

**BRS Circular****No. 01 / 10**

Date	04.01.2010	Re: Amendments to the International Conventions coming into force from 01.01.2010
Replaces	-	
In addition to	-	
Issued by "Classification Department"		Sign:
Approved by: Executive Director		Sign:

Please find attached the amendments of the International Conventions coming into force on 01.01.2010, which must be applied in the time of the surveys on ships under BRS Class on behalf of all Flag Administrations to which BRS is a Recognized Organization.

**RESOLUTION MEPC.117(52)**

**Adopted on 15 October 2004**

**AMENDMENTS TO THE ANNEX OF THE PROTOCOL OF 1978  
RELATING TO THE INTERNATIONAL CONVENTION FOR THE PREVENTION  
OF POLLUTION FROM SHIPS, 1973**

**(Revised 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 functions of the Marine Environment Protection Committee (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 International Convention for the Prevention of Pollution from Ships, 1973 (hereinafter referred to as the "1978 Protocol") which together specify the amendment procedure of the 1978 Protocol and confer 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),

HAVING CONSIDERED the text of the revised Annex I of MARPOL 73/78,

1. ADOPTS, in accordance with article 16(2)(b), (c) and (d) of the 1973 Convention, the revised Annex I of MARPOL 73/78, the text of which is set out at the annex to the present resolution, each regulation being subject to separate consideration by the Parties pursuant to article 16(2)(f)(ii) of the 1973 Convention;
2. DETERMINES, in accordance with article 16(2)(f)(iii) of the 1973 Convention, that the revised Annex I of MARPOL 73/78 shall be deemed to have been accepted on 1 July 2006, unless, prior to that date, not less than one-third of the Parties or Parties, the combined merchant fleets of which constitute not less than 50 per cent of the gross tonnage of the world's merchant fleet, have communicated to the Organization their objection to the amendments;
3. INVITES the Parties to note that, in accordance with article 16(2)(g)(ii) of the 1973 Convention, the revised Annex I of MARPOL 73/78 shall enter into force on 1 January 2007 upon its acceptance 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 revised Annex I of MARPOL 73/78 contained in the annex; and
5. REQUESTS FURTHER the Secretary-General to transmit copies of the present resolution and its annex to the Members of the Organization which are not Parties to MARPOL 73/78.

ANNEX

CHAPTER 1 - GENERAL

**Regulation 1**

*Definitions*

For the purposes of this Annex:

1 *Oil* means petroleum in any form including crude oil, fuel oil, sludge, oil refuse and refined products (other than those petrochemicals which are subject to the provisions of Annex II of the present Convention) and, without limiting the generality of the foregoing, includes the substances listed in appendix I to this Annex.

2 *Crude oil* means any liquid hydrocarbon mixture occurring naturally in the earth whether or not treated to render it suitable for transportation and includes:

- .1 crude oil from which certain distillate fractions may have been removed; and
- .2 crude oil to which certain distillate fractions may have been added.

3 *Oily mixture* means a mixture with any oil content.

4 *Oil fuel* means any oil used as fuel in connection with the propulsion and auxiliary machinery of the ship in which such oil is carried.

5 *Oil tanker* means a ship constructed or adapted primarily to carry oil in bulk in its cargo spaces and includes combination carriers, any "NLS tanker" as defined in Annex II of the present Convention and any gas carrier as defined in regulation 3.20 of chapter II-1 of SOLAS 74 (as amended), when carrying a cargo or part cargo of oil in bulk.

6 *Crude oil tanker* means an oil tanker engaged in the trade of carrying crude oil.

7 *Product carrier* means an oil tanker engaged in the trade of carrying oil other than crude oil.

8 *Combination carrier* means a ship designed to carry either oil or solid cargoes in bulk.

9 *Major conversion*:

- .1 means a conversion of a ship:
  - .1 which substantially alters the dimensions or carrying capacity of the ship; or
  - .2 which changes the type of the ship; or
  - .3 the intent of which in the opinion of the Administration is substantially to prolong its life; or

- .4 which otherwise so alters the ship that, if it were a new ship, it would become subject to relevant provisions of the present Convention not applicable to it as an existing ship.
- .2 Notwithstanding the provisions of this definition:
  - .1 conversion of an oil tanker of 20,000 tonnes deadweight and above delivered on or before 1 June 1982, as defined in regulation 1.28.3, to meet the requirements of regulation 18 of this Annex shall not be deemed to constitute a major conversion for the purpose of this Annex; and
  - .2 conversion of an oil tanker delivered before 6 July 1996, as defined in regulation 1.28.5, to meet the requirements of regulation 19 or 20 of this Annex shall not be deemed to constitute a major conversion for the purpose of this Annex.

10 *Nearest land.* The term *from the nearest land* means from the baseline from which the territorial sea of the territory in question is established in accordance with international law, except that, for the purposes of the present Convention "from the nearest land" off the north-eastern coast of Australia shall mean from a line drawn from a point on the coast of Australia in:

latitude 11°00' S, longitude 142°08' E  
 to a point in latitude 10°35' S, longitude 141°55' E,  
 thence to a point latitude 10°00' S, longitude 142°00' E,  
 thence to a point latitude 9°10' S, longitude 143°52' E,  
 thence to a point latitude 9°00' S, longitude 144°30' E,  
 thence to a point latitude 10°41' S, longitude 145°00' E,  
 thence to a point latitude 13°00' S, longitude 145°00' E,  
 thence to a point latitude 15°00' S, longitude 146°00' E,  
 thence to a point latitude 17°30' S, longitude 147°00' E,  
 thence to a point latitude 21°00' S, longitude 152°55' E,  
 thence to a point latitude 24°30' S, longitude 154°00' E,  
 thence to a point on the coast of Australia  
 in latitude 24°42' S, longitude 153°15' E.

11 *Special area* means a sea area where for recognized technical reasons in relation to its oceanographical and ecological condition and to the particular character of its traffic the adoption of special mandatory methods for the prevention of sea pollution by oil is required.

For the purposes of this Annex, the special areas are defined as follows:

- .1 *the Mediterranean Sea area* means the Mediterranean Sea proper including the gulfs and seas therein with the boundary between the Mediterranean and the Black Sea constituted by the 41° N parallel and bounded to the west by the Straits of Gibraltar at the meridian of 005°36' W;
- .2 *the Baltic Sea area* means the Baltic Sea proper with the Gulf of Bothnia, the Gulf of Finland and the entrance to the Baltic Sea bounded by the parallel of the Skaw in the Skagerrak at 57°44.8' N;

- .3 *the Black Sea area* means the Black Sea proper with the boundary between the Mediterranean Sea and the Black Sea constituted by the parallel 41° N;
- .4 *the Red Sea area* means the Red Sea proper including the Gulfs of Suez and Aqaba bounded at the south by the rhumb line between Ras si Ane (12°28.5' N, 043°19.6' E) and Husn Murad (12°40.4' N, 043°30.2' E);
- .5 *the Gulfs area* means the sea area located north-west of the rhumb line between Ras al Hadd (22°30' N, 059°48' E) and Ras al Fasteh (25°04' N, 061° 25' E);
- .6 *the Gulf of Aden area* means that part of the Gulf of Aden between the Red Sea and the Arabian Sea bounded to the west by the rhumb line between Ras si Ane (12°28.5'N, 043°19.6' E) and Husn Murad (12°40.4' N, 043°30.2' E) and to the east by the rhumb line between Ras Asir (11°50' N, 051°16.9' E) and the Ras Fartak (15°35' N, 052°13.8' E);
- .7 *the Antarctic area* means the sea area south of latitude 60°S; and
- .8 *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:
- 48° 27' N on the French coast
  - 48° 27' N; 006° 25' W
  - 49° 52' N; 007° 44' W
  - 50° 30' N; 012° W
  - 56° 30' N; 012° W
  - 62° N; 003° W
  - 62° N on the Norwegian coast
  - 57° 44.8' N on the Danish and Swedish coasts
- .9 *the Oman area of the Arabian Sea* means the sea area enclosed by the following coordinates:
- 22° 30.00' N; 059° 48.00' E
  - 23° 47.27' N; 060° 35.73' E
  - 22° 40.62' N; 062° 25.29' E
  - 21° 47.40' N; 063° 22.22' E
  - 20° 30.37' N; 062° 52.41' E
  - 19° 45.90' N; 062° 25.97' E
  - 18° 49.92' N; 062° 02.94' E
  - 17° 44.36' N; 061° 05.53' E
  - 16° 43.71' N; 060° 25.62' E
  - 16° 03.90' N; 059° 32.24' E
  - 15° 15.20' N; 058° 58.52' E
  - 14° 36.93' N; 058° 10.23' E
  - 14° 18.93' N; 057° 27.03' E
  - 14° 11.53' N; 056° 53.75' E
  - 13° 53.80' N; 056° 19.24' E

13° 45.86' N; 055° 54.53' E

14° 27.38' N; 054° 51.42' E

14° 40.10' N; 054° 27.35'E

14° 46.21' N; 054° 08.56' E

15° 20.74' N; 053° 38.33' E

15° 48.69' N; 053° 32.07' E

16° 23.02' N; 053° 14.82' E

16° 39.06' N; 053° 06.52' E

12 *Instantaneous rate of discharge of oil content* means the rate of discharge of oil in litres per hour at any instant divided by the speed of the ship in knots at the same instant.

13 *Tank* means an enclosed space which is formed by the permanent structure of a ship and which is designed for the carriage of liquid in bulk.

14 *Wing tank* means any tank adjacent to the side shell plating.

15 *Centre tank* means any tank inboard of a longitudinal bulkhead.

16 *Slop tank* means a tank specifically designated for the collection of tank drainings, tank washings and other oily mixtures.

17 *Clean ballast* means the ballast in a tank which since oil was last carried therein, has been so cleaned that effluent therefrom if it were discharged from a ship which is stationary into clean calm water on a clear day would not produce visible traces of oil on the surface of the water or on adjoining shorelines or cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines. If the ballast is discharged through an oil discharge monitoring and control system approved by the Administration, evidence based on such a system to the effect that the oil content of the effluent did not exceed 15 parts per million shall be determinative that the ballast was clean, notwithstanding the presence of visible traces.

18 *Segregated ballast* means the ballast water introduced into a tank which is completely separated from the cargo oil and oil fuel system and which is permanently allocated to the carriage of ballast or to the carriage of ballast or cargoes other than oil or noxious liquid substances as variously defined in the Annexes of the present Convention.

19 *Length (L)* means 96 per cent of the total length on a waterline at 85 per cent of the least moulded depth measured from the top of the keel, or the length from the foreside of the stem to the axis of the rudder stock on that waterline, if that be greater. In ships designed with a rake of keel the waterline on which this length is measured shall be parallel to the designed waterline. The length (*L*) shall be measured in metres.

20 *Forward and after perpendiculars* shall be taken at the forward and after ends of the length (*L*). The forward perpendicular shall coincide with the foreside of the stem on the waterline on which the length is measured.

21 *Amidships* is at the middle of the length (*L*).

22 *Breadth (B)* means the maximum breadth of the ship, measured amidships to the moulded line of the frame in a ship with a metal shell and to the outer surface of the hull in a ship with a shell of any other material. The breadth (*B*) shall be measured in metres.

23 *Deadweight (DW)* means the difference in tonnes between the displacement of a ship in water of a relative density of 1.025 at the load waterline corresponding to the assigned summer freeboard and the lightweight of the ship.

24 *Lightweight* means the displacement of a ship in metric tons without cargo, fuel, lubricating oil, ballast water, fresh water and feed water in tanks, consumable stores, and passengers and crew and their effects.

25 *Permeability* of a space means the ratio of the volume within that space which is assumed to be occupied by water to the total volume of that space.

26 *Volumes and areas* in a ship shall be calculated in all cases to moulded lines.

27 *Anniversary date* means the day and the month of each year, which will correspond to the date of expiry of the International Oil Pollution Prevention Certificate.

28.1 *ship delivered on or before 31 December 1979* means a ship:

- .1 for which the building contract is placed on or before 31 December 1975; or
- .2 in the absence of a building contract, the keel of which is laid or which is at a similar stage of construction on or before 30 June 1976; or
- .3 the delivery of which is on or before 31 December 1979; or
- .4 which has undergone a major conversion:
  - .1 for which the contract is placed on or before 31 December 1975; or
  - .2 in the absence of a contract, the construction work of which is begun on or before 30 June 1976; or
  - .3 which is completed on or before 31 December 1979.

28.2 *ship delivered after 31 December 1979* means a ship:

- .1 for which the building contract is placed after 31 December 1975; or
- .2 in the absence of a building contract, the keel of which is laid or which is at a similar stage of construction after 30 June 1976; or
- .3 the delivery of which is after 31 December 1979; or
- .4 which has undergone a major conversion:
  - .1 for which the contract is placed after 31 December 1975; or

- .2 in the absence of a contract, the construction work of which is begun after 30 June 1976; or
- .3 which is completed after 31 December 1979.

28.3 *oil tanker delivered on or before 1 June 1982* means an oil tanker:

- .1 for which the building contract is placed on or before 1 June 1979; or
- .2 in the absence of a building contract, the keel of which is laid or which is at a similar stage of construction on or before 1 January 1980; or
- .3 the delivery of which is on or before 1 June 1982; or
- .4 which has undergone a major conversion:
  - .1 for which the contract is placed on or before 1 June 1979; or
  - .2 in the absence of a contract, the construction work of which is begun on or before 1 January 1980; or
  - .3 which is completed on or before 1 June 1982

28.4 *oil tanker delivered after 1 June 1982* means an oil tanker:

- .1 for which the building contract is placed after 1 June 1979; or
- .2 in the absence of a building contract, the keel of which is laid or which is at a similar stage of construction after 1 January 1980; or
- .3 the delivery of which is after 1 June 1982; or
- .4 which has undergone a major conversion:
  - .1 for which the contract is placed after 1 June 1979; or
  - .2 in the absence of a contract, the construction work of which is begun after 1 January 1980; or
  - .3 which is completed after 1 June 1982.

28.5 *oil tanker delivered before 6 July 1996* means an oil tanker:

- .1 for which the building contract is placed before 6 July 1993; or
- .2 in the absence of a building contract, the keel of which is laid or which is at a similar stage of construction before 6 January 1994; or
- .3 the delivery of which is before 6 July 1996; or
- .4 which has undergone a major conversion:



- .1 for which the contract is placed before 6 July 1993; or
- .2 in the absence of a contract, the construction work of which is begun before 6 January 1994; or
- .3 which is completed before 6 July 1996.

28.6 *oil tanker delivered on or after 6 July 1996* means an oil tanker:

- .1 for which the building contract is placed on or after 6 July 1993; or
- .2 in the absence of a building contract, the keel of which is laid or which is at a similar stage of construction on or after 6 January 1994; or
- .3 the delivery of which is on or after 6 July 1996; or
- .4 which has undergone a major conversion:
  - .1 for which the contract is placed on or after 6 July 1993; or
  - .2 in the absence of a contract, the construction work of which is begun on or after 6 January 1994; or
  - .3 which is completed on or after 6 July 1996.

28.7 *oil tanker delivered on or after 1 February 2002* means an oil tanker:

- .1 for which the building contract is placed on or after 1 February 1999; or
- .2 in the absence of a building contract, the keel of which is laid or which is at a similar stage of construction on or after 1 August 1999; or
- .3 the delivery of which is on or after 1 February 2002; or
- .4 which has undergone a major conversion:
  - .1 for which the contract is placed on or after 1 February 1999; or
  - .2 in the absence of a contract, the construction work of which is begun on or after 1 August 1999; or
  - .3 which is completed on or after 1 February 2002.

28.8 *oil tanker delivered on or after 1 January 2010* means an oil tanker:

- .1 for which the building contract is placed on or after 1 January 2007; or
- .2 in the absence of a building contract, the keel of which is laid or which is at a similar stage of construction on or after 1 July 2007; or

- .3 the delivery of which is on or after 1 January 2010; or
- .4 which has undergone a major conversion:
  - .1 for which the contract is placed on or after 1 January 2007; or
  - .2 in the absence of a contract, the construction work of which is begun on or after 1 July 2007; or
  - .3 which is completed on or after 1 January 2010.

29 *Parts per million (ppm)* means parts of oil per million parts of water by volume.

30 *Constructed* means a ship the keel of which is laid or which is at a similar stage of construction.

## **Regulation 2**

### *Application*

- 1 Unless expressly provided otherwise, the provisions of this Annex shall apply to all ships.
- 2 In ships other than oil tankers fitted with cargo spaces which are constructed and utilized to carry oil in bulk of an aggregate capacity of 200 cubic metres or more, the requirements of regulations 16, 26.4, 29, 30, 31, 32, 34 and 36 of this Annex for oil tankers shall also apply to the construction and operation of those spaces, except that where such aggregate capacity is less than 1,000 cubic metres the requirements of regulation 34.6 of this Annex may apply in lieu of regulations 29, 31 and 32.
- 3 Where a cargo subject to the provisions of Annex II of the present Convention is carried in a cargo space of an oil tanker, the appropriate requirements of Annex II of the present Convention shall also apply.
- 4 The requirements of regulations 29, 31 and 32 of this Annex shall not apply to oil tankers carrying asphalt or other products subject to the provisions of this Annex, which through their physical properties inhibit effective product/water separation and monitoring, for which the control of discharge under regulation 34 of this Annex shall be effected by the retention of residues on board with discharge of all contaminated washings to reception facilities.
- 5 Subject to the provisions of paragraph 6 of this regulation, regulations 18.6 to 18.8 of this Annex shall not apply to an oil tanker delivered on or before 1 June 1982, as defined in regulation 1.28.3, solely engaged in specific trades between:
  - .1 ports or terminals within a State Party to the present Convention; or
  - .2 ports or terminals of States Parties to the present Convention, where:
    - .1 the voyage is entirely within a Special Area; or
    - .2 the voyage is entirely within other limits designated by the Organization.

6 The provisions of paragraph 5 of this regulation shall only apply when the ports or terminals where cargo is loaded on such voyages are provided with reception facilities adequate for the reception and treatment of all the ballast and tank washing water from oil tankers using them and all the following conditions are complied with:

- .1 subject to the exceptions provided for in regulation 4 of this Annex, all ballast water, including clean ballast water, and tank washing residues are retained on board and transferred to the reception facilities and the appropriate entry in the Oil Record Book Part II referred to in regulation 36 of this Annex is endorsed by the competent Port State Authority;
- .2 agreement has been reached between the Administration and the Governments of the Port States referred to in paragraphs 5.1 or 5.2 of this regulation concerning the use of an oil tanker delivered on or before 1 June 1982, as defined in regulation 1.28.3, for a specific trade;
- .3 the adequacy of the reception facilities in accordance with the relevant provisions of this Annex at the ports or terminals referred to above, for the purpose of this regulation, is approved by the Governments of the States Parties to the present Convention within which such ports or terminals are situated; and
- .4 the International Oil Pollution Prevention Certificate is endorsed to the effect that the oil tanker is solely engaged in such specific trade.

### **Regulation 3**

#### *Exemptions and waivers*

1 Any ship such as hydrofoil, air-cushion vehicle, near-surface craft and submarine craft etc. whose constructional features are such as to render the application of any of the provisions of chapters 3 and 4 of this Annex relating to construction and equipment unreasonable or impracticable may be exempted by the Administration from such provisions, provided that the construction and equipment of that ship provides equivalent protection against pollution by oil, having regard to the service for which it is intended.

2 Particulars of any such exemption granted by the Administration shall be indicated in the Certificate referred to in regulation 7 of this Annex.

3 The Administration which allows any such exemption shall, as soon as possible, but not more than 90 days thereafter, communicate to the Organization particulars of same and the reasons therefore, which the Organization shall circulate to the Parties to the present Convention for their information and appropriate action, if any.

4 The Administration may waive the requirements of regulations 29, 31 and 32 of this Annex, for any oil tanker which engages exclusively on voyages both of 72 hours or less in duration and within 50 nautical miles from the nearest land, provided that the oil tanker is engaged exclusively in trades between ports or terminals within a State Party to the present Convention. Any such waiver shall be subject to the requirement that the oil tanker shall retain on board all oily mixtures for subsequent discharge to reception facilities and to the determination by the Administration that facilities available to receive such oily mixtures are adequate.

5 The Administration may waive the requirements of regulations 31 and 32 of this Annex for oil tankers other than those referred to in paragraph 4 of this regulation in cases where:

- .1 the tanker is an oil tanker delivered on or before 1 June 1982, as defined in regulation 1.28.3, of 40,000 tonnes deadweight or above, as referred to in regulation 2.5 of this Annex, solely engaged in specific trades, and the conditions specified in regulation 2.6 of this Annex are complied with; or
- .2 the tanker is engaged exclusively in one or more of the following categories of voyages:
  - .1 voyages within special areas; or
  - .2 voyages within 50 nautical miles from the nearest land outside special areas where the tanker is engaged in:
    - .1 trades between ports or terminals of a State Party to the present Convention; or
    - .2 restricted voyages as determined by the Administration, and of 72 hours or less in duration;

provided that all of the following conditions are complied with:

- .3 all oily mixtures are retained on board for subsequent discharge to reception facilities;
- .4 for voyages specified in paragraph 5.2.2 of this regulation, the Administration has determined that adequate reception facilities are available to receive such oily mixtures in those oil loading ports or terminals the tanker calls at;
- .5 the International Oil Pollution Prevention Certificate, when required, is endorsed to the effect that the ship is exclusively engaged in one or more of the categories of voyages specified in paragraphs 5.2.1 and 5.2.2.2 of this regulation; and
- .6 the quantity, time and port of discharge are recorded in the Oil Record Book.

#### **Regulation 4**

##### *Exceptions*

Regulations 15 and 34 of this Annex shall not apply to:

- .1 the discharge into the sea of oil or oily mixture necessary for the purpose of securing the safety of a ship or saving life at sea; or
- .2 the discharge into the sea of oil or oily mixture resulting from damage to a ship or its equipment:

- .1 provided that all reasonable precautions have been taken after the occurrence of the damage or discovery of the discharge for the purpose of preventing or minimizing the discharge; and
- .2 except if the owner or the master acted either with intent to cause damage, or recklessly and with knowledge that damage would probably result; or
- .3 the discharge into the sea of substances containing oil, approved by the Administration, when being used for the purpose of combating specific pollution incidents in order to minimize the damage from pollution. Any such discharge shall be subject to the approval of any Government in whose jurisdiction it is contemplated the discharge will occur.

