25 mm of welded connection to innerbottom. b. Transverse band within 25 mm of welded connection to shelf plate.	a. 5 point between stiffeners over 1 metre length b. Ditto
2. Transverse Bulkhead	a. Transverse band at approximately mid-height b. Transverse band at part of bulkhead adjacent to upper deck or below upper stool shelf plate (for those ships fitted with upper stools)	a. 5 point pattern over 1 sq. metre of plating b. 5 point pattern over 1 sq. metre of plating

**DECK STRUCTURE INCLUDING CROSS STRIPS, MAIN CARGO HATCHWAYS,
HATCH COAMINGS, COAMINGS AND TOPSIDE TANKS**

STRUCTURAL MEMBER	EXTENT OF MEASUREMENT	PATTERN OF MEASUREMENT
1. Cross Deck Strip plating	Suspect cross deck strip plating	a. 5 point pattern between underdeck stiffeners over 1 metre length
2. Underdeck Stiffeners	a. Transverse members	a. 5 point pattern at each end and mid-span
	b. Longitudinal member	b. 5 point pattern on both web and flange
3. Hatch Covers	a. Skirt, each side and ends, 3 locations	a. 5 point pattern at each location
	b. 3 longitudinal bands, outboard strakes (2) and centerline strake (1).	b. 5 point measurement each band
4. Hatch Coamings	Each side and end of coaming, one band lower 1/3, one band upper 2/3 of coaming	5 point measurement each band, i.e. end or side coaming
5. Topside Water Ballast Tanks	a. Watertight transverse bulkheads	i. 5 point pattern over 1 sq. metre of plating ii. 5 point pattern over 1 sq. metre of plating iii. 5 point pattern over 1 metre length
	b. 2 representative swash transverse bulkheads	i. 5 point pattern over 1 sq. metre of plating ii. 5 point pattern over 1 sq. metre of plating iii. 5 point pattern over 1 metre length
	i. lower 1/3 of bulkhead ii. upper 2/3 of bulkhead iii. stiffeners	

STRUCTURAL MEMBER	EXTENT OF MEASUREMENT	PATTERN OF MEASUREMENT
5. Topside Water Ballast Tanks (cont'd)	c. 3 representative bays of slope plating i. lower 1/3 of tank ii. upper 2/3 of tank d. Longitudinals, suspect and adjacent	c. i. 5 point pattern over 1 sq. metre of plating ii. 5 point pattern over 1 sq. metre of plating d. 5 point pattern both web and flange over 1 metre length
6. Main Deck Plating	Suspect plates and adjacent (4)	5 point pattern over 1 sq. metre of plating
7. Main Deck Longitudinals	Minimum of 3 longitudinals where plating measured	5 point pattern on both web and flange over 1 metre length
8. Web frames/Transverses	Suspect plates	5 point pattern over 1 sq. metre

DOUBLE BOTTOM AND HOPPER STRUCTURE

STRUCTURAL MEMBER	EXTENT OF MEASUREMENT	PATTERN OF MEASUREMENT
1. Inner/Double Bottom Plating	Suspect plate plus all adjacent plates	5 point pattern for each panel between longitudinals over 1 metre length
2. Inner/Double Bottom Longitudinals	Three longitudinals where plates measured	+3 measurements inline across web, and 3 measurements on flange
3. Longitudinal Girders or Transverse floors	b. Suspect plates	b. 5 point pattern over about 1 square metre
4. Watertight Bulkheads (WT Floors)	a. lower 1/3 of tank b. upper 2/3 of tank	a. 5 point pattern over 1 sq. metre of plating b. 5 point pattern alternate plates over 1 sq. metre of plating
5. Web Frames	Suspect plate	5 point pattern over 1 sq. metre of plating
6. Bottom/side shell longitudinals	Minimum of three longitudinals in way of suspect areas	3 measurements in line across web 3 measurements on flange

CARGO HOLDS

STRUCTURAL MEMBER	EXTENT OF MEASUREMENT	PATTERN OF MEASUREMENT
1. Side Shell frames	Suspect frame and each adjacent	a. At each end and mid span: 5 point pattern of both web and flange b. 5 point pattern within 25 mm of welded attachment to both shell and lower slope plate"

GUIDELINES ON THE ENHANCED PROGRAMME OF INSPECTION DURING SURVEYS OF OIL TANKERS (Resolution A.744(18), Annex B))

- 25 The following sentence is added to paragraph 1.2.1:

"A tank which is used for both cargo and ballast will be treated as a ballast tank when substantial corrosion has been found in that tank."