### **Regulation 5**

#### *Equivalents*

1 The Administration may allow any fitting, material, appliance or apparatus to be fitted in a ship as an alternative to that required by this Annex if such fitting, material, appliance or apparatus is at least as effective as that required by this Annex. This authority of the Administration shall not extend to substitution of operational methods to effect the control of discharge of oil as equivalent to those design and construction features which are prescribed by regulations in this Annex.

2 The Administration which allows a fitting, material, appliance or apparatus to be fitted in a ship as an alternative to that required by this Annex shall communicate particulars thereof to the Organization for circulation to the Parties to the Convention for their information and appropriate action, if any.

## **CHAPTER 2 - SURVEYS AND CERTIFICATION**

### **Regulation 6**

#### *Surveys*

1 Every oil tanker of 150 gross tonnage and above, and every other ship of 400 gross tonnage and above shall be subject to the surveys specified below:

- .1 an initial survey before the ship is put in service or before the Certificate required under regulation 7 of this Annex is issued for the first time, which shall include a complete survey of its structure, equipment, systems, fittings, arrangements and material in so far as the ship is covered by this Annex. This survey shall be such as to ensure that the structure, equipment, systems, fittings, arrangements and material fully comply with the applicable requirements of this Annex;
- .2 a renewal survey at intervals specified by the Administration, but not exceeding 5 years, except where regulation 10.2.2, 10.5, 10.6 or 10.7 of this Annex is applicable. The renewal survey shall be such as to ensure that the structure, equipment, systems, fittings, arrangements and material fully comply with applicable requirements of this Annex;

- .3 an intermediate survey within 3 months before or after the second anniversary date or within 3 months before or after the third anniversary date of the Certificate which shall take the place of one of the annual surveys specified in paragraph 1.4 of this regulation. The intermediate survey shall be such as to ensure that the equipment and associated pump and piping systems, including oil discharge monitoring and control systems, crude oil washing systems, oily-water separating equipment and oil filtering systems, fully comply with the applicable requirements of this Annex and are in good working order. Such intermediate surveys shall be endorsed on the Certificate issued under regulation 7 or 8 of this Annex;
- .4 an annual survey within 3 months before or after each anniversary date of the Certificate, including a general inspection of the structure, equipment, systems, fittings, arrangements and material referred to in paragraph 1.1 of this regulation to ensure that they have been maintained in accordance with paragraphs 4.1 and 4.2 of this regulation and that they remain satisfactory for the service for which the ship is intended. Such annual surveys shall be endorsed on the Certificate issued under regulation 7 or 8 of this Annex; and
- .5 an additional survey either general or partial, according to the circumstances, shall be made after a repair resulting from investigations prescribed in paragraph 4.3 of this regulation, or whenever any important repairs or renewals are made. The survey shall be such as to ensure that the necessary repairs or renewals have been effectively made, that the material and workmanship of such repairs or renewals are in all respects satisfactory and that the ship complies in all respects with the requirements of this Annex.

2 The Administration shall establish appropriate measures for ships which are not subject to the provisions of paragraph 1 of this regulation in order to ensure that the applicable provisions of this Annex are complied with.

3.1 Surveys of ships as regards the enforcement of the provisions of this Annex shall be carried out by officers of the Administration. The Administration may, however, entrust the surveys either to surveyors nominated for the purpose or to organizations recognized by it. Such organizations shall comply with the guidelines adopted by the Organization by resolution A.739(18), as may be amended by the Organization, and the specifications adopted by the Organization by resolution A.789(19), 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 16 of the present Convention concerning the amendment procedures applicable to this Annex.

3.2 An Administration nominating surveyors or recognizing organizations to conduct surveys as set forth in paragraph 3.1 of this regulation shall, as a minimum, empower any nominated surveyor or recognized organization to:

- .1 require repairs to a ship; and
- .2 carry out surveys, if requested by the appropriate authorities of a port State.

The Administration shall notify the Organization of the specific responsibilities and conditions of the authority delegated to the nominated surveyors or recognized organizations, for circulation to Parties to the present Convention for the information of their officers.

3.3 When a nominated surveyor or recognized organization determines that the condition of the ship or its equipment does not correspond substantially with the particulars of the Certificate or is such that the ship is not fit to proceed to sea without presenting an unreasonable threat of harm to the marine environment, such surveyor or organization shall immediately ensure that corrective action is taken and shall in due course notify the Administration. If such corrective action is not taken the Certificate shall be withdrawn and the Administration shall be notified immediately; and if the ship is in a port of another Party, the appropriate authorities of the port State shall also be notified immediately. When an officer of the Administration, a nominated surveyor or a recognized organization has notified the appropriate authorities of the port State, the Government of the port State concerned shall give such officer, surveyor or organization any necessary assistance to carry out their obligations under this regulation. When applicable, the Government of the port State concerned shall take such steps as will ensure that the ship shall not sail until it can proceed to sea or leave the port for the purpose of proceeding to the nearest appropriate repair yard available without presenting an unreasonable threat of harm to the marine environment.

3.4 In every case, the Administration concerned shall fully guarantee the completeness and efficiency of the survey and shall undertake to ensure the necessary arrangements to satisfy this obligation.

4.1 The condition of the ship and its equipment shall be maintained to conform with the provisions of the present Convention to ensure that the ship in all respects will remain fit to proceed to sea without presenting an unreasonable threat of harm to the marine environment.

4.2 After any survey of the ship under paragraph 1 of this regulation has been completed, no change shall be made in the structure, equipment, systems, fittings, arrangements or material covered by the survey, without the sanction of the Administration, except the direct replacement of such equipment and fittings.

4.3 Whenever an accident occurs to a ship or a defect is discovered which substantially affects the integrity of the ship or the efficiency or completeness of its equipment covered by this Annex the master or owner of the ship shall report at the earliest opportunity to the Administration, the recognized organization or the nominated surveyor responsible for issuing the relevant Certificate, who shall cause investigations to be initiated to determine whether a survey as required by paragraph 1 of this regulation is necessary. If the ship is in a port of another Party, the master or owner shall also report immediately to the appropriate authorities of the port State and the nominated surveyor or recognized organization shall ascertain that such report has been made.

## **Regulation 7**

### *Issue or endorsement of certificate*

1 An International Oil Pollution Prevention Certificate shall be issued, after an initial or renewal survey in accordance with the provisions of regulation 6 of this Annex, to any oil tanker of 150 gross tonnage and above and any other ships of 400 gross tonnage and above which are engaged in voyages to ports or offshore terminals under the jurisdiction of other Parties to the present Convention.

2 Such certificate shall be issued or endorsed as appropriate either by the Administration or by any persons or organization duly authorized by it. In every case the Administration assumes full responsibility for the certificate.

### **Regulation 8**

#### *Issue or endorsement of certificate by another Government*

1 The Government of a Party to the present Convention may, at the request of the Administration, cause a ship to be surveyed and, if satisfied that the provisions of this Annex are complied with, shall issue or authorize the issue of an International Oil Pollution Prevention Certificate to the ship and where appropriate, endorse or authorize the endorsement of that certificate on the ship in accordance with this Annex.

2 A copy of the certificate and a copy of the survey report shall be transmitted as soon as possible to the requesting Administration.

3 A certificate so issued shall contain a statement to the effect that it has been issued at the request of the Administration and it shall have the same force and receive the same recognition as the certificate issued under regulation 7 of this Annex.

4 No International Oil Pollution Prevention Certificate shall be issued to a ship, which is entitled to fly the flag of a State, which is not a Party.

### **Regulation 9**

#### *Form of certificate*

The International Oil Pollution Prevention Certificate shall be drawn up in the form corresponding to the model given in appendix II to this Annex and shall be at least in English, French or Spanish. If an official language of the issuing country is also used, this shall prevail in case of a dispute or discrepancy.

### **Regulation 10**

#### *Duration and validity of certificate*

1 An International Oil Pollution Prevention Certificate shall be issued for a period specified by the Administration, which shall not exceed five years.

2.1 Notwithstanding the requirements of paragraph 1 of this regulation, when the renewal survey is completed within 3 months before the expiry date of the existing certificate, the new certificate shall be valid from the date of completion of the renewal survey to a date not exceeding 5 years from the date of expiry of the existing certificate.

2.2 When the renewal survey is completed after the expiry date of the existing certificate, the new certificate shall be valid from the date of completion of the renewal survey to a date not exceeding 5 years from the date of expiry of the existing certificate.

2.3 When the renewal survey is completed more than 3 months before the expiry date of the existing certificate, the new certificate shall be valid from the date of completion of the renewal survey to a date not exceeding 5 years from the date of completion of the renewal survey.



3 If a certificate is issued for a period of less than 5 years, the Administration may extend the validity of the certificate beyond the expiry date to the maximum period specified in paragraph 1 of this regulation, provided that the surveys referred to in regulations 6.1.3 and 6.1.4 of this Annex applicable when a certificate is issued for a period of 5 years are carried out as appropriate.

4 If a renewal survey has been completed and a new certificate cannot be issued or placed on board the ship before the expiry date of the existing certificate, the person or organization authorized by the Administration may endorse the existing certificate and such a certificate shall be accepted as valid for a further period which shall not exceed 5 months from the expiry date.

5 If a ship at the time when a certificate expires is not in a port in which it is to be surveyed, the Administration may extend the period of validity of the certificate but this extension shall be granted only for the purpose of allowing the ship to complete its voyage to the port in which it is to be surveyed, and then only in cases where it appears proper and reasonable to do so. No certificate shall be extended for a period longer than 3 months, and a ship to which an extension is granted shall not, on its arrival in the port in which it is to be surveyed, be entitled by virtue of such extension to leave that port without having a new certificate. When the renewal survey is completed, the new certificate shall be valid to a date not exceeding 5 years from the date of expiry of the existing certificate before the extension was granted.

6 A certificate issued to a ship engaged on short voyages which has not been extended under the foregoing provisions of this regulation may be extended by the Administration for a period of grace of up to one month from the date of expiry stated on it. When the renewal survey is completed, the new certificate shall be valid to a date not exceeding 5 years from the date of expiry of the existing certificate before the extension was granted.

7 In special circumstances, as determined by the Administration, a new certificate need not be dated from the date of expiry of the existing certificate as required by paragraphs 2.2, 5 or 6 of this regulation. In these special circumstances, the new certificate shall be valid to a date not exceeding 5 years from the date of completion of the renewal survey.

8 If an annual or intermediate survey is completed before the period specified in regulation 6 of this Annex, then:

- .1 the anniversary date shown on the certificate shall be amended by endorsement to a date which shall not be more than 3 months later than the date on which the survey was completed;
- .2 the subsequent annual or intermediate survey required by regulation 6.1 of this Annex shall be completed at the intervals prescribed by that regulation using the new anniversary date; and
- .3 the expiry date may remain unchanged provided one or more annual or intermediate surveys, as appropriate, are carried out so that the maximum intervals between the surveys prescribed by regulation 6.1 of this Annex are not exceeded.

9 A certificate issued under regulation 7 or 8 of this Annex shall cease to be valid in any of the following cases:

- .1 if the relevant surveys are not completed within the periods specified under regulation 6.1 of this Annex;
- .2 if the certificate is not endorsed in accordance with regulation 6.1.3 or 6.1.4 of this Annex; or
- .3 upon transfer of the ship to the flag of another State. A new certificate shall only be issued when the Government issuing the new certificate is fully satisfied that the ship is in compliance with the requirements of regulations 6.4.1 and 6.4.2 of this Annex. In the case of a transfer between Parties, if requested within 3 months after the transfer has taken place, the Government of the Party whose flag the ship was formerly entitled to fly shall, as soon as possible, transmit to the Administration copies of the certificate carried by the ship before the transfer and, if available, copies of the relevant survey reports.

### **Regulation 11**

#### *Port State control on operational requirements\**

1 A ship when in a port or an offshore terminal of another Party is subject to inspection by officers duly authorized by such Party concerning operational requirements under this Annex, where there are clear grounds for believing that the master or crew are not familiar with essential shipboard procedures relating to the prevention of pollution by oil.

2 In the circumstances given in paragraph 1 of this regulation, the Party shall take such steps as will ensure that the ship shall not sail until the situation have been brought to order in accordance with the requirements of this Annex.

3 Procedures relating to the port State control prescribed in article 5 of the present Convention shall apply to this regulation.

4 Nothing in this regulation shall be construed to limit the rights and obligations of a Party carrying out control over operational requirements specifically provided for in the present Convention.

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\* Refer to the Procedures for port State control, adopted by the Organization by resolution A.787(19) as amended by resolution A.882(21); see IMO publication, sales No. IMO-650E.

## CHAPTER 3 - REQUIREMENTS FOR MACHINERY SPACES OF ALL SHIPS

### PART A CONSTRUCTION

#### Regulation 12

##### *Tanks for oil residues (sludge)*

1 Every ship of 400 gross tonnage and above shall be provided with a tank or tanks of adequate capacity, having regard to the type of machinery and length of voyage, to receive the oil residues (sludge) which cannot be dealt with otherwise in accordance with the requirements of this Annex, such as those resulting from the purification of fuel and lubricating oils and oil leakages in the machinery spaces.

2 Piping to and from sludge tanks shall have no direct connection overboard, other than the standard discharge connection referred to in regulation 13.

3 In ships delivered after 31 December 1979, as defined in regulation 1.28.2, tanks for oil residues shall be designed and constructed so as to facilitate their cleaning and the discharge of residues to reception facilities. Ships delivered on or before 31 December 1979, as defined in regulation 1.28.1, shall comply with this requirement as far as is reasonable and practicable.

#### Regulation 13

##### *Standard discharge connection*

To enable pipes of reception facilities to be connected with the ship's discharge pipeline for residues from machinery bilges and from sludge tanks, both lines shall be fitted with a standard discharge connection in accordance with the following table:

Standard dimensions of flanges for discharge connections

<i>Description</i>	<b>Dimension</b>
Outside diameter	215 mm
Inner diameter	According to pipe outside diameter
Bolt circle diameter	183 mm
Slots in flange	6 holes 22 mm in diameter equidistantly placed on a bolt circle of the above diameter, slotted to the flange periphery. The slot width to be 22 mm
Flange thickness	20 mm
Bolts and nuts: quantity, diameter	6, each of 20 mm in diameter and of suitable length
The flange is designed to accept pipes up to a maximum internal diameter of 125 mm and shall be of steel or other equivalent material having a flat face. This flange, together with a gasket of oil-proof material, shall be suitable for a service pressure of 600 kPa.	

## **PART B      EQUIPMENT**

### **Regulation 14**

#### *Oil filtering equipment*

1      Except as specified in paragraph 3 of this regulation any ship of 400 gross tonnage and above but less than 10,000 gross tonnage shall be fitted with oil filtering equipment complying with paragraph 6 of this regulation. Any such ship which may discharge into the sea ballast water retained in fuel oil tanks in accordance with regulation 16.2 shall comply with paragraph 2 of this regulation.

2      Except as specified in paragraph 3 of this regulation any ship of 10,000 gross tonnage and above shall be fitted with oil filtering equipment complying with paragraph 7 of this regulation.

3      Ships, such as hotel ships, storage vessels, etc., which are stationary except for non-cargo-carrying relocation voyages need not be provided with oil filtering equipment. Such ships shall be provided with a holding tank having a volume adequate, to the satisfaction of the Administration, for the total retention on board of the oily bilge water. All oily bilge water shall be retained on board for subsequent discharge to reception facilities.

4      The Administration shall ensure that ships of less than 400 gross tonnage are equipped, as far as practicable, to retain on board oil or oily mixtures or discharge them in accordance with the requirements of regulation 15.6 of this Annex.

5      The Administration may waive the requirements of paragraphs 1 and 2 of this regulation for:

- .1      any ship engaged exclusively on voyages within special areas, or
- .2      any ship certified under the International Code of Safety for High-Speed Craft (or otherwise within the scope of this Code with regard to size and design) engaged on a scheduled service with a turn-around time not exceeding 24 hours and covering also non-passenger/cargo-carrying relocation voyages for these ships,
- .3      with regard to the provision of subparagraphs .1 and .2 above, the following conditions shall be complied with:
  - .1      the ship is fitted with a holding tank having a volume adequate, to the satisfaction of the Administration, for the total retention on board of the oily bilge water;
  - .2      all oily bilge water is retained on board for subsequent discharge to reception facilities;
  - .3      the Administration has determined that adequate reception facilities are available to receive such oily bilge water in a sufficient number of ports or terminals the ship calls at;

- .4 the International Oil Pollution Prevention Certificate, when required, is endorsed to the effect that the ship is exclusively engaged on the voyages within special areas or has been accepted as a high-speed craft for the purpose of this regulation and the service is identified; and
- .5 the quantity, time, and port of the discharge are recorded in the Oil Record Book Part I.

6 Oil filtering equipment referred to in paragraph 1 of this regulation shall be of a design approved by the Administration and shall be such as will ensure that any oily mixture discharged into the sea after passing through the system has an oil content not exceeding 15 parts per million. In considering the design of such equipment, the Administration shall have regard to the specification recommended by the Organization.\*

7 Oil filtering equipment referred to in paragraph 2 of this regulation shall comply with paragraph 6 of this regulation. In addition, it shall be provided with alarm arrangement to indicate when this level cannot be maintained. The system shall also be provided with arrangements to ensure that any discharge of oily mixtures is automatically stopped when the oil content of the effluent exceeds 15 parts per million. In considering the design of such equipment and approvals, the Administration shall have regard to the specification recommended by the Organization.\*

## **PART C CONTROL OF OPERATIONAL DISCHARGE OF OIL**

### **Regulation 15**

#### *Control of discharge of oil*

1 Subject to the provisions of regulation 4 of this annex and paragraphs 2, 3, and 6 of this regulation, any discharge into the sea of oil or oily mixtures from ships shall be prohibited.

#### **A. Discharges outside special areas**

2 Any discharge into the sea of oil or oily mixtures from ships of 400 gross tonnage and above shall be prohibited except when all the following conditions are satisfied:

- .1 the ship is proceeding en route;
- .2 the oily mixture is processed through an oil filtering equipment meeting the requirements of regulation 14 of this Annex;
- .3 the oil content of the effluent without dilution does not exceed 15 parts per million;

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\* Refer to the Recommendation on International Performance and Test Specification for Oily-Water Separating Equipment and Oil Content Meters, adopted by the Organization by Assembly resolution A.393(X), or the Guidelines and specifications for Pollution Prevention equipment for Machinery space Bilges of Ships, adopted by the Marine Environment Protection Committee by resolution MEPC.60(33), or the revised guidelines and specification for pollution prevention equipment for machinery space bilges of ships, adopted by the Marine Environment Protection Committee by resolution MEPC.107(49).

- .4 the oily mixture does not originate from cargo pump room bilges on oil tankers; and
- .5 the oily mixture, in case of oil tankers, is not mixed with oil cargo residues.

#### **B. Discharges in special areas**

3 Any discharge into the sea of oil or oily mixtures from ships of 400 gross tonnage and above shall be prohibited except when all of the following conditions are satisfied:

- .1 the ship is proceeding en route;
- .2 the oily mixture is processed through an oil filtering equipment meeting the requirements of regulation 14.7 of this Annex;
- .3 the oil content of the effluent without dilution does not exceed 15 parts per million;
- .4 the oily mixture does not originate from cargo pump room bilges on oil tankers; and
- .5 the oily mixture, in case of oil tankers, is not mixed with oil cargo residues.

4 In respect of the Antarctic area, any discharge into the sea of oil or oily mixtures from any ship shall be prohibited.

5 Nothing in this regulation shall prohibit a ship on a voyage only part of which is in a special area from discharging outside a special area in accordance with paragraphs 2 of this regulation.

#### **C. Requirements for ships of less than 400 gross tonnage in all areas except the Antarctic area**

6 In the case of a ship of less than 400 gross tonnage, oil and all oily mixtures shall either be retained on board for subsequent discharge to reception facilities or discharged into the sea in accordance with the following provisions :

- .1 the ship is proceeding en route;
- .2 the ship has in operation equipment of a design approved by the Administration that ensures that the oil content of the effluent without dilution does not exceed 15 parts per million;
- .3 the oily mixture does not originate from cargo pump room bilges on oil tankers; and
- .4 the oily mixture, in case of oil tankers, is not mixed with oil cargo residues.

#### **D. General requirements**

7 Whenever visible traces of oil are observed on or below the surface of the water in the immediate vicinity of a ship or its wake, Governments of Parties to the present Convention should, to the extent they are reasonably able to do so, promptly investigate the facts bearing on the issue of whether there has been a violation of the provisions of this regulation. The investigation should include, in particular, the wind and sea conditions, the track and speed of the ship, other possible sources of the visible traces in the vicinity, and any relevant oil discharge records.

8 No discharge into the sea shall contain chemicals or other substances in quantities or concentrations which are hazardous to the marine environment or chemicals or other substances introduced for the purpose of circumventing the conditions of discharge specified in this regulation.

9 The oil residues which cannot be discharged into the sea in compliance with this regulation shall be retained on board for subsequent discharge to reception facilities.

#### **Regulation 16**

##### *Segregation of oil and water ballast and carriage of oil in forepeak tanks*

1 Except as provided in paragraph 2 of this regulation, in ships delivered after 31 December 1979, as defined in regulation 1.28.2, of 4,000 gross tonnage and above other than oil tankers, and in oil tankers delivered after 31 December 1979, as defined in regulation 1.28.2, of 150 gross tonnage and above, no ballast water shall be carried in any oil fuel tank.

2 Where the need to carry large quantities of oil fuel render it necessary to carry ballast water which is not a clean ballast in any oil fuel tank, such ballast water shall be discharged to reception facilities or into the sea in compliance with regulation 15 of this Annex using the equipment specified in regulation 14.2 of this Annex, and an entry shall be made in the Oil Record Book to this effect.

3 In a ship of 400 gross tonnage and above, for which the building contract is placed after 1 January 1982 or, in the absence of a building contract, the keel of which is laid or which is at a similar stage of construction after 1 July 1982, oil shall not be carried in a forepeak tank or a tank forward of the collision bulkhead.

4 All ships other than those subject to paragraphs 1 and 3 of this regulation shall comply with the provisions of those paragraphs as far as is reasonable and practicable.

#### **Regulation 17**

##### *Oil Record Book, Part I - Machinery space operations*

1 Every oil tanker of 150 gross tonnage and above and every ship of 400 gross tonnage and above other than an oil tanker shall be provided with an Oil Record Book Part I (Machinery Space Operations). The Oil Record Book, whether as a part of the ship's official log-book or otherwise, shall be in the Form specified in appendix III to this Annex.

2 The Oil Record Book Part I shall be completed on each occasion, on a tank-to-tank basis if appropriate, whenever any of the following machinery space operations takes place in the ship:

- .1 ballasting or cleaning of oil fuel tanks;
- .2 discharge of dirty ballast or cleaning water from oil fuel tanks;
- .3 collection and disposal of oil residues (sludge and other oil residues);
- .4 discharge overboard or disposal otherwise of bilge water which has accumulated in machinery spaces; and
- .5 bunkering of fuel or bulk lubricating oil.

3 In the event of such discharge of oil or oily mixture as is referred to in regulation 4 of this Annex or in the event of accidental or other exceptional discharge of oil not excepted by that regulation, a statement shall be made in the Oil Record Book Part I of the circumstances of, and the reasons for, the discharge.

4 Each operation described in paragraph 2 of this regulation shall be fully recorded without delay in the Oil Record Book Part I, so that all entries in the book appropriate to that operation are completed. Each completed operation shall be signed by the officer or officers in charge of the operations concerned and each completed page shall be signed by the master of ship. The entries in the Oil Record Book Part I, for ships holding an International Oil Pollution Prevention Certificate, shall be at least in English, French or Spanish. Where entries in an official national language of the State whose flag the ship is entitled to fly are also used, this shall prevail in case of a dispute or discrepancy.

5 Any failure of the oil filtering equipment shall be recorded in the Oil Record Book Part I.

6 The Oil Record Book Part I, shall be kept in such a place as to be readily available for inspection at all reasonable times and, except in the case of unmanned ships under tow, shall be kept on board the ship. It shall be preserved for a period of three years after the last entry has been made.

7 The competent authority of the Government of a Party to the present Convention may inspect the Oil Record Book Part I on board any ship to which this Annex applies while the ship is in its port or offshore terminals and may make a copy of any entry in that book and may require the master of the ship to certify that the copy is a true copy of such entry. Any copy so made which has been certified by the master of the ship as a true copy of an entry in the ship's Oil Record Book Part I shall be made admissible in any judicial proceedings as evidence of the facts stated in the entry. The inspection of an Oil Record Book Part I and the taking of a certified copy by the competent authority under this paragraph shall be performed as expeditiously as possible without causing the ship to be unduly delayed.



**CHAPTER 4 - REQUIREMENTS FOR THE CARGO AREA OF OIL TANKERS****PART A CONSTRUCTION****Regulation 18***Segregated Ballast Tanks**Oil tankers of 20,000 tonnes deadweight and above delivered after 1 June 1982*

1 Every crude oil tanker of 20,000 tonnes deadweight and above and every product carrier of 30,000 tonnes deadweight and above delivered after 1 June 1982, as defined in regulation 1.28.4, shall be provided with segregated ballast tanks and shall comply with paragraphs 2, 3 and 4, or 5 as appropriate, of this regulation.

2 The capacity of the segregated ballast tanks shall be so determined that the ship may operate safely on ballast voyages without recourse to the use of cargo tanks for water ballast except as provided for in paragraph 3 or 4 of this regulation. In all cases, however, the capacity of segregated ballast tanks shall be at least such that, in any ballast condition at any part of the voyage, including the conditions consisting of lightweight plus segregated ballast only, the ship's draughts and trim can meet the following requirements:

- .1 the moulded draught amidships ( $d_m$ ) in metres (without taking into account any ship's deformation) shall not be less than:

$$d_m = 2.0 + 0.02L$$

- .2 the draughts at the forward and after perpendiculars shall correspond to those determined by the draught amidships ( $d_m$ ) as specified in paragraph 2.1 of this regulation, in association with the trim by the stern of not greater than 0.015L; and
- .3 in any case the draught at the after perpendicular shall not be less than that which is necessary to obtain full immersion of the propeller(s).

3 In no case shall ballast water be carried in cargo tanks, except:

- .1 on those rare voyages when weather conditions are so severe that, in the opinion of the master, it is necessary to carry additional ballast water in cargo tanks for the safety of the ship; and
- .2 in exceptional cases where the particular character of the operation of an oil tanker renders it necessary to carry ballast water in excess of the quantity required under paragraph 2 of this regulation, provided that such operation of the oil tanker falls under the category of exceptional cases as established by the Organization.

Such additional ballast water shall be processed and discharged in compliance with regulation 34 of this Annex and an entry shall be made in the Oil Record Book Part II referred to in regulation 36 of this Annex.

4 In the case of crude oil tankers, the additional ballast permitted in paragraph 3 of this regulation shall be carried in cargo tanks only if such tanks have been crude oil washed in accordance with regulation 35 of this Annex before departure from an oil unloading port or terminal.

5 Notwithstanding the provisions of paragraph 2 of this regulation the segregated ballast conditions for oil tankers less than 150 metres in length shall be to the satisfaction of the Administration.

***Crude oil tankers of 40,000 tonnes deadweight and above delivered on or before 1 June 1982***

6 Subject to the provisions of paragraph 7 of this regulation every crude oil tanker of 40,000 tonnes deadweight and above delivered on or before 1 June 1982, as defined in regulation 1.28.3, shall be provided with segregated ballast tanks and shall comply with the requirements of paragraphs 2 and 3 of this regulation.

7 Crude oil tankers referred to in paragraph 6 of this regulation may, in lieu of being provided with segregated tanks operate with a cargo tank cleaning procedure using crude oil washing in accordance with regulation 33 and 35 of this Annex unless the crude oil tanker is intended to carry crude oil which is not suitable for crude oil washing.

***Product carriers of 40,000 tonnes deadweight and above delivered on or before 1 June 1982***

8 Every product carrier of 40,000 tonnes deadweight and above delivered on or before 1 June 1982, as defined in regulation 1.28.3, shall be provided with segregated ballast tanks and shall comply with the requirements of paragraphs 2 and 3 of this regulation, or alternatively operate with dedicated clean ballast tanks in accordance with the following provisions:

- .1 The product carrier shall have adequate tank capacity, dedicated solely to the carriage of clean ballast as defined in regulation 1.17 of this Annex, to meet the requirements of paragraphs 2 and 3 of this regulation.
- .2 The arrangements and operational procedures for dedicated clean ballast tanks shall comply with the requirements established by the Administration. Such requirements shall contain at least all the provisions of the revised Specifications for Oil Tankers with Dedicated Clean Ballast Tanks adopted by the Organization by resolution A.495(XII).
- .3 The product carrier shall be equipped with an oil content meter, approved by the Administration on the basis of specifications recommended by the Organization, to enable supervision of the oil content in ballast water being discharged.\*

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\* For oil content meters installed on oil tankers built prior to 2 October 1986, refer to the Recommendation on international performance and test specifications for oily-water separating equipment and oil content meters adopted by the Organization by resolution A.393(X). For oil content meters as part of discharge monitoring and control systems installed on oil tankers built on or after 2 October 1986, refer to the Guidelines and specifications for oil discharge monitoring and control systems for oil tankers adopted by the Organization by resolution A.586(14). For oil content meters installed on oil tankers the keels of which are laid, or which are at a similar stage of construction, on or after 1 January 2005, refer to the Revised Guidelines and specifications adopted by the Organization by resolution MEPC.108(49).

- .4 Every product carrier operating with dedicated clean ballast tanks shall be provided with a Dedicated Clean Ballast Tank Operation Manual<sup>†</sup> detailing the system and specifying operational procedures. Such a Manual shall be to the satisfaction of the Administration and shall contain all the information set out in the Specifications referred to in subparagraph 8.2 of this regulation. If an alteration affecting the dedicated clean ballast tank system is made, the Operation Manual shall be revised accordingly.

***An oil tanker qualified as a segregated ballast oil tanker***

9 Any oil tanker which is not required to be provided with segregated ballast tanks in accordance with paragraphs 1, 6 or 8 of this regulation may, however be qualified as a segregated ballast tanker, provided that it complies with the requirements of paragraphs 2 and 3 or 5 as appropriate, of this regulation.

***Oil tankers delivered on or before 1 June 1982 having special ballast arrangements***

10 Oil tankers delivered on or before 1 June 1982, as defined in regulation 1.28.3, having special ballast arrangements.

- .1 Where an oil tanker delivered on or before 1 June 1982, as defined in regulation 1.28.3, is so constructed or operates in such a manner that it complies at all times with the draught and trim requirements set out in paragraph 2 of this regulation without recourse to the use of ballast water, it shall be deemed to comply with the segregated ballast tank requirements referred to in paragraph 6 of this regulation, provided that all of the following conditions are complied with:
- .1 operational procedures and ballast arrangements are approved by the Administration;
  - .2 agreement is reached between the Administration and the Governments of the port States Parties to the present convention concerned when the draught and trim requirements are achieved through an operational procedure; and
  - .3 the International Oil Pollution Prevention Certificate is endorsed to the effect that the oil tanker is operating with special ballast arrangements.
- .2 In no case shall ballast water be carried in oil tanks except on those rare voyages when weather conditions are so severe that, in the opinion of the master, it is necessary to carry additional ballast water in cargo tanks for the safety of the ship. Such additional ballast water shall be processed and discharged in compliance with regulation 34 of this Annex and in accordance with the requirements of regulations 29, 31 and 32 of this Annex, and entry shall be made in the Oil Record Book referred to in regulation 36 of this Annex.
- .3 An Administration which has endorsed a Certificate in accordance with subparagraph 10.1.3 of this regulation shall communicate to the Organization the particulars thereof for circulation to the Parties to the present Convention.

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<sup>†</sup> See resolution A.495(XII) for the standard format of the Manual.

***Oil tankers of 70,000 tonnes deadweight and above delivered after 31 December 1979***

11 Oil tankers of 70,000 tonnes deadweight and above delivered after 31 December 1979, as defined in regulation 1.28.2, shall be provided with segregated ballast tanks and shall comply with paragraphs 2, 3 and 4 or paragraph 5 as appropriate of this regulation.

***Protective location of segregated ballast***

12 Protective location of segregated ballast spaces.

In every crude oil tanker of 20,000 tonnes deadweight and above and every product carrier of 30,000 tonnes deadweight and above delivered after 1 June 1982, as defined in regulation 1.28.4, except those tankers that meet regulation 19, the segregated ballast tanks required to provide the capacity to comply with the requirements of paragraph 2 of this regulation, which are located within the cargo tank length, shall be arranged in accordance with the requirements of paragraphs 13, 14 and 15 of this regulation to provide a measure of protection against oil outflow in the event of grounding or collision.

13 Segregated ballast tanks and spaces other than oil tanks within the cargo tanks length ( $L_t$ ) shall be so arranged as to comply with the following requirement:

$$\Sigma PA_c + \Sigma PA_s \geq J[L_t(B + 2D)]$$

where:  $PA_c$  = the side shell area in square metres for each segregated ballast tank or space other than an oil tank based on projected moulded dimensions,

$PA_s$  = the bottom shell area in square metres for each such tank or space based on projected moulded dimensions,

$L_t$  = length in metres between the forward and after extremities of the cargo tanks,

$B$  = maximum breadth of the ship in metres as defined in regulation 1.22 of this Annex,

$D$  = moulded depth in metres measured vertically from the top of the keel to the top of the freeboard deck beam at side amidships. In ships having rounded gunwales, the moulded depth shall be measured to the point of intersection of the moulded lines of the deck and side shell plating, the lines extending as though the gunwale were of angular design

$J$  = 0.45 for oil tankers of 20,000 tonnes deadweight, 0.30 for oil tankers of 200,000 tonnes deadweight and above, subject to the provisions of paragraph 14 of this regulation.

For intermediate values of deadweight the value of  $J$  shall be determined by linear interpolation.

Whenever symbols given in this paragraph appear in this regulation, they have the meaning as defined in this paragraph.

14 For tankers of 200,000 tonnes deadweight and above the value of J may be reduced as follows:

$$J_{reduced} = \left[ J - \left( a - \frac{O_C + O_S}{4 O_A} \right) \right] \quad \text{or } 0.2 \text{ whichever is greater}$$

where:

- $a$  = 0.25 for oil tankers of 200,000 tonnes deadweight,
- $a$  = 0.40 for oil tankers of 300,000 tonnes deadweight,
- $a$  = 0.50 for oil tankers of 420,000 tonnes deadweight and above.

For intermediate values of deadweight the value of  $a$  shall be determined by linear interpolation.

- $O_C$  = as defined in regulation 25.1.1 of this Annex,
- $O_S$  = as defined in regulation 25.1.2 of this Annex,
- $O_A$  = the allowable oil outflow as required by regulation 26.2 of this Annex.

15 In the determination of  $PA_C$  and  $PA_S$  for segregated ballast tanks and spaces other than oil tanks the following shall apply:

- .1 the minimum width of each wing tank or space either of which extends for the full depth of the ship's side or from the deck to the top of the double bottom shall be not less than 2 metres. The width shall be measured inboard from the ship's side at right angles to the centreline. Where a lesser width is provided the wing tank or space shall not be taken into account when calculating the protecting area  $PA_C$ ; and
- .2 the minimum vertical depth of each double bottom tank or space shall be  $B/15$  or 2 metres, whichever is the lesser. Where a lesser depth is provided the bottom tank or space shall not be taken into account when calculating the protecting area  $PA_S$ .

The minimum width and depth of wing tanks and double bottom tanks shall be measured clear of the bilge area and, in the case of minimum width, shall be measured clear of any rounded gunwale area.

### **Regulation 19**

*Double hull and double bottom requirements for oil tankers delivered on or after 6 July 1996*

1 This regulation shall apply to oil tankers of 600 tonnes deadweight and above delivered on or after 6 July 1996, as defined in regulation 1.28.6, as follows:

- 2 Every oil tanker of 5,000 tonnes deadweight and above shall:
  - .1 in lieu of paragraphs 12 to 15 of regulation 18, as applicable, comply with the requirements of paragraph 3 of this regulation unless it is subject to the provisions of paragraphs 4 and 5 of this regulation; and

.2 comply, if applicable, with the requirements of regulation 28.6.

3 The entire cargo tank length shall be protected by ballast tanks or spaces other than tanks that carry oil as follows:

.1 Wing tanks or spaces

Wing tanks or spaces shall extend either for the full depth of the ship's side or from the top of the double bottom to the uppermost deck, disregarding a rounded gunwale where fitted. They shall be arranged such that the cargo tanks are located inboard of the moulded line of the side shell plating nowhere less than the distance  $w$  which, as shown in figure 1 is measured at any cross-section at right angles to the side shell, as specified below:

$$w = 0.5 + \frac{DW}{20,000} \text{ (m), or}$$

$w = 2.0$  m, whichever is the lesser.

The minimum value of  $w = 1.0$  m.

.2 Double bottom tanks or spaces

At any cross-section the depth of each double bottom tank or space shall be such that the distance  $h$  between the bottom of the cargo tanks and the moulded line of the bottom shell plating measured at right angles to the bottom shell plating as shown in figure 1 is not less than specified below:

$$h = B/15 \text{ (m) or}$$

$$h = 2.0 \text{ m, whichever is the lesser.}$$

The minimum value of  $h = 1.0$  m.

.3 Turn of the bilge area or at locations without a clearly defined turn of the bilge

When the distances  $h$  and  $w$  are different, the distance  $w$  shall have preference at levels exceeding  $1.5h$  above the baseline as shown in figure 1.

.4 The aggregate capacity of ballast tanks

On crude oil tankers of 20,000 tonnes deadweight and above and product carriers of 30,000 tonnes deadweight and above, the aggregate capacity of wing tanks, double bottom tanks, forepeak tanks and after peak tanks shall not be less than the capacity of segregated ballast tanks necessary to meet the requirements of regulation 18 of this Annex. Wing tanks or spaces and double bottom tanks used to meet the requirements of regulation 18 shall be located as uniformly as practicable along the cargo tank length. Additional segregated ballast capacity provided for reducing longitudinal hull girder bending stress, trim, etc., may be located anywhere within the ship.

## .5 Suction wells in cargo tanks

Suction wells in cargo tanks may protrude into the double bottom below the boundary line defined by the distance  $h$  provided that such wells are as small as practicable and the distance between the well bottom and bottom shell plating is not less than  $0.5h$ .

## .6 Ballast and cargo piping

Ballast piping and other piping such as sounding and vent piping to ballast tanks shall not pass through cargo tanks. Cargo piping and similar piping to cargo tanks shall not pass through ballast tanks. Exemptions to this requirement may be granted for short lengths of piping, provided that they are completely welded or equivalent.

## 4 The following applies for double bottom tanks or spaces:

- .1 Double bottom tanks or spaces as required by paragraph 3.2 of this regulation may be dispensed with, provided that the design of the tanker is such that the cargo and vapour pressure exerted on the bottom shell plating forming a single boundary between the cargo and the sea does not exceed the external hydrostatic water pressure, as expressed by the following formula:

$$f \times h_c \times \rho_c \times g + p \leq d_n \times \rho_s \times g$$

where:

$h_c$  = height of cargo in contact with the bottom shell plating in metres

$\rho_c$  = maximum cargo density in  $\text{kg/m}^3$

$d_n$  = minimum operating draught under any expected loading condition in metres

$\rho_s$  = density of seawater in  $\text{kg/m}^3$

$p$  = maximum set pressure above atmospheric pressure (gauge pressure) of pressure/vacuum valve provided for the cargo tank in Pa

$f$  = safety factor = 1.1

$g$  = standard acceleration of gravity ( $9.81 \text{ m/s}^2$ )

- .2 Any horizontal partition necessary to fulfil the above requirements shall be located at a height not less than  $B/6$  or 6 m, whichever is the lesser, but not more than  $0.6D$ , above the baseline where  $D$  is the moulded depth amidships.
- .3 The location of wing tanks or spaces shall be as defined in paragraph 3.1 of this regulation except that, below a level  $1.5 h$  above the baseline where  $h$  is as defined in paragraph 3.2 of this regulation, the cargo tank boundary line may be vertical down to the bottom plating, as shown in figure 2.

5 Other methods of design and construction of oil tankers may also be accepted as alternatives to the requirements prescribed in paragraph 3 of this regulation, provided that such methods ensure at least the same level of protection against oil pollution in the event of collision or stranding and are approved in principle by the Marine Environment Protection Committee based on guidelines developed by the Organization\*.

6 Every oil tanker of less than 5,000 tonnes deadweight shall comply with paragraphs 3 and 4 of this regulation, or shall:

- .1 at least be fitted with double bottom tanks or spaces having such a depth that the distance  $h$  specified in paragraph 3.2 of this regulation, complies with the following:

$$h = B/15 \text{ (m)}$$

with a minimum value of  $h = 0.76 \text{ m}$ ;

in the turn of the bilge area and at locations without a clearly defined turn of the bilge, the cargo tank boundary line shall run parallel to the line of the midship flat bottom as shown in figure 3; and

- .2 be provided with cargo tanks so arranged that the capacity of each cargo tank does not exceed  $700 \text{ m}^3$  unless wing tanks or spaces are arranged in accordance with paragraph 3.1 of this regulation, complying with the following:

$$w = 0.4 + \frac{2.4DW}{20000} \text{ (m)} \quad \text{with a minimum value of } w = 0.76 \text{ m.}$$

7 Oil shall not be carried in any space extending forward of a collision bulkhead located in accordance with regulation II-1/11 of the International Convention for the Safety of Life at Sea, 1974, as amended. An oil tanker that is not required to have a collision bulkhead in accordance with that regulation shall not carry oil in any space extending forward of the transverse plane perpendicular to the centreline that is located as if it were a collision bulkhead located in accordance with that regulation.

8 In approving the design and construction of oil tankers to be built in accordance with the provisions of this regulation, Administrations shall have due regard to the general safety aspects including the need for the maintenance and inspections of wing and double bottom tanks or spaces.

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\* Refer to the Revised Interim Guidelines for the approval of alternative methods of design and construction of oil tankers adopted by the Marine Environment Protection Committee of the Organization by resolution MEPC.110(49).