- 26 Existing paragraph 1.2.8 is replaced by the following:

"1.2.8 Corrosion prevention system is normally considered either:

- .1 a full hard coating; or
- .2 a full hard coating supplemented by anodes.

Protective coating should usually be epoxy coating or equivalent. Other coating systems may be considered acceptable as alternatives provided that they are applied and maintained in compliance with the manufacturer's specifications.

Where soft coatings have been applied, safe access should be provided for the surveyor to verify the effectiveness of the coating and to carry out an assessment of the conditions of internal structures which may include spot removal of the coating. When safe access cannot be provided, the soft coating should be removed."

- 27 In paragraph 2.3.1, second sentence, the words "or where soft coating has been applied," are added after the word "renewed".
- 28 In paragraph 4.2.4, first sentence, the words "or where soft coating has been applied," are added after the word "renewed".

- 29 In annex 10 to Annex B - "Recommended procedures for thickness measurements", General, the following words are added at the end of paragraph 2:
- "and the maximum allowable diminution should be stated."
- 30 In Appendix 2 to annex 10 to Annex B - "Reports on thickness measurement", a new column headed "Maximum allowable diminution (mm) is added".

VOID

ANNEX 3

RESOLUTION MSC.66(68)
(adopted on 4 June 1997)

**ADOPTION OF AMENDMENTS TO THE INTERNATIONAL CONVENTION ON
STANDARDS OF TRAINING, CERTIFICATION AND WATCHKEEPING
FOR SEAFARERS, 1978, 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 FURTHER article XII of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), 1978, hereinafter referred to as "the Convention", concerning the procedures for amending the Convention,

HAVING CONSIDERED resolution 6 of the 1995 Conference of Parties to the 1978 STCW Convention and relevant provisions addressing the training of masters, officers, ratings and other personnel serving on passenger ships,

HAVING ALSO CONSIDERED, at its sixty-eighth session, amendments to regulations V/2 and V/3 of the Convention proposed and circulated in accordance with article XII(1)(a)(i) thereof,

1. ADOPTS, in accordance with article XII(1)(a)(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 XII(1)(a)(vii)2 of the Convention, that the amendments shall be deemed to have been accepted on 1 July 1998, unless, prior to that date, more than one third of Parties or Parties the combined merchant fleets of which constitute not less than 50% of the gross tonnage of the world's merchant shipping of ships of 100 gross register tons or more, have notified their objections to the amendments;
3. INVITES Parties to the STCW Convention to note that, in accordance with article XII(1)(a)(ix) of the Convention, the amendments shall enter into force on 1 January 1999 upon their acceptance in accordance with paragraph 2 above;
4. REQUESTS the Secretary-General, in conformity with article XII(1)(a)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the Annex to all Parties to the Convention;
5. FURTHER REQUESTS the Secretary-General to transmit copies of this resolution and its Annex to Members of the Organization which are not Parties to the Convention.

ANNEX

AMENDMENTS TO THE INTERNATIONAL CONVENTION ON
STANDARDS OF TRAINING, CERTIFICATION AND
WATCHKEEPING FOR SEAFARERS, 1978,
AS AMENDED

CHAPTER V

SPECIAL TRAINING REQUIREMENTS FOR PERSONNEL
ON CERTAIN TYPES OF SHIPS

Regulation V/2 - *Mandatory minimum requirements for the training and qualifications of masters, officers, ratings and other personnel on ro-ro passenger ships*

- 1 The following text is added at the end of paragraph 3:

"or be required to provide evidence of having achieved the required standard of competence within the previous five years."
- 2 The following new regulation V/3 is added after existing regulation V/2:

"Regulation V/3

Mandatory minimum requirements for the training and qualifications of masters, officers, ratings and other personnel on passenger ships other than ro-ro passenger ships