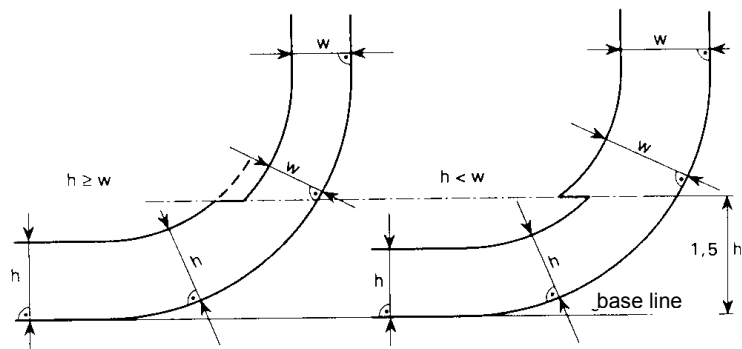


Figure 1 - Cargo tank boundary lines for the purpose of paragraph 3

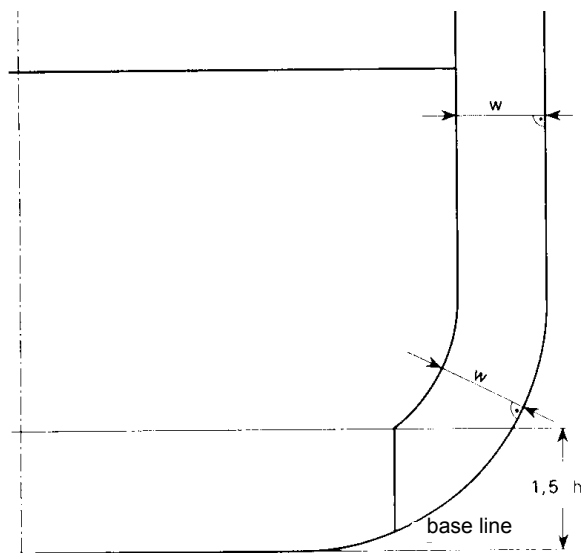


Figure 2 - Cargo tank boundary lines for the purpose of paragraph 4

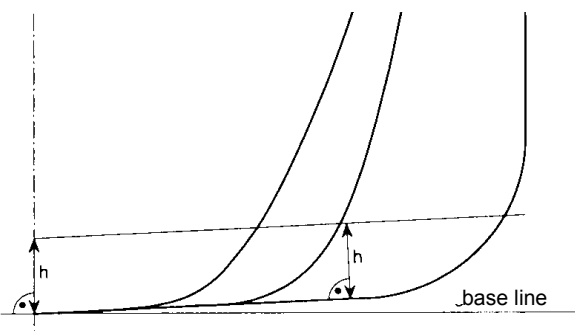


Figure 3 - Cargo tank boundary lines for the purpose of paragraph 6

**Regulation 20***Double hull and double bottom requirements for oil tankers delivered before 6 July 1996*

- 1 Unless expressly provided otherwise this regulation shall:
  - .1 apply to oil tankers of 5,000 tonnes deadweight and above, which are delivered before 6 July 1996, as defined in regulation 1.28.5 of this Annex; and
  - .2 not apply to oil tankers complying with regulation 19 and regulation 28 in respect of paragraph 28.6, which are delivered before 6 July 1996, as defined in regulation 1.28.5 of this Annex; and
  - .3 not apply to oil tankers covered by subparagraph 1 above which comply with regulation 19.3.1 and 19.3.2 or 19.4 or 19.5 of this Annex, except that the requirement for minimum distances between the cargo tank boundaries and the ship side and bottom plating need not be met in all respects. In that event, the side protection distances shall not be less than those specified in the International Bulk Chemical Code for type 2 cargo tank location and the bottom protection distances at centreline shall comply with regulation 18.15.2 of this Annex.
- 2 For the purpose of this regulation:
  - .1 “Heavy diesel oil” means diesel oil other than those distillates of which more than 50 per cent by volume distils at a temperature not exceeding 340°C when tested by the method acceptable to the Organization<sup>1</sup>.
  - .2 “Fuel oil” means heavy distillates or residues from crude oil or blends of such materials intended for use as a fuel for the production of heat or power of a quality equivalent to the specification acceptable to the Organization<sup>2</sup>.
- 3 For the purpose of this regulation, oil tankers are divided into the following categories:
  - .1 “Category 1 oil tanker” means an oil tanker of 20,000 tonnes deadweight and above carrying crude oil, fuel oil, heavy diesel oil or lubricating oil as cargo, and of 30,000 tonnes deadweight and above carrying oil other than the above, which does not comply with the requirements for oil tankers delivered after 1 June 1982, as defined in regulation 1.28.4 of this Annex;
  - .2 “Category 2 oil tanker” means an oil tanker of 20,000 tonnes deadweight and above carrying crude oil, fuel oil, heavy diesel oil or lubricating oil as cargo, and of 30,000 tonnes deadweight and above carrying oil other than the above, which complies with the requirements for oil tankers delivered after 1 June 1982, as defined in regulation 1.28.4 of this Annex; and
  - .3 “Category 3 oil tanker” means an oil tanker of 5,000 tonnes deadweight and above but less than that specified in subparagraph 1 or 2 of this paragraph.

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<sup>1</sup> Refer to the American Society for Testing and Material’s Standard Test Method (Designation D86).

<sup>2</sup> Refer to the American Society for Testing and Material’s Specification for Number Four Fuel Oil (Designation D396) or heavier.

4 An oil tanker to which this regulation applies shall comply with the requirements of paragraphs 2 to 5, 7 and 8 of regulation 19 and regulation 28 in respect of paragraph 28.6 of this Annex not later than 5 April 2005 or the anniversary of the date of delivery of the ship on the date or in the year specified in the following table:

<b>Category of oil tanker</b>	<b>Date or year</b>
Category 1	5 April 2005 for ships delivered on 5 April 1982 or earlier 2005 for ships delivered after 5 April 1982
Category 2 and Category 3	5 April 2005 for ships delivered on 5 April 1977 or earlier 2005 for ships delivered after 5 April 1977 but before 1 January 1978 2006 for ships delivered in 1978 and 1979 2007 for ships delivered in 1980 and 1981 2008 for ships delivered in 1982 2009 for ships delivered in 1983 2010 for ships delivered in 1984 or later

5 Notwithstanding the provisions of paragraph 4 of this regulation, in the case of a Category 2 or 3 oil tanker fitted with only double bottoms or double sides not used for the carriage of oil and extending to the entire cargo tank length or double hull spaces which are not used for the carriage of oil and extend to the entire cargo tank length, but which does not fulfil conditions for being exempted from the provisions of paragraph 1.3 of this regulation, the Administration may allow continued operation of such a ship beyond the date specified in paragraph 4 of this regulation, provided that:

- .1 the ship was in service on 1 July 2001;
- .2 the Administration is satisfied by verification of the official records that the ship complied with the conditions specified above;
- .3 the conditions of the ship specified above remain unchanged; and
- .4 such continued operation does not go beyond the date on which the ship reaches 25 years after the date of its delivery.

6 A Category 2 or 3 oil tanker of 15 years and over after the date of its delivery shall comply with the Condition Assessment Scheme adopted by the Marine Environment Protection Committee by resolution MEPC.94(46), as amended, provided that such amendments shall be adopted, brought into force and take effect in accordance with the provisions of article 16 of the present Convention relating to amendment procedures applicable to an appendix to an Annex.

7 The Administration may allow continued operation of a Category 2 or 3 oil tanker beyond the date specified in paragraph 4 of this regulation, if satisfactory results of the Condition Assessment Scheme warrant that, in the opinion of the Administration, the ship is fit to continue such operation, provided that the operation shall not go beyond the anniversary of the date of delivery of the ship in 2015 or the date on which the ship reaches 25 years after the date of its delivery, whichever is the earlier date.

- 8 .1 The Administration of a Party to the present Convention which allows the application of paragraph 5 of this regulation, or allows, suspends, withdraws or declines the application of paragraph 7 of this regulation, to a ship entitled to fly its flag shall forthwith communicate to the Organization for circulation to the Parties to the present Convention particulars thereof, for their information and appropriate action, if any.
- .2 A Party to the present Convention shall be entitled to deny entry into the ports or offshore terminals under its jurisdiction of oil tankers operating in accordance with the provisions of:
- .1 paragraph 5 of this regulation beyond the anniversary of the date of delivery of the ship in 2015; or
- .2 paragraph 7 of this regulation.

In such cases, that Party shall communicate to the Organization for circulation to the Parties to the present Convention particulars thereof for their information.

### **Regulation 21**

#### *Prevention of oil pollution from oil tankers carrying heavy grade oil as cargo*

- 1 This regulation shall:
- .1 apply to oil tankers of 600 tonnes deadweight and above carrying heavy grade oil as cargo regardless of the date of delivery; and
- .2 not apply to oil tankers covered by subparagraph 1 above which comply with regulations 19.3.1 and 19.3.2 or 19.4 or 19.5 of this Annex, except that the requirement for minimum distances between the cargo tank boundaries and the ship side and bottom plating need not be met in all respects. In that event, the side protection distances shall not be less than those specified in the International Bulk Chemical Code for type 2 cargo tank location and the bottom protection distances at centreline shall comply with regulation 18.15.2 of this Annex.
- 2 For the purpose of this regulation “heavy grade oil” means any of the following:
- .1 crude oils having a density at 15°C higher than 900 kg/m<sup>3</sup>;
- .2 fuel oils having either a density at 15°C higher than 900 kg/m<sup>3</sup> or a kinematic viscosity at 50°C higher than 180 mm<sup>2</sup>/s; or
- .3 bitumen, tar and their emulsions.
- 3 An oil tanker to which this regulation applies shall comply with the provisions of paragraphs 4 to 8 of this regulation in addition to complying with the applicable provisions of regulation 20.

4 Subject to the provisions of paragraphs 5, 6 and 7 of this regulation, an oil tanker to which this regulation applies shall:

- .1 if 5,000 tonnes deadweight and above, comply with the requirements of regulation 19 of this Annex not later than 5 April 2005; or
- .2 if 600 tonnes deadweight and above but less than 5,000 tonnes deadweight, be fitted with both double bottom tanks or spaces complying with the provisions of regulation 19.6.1 of this Annex, and wing tanks or spaces arranged in accordance with regulation 19.3.1 and complying with the requirement for distance  $w$  as referred to in regulation 19.6.2, not later than the anniversary of the date of delivery of the ship in the year 2008.

5 In the case of an oil tanker of 5,000 tonnes deadweight and above, carrying heavy grade oil as cargo fitted with only double bottoms or double sides not used for the carriage of oil and extending to the entire cargo tank length or double hull spaces which are not used for the carriage of oil and extend to the entire cargo tank length, but which does not fulfil conditions for being exempted from the provisions of paragraph 1.2 of this regulation, the Administration may allow continued operation of such a ship beyond the date specified in paragraph 4 of this regulation, provided that:

- .1 the ship was in service on 4 December 2003;
- .2 the Administration is satisfied by verification of the official records that the ship complied with the conditions specified above;
- .3 the conditions of the ship specified above remain unchanged; and
- .4 such continued operation does not go beyond the date on which the ship reaches 25 years after the date of its delivery.

6 .1 The Administration may allow continued operation of an oil tanker of 5,000 tonnes deadweight and above, carrying crude oil having a density at 15°C higher than 900 kg/m<sup>3</sup> but lower than 945 kg/m<sup>3</sup>, beyond the date specified in paragraph 4.1 of this regulation, if satisfactory results of the Condition Assessment Scheme referred to in regulation 20.6 warrant that, in the opinion of the Administration, the ship is fit to continue such operation, having regard to the size, age, operational area and structural conditions of the ship and provided that the operation shall not go beyond the date on which the ship reaches 25 years after the date of its delivery.

- .2 The Administration may allow continued operation of an oil tanker of 600 tonnes deadweight and above but less than 5,000 tonnes deadweight, carrying heavy grade oil as cargo, beyond the date specified in paragraph 4.2 of this regulation, if, in the opinion of the Administration, the ship is fit to continue such operation, having regard to the size, age, operational area and structural conditions of the ship, provided that the operation shall not go beyond the date on which the ship reaches 25 years after the date of its delivery.

7 The Administration of a Party to the present Convention may exempt an oil tanker of 600 tonnes deadweight and above carrying heavy grade oil as cargo from the provisions of this regulation if the oil tanker:

- .1 either is engaged in voyages exclusively within an area under its jurisdiction, or operates as a floating storage unit of heavy grade oil located within an area under its jurisdiction; or
- .2 either is engaged in voyages exclusively within an area under the jurisdiction of another Party, or operates as a floating storage unit of heavy grade oil located within an area under the jurisdiction of another Party, provided that the Party within whose jurisdiction the oil tanker will be operating agrees to the operation of the oil tanker within an area under its jurisdiction.

8 .1 The Administration of a Party to the present Convention which allows, suspends, withdraws or declines the application of paragraph 5, 6 or 7 of this regulation to a ship entitled to fly its flag shall forthwith communicate to the Organization for circulation to the Parties to the present Convention particulars thereof, for their information and appropriate action, if any.

- .2 Subject to the provisions of international law, a Party to the present Convention shall be entitled to deny entry of oil tankers operating in accordance with the provisions of paragraph 5 or 6 of this regulation into the ports or offshore terminals under its jurisdiction, or deny ship-to-ship transfer of heavy grade oil in areas under its jurisdiction except when this is necessary for the purpose of securing the safety of a ship or saving life at sea. In such cases, that Party shall communicate to the Organization for circulation to the Parties to the present Convention particulars thereof for their information.

## **Regulation 22**

### *Pump-room bottom protection*

1 This regulation applies to oil tankers of 5,000 tonnes deadweight and above constructed on or after 1 January 2007.

2 The pump-room shall be provided with a double bottom such that at any cross-section the depth of each double bottom tank or space shall be such that the distance  $h$  between the bottom of the pump-room and the ship's base line measured at right angles to the ship's base line is not less than specified below:

$$h = B/15(\text{m}) \text{ or}$$
$$h = 2 \text{ m, whichever is the lesser.}$$

The minimum value of  $h = 1 \text{ m}$ .

3 In case of pump rooms whose bottom plate is located above the base line by at least the minimum height required in paragraph 2 above (e.g. gondola stern designs), there will be no need for a double bottom construction in way of the pump-room.

4 Ballast pumps shall be provided with suitable arrangements to ensure efficient suction from double bottom tanks.

5 Notwithstanding the provisions of paragraphs 2 and 3 above, where the flooding of the pump-room would not render the ballast or cargo pumping system inoperative, a double bottom need not be fitted.

### **Regulation 23**

#### *Accidental oil outflow performance*

1 This regulation shall apply to oil tankers delivered on or after 1 January 2010, as defined in regulation 1.28.8.

2 For the purpose of this regulation, the following definitions shall apply:

- .1 "Load line draught ( $d_S$ )" is the vertical distance, in metres, from the moulded baseline at mid-length to the waterline corresponding to the summer freeboard to be assigned to the ship. Calculations pertaining to this regulation should be based on draught  $d_S$ , notwithstanding assigned draughts that may exceed  $d_S$ , such as the tropical loadline.
- .2 "Waterline ( $d_B$ )" is the vertical distance, in metres, from the moulded baseline at mid-length to the waterline corresponding to 30% of the depth  $D_S$ .
- .3 "Breadth ( $B_S$ )" is the greatest moulded breadth of the ship, in metres, at or below the deepest load line  $d_S$ .
- .4 "Breadth ( $B_B$ )" is the greatest moulded breadth of the ship, in metres, at or below the waterline  $d_B$ .
- .5 "Depth ( $D_S$ )" is the moulded depth, in metres, measured at mid-length to the upper deck at side.
- .6 "Length ( $L$ )" and "deadweight ( $DW$ )" are as defined in regulations 1.19 and 1.23, respectively.

3 To provide adequate protection against oil pollution in the event of collision or stranding the following shall be complied with:

- .1 for oil tankers of 5,000 tonnes deadweight (DWT) and above, the mean oil outflow parameter shall be as follows:

$$\begin{array}{ll}
 O_M \leq 0.015 & \text{for } C \leq 200,000 \text{ m}^3 \\
 O_M \leq 0.012 + (0.003/200,000) (400,000 - C) & \text{for } 200,000 \text{ m}^3 < C < 400,000 \text{ m}^3 \\
 O_M \leq 0.012 & \text{for } C \geq 400,000 \text{ m}^3
 \end{array}$$

for combination carriers between 5,000 tonnes deadweight (DWT) and 200,000 m<sup>3</sup> capacity, the mean oil outflow parameter may be applied, provided calculations are submitted to the satisfaction of the Administration, demonstrating that after accounting for its increased structural strength, the combination carrier has at least equivalent oil out flow performance to a standard double hull tanker of the same size having a  $O_M \leq 0.015$ .

$$O_M \leq 0.021 \quad \text{for } C \leq 100,000 \text{ m}^3$$

$$O_M \leq 0.015 + (0.006/100,000) (200,000 - C) \quad \text{for } 100,000 \text{ m}^3 < C \leq 200,000 \text{ m}^3$$

where:

$O_M$  = mean oil outflow parameter.

$C$  = total volume of cargo oil, in  $\text{m}^3$ , at 98% tank filling

.2 for oil tankers of less than 5,000 tonnes deadweight (DWT) :

The length of each cargo tank shall not exceed 10 m or one of the following values, whichever is the greater:

.1 where no longitudinal bulkhead is provided inside the cargo tanks:

$$\left(0.5 \frac{b_i}{B} + 0.1\right)L \quad \text{but not to exceed } 0.2L$$

.2 where a centreline longitudinal bulkhead is provided inside the cargo tanks:

$$\left(0.25 \frac{b_i}{B} + 0.15\right)L$$

.3 where two or more longitudinal bulkheads are provided inside the cargo tanks:

.1 for wing cargo tanks:  $0.2L$

.2 for centre cargo tanks:

.1 if  $\frac{b_i}{B} \geq 0.2L$  :  $0.2L$

.2 if  $\frac{b_i}{B}$  is  $< 0.2$ :

- where no centreline longitudinal bulkhead is provided:

$$\left(0.5 \frac{b_i}{B} + 0.1\right)L$$

- where a centreline longitudinal bulkhead is provided:

$$\left(0.25 \frac{b_i}{B} + 0.15\right)L$$

.4  $b_i$  is the minimum distance from the ship's side to the outer longitudinal bulkhead of the tank in question measured inboard at right angles to the centreline at the level corresponding to the assigned summer freeboard.



4 The following general assumptions shall apply when calculating the mean oil outflow parameter:

- .1 The cargo block length extends between the forward and aft extremities of all tanks arranged for the carriage of cargo oil, including slop tanks.
- .2 Where this regulation refers to cargo tanks, it shall be understood to include all cargo tanks, slop tanks and fuel tanks located within the cargo block length.
- .3 The ship shall be assumed loaded to the load line draught  $d_s$  without trim or heel.
- .4 All cargo oil tanks shall be assumed loaded to 98% of their volumetric capacity. The nominal density of the cargo oil ( $\rho_n$ ) shall be calculated as follows:

$$\rho_n = 1000 (DWT)/C \text{ (kg/m}^3\text{)}$$

- .5 For the purposes of these outflow calculations, the permeability of each space within the cargo block, including cargo tanks, ballast tanks and other non-oil spaces shall be taken as 0.99, unless proven otherwise.
- .6 Suction wells may be neglected in the determination of tank location provided that such wells are as small as practicable and the distance between the well bottom and bottom shell plating is not less than  $0.5h$ , where  $h$  is the height as defined in regulation 19.3.2.

5 The following assumptions shall be used when combining the oil outflow parameters:

- .1 The mean oil outflow shall be calculated independently for side damage and for bottom damage and then combined into the non-dimensional oil outflow parameter  $O_M$ , as follows:

$$O_M = (0.4 O_{MS} + 0.6 O_{MB}) / C$$

where:

$$O_{MS} = \text{mean outflow for side damage, in m}^3\text{; and}$$

$$O_{MB} = \text{mean outflow for bottom damage, in m}^3\text{.}$$

- .2 For bottom damage, independent calculations for mean outflow shall be done for 0 m and minus 2.5 m tide conditions, and then combined as follows:

$$O_{MB} = 0.7 O_{MB(0)} + 0.3 O_{MB(2.5)}$$

where:

$$O_{MB(0)} = \text{mean outflow for 0 m tide condition; and}$$

$$O_{MB(2.5)} = \text{mean outflow for minus 2.5 m tide condition, in m}^3\text{.}$$

6 The mean outflow for side damage  $O_{MS}$  shall be calculated as follows:

$$O_{MS} = C_3 \sum_i^n P_{s(i)} O_{s(i)} \quad (\text{m}^3)$$

where:

- $i$  = represents each cargo tank under consideration;
- $n$  = total number of cargo tanks;
- $P_{S(i)}$  = the probability of penetrating cargo tank  $i$  from side damage, calculated in accordance with paragraph 8.1 of this regulation;
- $O_{S(i)}$  = the outflow, in  $m^3$ , from side damage to cargo tank  $i$ , which is assumed equal to the total volume in cargo tank  $i$  at 98% filling, unless it is proven through the application of the Guidelines referred to in regulation 19.5 that any significant cargo volume will be retained; and
- $C_3$  = 0.77 for ships having two longitudinal bulkheads inside the cargo tanks, provided these bulkheads are continuous over the cargo block and  $P_{S(i)}$  is developed in accordance with this regulation.  $C_3$  equals 1.0 for all other ships or when  $P_{S(i)}$  is developed in accordance with paragraph 10 of this regulation.

7 The mean outflow for bottom damage shall be calculated for each tidal condition as follows:

$$.1 \quad O_{MB(0)} = \sum_i^n P_{B(i)} O_{B(i)} C_{DB(i)} (m^3)$$

where:

- $i$  = represents each cargo tank under consideration;
- $n$  = the total number of cargo tanks;
- $P_{B(i)}$  = the probability of penetrating cargo tank  $i$  from bottom damage, calculated in accordance with, paragraph 9.1 of this regulation;
- $O_{B(i)}$  = the outflow from cargo tank  $i$ , in  $m^3$ , calculated in accordance with paragraph 7.3 of this regulation; and
- $C_{DB(i)}$  = factor to account for oil capture as defined in paragraph 7.4 of this regulation

$$.2 \quad O_{MB(2.5)} = \sum_i^n P_{B(i)} O_{B(i)} C_{DB(i)} (m^3)$$

where:

$i, n, P_{B(i)}$  and  $C_{DB(i)}$  = as defined in subparagraph .1 above;

$O_{B(i)}$  = the outflow from cargo tank  $i$ , in  $m^3$ , after tidal change

.3 The oil outflow  $O_{B(i)}$  for each cargo oil tank shall be calculated based on pressure balance principles, in accordance with the following assumptions:

- .1 The ship shall be assumed stranded with zero trim and heel, with the stranded draught prior to tidal change equal to the load line draught  $d_s$ .

- .2 The cargo level after damage shall be calculated as follows:

$$h_c = \{(d_s + t_c - Z_l) (\rho_s) - (1000 p) / g\} / \rho_n$$

where:

$h_c$  = the height of the cargo oil above  $Z_l$ , in metres;

$t_c$  = the tidal change, in m. Reductions in tide shall be expressed as negative values;

$Z_l$  = the height of the lowest point in the cargo tank above baseline, in m;

$\rho_s$  = density of seawater, to be taken as 1,025 kg/m<sup>3</sup>;

$p$  = if an inert gas system is fitted, the normal overpressure, in kPa, to be taken as not less than 5 kPa; if an inert gas system is not fitted, the overpressure may be taken as 0;

$g$  = the acceleration of gravity, to be taken as 9.81 m/s<sup>2</sup>; and

$\rho_n$  = nominal density of cargo oil, calculated in accordance with paragraph 4.4 of this regulation.

- .3 For cargo tanks bounded by the bottom shell, unless proven otherwise, oil outflow  $O_{B(i)}$  shall be taken not less than 1% of the total volume of cargo oil loaded in cargo tank  $i$ , to account for initial exchange losses and dynamic effects due to current and waves.

- .4 In the case of bottom damage, a portion from the outflow from a cargo tank may be captured by non-oil compartments. This effect is approximated by application of the factor  $C_{DB(i)}$  for each tank, which shall be taken as follows:

$C_{DB(i)} = 0.6$  for cargo tanks bounded from below by non-oil compartments;

$C_{DB(i)} = 1.0$  for cargo tanks bounded by the bottom shell.