- 1 This regulation applies to masters, officers, ratings and other personnel serving on board passenger ships, other than ro-ro passenger ships, engaged on international voyages. Administrations shall determine the applicability of these requirements to personnel serving on passenger ships engaged on domestic voyages.
- 2 Prior to being assigned shipboard duties on board passenger ships, seafarers shall have completed the training required by paragraphs 4 to 8 below in accordance with their capacity, duties and responsibilities.
- 3 Seafarers who are required to be trained in accordance with paragraphs 4, 7 and 8 below shall, at intervals not exceeding five years, undertake appropriate refresher training or be required to provide evidence of having achieved the required standard of competence within the previous five years.
- 4 Personnel designated on muster lists to assist passengers in emergency situations on board passenger ships shall have completed training in crowd management as specified in section A-V/3, paragraph 1 of the STCW Code.

- 5 Masters, officers and other personnel assigned specific duties and responsibilities on board passenger ships shall have completed the familiarization training specified in section A-V/3, paragraph 2 of the STCW Code.
- 6 Personnel providing direct service to passengers on board passenger ships in passenger spaces shall have completed the safety training specified in section A-V/3, paragraph 3 of the STCW Code.
- 7 Masters, chief mates, and every person assigned immediate responsibility for embarking and disembarking passengers shall have completed approved training in passenger safety as specified in section A-V/3, paragraph 4 of the STCW Code.
- 8 Masters, chief mates, chief engineer officers, second engineer officers and any person having responsibility for the safety of passengers in emergency situations on board passenger ships shall have completed approved training in crisis management and human behaviour as specified in section A-V/3, paragraph 5 of the STCW Code.
- 9 Administrations shall ensure that documentary evidence of the training which has been completed is issued to every person found qualified under the provisions of this regulation."

ANNEX 4

RESOLUTION MSC.67(68)
(adopted on 4 June 1997)

**ADOPTION OF AMENDMENTS TO THE SEAFARERS' TRAINING,
CERTIFICATION AND WATCHKEEPING (STCW) CODE**

THE MARITIME SAFETY COMMITTEE,

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

RECALLING FURTHER article XII and regulation I/1.2.3 of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), 1978, hereinafter referred to as "the Convention", concerning the procedures for amending part A of the Seafarers' Training, Certification and Watchkeeping (STCW) Code,

HAVING CONSIDERED resolution 5 of the 1995 Conference of Parties to the 1978 STCW Convention and relevant provisions addressing the training of personnel on ro-ro passenger ships in crisis management and human behaviour,

HAVING ALSO CONSIDERED, at its sixty-eighth session, amendments to part A of the STCW Code proposed and circulated in accordance with article XII(1)(a)(i) of the Convention,

1. ADOPTS, in accordance with article XII(1)(a)(iv) of the Convention, amendments to the STCW Code, the text of which is set out in the Annex to the present resolution;
2. DETERMINES, in accordance with article XII(1)(a)(vii)2 of the Convention, that the said amendments to the STCW Code shall be deemed to have been accepted on 1 July 1998, unless, prior to that date more than one third of Parties or Parties the combined merchant fleets of which constitute not less than 50% of the gross tonnage of the world's merchant shipping of ships of 100 gross register tons or more, have notified their objections to the amendments;
3. INVITES Parties to the STCW Convention to note that, in accordance with article XII(1)(a)(ix) of the Convention, the annexed amendments to the STCW Code shall enter into force on 1 January 1999 upon their acceptance in accordance with paragraph 2 above;
4. REQUESTS the Secretary-General, in conformity with article XII(1)(a)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the Annex to all Parties to the Convention;
5. FURTHER REQUESTS the Secretary-General to transmit copies of this resolution and its Annex to Members of the Organization, which are not Parties to the Convention.

ANNEX

**AMENDMENTS TO THE SEAFARERS' TRAINING, CERTIFICATION AND
WATCHKEEPING (STCW) CODE**

Section A-V/2

Mandatory minimum requirements for the training and qualifications of masters, officers, ratings and other personnel on ro-ro passenger ships

- 1 Section A-V/2.5 is replaced by the following:

"Crisis management and human behaviour training

5 Masters, chief mates, chief engineer officers, second engineer officers and any person having responsibility for the safety of passengers in emergency situations shall:

- .1 have successfully completed the approved crisis management and human behaviour training, required by regulation V/2, paragraph 8, in accordance with their capacity, duties and responsibilities as set out in table A-V/2; and
- .2 be required to provide evidence that the required standard of competence has been achieved in accordance with the methods and the criteria for evaluating competence tabulated in columns 3 and 4 of table A-V/2."