- 8 The probability  $P_S$  of breaching a compartment from side damage shall be calculated as follows:

.1  $P_S = P_{SL} P_{SV} P_{ST}$

where:

$P_{SL} = 1 - P_{Sf} - P_{Sa}$  = probability the damage will extend into the longitudinal zone bounded by  $X_a$  and  $X_f$ ;

$P_{SV} = 1 - P_{Su} - P_{Sl}$  = probability the damage will extend into the vertical zone bounded by  $Z_l$  and  $Z_u$ ; and

$P_{ST} = 1 - P_{Sy}$  = probability the damage will extend transversely beyond the boundary defined by  $y$ .

- .2  $P_{Sa}$ ,  $P_{Sf}$ ,  $P_{Sl}$ ,  $P_{Su}$  and  $P_{Sy}$  shall be determined by linear interpolation from the table of probabilities for side damage provided in paragraph 8.3 of this regulation, where:

$P_{Sa}$  = the probability the damage will lie entirely aft of location  $X_a/L$ ;

$P_{Sf}$  = the probability the damage will lie entirely forward of location  $X_f/L$ ;

$P_{Sl}$  = the probability the damage will lie entirely below the tank;

$P_{Su}$  = the probability the damage will lie entirely above the tank; and

$P_{Sy}$  = the probability the damage will lie entirely outboard of the tank.

Compartment boundaries  $X_a$ ,  $X_f$ ,  $Z_l$ ,  $Z_u$  and  $y$  shall be developed as follows:

$X_a$  = the longitudinal distance from the aft terminal of L to the aftmost point on the compartment being considered, in metres;

$X_f$  = the longitudinal distance from the aft terminal of L to the foremost point on the compartment being considered, in metres;

$Z_l$  = the vertical distance from the moulded baseline to the lowest point on the compartment being considered, in metres;

$Z_u$  = the vertical distance from the moulded baseline to the highest point on the compartment being considered, in metres.  $Z_u$  is not to be taken greater than  $D_s$ ; and

$y$  = the minimum horizontal distance measured at right angles to the centreline between the compartment under consideration and the side shell in metres; \*

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\* For symmetrical tank arrangements, damages are considered for one side of the ship only, in which case all "y" dimensions are to be measured from that same side. For asymmetrical arrangements refer to the Explanatory Notes on matters related to the accidental oil outflow performance, adopted by the Organization by resolution MEPC.122(52).

## .3 Table of probabilities for side damage

$X_a/L$	$P_{Sa}$	$X_f/L$	$P_{Sf}$	$Z_l/D_S$	$P_{Sl}$	$Z_u/D_S$	$P_{Su}$
0.00	0.000	0.00	0.967	0.00	0.000	0.00	0.968
0.05	0.023	0.05	0.917	0.05	0.000	0.05	0.952
0.10	0.068	0.10	0.867	0.10	0.001	0.10	0.931
0.15	0.117	0.15	0.817	0.15	0.003	0.15	0.905
0.20	0.167	0.20	0.767	0.20	0.007	0.20	0.873
0.25	0.217	0.25	0.717	0.25	0.013	0.25	0.836
0.30	0.267	0.30	0.667	0.30	0.021	0.30	0.789
0.35	0.317	0.35	0.617	0.35	0.034	0.35	0.733
0.40	0.367	0.40	0.567	0.40	0.055	0.40	0.670
0.45	0.417	0.45	0.517	0.45	0.085	0.45	0.599
0.50	0.467	0.50	0.467	0.50	0.123	0.50	0.525
0.55	0.517	0.55	0.417	0.55	0.172	0.55	0.452
0.60	0.567	0.60	0.367	0.60	0.226	0.60	0.383
0.65	0.617	0.65	0.317	0.65	0.285	0.65	0.317
0.70	0.667	0.70	0.267	0.70	0.347	0.70	0.255
0.75	0.717	0.75	0.217	0.75	0.413	0.75	0.197
0.80	0.767	0.80	0.167	0.80	0.482	0.80	0.143
0.85	0.817	0.85	0.117	0.85	0.553	0.85	0.092
0.90	0.867	0.90	0.068	0.90	0.626	0.90	0.046
0.95	0.917	0.95	0.023	0.95	0.700	0.95	0.013
1.00	0.967	1.00	0.000	1.00	0.775	1.00	0.000

$P_{Sy}$  shall be calculated as follows:

$$P_{Sy} = (24.96 - 199.6 y/B_S) (y/B_S) \quad \text{for } y/B_S \leq 0.05$$

$$P_{Sy} = 0.749 + \{5 - 44.4 (y/B_S - 0.05)\} (y/B_S - 0.05) \quad \text{for } 0.05 < y/B_S < 0.1$$

$$P_{Sy} = 0.888 + 0.56 (y/B_S - 0.1) \quad \text{for } y/B_S \geq 0.1$$

$P_{Sy}$  shall not be taken greater than 1.

9 The probability  $P_B$  of breaching a compartment from bottom damage shall be calculated as follows:

$$.1 \quad P_B = P_{BL} P_{BT} P_{BV}$$

where:

$$P_{BL} = 1 - P_{Bf} - P_{Ba} = \text{probability the damage will extend into the longitudinal zone bounded by } X_a \text{ and } X_f;$$

$$P_{BT} = 1 - P_{Bp} - P_{Bs} = \text{probability the damage will extend into the transverse zone bounded by } Y_p \text{ and } Y_s; \text{ and}$$

$$P_{BV} = 1 - P_{Bz} = \text{probability the damage will extend vertically above the boundary defined by } z.$$

- .2  $P_{Ba}$ ,  $P_{Bf}$ ,  $P_{Bp}$ ,  $P_{Bs}$ , and  $P_{Bz}$  shall be determined by linear interpolation from the table of probabilities for bottom damage provided in paragraph 9.3 of this regulation, where:

$P_{Ba}$  = the probability the damage will lie entirely aft of location  $X_a/L$ ;

$P_{Bf}$  = the probability the damage will lie entirely forward of location  $X_f/L$ ;

$P_{Bp}$  = the probability the damage will lie entirely to port of the tank;

$P_{Bs}$  = the probability the damage will lie entirely to starboard of the tank;  
and

$P_{Bz}$  = the probability the damage will lie entirely below the tank.

Compartment boundaries  $X_a$ ,  $X_f$ ,  $Y_p$ ,  $Y_s$ , and  $z$  shall be developed as follows:

$X_a$  and  $X_f$  are as defined in paragraph 8.2 of this regulation;

$Y_p$  = the transverse distance from the port-most point on the compartment located at or below the waterline  $d_B$ , to a vertical plane located  $B_B/2$  to starboard of the ship's centreline, in metres;

$Y_s$  = the transverse distance from the starboard-most point on the compartment located at or below the waterline  $d_B$ , to a vertical plane located  $B_B/2$  to starboard of the ship's centreline, in metres;  
and

$z$  = the minimum value of  $z$  over the length of the compartment, where, at any given longitudinal location,  $z$  is the vertical distance from the lower point of the bottom shell at that longitudinal location to the lower point of the compartment at that longitudinal location, in metres.

## .3 Table of probabilities for bottom damage

$X_a/L$	$P_{Ba}$	$X_f/L$	$P_{Bf}$	$Y_p/B_B$	$P_{Bp}$	$Y_s/B_B$	$P_{Bs}$
0.00	0.000	0.00	0.969	0.00	0.844	0.00	0.000
0.05	0.002	0.05	0.953	0.05	0.794	0.05	0.009
0.10	0.008	0.10	0.936	0.10	0.744	0.10	0.032
0.15	0.017	0.15	0.916	0.15	0.694	0.15	0.063
0.20	0.029	0.20	0.894	0.20	0.644	0.20	0.097
0.25	0.042	0.25	0.870	0.25	0.594	0.25	0.133
0.30	0.058	0.30	0.842	0.30	0.544	0.30	0.171
0.35	0.076	0.35	0.810	0.35	0.494	0.35	0.211
0.40	0.096	0.40	0.775	0.40	0.444	0.40	0.253
0.45	0.119	0.45	0.734	0.45	0.394	0.45	0.297
0.50	0.143	0.50	0.687	0.50	0.344	0.50	0.344
0.55	0.171	0.55	0.630	0.55	0.297	0.55	0.394
0.60	0.203	0.60	0.563	0.60	0.253	0.60	0.444
0.65	0.242	0.65	0.489	0.65	0.211	0.65	0.494
0.70	0.289	0.70	0.413	0.70	0.171	0.70	0.544
0.75	0.344	0.75	0.333	0.75	0.133	0.75	0.594
0.80	0.409	0.80	0.252	0.80	0.097	0.80	0.644
0.85	0.482	0.85	0.170	0.85	0.063	0.85	0.694
0.90	0.565	0.90	0.089	0.90	0.032	0.90	0.744
0.95	0.658	0.95	0.026	0.95	0.009	0.95	0.794
1.00	0.761	1.00	0.000	1.00	0.000	1.00	0.844

$P_{Bz}$  shall be calculated as follows:

$$P_{Bz} = (14.5 - 67 z/D_S) (z/D_S) \quad \text{for } z/D_S \leq 0.1,$$

$$P_{Bz} = 0.78 + 1.1 (z/D_S - 0.1) \quad \text{for } z/D_S > 0.1.$$

$P_{Bz}$  shall not be taken greater than 1.

10 This regulation uses a simplified probabilistic approach where a summation is carried out over the contributions to the mean outflow from each cargo tank. For certain designs such as those characterized by the occurrence of steps/recesses in bulkheads/decks and for sloping bulkheads and/or a pronounced hull curvature, more rigorous calculations may be appropriate. In such cases one of the following calculation procedures may be applied:

- .1 The probabilities referred to in 8 and 9 above may be calculated with more precision through application of hypothetical sub-compartments.\*
- .2 The probabilities referred to in 8 and 9 above may be calculated through direct application of the probability density functions contained in the Guidelines referred to in regulation 19.5.
- .3 The oil outflow performance may be evaluated in accordance with the method described in the Guidelines referred to in regulation 19.5.

\* Refer to the Explanatory Notes on matters related to the accidental oil outflow performance, adopted by the Organization by resolution MEPC.122(52).

- 11 The following provisions regarding piping arrangements shall apply:
- .1 Lines of piping that run through cargo tanks in a position less than  $0.30B_s$  from the ship's side or less than  $0.30D_s$  from the ship's bottom shall be fitted with valves or similar closing devices at the point at which they open into any cargo tank. These valves shall be kept closed at sea at any time when the tanks contain cargo oil, except that they may be opened only for cargo transfer needed for essential cargo operations.
  - .2 Credit for reducing oil outflow through the use of an emergency rapid cargo transfer system or other system arranged to mitigate oil outflow in the event of an accident may be taken into account only after the effectiveness and safety aspects of the system are approved by the Organization. Submittal for approval shall be made in accordance with the provisions of the Guidelines referred to in regulation 19.5.

## Regulation 24

### *Damage assumptions*

1 For the purpose of calculating hypothetical oil outflow from oil tankers in accordance with regulations 25 and 26, three dimensions of the extent of damage of a parallelepiped on the side and bottom of the ship are assumed as follows. In the case of bottom damages two conditions are set forth to be applied individually to the stated portions of the oil tanker.

- .1 Side damage:
  - 1 Longitudinal extent( $l_c$ ):  $1/3 L^{2/3}$  or 14.5 metres, whichever is less.
  - 2 Transverse extent ( $t_c$ ) (inboard from the ship's side at right angles to the centreline at the level corresponding to the assigned summer freeboard):  $B/5$  or 11.5 metres, whichever is less
  - 3 Vertical extent ( $v_c$ ): From the base line upwards without limit
- .2 Bottom damage:
 

	For 0.3L from the forward perpendicular of the ship	Any other part of the ship
1 Longitudinal extent ( $l_s$ ):	$L/10$	$L/10$ or 5 metres, whichever is less
2 Transverse extent ( $t_s$ ):	$B/6$ or 10 metres, whichever is less but not less than 5 metres	5 metres
3 Vertical extent from the base line ( $v_s$ ):	$B/15$ or 6 metres, whichever is less	

2 Wherever the symbols given in this regulation appear in this chapter, they have the meaning as defined in this regulation.



**Regulation 25***Hypothetical outflow of oil*

1 The hypothetical outflow of oil in the case of side damage ( $O_c$ ) and bottom damage ( $O_s$ ) shall be calculated by the following formulae with respect to compartments breached by damage to all conceivable locations along the length of the ship to the extent as defined in regulation 24 of this Annex.

.1 For side damages:

$$O_c = \Sigma W_i + \Sigma K_i C_i \quad (I)$$

.2 For bottom damages:

$$O_s = 1/3 (\Sigma Z_i W_i + \Sigma Z_i C_i) \quad (II)$$

where:  $W_i$  = volume of a wing tank in cubic metres assumed to be breached by the damage as specified in regulation 24 of this Annex;  $W_i$  for a segregated ballast tank may be taken equal to zero.

$C_i$  = volume of a centre tank in cubic metres assumed to be breached by the damage as specified in regulation 24 of this Annex;  $C_i$  for a segregated ballast tank may be taken equal to zero.

$K_i$  =  $1 - b_i/t_c$  when  $b_i$  is equal to or greater than  $t_c$ ,  $K_i$  shall be taken equal to zero.

$Z_i$  =  $1 - h_i/v_s$ , when  $h_i$  is equal to or greater than  $v_s$ ,  $Z_i$  shall be taken equal to zero.

$b_i$  = width of wing tank in metres under consideration measured inboard from the ship's side at right angles to the centreline at the level corresponding to the assigned summer freeboard.

$h_i$  = minimum depth of the double bottom in metres under consideration; where no double bottom is fitted  $h_i$  shall be taken equal to zero.

Whenever symbols given in this paragraph appear in this chapter, they have the meaning as defined in this regulation.

2 If a void space or segregated ballast tank of a length less than  $l_c$  as defined in regulation 24 of this Annex is located between wing oil tanks,  $O_c$  in formula (I) may be calculated on the basis of volume  $W_i$  being the actual volume of one such tank (where they are of equal capacity) or the smaller of the two tanks (if they differ in capacity) adjacent to such space, multiplied by  $S_i$  as defined below and taking for all other wing tanks involved in such collision the value of the actual full volume.

$$S_i = 1 - l_i/l_c$$

where  $l_i$  = length in metres of void space or segregated ballast tank under consideration.

- 3 .1 Credit shall only be given in respect of double bottom tanks which are either empty or carrying clean water when cargo is carried in the tanks above.
- .2 Where the double bottom does not extend for the full length and width of the tank involved, the double bottom is considered non-existent and the volume of the tanks above the area of the bottom damage shall be included in formula (II) even if the tank is not considered breached because of the installation of such a partial double bottom.
- .3 Suction wells may be neglected in the determination of the value  $h_i$  provided such wells are not excessive in area and extend below the tank for a minimum distance and in no case more than half the height of the double bottom. If the depth of such a well exceeds half the height of the double bottom,  $h_i$  shall be taken equal to the double bottom height minus the well height.

Piping serving such wells if installed within the double bottom shall be fitted with valves or other closing arrangements located at the point of connection to the tank served to prevent oil outflow in the event of damage to the piping. Such piping shall be installed as high from the bottom shell as possible. These valves shall be kept closed at sea at any time when the tank contains oil cargo, except that they may be opened only for cargo transfer needed for the purpose of trimming of the ship.

- 4 In these case where bottom damage simultaneously involves four centre tanks, the value of  $O_s$  may be calculated according to the formula:

$$O_s = 1/4 (\sum Z_i W_i + \sum Z_i C_i) \quad \text{(III)}$$

- 5 An Administration may credit as reducing oil outflow in case of bottom damage, an installed cargo transfer system having an emergency high suction in each cargo oil tank, capable of transferring from a breached tank or tanks to segregated ballast tanks or to available cargo tankage if it can be assured that such tanks will have sufficient ullage. Credit for such a system would be governed by ability to transfer in two hours of operation oil equal to one half of the largest of the breached tanks involved and by availability of equivalent receiving capacity in ballast or cargo tanks. The credit shall be confined to permitting calculation of  $O_s$  according to formula (III). The pipes for such suctions shall be installed at least at a height not less than the vertical extent of the bottom damage  $v_s$ . The Administration shall supply the Organization with the information concerning the arrangements accepted by it, for circulation to other Parties to the Convention.

- 6 This regulation does not apply to oil tankers delivered on or after 1 January 2010, as defined in regulation 1.28.8.

## **Regulation 26**

### *Limitations of size and arrangement of cargo tanks*

- 1 Except as provided in paragraph 7 below:
1. every oil tanker of 150 gross tonnage and above delivered after 31 December 1979, as defined in regulation 1.28.2, and

2. every oil tanker of 150 gross tonnage and above delivered on or before 31 December 1979, as defined in regulation 1.28.1, which falls into either of the following categories :
  - .1 a tanker, the delivery of which is after 1 January 1977, or
  - .2 a tanker to which both the following conditions apply:
    - .1 delivery is not later than 1 January 1977; and
    - .2 the building contract is placed after 1 January 1974, or in cases where no building contract has previously been placed, the keel is laid or the tanker is at a similar stage of construction after 30 June 1974.

shall comply with the provisions of this regulation.

2 Cargo tanks of oil tankers shall be of such size and arrangements that the hypothetical outflow  $O_c$  or  $O_s$  calculated in accordance with the provisions of regulation 25 of this Annex anywhere in the length of the ship does not exceed 30,000 cubic metres or  $400 \sqrt[3]{DW}$ , whichever is the greater, but subject to a maximum of 40,000 cubic metres.

3 The volume of any one wing cargo oil tank of an oil tanker shall not exceed 75 per cent of the limits of the hypothetical oil outflow referred to in paragraph 2 of this regulation. The volume of any one centre cargo oil tank shall not exceed 50,000 cubic metres. However, in segregated ballast oil tankers as defined in regulation 18 of this Annex, the permitted volume of a wing cargo oil tank situated between two segregated ballast tanks, each exceeding  $l_c$  in length, may be increased to the maximum limit of hypothetical oil outflow provided that the width of the wing tanks exceeds  $t_c$ .

4 The length of each cargo tank shall not exceed 10 m or one of the following values, whichever is the greater:

- .1 where no longitudinal bulkhead is provided inside the cargo tanks:
 
$$(0.5 \frac{b_i}{B} + 0.1)L \quad \text{but not to exceed } 0.2L$$
- .2 where a centreline longitudinal bulkhead is provided inside the cargo tanks:
 
$$(0.25 \frac{b_i}{B} + 0.15)L$$
- .3 where two or more longitudinal bulkheads are provided inside the cargo tanks:
  - .1 for wing cargo tanks:  $0.2L$
  - .2 for centre cargo tanks:

.1 if  $\frac{b_i}{B}$  is equal to or greater than one fifth:  $0.2L$

.2 if  $\frac{b_i}{B}$  is less than one fifth:

- where no centreline longitudinal bulkhead is provided:

$$\left(0.5 \frac{b_i}{B} + 0.1\right) L$$

- where a centreline longitudinal bulkhead is provided:

$$\left(0.25 \frac{b_i}{B} + 0.15\right) L$$

.4  $b_i$  is the minimum distance from the ship's side to the outer longitudinal bulkhead of the tank in question measured inboard at right angles to the centreline at the level corresponding to the assigned summer freeboard.

5 In order not to exceed the volume limits established by paragraphs 2, 3 and 4 of this regulation and irrespective of the accepted type of cargo transfer system installed, when such system interconnects two or more cargo tanks, valves or other similar closing devices shall be provided for separating the tanks from each other. These valves or devices shall be closed when the tanker is at sea.

6 Lines of piping which run through cargo tanks in a position less than  $t_c$  from the ship's side or less than  $v_c$  from the ship's bottom shall be fitted with valves or similar closing devices at the point at which they open into any cargo tank. These valves shall be kept closed at sea at any time when the tanks contain cargo oil, except that they may be opened only for cargo transfer needed for the purpose of trimming of the ship.

7 This regulation does not apply to oil tankers delivered on or after 1 January 2010, as defined in regulation 1.28.8.

## **Regulation 27**

### *Intact stability*

1 Every oil tanker of 5,000 tonnes deadweight and above delivered on or after 1 February 2002, as defined in regulation 1.28.7, shall comply with the intact stability criteria specified in paragraphs 1.1 and 1.2 of this regulation, 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.

.1 In port, the initial metacentric height  $GMO$ , corrected for the free surface measured at  $0^\circ$  heel, shall be not less than 0.15 m;

.2 At sea, the following criteria shall be applicable:

- .1 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  $\theta_f^*$  if this angle is less than  $40^\circ$ . Additionally, the area under the righting lever curve (GZ curve) between the angles of heel of  $30^\circ$  and  $40^\circ$  or between  $30^\circ$  and  $\theta_f$ , if this angle is less than  $40^\circ$ , shall be not less than 0.03 m.rad;
- .2 the righting lever GZ shall be at least 0.20 m at an angle of heel equal to or greater than  $30^\circ$ ;
- .3 the maximum righting arm shall occur at an angle of heel preferably exceeding  $30^\circ$  but not less than  $25^\circ$ ; and
- .4 the initial metacentric height  $GMO$ , corrected for free surface measured at  $0^\circ$  heel, shall be not less than 0.15 m.

2 The requirements of paragraph 1 of this regulation shall be met through design measures. For combination carriers simple supplementary operational procedures may be allowed.

3 Simple supplementary operational procedures for liquid transfer operations referred to in paragraph 2 of this regulation shall mean written procedures made available to the master which:

- .1 are approved by the Administration;
- .2 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;
- .3 will be readily understandable to the officer-in-charge of liquid transfer operations;
- .4 provide for planned sequences of cargo/ballast transfer operations;
- .5 allow comparisons of attained and required stability using stability performance criteria in graphical or tabular form;
- .6 require no extensive mathematical calculations by the officer-in-charge;
- .7 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
- .8 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.

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\*  $\theta_f$  is the angle of heel at which openings in the hull superstructures or deckhouses which cannot be closed weather tight, immerse. In applying this criterion, small openings through which progressive flooding cannot take place need not be considered as open.