- 2 The following new table A-V/2 is inserted at the end of section A-V/2:

"Table A-V/2

SPECIFICATION OF MINIMUM STANDARD OF COMPETENCE IN CRISIS MANAGEMENT AND HUMAN BEHAVIOUR

Column 1	Column 2	Column 3	Column 4
COMPETENCE	KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE
Organize shipboard emergency procedures	Knowledge of: 1 the general design and layout of the ship; 2 safety regulations; 3 emergency plans and procedures. The importance of the principles for the development of ship specific emergency procedures including: 1 the need for pre-planning and drills of shipboard emergency procedures; 2 the need for all personnel to be aware of and adhere to pre-planned emergency procedures as carefully as possible in the event of an emergency situation.	Assessment of evidence obtained from approved training, exercises with one or more prepared emergency plans and practical demonstration.	The shipboard emergency procedures ensure a state of readiness to respond to emergency situations.
Optimize the use of resources	Ability to optimize the use of resources, taking into account: 1 the possibility that resources available in an emergency may be limited; 2 the need to make full use of personnel and equipment immediately available and, if necessary, to improvise. Ability to organize realistic drills to maintain a state of readiness, taking into account lessons learnt from previous accidents involving passenger ships; debriefing after drills.	Assessment of evidence obtained from approved training, practical demonstration and shipboard training and drills of emergency procedures.	Contingency plans optimize the use of available resources. Allocation of tasks and responsibilities reflects the known competence of individuals. Roles and responsibilities of teams and individuals are clearly defined.

Column 1	Column 2	Column 3	Column 4
COMPETENCE	KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE
Control response to emergencies	Ability to make an initial assessment and provide an effective response to emergency situations in accordance with established emergency procedures. Leadership skills Ability to lead and direct others in emergency situations, including the need: .1 to set an example during emergency situations; .2 to focus decision making, given the need to act quickly in an emergency; .3 to motivate, encourage and reassure passengers and other personnel. Stress handling Ability to identify the development of symptoms of excessive personal stress and those of other members of the ship's emergency team. Understanding that stress generated by emergency situations can affect the performance of individuals and their ability to act on instructions and follow procedures.	Assessment of evidence obtained from approved training, practical demonstration and shipboard training and drills of emergency procedures.	Procedures and actions are in accordance with established principles and plans for crisis management on board. Objectives and strategy are appropriate to the nature of the emergency, take account of contingencies and make optimum use of available resources. Actions of crew members contribute to maintaining order and control.

Column 1	Column 2	Column 3	Column 4
COMPETENCE	KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE
Control passengers and other personnel during emergency situations	Human behaviour and responses Ability to control passengers and other personnel in emergency situations, including: .1 awareness of the general reaction patterns of passengers and other personnel in emergency situations, including the possibility that: .1.1 generally it takes some time before people accept the fact that there is an emergency situation; .1.2 some people may panic and not behave with a normal level of rationality, that their ability to comprehend may be impaired and they may not be as responsive to instructions as in non-emergency situations; .2 awareness that passengers and other personnel may, <i>inter alia</i>: .2.1 start looking for relatives, friends and/or their belongings as a first reaction when something goes wrong; .2.2 seek safety in their cabins or in other places on-board where they think that they can escape danger; .2.3 tend to move to the upper side when the ship is listing; .3 appreciation of the possible problem of panic resulting from separating families.	Assessment of evidence obtained from approved training, practical demonstration and shipboard training and drills of emergency procedures.	Actions of crew members contribute to maintaining order and control

Column 1	Column 2	Column 3	Column 4
COMPETENCE	KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE
Establish and maintain effective communications	Ability to establish and maintain effective communications, including: 1 the importance of clear and concise instructions and reports; 2 the need to encourage an exchange of information with, and feedback from, passengers and other personnel Ability to provide relevant information to passengers and other personnel during an emergency situation, to keep them apprised of the overall situation and to communicate any action required of them, taking into account: 1 the language or languages appropriate to the principal nationalities of passengers and other personnel carried on the particular route; 2 the possible need to communicate during an emergency by some other means such as by demonstration, or by hand signals or calling attention to the location of instructions, muster stations, life-saving devices or evacuation routes, when oral communication is impractical; 3 the language in which emergency announcements may be broadcast during an emergency or drill to convey critical guidance to passengers and to facilitate crew members in assisting passengers.	Assessment of evidence obtained from approved training, exercises and practical demonstration.	Information from all available sources is obtained, evaluated and confirmed as quickly as possible and reviewed throughout the emergency. Information given to individuals, emergency response teams and passengers is accurate, relevant and timely. Information keeps passengers informed as to the nature of the emergency and the actions required of them.

- 3 The following new section A-V/3 is added after existing section A-V/2:

"Section A-V/3

Mandatory minimum requirements for the training and qualifications of masters, officers, ratings and other personnel on passenger ships other than ro-ro passenger ships.

Crowd management training

1 The crowd management training required by regulation V/3, paragraph 4 for personnel designated on muster lists to assist passengers in emergency situations shall include, but not necessarily be limited to:

- .1 awareness of life-saving appliance and control plans, including:
 - .1.1 knowledge of muster lists and emergency instructions,
 - .1.2 knowledge of the emergency exits, and
 - .1.3 restrictions on the use of elevators;
- .2 the ability to assist passengers en route to muster and embarkation stations, including:
 - .2.1 the ability to give clear reassuring orders,
 - .2.2 the control of passengers in corridors, staircase and passage ways,
 - .2.3 maintaining escape routes clear of obstructions,
 - .2.4 methods available for evacuation of disabled persons and persons needing special assistance, and
 - .2.5 search of accommodation spaces;
- .3 mustering procedures, including:
 - .3.1 the importance of keeping order,
 - .3.2 the ability to use procedures for reducing and avoiding panic,
 - .3.3 the ability to use, where appropriate, passenger lists for evacuation counts, and
 - .3.4 the ability to ensure that the passengers are suitably clothed and have donned their life-jackets correctly.

Familiarization training

2 The familiarization training required by regulation V/3, paragraph 5 shall at least ensure attainment of the abilities that are appropriate to the capacity to be filled and the duties and responsibilities to be taken up, as follows:

Design and operational limitations

- .1 Ability to properly understand and observe any operational limitations imposed on the ship and to understand and apply performance restrictions, including speed limitations in adverse weather, which are intended to maintain the safety of life and the ship.

Safety training for personnel providing direct service to passengers in passenger spaces

3 The additional safety training required by regulation V/3, paragraph 6, shall at least ensure attainment of the abilities, as follows:

Communication

- .1 Ability to communicate with passengers during an emergency, taking into account:
 - .1.1 the language or languages appropriate to the principal nationalities of passengers carried on the particular route;
 - .1.2 the likelihood that an ability to use an elementary English vocabulary for basic instructions can provide a means of communication with a passenger in need of assistance whether or not the passenger and crew member share a common language;
 - .1.3 the possible need to communicate during an emergency by some other means such as by demonstration, or hand signals, or calling attention to the location of instructions, muster stations, life-saving devices or evacuation routes, when oral communication is impractical;
 - .1.4 the extent to which complete safety instructions have been provided to passengers in their native language or languages; and
 - .1.5 the languages in which emergency announcements may be broadcast during an emergency or drill to convey critical guidance to passengers and to facilitate crew members in assisting passengers.

Life-saving appliances

- .2 Ability to demonstrate to passengers the use of personal life-saving appliances.

Passenger safety

4 The passenger safety training required by regulation V/3, paragraph 7, for masters, chief mates and persons assigned immediate responsibility for embarking and disembarking passengers shall at least ensure attainment of the ability appropriate to their duties and responsibilities to embark and disembark passengers with special attention to disabled persons and persons needing assistance.

Crisis management and human behaviour training

5 Masters, chief mates, chief engineer officers, second engineer officers and any person having responsibility for the safety of passengers in emergency situations shall:

- .1 have successfully completed the approved crisis management and human behaviour training, required by regulation V/3, paragraph 8, in accordance with their capacity, duties and responsibilities as set out in table A-V/2; and
- .2 be required to provide evidence that the required standard of competence has been achieved in accordance with the methods and the criteria for evaluating competence tabulated in columns 3 and 4 of table A-V/2."