**Regulation 28***Subdivision and damage stability*

1 Every oil tanker delivered after 31 December 1979, as defined in regulation 1.28.2, of 150 gross tonnage and above, shall comply with the subdivision and damage stability criteria as specified in paragraph 3 of this regulation, after the assumed side or bottom damage as specified in paragraph 2 of this regulation, for any operating draught reflecting actual partial or full load conditions consistent with trim and strength of the ship as well as relative densities of the cargo. Such damage shall be applied to all conceivable locations along the length of the ship as follows:

- .1 in tankers of more than 225 metres in length, anywhere in the ship's length;
- .2 in tankers of more than 150 metres, but not exceeding 225 metres in length, anywhere in the ship's length except involving either after or forward bulkhead bounding the machinery space located aft. The machinery space shall be treated as a single floodable compartment; and
- .3 in tankers not exceeding 150 metres in length, anywhere in the ship's length between adjacent transverse bulkheads with the exception of the machinery space. For tankers of 100 metres or less in length where all requirements of paragraph 3 of this regulation cannot be fulfilled without materially impairing the operational qualities of the ship, Administrations may allow relaxations from these requirements.

Ballast conditions where the tanker is not carrying oil in cargo tanks, excluding any oil residues, shall not be considered.

2 The following provisions regarding the extent and the character of the assumed damage shall apply:

- .1 Side damage:
  - 1 Longitudinal extent:  $\frac{1}{3} \left( L^{\frac{2}{3}} \right)$  or 14.5 metres, whichever is less
  - 2 Transverse extent (inboard from the ship's side at right angles to the centreline at the level of the summer load line):  $\frac{B}{5}$  or 11.5 metres, whichever is less
  - 3 Vertical extent: From the moulded line of the bottom shell plating at centreline, upwards without limit

## .2 Bottom damage:

	For 0.3L from the forward perpendicular of the ship	Any other part of the ship
1 Longitudinal extent:	$\frac{1}{3}\left(\frac{L^2}{L^3}\right)$ or 14.5 metres, whichever is less	$\frac{1}{3}\left(\frac{L^2}{L^3}\right)$ or 5 metres, whichever is less
2 Transverse extent:	$\frac{B}{6}$ or 10 metres, whichever is less	$\frac{B}{6}$ or 5 metres, whichever is less
3 Vertical extent:	$\frac{B}{15}$ or 6 metres, whichever is less, measured from the moulded line of the bottom shell plating at centreline	$\frac{B}{15}$ or 6 metres, whichever is less, measured from the moulded line of the bottom shell plating at centreline

- .3 If any damage of a lesser extent than the maximum extent of damage specified in subparagraphs 2.1 and 2.2 of this paragraph would result in a more severe condition, such damage shall be considered.
- .4 Where the damage involving transverse bulkheads is envisaged as specified in subparagraphs 1.1 and 1.2 of this regulation, transverse watertight bulkheads shall be spaced at least at a distance equal to the longitudinal extent of assumed damage specified in subparagraph 2.1 of this paragraph in order to be considered effective. Where transverse bulkhead are spaced at a lesser distance, one or more of these bulkheads within such extent of damage shall be assumed as non-existent for the purpose of determining flooded compartments.
- .5 Where the damage between adjacent transverse watertight bulkheads is envisaged as specified in subparagraph 1.3 of this regulation, no main transverse bulkhead or a transverse bulkhead bounding side tanks or double bottom tanks shall be assumed damaged, unless:
- .1 the spacing of the adjacent bulkheads is less than the longitudinal extent of assumed damage specified in subparagraph 2.1 of this paragraph; or
  - .2 there is a step or recess in a transverse bulkhead of more than 3.05 metres in length, located within the extent of penetration of assumed damage. The step formed by the after peak bulkhead and after peak top shall not be regarded as a step for the purpose of this regulation.
- .6 If pipes, ducts or tunnels are situated within the assumed extent of damage, arrangements shall be made so that progressive flooding cannot thereby extend to compartments other than those assumed to be floodable for each case of damage.

3 Oil tankers shall be regarded as complying with the damage stability criteria if the following requirements are met:

- .1 The final waterline, taking into account sinkage, heel and trim, shall be below the lower edge of any opening through which progressive flooding may take place. Such openings shall include air-pipes and those which are closed by means of weathertight doors or hatch covers and may exclude those openings closed by means of watertight manhole covers and flush scuttles, small watertight cargo tank hatch covers which maintain the high integrity of the deck, remotely operated watertight sliding doors, and sidescuttles of the non-opening type.
- .2 In the final stage of flooding, the angle of heel due to unsymmetrical flooding shall not exceed 25°, provided that this angle may be increased up to 30° if no deck edge immersion occurs.
- .3 The stability in the final stage of flooding shall be investigated and may be regarded as sufficient if the righting lever curve has at least a range of 20° beyond the position of equilibrium in association with a maximum residual righting lever of at least 0.1 metre within the 20° range; the area under the curve within this range shall not be less than 0.0175 metre radians. Unprotected openings shall not be immersed within this range unless the space concerned is assumed to be flooded. Within this range, the immersion of any of the openings listed in subparagraph 3.1 of this paragraph and other openings capable of being closed watertight may be permitted.
- .4 The Administration shall be satisfied that the stability is sufficient during intermediate stages of flooding.
- .5 Equalization arrangements requiring mechanical aids such as valves or cross-levelling pipes, if fitted, shall not be considered for the purpose of reducing an angle of heel or attaining the minimum range of residual stability to meet the requirements of subparagraphs 3.1, 3.2 and 3.3 of this paragraph and sufficient residual stability shall be maintained during all stages where equalization is used. Spaces which are linked by ducts of a large cross-sectional area may be considered to be common.

4 The requirements of paragraph 1 of this regulation shall be confirmed by calculations which take into consideration the design characteristics of the ship, the arrangements, configuration and contents of the damaged compartments; and the distribution, relative densities and the free surface effect of liquids. The calculations shall be based on the following:

- .1 Account shall be taken of any empty or partially filled tank, the relative density of cargoes carried, as well as any outflow of liquids from damaged compartments.
- .2 The permeabilities assumed for spaces flooded as a result of damage shall be as follows:



<b>Spaces</b>	<b>Permeabilities</b>
Appropriated to stores	0.60
Occupied by accommodation	0.95
Occupied by machinery	0.85
Voids	0.95
Intended for consumable liquids	0 to 0.95*
Intended for other liquids	0 to 0.95*

- .3 The buoyancy of any superstructure directly above the side damage shall be disregarded. The unflooded parts of superstructures beyond the extent of damage, however, may be taken into consideration provided that they are separated from the damaged space by watertight bulkheads and the requirements of subparagraph .1 of this regulation in respect of these intact spaces are complied with. Hinged watertight doors may be acceptable in watertight bulkheads in the superstructure.
- .4 The free surface effect shall be calculated at an angle of heel of 5° for each individual compartment. The Administration may require or allow the free surface corrections to be calculated at an angle of heel greater than 5° for partially filled tanks.
- .5 In calculating the effect of free surfaces of consumable liquids it shall be assumed that, for each type of liquid at least one transverse pair or a single centreline tank has a free surface and the tank or combination of tanks to be taken into account shall be those where the effect of free surface is the greatest.

5 The master of every oil tanker to which this regulation applies and the person in charge of a non-self-propelled oil tanker, to which this regulation applies shall be supplied in a approved form with:

- .1 information relative to loading and distribution of cargo necessary to ensure compliance with the provisions of this regulation; and
- .2 data on the ability of the ship to comply with damage stability criteria as determined by this regulation, including the effect of relaxations that may have been allowed under subparagraph 1.3 of this regulation.

6 For oil tankers of 20,000 tonnes deadweight and above delivered on or after 6 July 1996, as defined in regulation 1.28.6, the damage assumptions prescribed in paragraph 2.2 of this regulation shall be supplemented by the following assumed bottom raking damage:

- .1 longitudinal extent:
- .1 ships of 75,000 tonnes deadweight and above:  
0.6L measured from the forward perpendicular;

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\* The permeability of partially filled compartments shall be consistent with the amount of liquid carried in the compartment. Whenever damage penetrates a tank containing liquids, it shall be assumed that the contents are completely lost from that compartment and replaced by salt water up to the level of the final plane of equilibrium.

- .2 ships of less than 75,000 tonnes deadweight:  
0.4L measured from the forward perpendicular;
- .2 transverse extent:  $B/3$  anywhere in the bottom;
- .3 vertical extent: breach of the outer hull.

## **Regulation 29**

### *Slop tanks*

1 Subject to the provisions of paragraph 4 of regulation 3 of this Annex, oil tankers of 150 gross tonnage and above shall be provided with slop tank arrangements in accordance with the requirements of paragraphs 2.1 to 2.3 of this regulation. In oil tankers delivered on or before 31 December 1979, as defined in regulation 1.28.1, any cargo tank may be designated as a slop tank.

2.1 Adequate means shall be provided for cleaning the cargo tanks and transferring the dirty ballast residue and tank washings from the cargo tanks into a slop tank approved by the Administration.

2.2 In this system arrangements shall be provided to transfer the oily waste into a slop tank or combination of slop tanks in such a way that any effluent discharged into the sea will be such as to comply with the provisions of regulation 34 of this Annex.

2.3 The arrangements of the slop tank or combination of slop tanks shall have a capacity necessary to retain the slop generated by tank washings, oil residues and dirty ballast residues. The total capacity of the slop tank or tanks shall not be less than 3 per cent of the oil carrying capacity of the ship, except that the Administration may accept:

- .1 2 per cent for such oil tankers where the tank washing arrangement are such that once the slop tank or tanks are charged with washing water, this water is sufficient for tank washing and, where applicable, for providing the driving fluid for eductors, without the introduction of additional water into the system;
- .2 2 per cent where segregated ballast tanks or dedicated clean ballast tanks are provided in accordance with regulation 18 of this Annex, or where a cargo tank cleaning system using crude oil washing is fitted in accordance with regulation 3 of this Annex. This capacity may be further reduced to 1.5 per cent for such oil tankers where the tank washing arrangements are such that once the slop tank or tanks are charged with washing water, this water is sufficient for tank washing and, where applicable, for providing the driving fluid for eductors, without the introduction of additional water into the system; and
- .3 1 per cent for combination carriers where oil cargo is only carried in tanks with smooth walls. This capacity may be further reduced to 0.8 per cent where the tank washing arrangements are such that once the slop tank or tanks are charged with washing water, this water is sufficient for tank washing and, where applicable, for providing the driving fluid for eductors, without the introduction of additional water into the system.

2.4 Slop tanks shall be so designed particularly in respect of the position of inlets, outlets, baffles or weirs where fitted, so as to avoid excessive turbulence and entrainment of oil or emulsion with the water.

3 Oil tankers of 70,000 tonnes deadweight and above delivered after 31 December 1979, as defined in regulation 1.28.2, shall be provided with at least two slop tanks.

### **Regulation 30**

#### *Pumping, piping and discharge arrangement*

1 In every oil tanker, a discharge manifold for connection to reception facilities for the discharge of dirty ballast water or oil-contaminated water shall be located on the open deck on both sides of the ship.

2 In every oil tanker of 150 gross tonnage and above, pipelines for the discharge to the sea of ballast water or oil contaminated water from cargo tank areas which may be permitted under regulation 34 of this Annex shall be led to the open deck or to the ship's side above the waterline in the deepest ballast condition. Different piping arrangements to permit operation in the manner permitted in subparagraphs 6.1 to 6.5 of this regulation may be accepted.

3 In oil tankers of 150 gross tonnage and above delivered after 31 December 1979, as defined in regulation 1.28.2, means shall be provided for stopping the discharge into the sea of ballast water or oil contaminated water from cargo tank areas, other than those discharges below the waterline permitted under paragraph 6 of this regulation, from a position on the upper deck or above located so that the manifold in use referred to in paragraph 1 of this regulation and the discharge to the sea from the pipelines referred to in paragraph 2 of this regulation may be visually observed. Means for stopping the discharge need not be provided at the observation position if a positive communication system such as a telephone or radio system is provided between the observation position and the discharge control position.

4 Every oil tanker delivered after 1 June 1982, as defined in regulation 1.28.4, required to be provided with segregated ballast tanks or fitted with a crude oil washing system, shall comply with the following requirements:

- .1 it shall be equipped with oil piping so designed and installed that oil retention in the lines is minimized; and
- .2 means shall be provided to drain all cargo pumps and all oil lines at the completion of cargo discharge, where necessary by connection to a stripping device. The line and pump draining shall be capable of being discharged both ashore and to a cargo tank or a slop tank. For discharge ashore a special small diameter line shall be provided and shall be connected outboard of the ship's manifold valves.

5 Every crude oil tanker delivered on or before 1 June 1982, as defined in regulation 1.28.3, required to be provided with segregated ballast tanks, or to be fitted with a crude oil washing system, shall comply with the provisions of paragraph 4.2 of this regulation.

6 On every oil tanker the discharge of ballast water or oil contaminated water from cargo tank areas shall take place above the waterline, except as follows:

- .1 Segregated ballast and clean ballast may be discharged below the waterline:
  - .1 in ports or at offshore terminals, or
  - .2 at sea by gravity, or
  - .3 at sea by pumps if the ballast water exchange is performed under the provisions of regulation D-1.1 of the International Convention for the Control and Management of Ships' Ballast Water and Sediments.

provided that the surface of the ballast water has been examined either visually or by other means immediately before the discharge to ensure that no contamination with oil has taken place.
- .2 Oil tankers delivered on or before 31 December 1979, as defined in regulation 1.28.1, which, without modification, are not capable of discharging segregated ballast above the waterline may discharge segregated ballast below the waterline at sea, provided that the surface of the ballast water has been examined immediately before the discharge to ensure that no contamination with oil has taken place.
- .3 Oil tankers delivered on or before 1 June 1982, as defined in regulation 1.28.3 operating with dedicated clean ballast tanks, which without modification are not capable of discharging ballast water from dedicated clean ballast tanks above the waterline, may discharge this ballast below the waterline provided that the discharge of the ballast water is supervised in accordance with regulation 18.8.3 of this Annex.
- .4 On every oil tanker at sea, dirty ballast water or oil contaminated water from tanks in the cargo area, other than slop tanks, may be discharged by gravity below the waterline, provided that sufficient time has elapsed in order to allow oil/water separation to have taken place and the ballast water has been examined immediately before the discharge with an oil/water interface detector referred to in regulation 32 of this Annex, in order to ensure that the height of the interface is such that the discharge does not involve any increased risk of harm to the marine environment.
- .5 On oil tankers delivered on or before 31 December 1979, as defined in regulation 1.28.1, at sea dirty ballast water or oil contaminated water from cargo tank areas may be discharged below the waterline, subsequent to or in lieu of the discharge by the method referred to in subparagraph 6.4 of this paragraph, provided that:
  - .1 a part of the flow of such water is led through permanent piping to a readily accessible location on the upper deck or above where it may be visually observed during the discharge operation; and
  - .2 such part flow arrangements comply with the requirements established by the Administration, which shall contain at least all the provisions of the Specifications for the Design, Installation and Operation of a Part Flow

System for Control of Overboard Discharges adopted by the Organization\*.

7 Every oil tanker of 150 gross tonnage and above delivered on or after 1 January 2010, as defined in regulation 1.28.8, which has installed a sea chest that is permanently connected to the cargo pipeline system, shall be equipped with both a sea chest valve and an inboard isolation valve. In addition to these valves, the sea chest shall be capable of isolation from the cargo piping system whilst the tanker is loading, transporting, or discharging cargo by use of a positive means that is to the satisfaction of the Administration. Such a positive means is a facility that is installed in the pipeline system in order to prevent, under all circumstances, the section of pipeline between the sea chest valve and the inboard valve being filled with cargo.

## **PART B EQUIPMENT**

### **Regulation 31**

#### *Oil discharge monitoring and control system*

1 Subject to the provisions of paragraphs 4 and 5 of regulation 3 of this Annex, oil tankers of 150 gross tonnage and above shall be equipped with an oil discharge monitoring and control system approved by the Administration.

2 In considering the design of the oil content meter to be incorporated in the system, the Administration shall have regard to the specification recommended by the Organization.<sup>†</sup> The system shall be fitted with a recording device to provide a continuous record of the discharge in litres per nautical mile and total quantity discharged, or the oil content and rate of discharge. This record shall be identifiable as to time and date and shall be kept for at least three years. The oil discharge monitoring and control system shall come into operation when there is any discharge of effluent into the sea and shall be such as will ensure that any discharge of oily mixture is automatically stopped when the instantaneous rate of discharge of oil exceeds that permitted by regulation 34 of this Annex. Any failure of this monitoring and control system shall stop the discharge. In the event of failure of the oil discharge monitoring and control system a manually operated alternative method may be used, but the defective unit shall be made operable as soon as possible. Subject to allowance by the port State authority a tanker with a defective oil discharge monitoring and control system may undertake one ballast voyage before proceeding to a repair port.

3 The oil discharge monitoring and control system shall be designed and installed in compliance with the guidelines and specifications for oil discharge monitoring and control

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\* See appendix 4 to Unified Interpretations.

<sup>†</sup> For oil content meters installed on oil tankers built prior to 2 October 1986, refer to the Recommendation on international performance and test specifications for oily-water separating equipment and oil content meters adopted by the Organization by resolution A.393(X). For oil content meters as part of discharge monitoring and control systems installed on oil tankers built on or after 2 October 1986, refer to the Guidelines and specifications for oil discharge monitoring and control systems for oil tankers adopted by the Organization by resolution A.586(14). For oil content meters as part of discharge monitoring and control systems installed on oil tankers the keel of which are laid or which are in a similar stage of construction on or after 1 January 2005, refer to the revised Guidelines and specifications for oil discharge monitoring and control systems for oil tankers adopted by the Organization by resolution MEPC.108(49).

system for oil tankers developed by the Organization<sup>‡</sup>. Administrations may accept such specific arrangements as detailed in the Guidelines and Specifications.

4 Instructions as to the operation of the system shall be in accordance with an operational manual approved by the Administration. They shall cover manual as well as automatic operations and shall be intended to ensure that at no time shall oil be discharged except in compliance with the conditions specified in regulation 34 of this Annex.

### **Regulation 32**

#### *Oil/water interface detector\**

Subject to the provisions of paragraphs 4 and 5 of regulation 3 of this Annex, oil tankers of 150 gross tonnage and above shall be provided with effective oil/water interface detectors approved by the Administration for a rapid and accurate determination of the oil/water interface in slop tanks and shall be available for use in other tanks where the separation of oil and water is effected and from which it is intended to discharge effluent direct to the sea.

### **Regulation 33**

#### *Crude oil washing requirements*

1 Every crude oil tanker of 20,000 tonnes deadweight and above delivered after 1 June 1982, as defined in regulation 1.28.4, shall be fitted with a cargo tank cleaning system using crude oil washing. The Administration shall ensure that the system fully complies with the requirements of this regulation within one year after the tanker was first engaged in the trade of carrying crude oil or by the end of the third voyage carrying crude oil suitable for crude oil washing, whichever occurs later.

2 Crude oil washing installation and associated equipment and arrangements shall comply with the requirements established by the Administration. Such requirements shall contain at least all the provisions of the Specifications for the Design, Operation and Control of Crude Oil Washing Systems adopted by the Organization<sup>†</sup>. When a ship is not required, in accordance with paragraph 1 of this regulation to be, but is equipped with crude oil washing equipment, it shall comply with the safety aspects of the above-mentioned Specifications.

3 Every crude oil washing system required to be provided in accordance with regulation 18.7 of this Annex shall comply with the requirements of this regulation.

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<sup>‡</sup> Refer to the Guidelines and Specifications for Oil Discharge Monitoring and Control Systems for Oil Tankers adopted by the Organization by resolution A.496 (XII) or the Revised Guidelines and Specifications for Oil Discharge Monitoring and Control Systems for Oil Tankers adopted by the Organization by resolution A.586(14), or the Revised Guidelines and Specifications for Oil Discharge Monitoring and Control Systems for Oil Tankers adopted by the Organization by resolution MEPC.108(49) as applicable.

\* Refer to the Specifications for Oil/Water Interface Detectors adopted by the Organization by resolution MEPC.5(XIII).

<sup>†</sup> Refer to the revised Specifications for the design, operation and control of crude oil washing systems adopted by the Organization by resolution A.446(XI) and amended by the Organization by resolution A.497(XII) and as further amended by resolution A.897(21).

## **PART C CONTROL OF OPERATIONAL DISCHARGES OF OIL**

### **Regulation 34**

#### *Control of discharge of oil*

##### **A. Discharges outside special areas**

1 Subject to the provisions of regulation 4 of this Annex and paragraph 2 of this regulation, any discharge into the sea of oil or oily mixtures from the cargo area of an oil tanker, shall be prohibited except when all the following conditions are satisfied:

- .1 the tanker is not within a special area;
- .2 the tanker is more than 50 nautical miles from the nearest land;
- .3 the tanker is proceeding en route;
- .4 the instantaneous rate of discharge of oil content does not exceed 30 litres per nautical mile;
- .5 the total quantity of oil discharged into the sea does not exceed for tankers delivered on or before 31 December 1979, as defined in regulation 1.28.1, 1/15,000 of the total quantity of the particular cargo of which the residue formed a part, and for tankers delivered after 31 December 1979, as defined in regulation 1.28.2, 1/30,000 of the total quantity of the particular cargo of which the residue formed a part; and
- .6 the tanker has in operation an oil discharge monitoring and control system and a slop tank arrangement as required by regulations 29 and 31 of this Annex.

2 The provisions of paragraph 1 of this regulation shall not apply to the discharge of clean or segregated ballast.

##### **B. Discharges in special areas**

3 Subject to the provisions of paragraph 4 of this regulation, any discharge into the sea of oil or oily mixture from the cargo area of an oil tanker shall be prohibited while in a special area\*.

4 The provisions of paragraph 3 of this regulation shall not apply to the discharge of clean or segregated ballast.

5 Nothing in this regulation shall prohibit a ship on a voyage only part of which is in a special area from discharging outside the special area in accordance with paragraph 1 of this regulation.

##### **C. Requirements for oil tankers of less than 150 gross tonnage**

6 The requirements of regulations 29, 31 and 32 of this Annex shall not apply to oil tankers of less than 150 gross tonnage, for which the control of discharge of oil under this regulation

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\* Refer to regulation 38.6

shall be effected by the retention of oil on board with subsequent discharge of all contaminated washings to reception facilities. The total quantity of oil and water used for washing and returned to a storage tank shall be discharged to reception facilities unless adequate arrangements are made to ensure that any effluent which is allowed to be discharged into the sea is effectively monitored to ensure that the provisions of this regulation are complied with.

#### **D. General requirements**

7 Whenever visible traces of oil are observed on or below the surface of the water in the immediate vicinity of a ship or its wake, the Governments of Parties to the present Convention should, to the extent they are reasonably able to do so, promptly investigate the facts bearing on the issue of whether there has been a violation of the provisions of this regulation. The investigation should include, in particular, the wind and sea conditions, the track and speed of the ship, other possible sources of the visible traces in the vicinity, and any relevant oil discharge records.

8 No discharge into the sea shall contain chemicals or other substances in quantities or concentrations which are hazardous to the marine environment or chemicals or other substances introduced for the purpose of circumventing the conditions of discharge specified in this regulation.

9 The oil residues which cannot be discharged into the sea in compliance with paragraphs 1 and 3 of this regulation shall be retained on board for subsequent discharge to reception facilities.

#### **Regulation 35**

##### *Crude oil washing operations*

1 Every oil tanker operating with crude oil washing systems shall be provided with an Operations and Equipment Manual\* detailing the system and equipment and specifying operational procedures. Such a Manual shall be to the satisfaction of the Administration and shall contain all the information set out in the specifications referred to in paragraph 2 of regulation 33 of this Annex. If an alteration affecting the crude oil washing system is made, the Operations and Equipment Manual shall be revised accordingly.

2 With respect to the ballasting of cargo tanks, sufficient cargo tanks shall be crude oil washed prior to each ballast voyage in order that, taking into account the tanker's trading pattern and expected weather conditions, ballast water is put only into cargo tanks which have been crude oil washed.

3 Unless an oil tanker carries crude oil which is not suitable for crude oil washing, the oil tanker shall operate the crude oil washing system in accordance with the Operations and Equipment Manual.

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\* Refer to the Standard Format of the Crude Oil Washing Operation and Equipment Manual adopted by the Marine Environment Protection Committee of the Organization by resolution MEPC.3(XII), as amended by resolution MEPC.81(43).



**Regulation 36**

*Oil Record Book, Part II - Cargo/ballast operations*

1 Every oil tanker of 150 gross tonnage and above shall be provided with an Oil Record Book Part II (Cargo/Ballast Operations). The Oil Record Book Part II, whether as a part of the ship's official logbook or otherwise, shall be in the Form specified in appendix III to this Annex.

2 The Oil Record Book Part II shall be completed on each occasion, on a tank-to-tank basis if appropriate, whenever any of the following cargo/ballast operations take place in the ship:

- .1 loading of oil cargo;
- .2 internal transfer of oil cargo during voyage;
- .3 unloading of oil cargo;
- .4 ballasting of cargo tanks and dedicated clean ballast tanks;
- .5 cleaning of cargo tanks including crude oil washing;
- .6 discharge of ballast except from segregated ballast tanks;
- .7 discharge of water from slop tanks;
- .8 closing of all applicable valves or similar devices after slop tank discharge operations;
- .9 closing of valves necessary for isolation of dedicated clean ballast tanks from cargo and stripping lines after slop tank discharge operations; and
- .10 disposal of residues.

3 For oil tankers referred to in regulation 34.6 of this Annex, the total quantity of oil and water used for washing and returned to a storage tank shall be recorded in the Oil Record Book Part II.

4 In the event of such discharge of oil or oily mixture as is referred to in regulation 4 of this Annex or in the event of accidental or other exceptional discharge of oil not excepted by that regulation, a statement shall be made in the Oil Record Book Part II of the circumstances of, and the reasons for, the discharge.

5 Each operation described in paragraph 2 of this regulation shall be fully recorded without delay in the Oil Record Book Part II so that all entries in the book appropriate to that operation are completed. Each completed operation shall be signed by the officer or officers in charge of the operations concerned and each completed page shall be signed by the master of ship. The entries in the Oil Record Book Part II shall be at least in English, French or Spanish. Where entries in an official language of the State whose flag the ship is entitled to fly are also used, this shall prevail in case of dispute or discrepancy.

6 Any failure of the oil discharge monitoring and control system shall be noted in the Oil Record Book Part II.

7 The Oil Record Book shall be kept in such a place as to be readily available for inspection at all reasonable times and, except in the case of unmanned ships under tow, shall be kept on board the ship. It shall be preserved for a period of three years after the last entry has been made.

8 The competent authority of the Government of a Party to the Convention may inspect the Oil Record Book Part II on board any ship to which this Annex applies while the ship is in its port or offshore terminals and may make a copy of any entry in that book and may require the master of the ship to certify that the copy is a true copy of such entry. Any copy so made which has been certified by the master of the ship as a true copy of an entry in the ship's Oil Record Book Part II shall be made admissible in any judicial proceedings as evidence of the facts stated in the entry. The inspection of an Oil Record Book Part II and the taking of a certified copy by the competent authority under this paragraph shall be performed as expeditiously as possible without causing the ship to be unduly delayed.

9 For oil tankers of less than 150 gross tonnage operating in accordance with regulation 34.6 of this Annex, an appropriate Oil Record Book should be developed by the Administration.

## CHAPTER 5 - PREVENTION OF POLLUTION ARISING FROM AN OIL POLLUTION INCIDENT

### Regulation 37

#### *Shipboard oil pollution emergency plan*

1 Every oil tanker of 150 gross tonnage and above and every ship other than an oil tanker of 400 gross tonnage and above shall carry on board a shipboard oil pollution emergency plan approved by the Administration.

2 Such a plan shall be prepared based on guidelines\* developed by the Organization and written in the working language of the master and officers. The plan shall consist at least of:

- .1 the procedure to be followed by the master or other persons having charge of the ship to report an oil pollution incident, as required in article 8 and Protocol I of the present Convention, based on the guidelines developed by the Organization;<sup>†</sup>
- .2 the list of authorities or persons to be contacted in the event of an oil pollution incident;
- .3 a detailed description of the action to be taken immediately by persons on board to reduce or control the discharge of oil following the incident; and

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\* Refer to the Guidelines for the development of shipboard oil pollution emergency plans adopted by the Organization by resolution MEPC.54(32) as amended by resolution MEPC.86(44).

† Refer to the General Principles for Ship Reporting Systems and Ship Reporting Requirements, including Guidelines for Reporting Incidents Involving Dangerous Goods, Harmful Substances and/or Marine Pollutants adopted by the Organization by resolution A.851(20).

- .4 the procedures and point of contact on the ship for co-ordinating shipboard action with national and local authorities in combating the pollution.

3 In the case of ships to which regulation 17 of Annex II of the present Convention also apply, such a plan may be combined with the shipboard marine pollution emergency plan for noxious liquid substances required under regulation 17 of Annex II of the present Convention. In this case, the title of such a plan shall be “Shipboard marine pollution emergency plan”.

4 All oil tankers of 5,000 tons deadweight or more shall have prompt access to computerised, shore-based damage stability and residual structural strength calculation programs.

## CHAPTER 6 - RECEPTION FACILITIES

### **Regulation 38**

#### *Reception facilities*

#### **A. Reception facilities outside special areas**

1 The Government of each Party to the present Convention undertakes to ensure the provision at oil loading terminals, repair ports, and in other ports in which ships have oily residues to discharge, of facilities for the reception of such residues and oily mixtures as remain from oil tankers and other ships adequate<sup>‡</sup> to meet the needs of the ships using them without causing undue delay to ships.

2 Reception facilities in accordance with paragraph 1 of this regulation shall be provided in:

- .1 all ports and terminals in which crude oil is loaded into oil tankers where such tankers have immediately prior to arrival completed a ballast voyage of not more than 72 hours or not more than 1,200 nautical miles;
- .2 all ports and terminals in which oil other than crude oil in bulk is loaded at an average quantity of more than 1,000 tonnes per day;
- .3 all ports having ship repair yards or tank cleaning facilities;
- .4 all ports and terminals which handle ships provided with the sludge tank(s) required by regulation 12 of this Annex;
- .5 all ports in respect of oily bilge waters and other residues, which cannot be discharged in accordance with regulation 15 of this Annex; and
- .6 all loading ports for bulk cargoes in respect of oil residues from combination carriers which cannot be discharged in accordance with regulation 34 of this Annex.

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<sup>‡</sup> See resolution MEPC.83(44) “Guidelines for ensuring the adequacy of port waste reception facilities”.

- 3 The capacity for the reception facilities shall be as follows:
- .1 Crude oil loading terminals shall have sufficient reception facilities to receive oil and oily mixtures which cannot be discharged in accordance with the provisions of regulation 34.1 of this Annex from all oil tankers on voyages as described in paragraph 2.1 of this regulation.
  - .2 Loading ports and terminals referred to in paragraph 2.2 of this regulation shall have sufficient reception facilities to receive oil and oily mixtures which cannot be discharged in accordance with the provisions of regulation 34.1 of this Annex from oil tankers which load oil other than crude oil in bulk.
  - .3 All ports having ship repair yards or tank cleaning facilities shall have sufficient reception facilities to receive all residues and oily mixtures which remain on board for disposal from ships prior to entering such yards or facilities.
  - .4 All facilities provided in ports and terminals under paragraph 2.4 of this regulation shall be sufficient to receive all residues retained according to regulation 12 of this Annex from all ships that may reasonably be expected to call at such ports and terminals.
  - .5 All facilities provided in ports and terminals under this regulation shall be sufficient to receive oily bilge waters and other residues which cannot be discharged in accordance with regulation 15 of this Annex.
  - .6 The facilities provided in loading ports for bulk cargoes shall take into account the special problems of combination carriers as appropriate.

**B. Reception facilities within special areas**

4 The Government of each Party to the present Convention the coastline of which borders on any given special area shall ensure that all oil loading terminals and repair ports within the special area are provided with facilities adequate for the reception and treatment of all the dirty ballast and tank washing water from oil tankers. In addition all ports within the special area shall be provided with adequate\* reception facilities for other residues and oily mixtures from all ships. Such facilities shall have adequate capacity to meet the needs of the ships using them without causing undue delay.

5 The Government of each Party to the present Convention having under its jurisdiction entrances to seawater courses with low depth contour which might require a reduction of draught by the discharge of ballast shall ensure the provision of the facilities referred to in paragraph 4 of this regulation but with the proviso that ships required to discharge slops or dirty ballast could be subject to some delay.

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\* See resolution MEPC.83(44) "Guidelines for ensuring the adequacy of port waste reception facilities".

6 With regard to the Red Sea area, Gulfs area, Gulf of Aden area and Oman area of the Arabian Sea:

- .1 Each Party concerned shall notify the Organization of the measures taken pursuant to provisions of paragraphs 4 and 5 of this regulation. Upon receipt of sufficient notifications the Organization shall establish a date from which the discharge requirements of regulations 15 and 34 of this Annex in respect of the area in question shall take effect. The Organization shall notify all Parties of the date so established no less than twelve months in advance of that date.
- .2 During the period between the entry into force of the present Convention and the date so established, ships while navigating in the special area shall comply with the requirements of regulations 15 and 34 of this Annex as regards discharges outside special areas.
- .3 After such date oil tankers loading in ports in these special areas where such facilities are not yet available shall also fully comply with the requirements of regulations 15 and 34 of this Annex as regards discharges within special areas. However, oil tankers entering these special areas for the purpose of loading shall make every effort to enter the area with only clean ballast on board.
- .4 After the date on which the requirements for the special area in question take effect, each Party shall notify the Organization for transmission to the Parties concerned of all cases where the facilities are alleged to be inadequate.
- .5 At least the reception facilities as prescribed in paragraphs 1, 2 and 3 of this regulation shall be provided one year after the date of entry into force of the present Convention.

7 Notwithstanding paragraphs 4, 5 and 6 of this regulation, the following rules apply to the Antarctic area:

- .1 The Government of each Party to the present Convention at whose ports ships depart *en route* to or arrive from the Antarctic area undertakes to ensure that as soon as practicable adequate facilities are provided for the reception of all sludge, dirty ballast, tank washing water, and other oily residues and mixtures from all ships, without causing undue delay, and according to the needs of the ships using them.
- .2 The Government of each Party to the present Convention shall ensure that all ships entitled to fly its flag, before entering the Antarctic area, are fitted with a tank or tanks of sufficient capacity on board for the retention of all sludge, dirty ballast, tank washing water and other oily residues and mixtures while operating in the area and have concluded arrangements to discharge such oily residues at a reception facility after leaving the area.

### C. General requirements

8 Each Party shall notify the Organization for transmission to the Parties concerned of all cases where the facilities provided under this regulation are alleged to be inadequate.

## CHAPTER 7 - SPECIAL REQUIREMENTS FOR FIXED OR FLOATING PLATFORMS

### Regulation 39

#### *Special requirements for fixed or floating platforms*

1 This regulation applies to fixed or floating platforms including drilling rigs, floating production, storage and offloading facilities (FPSOs) used for the offshore production and storage of oil, and floating storage units (FSUs) used for the offshore storage of produced oil.

2 Fixed or floating platforms when engaged in the exploration, exploitation and associated offshore processing of sea-bed mineral resources and other platforms shall comply with the requirements of this Annex applicable to ships of 400 gross tonnage and above other than oil tankers, except that:

- .1 they shall be equipped as far as practicable with the installations required in regulations 12 and 14 of this Annex;
- .2 they shall keep a record of all operations involving oil or oily mixture discharges, in a form approved by the Administration; and
- .3 subject to the provisions of regulation 4 of this Annex, the discharge into the sea of oil or oily mixture shall be prohibited except when the oil content of the discharge without dilution does not exceed 15 parts per million.

3 In verifying compliance with this Annex in relation to platforms configured as FPSOs or FSUs, in addition to the requirements of paragraph 2, Administrations should take account of the Guidelines developed by the Organization\*.

### APPENDICES TO ANNEX I

<b>Appendix I</b>	<b>List of oils</b>
<b>Appendix II</b>	<b>Form of IOPP Certificate and Supplements</b>
<b>Appendix III</b>	<b>Form of Oil Record Book</b>

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\* Refer to resolution MEPC ...(.) "Guidelines for the application of MARPOL Annex I requirements to FPSOs and FSUs."

## APPENDIX I

### LIST OF OILS\*

#### **Asphalt solutions**

Blending stocks  
Roofers flux  
Straight run residue

#### **Gasoline blending stocks**

Alkylates – fuel  
Reformats  
Polymer – fuel

#### ***Oils***

Clarified  
Crude oil  
Mixtures containing crude oil  
Diesel oil  
Fuel oil no. 4  
Fuel oil no. 5  
Fuel oil no. 6  
Residual fuel oil  
Road oil  
Transformer oil  
Aromatic oil (excluding vegetable oil)  
Lubricating oils and blending stocks  
Mineral oil  
Motor oil  
Penetrating oil  
Spindle oil  
Turbine oil

#### **Gasolines**

Casinghead (natural)

Automotive  
Aviation  
Straight run  
Fuel oil no. 1 (kerosene)  
Fuel oil no. 1-D  
Fuel oil no. 2  
Fuel oil no. 2-D

#### **Jet fuels**

JP-1 (kerosene)  
JP-3  
JP-4  
JP-5 (kerosene, heavy)  
Turbo fuel  
Kerosene  
Mineral spirit

#### ***Distillates***

Straight run  
Flashed feed stocks

#### **Naphtha**

Solvent  
Petroleum  
Heartcut distillate oil

#### ***Gas oil***

Cracked

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\* This list of oils shall not necessarily be considered as comprehensive.

**APPENDIX II**

**FORM OF IOPP CERTIFICATE AND SUPPLEMENTS**

**INTERNATIONAL OIL POLLUTION PREVENTION CERTIFICATE**

*(Note: This certificate shall be supplemented by a Record of Construction and Equipment)*

Issued under the provisions of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto, as amended, (hereinafter referred to as "the Convention") under the authority of the Government of :

.....  
*(full designation of the country)*

by .....  
*(full designation of the competent person or organization authorized under the provisions of the Convention)*

**Particulars of ship\***

Name of ship .....

Distinctive number or letters .....

Port of registry .....

Gross tonnage .....

Deadweight of ship (tonnes)<sup>†</sup> .....

IMO Number<sup>‡</sup> .....

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\* Alternatively, the particulars of the ship may be placed horizontally in boxes.

† For oil tankers

‡ Refer to the IMO Ship Identification Number Scheme adopted by the Organization by resolution A.600(15).



Type of ship:\*

Oil tanker

Ship other than an oil tanker with cargo tanks coming under regulation 2.2 of Annex I of the Convention

Ship other than any of the above

THIS IS TO CERTIFY:

1. That the ship has been surveyed in accordance with regulation 6 of Annex I of the Convention; and
2. That the survey shows that the structure, equipment systems, fittings, arrangement and material of the ship and the condition thereof are in all respects satisfactory and that the ship complies with the applicable requirements of Annex I of the Convention.

This certificate is valid until .....<sup>†</sup>  
subject to surveys in accordance with regulation 6 of Annex I of the Convention.

Completion date of the survey on which this certificate is based: dd/mm/yyyy.....

Issued at .....  
*(Place of issue of certificate)*

.....  
*(Date of issue)*

.....  
*(Signature of authorized official  
issuing the certificate)*

*(Seal or stamp of the authority, as appropriate)*

---

\* Delete as appropriate

<sup>†</sup> Insert the date of expiry as specified by the Administration in accordance with regulation 10.1 of Annex I of the Convention. The day and the month of this day correspond to the anniversary date as defined in regulation 1.27 of Annex I of the Convention, unless amended in accordance with regulation 10.8 of Annex I of the Convention.

**ENDORSEMENT FOR ANNUAL AND INTERMEDIATE SURVEYS**

THIS IS TO CERTIFY that at a survey required by regulation 6 of Annex I of the Convention the ship was found to comply with the relevant provisions of the Convention:

Annual survey: Signed .....  
(Signature of duly authorized official)

Place .....

Date .....

*(Seal/ or stamp of the authority, as appropriate)*

Annual\*/Intermediate survey\*: Signed .....  
(Signature of duly authorized official)

Place .....

Date .....

*(Seal/ or stamp of the authority, as appropriate)*

Annual\*/Intermediate survey\* : Signed .....  
(Signature of duly authorized official)

Place .....

Date .....

*(Seal/ or stamp of the authority, as appropriate)*

Annual survey: Signed .....  
(Signature of duly authorized official)

Place .....

Date .....

*(Seal or stamp of the authority, as appropriate)*

---

\* Delete as appropriate

**ANNUAL/INTERMEDIATE SURVEY IN ACCORDANCE  
WITH REGULATION 10.8.3**

THIS IS TO CERTIFY that, at an annual/intermediate\* survey in accordance with regulation 10.8.3 of Annex I of the Convention, the ship was found to comply with the relevant provisions of the Convention:

Signed .....  
(Signature of duly authorized official)

Place .....

Date .....

*(Seal or stamp of the authority, as appropriate)*

**ENDORSEMENT TO EXTEND THE CERTIFICATE IF VALID  
FOR LESS THAN 5 YEARS WHERE REGULATION 10.3 APPLIES**

The ship complies with the relevant provisions of the Convention, and this Certificate shall, in accordance with regulation 10.3 of Annex I of the Convention, be accepted as valid until.....

Signed .....  
(Signature of duly authorized official)

Place .....

Date .....

*(Seal or stamp of the authority, as appropriate)*

**ENDORSEMENT WHERE THE RENEWAL SURVEY HAS BEEN  
COMPLETED AND REGULATION 10.4 APPLIES**

The ship complies with the relevant provisions of the Convention and this Certificate shall, in accordance with regulation 10.4 of Annex I of the Convention, be accepted as valid until .....

Signed .....  
(Signature of duly authorized official)

Place .....

Date .....

*(Seal or stamp of the authority, as appropriate)*

---

\* Delete as appropriate

**ENDORSEMENT TO EXTEND THE VALIDITY OF THE CERTIFICATE UNTIL  
REACHING THE PORT OF SURVEY OR FOR A PERIOD OF GRACE  
WHERE REGULATION 10.5 OR 10.6 APPLIES**

This Certificate shall, in accordance with regulation 10.5 or 10.6\* of Annex I of the Convention,  
be accepted as valid until .....

Signed .....  
*(Signature of duly authorized official)*

Place .....

Date .....

*(Seal or stamp of the authority, as appropriate)*

**ENDORSEMENT FOR ADVANCEMENT OF ANNIVERSARY DATE  
WHERE REGULATION 10.8 APPLIES**

In accordance with regulation 10.8 of Annex I of the Convention the new anniversary date is  
.....

Signed .....  
*(Signature of duly authorized official)*

Place .....

Date .....

*(Seal or stamp of the authority, as appropriate)*

In accordance with regulation 10.8 of Annex I of the Convention the new anniversary date is  
.....

Signed .....  
*(Signature of duly authorized official)*

Place .....

Date .....

*(Seal or stamp of the authority, as appropriate)*

---

\* Delete as appropriate

**Supplement to the International Oil Pollution Prevention Certificate  
(IOPP Certificate)**

**RECORD OF CONSTRUCTION AND EQUIPMENT FOR SHIPS OTHER  
THAN OIL TANKERS**

in respect of the provisions of Annex I of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (hereinafter referred to as "the Convention").

*Notes:*

- 1 This form is to be used for the third type of ships as categorized in the IOPP Certificate, i.e. "ships other than any of the above". For oil tankers and ships other than oil tankers with cargo tanks coming under regulation 2.2 of Annex I of the Convention, Form B shall be used.
- 2 This Record shall be permanently attached to the IOPP Certificate. The IOPP Certificate shall be available on board the ship at all times.
- 3 If the language of the original Record is neither English nor French nor Spanish, the text shall include a translation into one of these languages.
- 4 Entries in boxes shall be made by inserting either a cross (x) for the answers "yes" and "applicable" or a dash (-) for the answers "no" and "not applicable" as appropriate.
- 5 Regulations mentioned in this Record refer to regulations of Annex I of the Convention and resolutions refer to those adopted by the International Maritime Organization.

**1. Particulars of ship**

- 1.1 Name of ship .....
- 1.2 Distinctive number or letters .....
- 1.3 Port of registry .....
- 1.4 Gross tonnage .....
- 1.5 Date of build:
  - 1.5.1 Date of building contract .....
  - 1.5.2 Date on which keel was laid or ship was at a similar stage of construction .....
  - 1.5.3 Date of delivery .....

- 1.6 Major conversion (if applicable):
- 1.6.1 Date of conversion contract .....
- 1.6.2 Date on which conversion was commenced .....
- 1.6.3 Date of completion of conversion .....
- 1.7 The ship has been accepted by the Administration as a  
“ship delivered on or before 31 December 1979”  
under regulation 1.28.1 due to unforeseen delay in delivery
- 2. Equipment for the control of oil discharge from  
machinery space bilges and oil fuel tanks**  
(regulations 16 and 14)
- 2.1 Carriage of ballast water in oil fuel tanks:
- 2.1.1 The ship may under normal conditions carry ballast water  
in oil fuel tanks
- 2.2 Type of oil filtering equipment fitted:
- 2.2.1 Oil filtering (15 ppm) equipment   
(regulation 14.6)
- 2.2.2 Oil filtering (15 ppm) equipment with alarm and  
automatic stopping device (regulation 14.7)
- 2.3 Approval standards: \*
- 2.3.1 The separating/filtering equipment:
- .1 has been approved in accordance with  
resolution A.393(X);
- .2 has been approved in accordance with  
resolution MEPC.60(33);
- .3 has been approved in accordance with  
resolution MEPC.107(49);

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\* Refer to the Recommendation on international performance and test specifications of oily-water separating equipment and oil content meters adopted by the Organization on 14 November 1977 by resolution A.393(X), which superseded resolution A.233(VII). Further reference is made to the Guidelines and specifications for pollution prevention equipment for machinery space bilges adopted by the Marine Environment Protection Committee of the Organization by resolution MEPC.60(33), which, effective on 6 July 1993, superseded resolutions A.393(X) and A.444(XI)(see IMO sales publication IMO-646E); and to the revised Guidelines and specifications for pollution prevention equipment for machinery spaces of ships adopted by the Marine Environment Protection Committee of the Organization by resolution MEPC.107(49) which, effective on 1 January 2005, superseded resolutions MEPC.60(33), A.393(X) and A.444(XI) (see IMO sales publication IMO-.....).

- .4 has been approved in accordance with resolution A.233(VII);
  - .5 has been approved in accordance with national standards not based upon resolution A.393(X) or A.233(VII);
  - .6 has not been approved.
- 2.3.2 The process unit has been approved in accordance with resolution A.444(XI)
- 2.3.3 The oil content meter :
- .1 has been approved in accordance with resolution A.393(X);
  - .2 has been approved in accordance with resolution MEPC.60(33);
  - .3 has been approved in accordance with resolution MEPC.107(49).
- 2.4 Maximum throughput of the system is ..... m<sup>3</sup>/h
- 2.5 Waiver of regulation 14:
- 2.5.1 The requirements of regulation 14.1 or 14.2 are waived in respect of the ship in accordance with regulation 14.5.
- 2.5.1.1 The ship is engaged exclusively on voyages within special area(s): .....
- 2.5.1.2 The ship is certified under the International Code of Safety for High-Speed Craft and engaged on a scheduled service with a turn-around time not exceeding 24 hours
- 2.5.2 The ship is fitted with holding tank(s) for the total retention on board of all oily bilge water as follows:

Tank identification	Tank location		Volume (m <sup>3</sup> )
	Frames (from) - (to)	Lateral position	
<b>Total volume: .....m<sup>3</sup></b>			

**3. Means for retention and disposal of oil residues (sludge) (regulation 12) and bilge water holding tank(s)\***

3.1 The ship is provided with oil residue (sludge) tanks as follows:

Tank identification	Tank location		Volume (m <sup>3</sup> )
	Frames (from) - (to)	Lateral position	
<b>Total volume: .....m<sup>3</sup></b>			

3.2 Means for the disposal of residues in addition to the provisions of sludge tanks:

3.2.1 Incinerator for oil residues, capacity ..... l/h

3.2.2 Auxiliary boiler suitable for burning oil residues

3.2.3 Tank for mixing oil residues with fuel oil, capacity ..... m<sup>3</sup>

3.2.4 Other acceptable means: .....

3.3 The ship is provided with holding tank(s) for the retention on board of oily bilge water as follows:

Tank identification	Tank location		Volume (m <sup>3</sup> )
	Frames (from) - (to)	Lateral position	
<b>Total volume: .....m<sup>3</sup></b>			

**4. Standard discharge connection (regulation 13)**

4.1 The ship is provided with a pipeline for the discharge of residues from machinery bilges and sludges to reception facilities, fitted with a standard discharge connection in accordance with regulation 13

\* Bilge water holding tank(s) are not required by the Convention, entries in the table under paragraph 3.3 are voluntary.



**5. Shipboard oil/marine pollution emergency plan**  
(regulation 37)

5.1 The ship is provided with a shipboard oil pollution emergency plan in compliance with regulation 37

5.2 The ship is provided with a shipboard marine pollution emergency plan in compliance with regulation 37.3

**6. Exemption**

6.1 Exemptions have been granted by the Administration from the requirements of chapter 3 of Annex I of the Convention in accordance with regulation 3.1 on those items listed under paragraph(s) .....  
.....  
..... of this Record

**7. Equivalentents (regulation 5)**

7.1 Equivalentents have been approved by the Administration for certain requirements of Annex I on those items listed under paragraph(s) ..... of this Record

THIS IS TO CERTIFY that this Record is correct in all respects.

Issued at .....

(Place of issue of the Record)

.....  
.....  
*(Signature of duly authorized official  
issuing the Record)*

*(Seal or stamp of the issuing authority, as appropriate)*

**Supplement to the International Oil Pollution Prevention Certificate  
(IOPP Certificate)**

**RECORD OF CONSTRUCTION AND EQUIPMENT FOR OIL TANKERS**

in respect of the provisions of Annex I of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (hereinafter referred to as "the Convention").

*Notes:*

- 1 This form is to be used for the first two types of ships as categorized in the IOPP Certificate, i.e. "oil tankers" and "ships other than oil tankers with cargo tanks coming under regulation 2.2 of Annex I of the Convention". For the third type of ships as categorized in the IOPP Certificate, Form A shall be used.
- 2 This Record shall be permanently attached to the IOPP Certificate. The IOPP Certificate shall be available on board the ship at all times.
- 3 If the language of the original Record is neither English nor French nor Spanish, the text shall include a translation into one of these languages.
- 4 Entries in boxes shall be made by inserting either a cross (x) for the answers "yes" and "applicable" or a dash (-) for the answers "no" and "not applicable" as appropriate.
- 5 Unless otherwise stated, regulations mentioned in this Record refer to regulations of Annex I of the Convention and resolutions refer to those adopted by the International Maritime Organization.

**1. Particulars of ship**

- 1.1 Name of ship .....
- 1.2 Distinctive number or letters .....
- 1.3 Port of registry .....
- 1.4 Gross tonnage .....
- 1.5 Carrying capacity of ship ..... (m<sup>3</sup>)
- 1.6 Deadweight of ship ..... (tonnes) (regulation 1.23)
- 1.7 Length of ship ..... (m) (regulation 1.19)

- 1.8 Date of build:
- 1.8.1 Date of building contract .....
- 1.8.2 Date on which keel was laid or ship was at a similar stage of construction .....
- 1.8.3 Date of delivery .....
- 1.9 Major conversion (if applicable):
- 1.9.1 Date of conversion contract .....
- 1.9.2 Date on which conversion was commenced .....
- 1.9.3 Date of completion of conversion. ....
- 1.10 Unforeseen delay in delivery:
- 1.10.1 The ship has been accepted by the Administration as a "ship delivered on or before 31 December 1979" under regulation 1.28.1 due to unforeseen delay in delivery
- 1.10.2 The ship has been accepted by the Administration as an "oil tanker delivered on or before 1 June 1982" under regulation 1.28.3 due to unforeseen delay in delivery
- 1.10.3 The ship is not required to comply with the provisions of regulation 26 due to unforeseen delay in delivery
- 1.11 Type of ship:
- 1.11.1 Crude oil tanker
- 1.11.2 Product carrier
- 1.11.3 Product carrier not carrying fuel oil or heavy diesel oil as referred to in regulation 20.2, or lubricating oil
- 1.11.4 Crude oil/product carrier
- 1.11.5 Combination carrier
- 1.11.6 Ship, other than an oil tanker, with cargo tanks coming under regulation 2.2 of Annex I of the Convention
- 1.11.7 Oil tanker dedicated to the carriage of products referred to in regulation 2.4

- 1.11.8 The ship, being designated as a "crude oil tanker" operating with COW, is also designated as a "product carrier" operating with CBT, for which a separate IOPP Certificate has also been issued
- 1.11.9 The ship, being designated as a "product carrier" operating with CBT, is also designated as a "crude oil tanker" operating with COW, for which a separate IOPP Certificate has also been issued
- 2. Equipment for the control of oil discharge from machinery space bilges and oil fuel tanks**  
(regulations 16 and 14)
- 2.1 Carriage of ballast water in oil fuel tanks:
- 2.1.1 The ship may under normal conditions carry ballast water in oil fuel tanks
- 2.2 Type of oil filtering equipment fitted:
- 2.2.1 Oil filtering (15 ppm) equipment (regulation 14.6)
- 2.2.2 Oil filtering (15 ppm) equipment with alarm and automatic stopping device (regulation 14.7)
- 2.3 Approval standards: \*
- 2.3.1 The separating/filtering equipment:
- .1 has been approved in accordance with resolution A.393(X);
- .2 has been approved in accordance with resolution MEPC.60(33);
- .3 has been approved in accordance with resolution MEPC.107(49);
- .4 has been approved in accordance with resolution A.233(VII);

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\* Refer to the Recommendation on international performance and test specifications of oily-water separating equipment and oil content meters adopted by the Organization on 14 November 1977 by resolution A.393(X), which superseded resolution A.233(VII); Further reference is made to the Guidelines and specifications for pollution prevention equipment for machinery space bilges adopted by the Marine Environment Protection Committee of the Organization by resolution MEPC.60(33), which, effective on 6 July 1993, superseded resolutions A.393(X) and A.444(XI) (see IMO sales publication IMO-646E); and to the revised Guidelines and specifications for pollution prevention equipment for machinery spaces of ships adopted by the Marine Environment Protection Committee of the Organization by resolution MEPC.107(49) which, effective on 1 January 2005, superseded resolutions MEPC.60(33), A.393(X) and A.444(XI) (see IMO sales publication IMO....).

.5 has been approved in accordance with national standards not based upon resolution A.393(X) or A.233(VII);

.6 has not been approved.

2.3.2 The process unit has been approved in accordance with resolution A.444(XI)

2.3.3 The oil content meter :

.1 has been approved in accordance with resolution A.393(X);

.2 has been approved in accordance with resolution MEPC.60(33);

.3 has been approved in accordance with resolution MEPC.107(49).

2.4 Maximum throughput of the system is ..... m<sup>3</sup>/h

2.5 Waiver of regulation 14:

2.5.1 The requirements of regulation 14.1 or 14.2 are waived in respect of the ship in accordance with regulation 14.5.

The ship is engaged exclusively on voyages within special area(s): .....

2.5.2 The ship is fitted with holding tank(s) for the total retention on board of all oily bilge water as follows :

Tank identification	Tank location		Volume (m <sup>3</sup> )
	Frames (from) - (to)	Lateral position	
<b>Total volume: .....m<sup>3</sup></b>			

2.5.3 In lieu of the holding tank(s) the ship is provided with arrangements to transfer bilge water to the slop tank

**3. Means for retention and disposal of oil residues (sludge) (regulation 12) and bilge water holding tank(s)\***

3.1 The ship is provided with oil residue (sludge) tanks as follows:

Tank identification	Tank location		Volume (m <sup>3</sup> )
	Frames (from) - (to)	Lateral position	
<b>Total volume: .....m<sup>3</sup></b>			

3.2 Means for the disposal of residues in addition to the provisions of sludge tanks:

3.2.1 Incinerator for oil residues, capacity .....l/h

3.2.2 Auxiliary boiler suitable for burning oil residues

3.2.3 Tank for mixing oil residues with fuel oil, capacity ..... m<sup>3</sup>

3.2.4 Other acceptable means: .....

3.3 The ship is provided with holding tank(s) for the retention on board of oily bilge water as follows:

Tank identification	Tank location		Volume (m <sup>3</sup> )
	Frames (from) - (to)	Lateral position	
<b>Total volume: .....m<sup>3</sup></b>			

**4. Standard discharge connection (regulation 13)**

4.1 The ship is provided with a pipeline for the discharge of residues from machinery bilges and sludges to reception facilities, fitted with a standard discharge connection in accordance with regulation 13

\* Bilge water holding tank(s) are not required by the Convention, entries in the table under paragraph 3.3 are voluntary.

**5. Construction** (regulations 18, 19, 20, 23, 26, 27 and 28)

5.1 In accordance with the requirements of regulation 18, the ship is:

5.1.1 Required to be provided with SBT, PL and COW

5.1.2 Required to be provided with SBT and PL

5.1.3 Required to be provided with SBT

5.1.4 Required to be provided with SBT or COW

5.1.5 Required to be provided with SBT or CBT

5.1.6 Not required to comply with the requirements of regulation 18

5.2 Segregated ballast tanks (SBT):

5.2.1 The ship is provided with SBT in compliance with regulation 18

5.2.2 The ship is provided with SBT, in compliance with regulation 18, which are arranged in protective locations (PL) in compliance with regulations 18.12 to 18.15

5.2.3 SBT are distributed as follows:

Tank	Volume (m <sup>3</sup> )	Tank	Volume (m <sup>3</sup> )
		<b>Total volume:</b>	.....m <sup>3</sup>

5.3 Dedicated clean ballast tanks (CBT):

5.3.1 The ship is provided with CBT in compliance with regulation 18.8, and may operate as a product carrier

5.3.2 CBT are distributed as follows:

Tank	Volume (m <sup>3</sup> )	Tank	Volume (m <sup>3</sup> )
		<b>Total volume:</b>	.....m <sup>3</sup>

- 5.3.3 The ship has been supplied with a valid Dedicated Clean Ballast Tank Operation Manual, which is dated .....
- 5.3.4 The ship has common piping and pumping arrangements for ballasting the CBT and handling cargo oil .....
- 5.3.5 The ship has separate independent piping and pumping arrangements for ballasting the CBT
- 5.4 Crude oil washing (COW):
- 5.4.1 The ship is equipped with a COW system in compliance with regulation 33
- 5.4.2 The ship is equipped with a COW system in compliance with regulation 33 except that the effectiveness of the system has not been confirmed in accordance with regulation 33.1 and paragraph 4.2.10 of the Revised COW Specifications (resolution A.446(XI) as amended by resolutions A.497(XII) and A.897(21))
- 5.4.3 The ship has been supplied with a valid Crude Oil Washing Operations and Equipment Manual which is dated .....
- 5.4.4 The ship is not required to be but is equipped with COW in compliance with the safety aspects of the Revised COW Specifications (resolution A.446(XI) as amended by resolutions A.497(XII) and A.897(21))
- 5.5 Exemption from regulation 18:
- 5.5.1 The ship is solely engaged in trade between .....  
.....  
in accordance with regulation 2.5 and is therefore exempted from the requirements of regulation 18
- 5.5.2 The ship is operating with special ballast arrangements in accordance with regulation 18.10 and is therefore exempted from the requirements of regulation 18
- 5.6 Limitation of size and arrangements of cargo tanks (regulation 26):
- 5.6.1 The ship is required to be constructed according to, and complies with, the requirements of regulation 26
- 5.6.2 The ship is required to be constructed according to and complies with, the requirements of regulation 26.4 (see regulation 2.2)



- 5.7 Subdivision and stability (regulation 28):
  - 5.7.1 The ship is required to be constructed according to, and complies with, the requirements of regulation 28
  - 5.7.2 Information and data required under regulation 28.5 have been supplied to the ship in an approved form
  - 5.7.3 The ship is required to be constructed according to, and complies with, the requirements of regulation 27
  - 5.7.4 Information and data required under regulation 27 For combination carriers have been supplied to the ship in a written procedure approved by the Administration
- 5.8 Double-hull construction:
  - 5.8.1 The ship is required to be constructed according to regulation 19 and complies with the requirements of:
    - .1 paragraph (3) (double-hull construction)
    - .2 paragraph (4) (mid-height deck tankers with double side construction)
    - .3 paragraph (5) (alternative method approved by the Marine Environment Protection Committee)
  - 5.8.2 The ship is required to be constructed according to and complies with the requirements of regulation 19.6 (double bottom requirements)
  - 5.8.3 The ship is not required to comply with the requirements of regulation 19
  - 5.8.4 The ship is subject to regulation 20 and:
    - .1 is required to comply with paragraphs 2 to 5, 7 and 8 of regulation 19 and regulation 28 in respect of paragraph 28.6 not later than .....
    - .2 is allowed to continue operation in accordance with regulation 20.5 until .....
    - .3 is allowed to continue operation in accordance with regulation 20.7 until .....
  - 5.8.5 The ship is not subject to regulation 20
  - 5.8.6 The ship is subject to regulation 21 and:

- .1 is required to comply with regulation 21.4  
not later than .....
- .2 is allowed to continue operation in accordance with regulation 21.5  
until .....
- .3 is allowed to continue operation in accordance with regulation 21.6.1  
until .....
- .4 is allowed to continue operation in accordance with regulation 21.6.2  
until .....
- .5 is exempted from the provisions of regulation 21 in accordance with  
regulation 21.7.2
- 5.8.7 The ship is not subject to regulation 21
- 5.8.8 The ship is subject to regulation 22 and:
  - .1 complies with the requirements of regulation 22.2.....
  - .2 complies with the requirements of regulation 22.3.....
  - .3 complies with the requirements of regulation 22.5.....
- 5.8.9 The ship is not subject to regulation 22.....
- 5.9 Accidental oil outflow performance
- 5.9.1 The ship complies with the requirements of regulation 23
- 6. Retention of oil on board** (regulations 29, 31 and 32)
- 6.1 Oil discharge monitoring and control system:
  - 6.1.1 The ship comes under category ..... oil tanker  
as defined in resolution A.496(XII) or A.586(14)\* (*delete as appropriate*)
  - 6.1.2 The oil discharge monitoring and control system has been approved in accordance  
with resolution MEPC.108(49)\*\*
  - 6.1.3 The system comprises:
    - .1 control unit

---

\* Oil tankers the keels of which are laid, or which are at a similar stage of construction, on or after 2 October 1986 should be fitted with a system approved under resolution A.586(14); see IMO sales publication IMO-646E.

\*\* Oil tankers the keels of which are laid, or which are at a similar stage of construction, on or after 1 January 2005 should be fitted with a system approved under resolution MEPC.108(49) (see IMO sales publication IMO ...).

- .2 computing unit
- .3 calculating unit
- 6.1.4 The system is:
- .1 fitted with a starting interlock
- .2 fitted with automatic stopping device
- 6.1.5 The oil content meter is approved under the terms of resolution A.393(X) or A.586(14)<sup>†</sup> or MEPC.108(49) (*delete as appropriate*) suitable for:
- .1 crude oil
- .2 black products
- .3 white products
- .4 oil-like noxious liquid substances as listed in the attachment to the certificate
- 6.1.6 The ship has been supplied with an operations manual for the oil discharge monitoring and control system
- 6.2 Slop tanks:
- The ship is provided with \_\_\_\_\_ dedicated slop tank(s) with the total capacity of \_\_\_\_\_ m<sup>3</sup>, which is \_\_\_\_\_ % of the oil carrying capacity, in accordance with:
- .1 regulation 29.2.3
- .2 regulation 29.2.3.1
- .3 regulation 29.2.3.2
- .4 regulation 29.2.3.3
- 6.2.2 Cargo tanks have been designated as slop tanks

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<sup>†</sup> For oil content meters installed on tankers built prior to 2 October 1986, refer to the Recommendation on international performance and test specifications for oily-water separating equipment and oil content meters adopted by the Organization by resolution A.393(X). For oil content meters as part of discharge monitoring and control systems installed on tankers built on or after 2 October 1986, refer to the Guidelines and specifications for oil discharge monitoring and control systems for oil tankers adopted by the Organization by resolution A.586(14); see IMO sales publication IMO-646E. For oil content meters as part of discharge monitoring and control systems installed on tankers the keel of which are laid or are in a similar stage of construction on or after 1 January 2005, refer to the revised Guidelines and specifications for oil discharge monitoring and control systems for oil tankers adopted by the Organization by resolution MEPC.108(49); see IMO sales publication IMO . . . . .

- 6.3 Oil/water interface detectors:
- 6.3.1 The ship is provided with oil/water interface detectors approved under the terms of resolution MEPC.5(XIII)\*
- 6.4 Exemptions from regulations 29, 31 and 32:
- 6.4.1 The ship is exempted from the requirements of regulations 29, 31 and 32 in accordance with regulation 2.4
- 6.4.2 The ship is exempted from the requirements of regulations 29, 31 and 32 in accordance with regulation 2.2
- 6.5 Waiver of regulation:
- 6.5.1 The requirements of regulations 31 and 32 are waived in respect of the ship in accordance with regulation 3.5. The ship is engaged exclusively on:
- .1 specific trade under regulation 2.5: .....  
.....
- .2 voyages within special area(s): .....  
.....
- .3 voyages within 50 nautical miles of the nearest land outside special area(s) of 72 hours or less in duration restricted to: .....  
.....

**7. Pumping, piping and discharge arrangements**  
(regulation 30)

- 7.1 The overboard discharge outlets for segregated ballast are located:
- 7.1.1 Above the waterline
- 7.1.2 Below the waterline
- 7.2 The overboard discharge outlets, other than the discharge manifold, for clean ballast are located<sup>†</sup>:
- 7.2.1 Above the waterline
- 7.2.2 Below the waterline
- 7.3 The overboard discharge outlets, other than the discharge manifold,

\* Refer to the Specification for oil/water interface detectors adopted by the Marine Environment Protection Committee of the Organization by resolution MEPC.5(XIII); see IMO sales publication IMO-646E.

† Only those outlets which can be monitored are to be indicated.

for dirty ballast water or oil-contaminated water from cargo tank areas are located:

7.3.1 Above the waterline

7.3.2 Below the waterline in conjunction with the part flow arrangements in compliance with regulation 30.6.5

7.3.3 Below the waterline

7.4 Discharge of oil from cargo pumps and oil lines (regulations 30.4 and 30.5):

7.4.1 Means to drain all cargo pumps and oil lines at the completion of cargo discharge:

.1 drainings capable of being discharged to a cargo tank or slop tank

.2 for discharge ashore a special small-diameter line is provided

**8. Shipboard oil/marine pollution emergency plan**  
(regulation 37)

8.1 The ship is provided with a shipboard oil pollution emergency plan in compliance with regulation 37

8.2 The ship is provided with a shipboard marine pollution emergency plan in compliance with regulation 37.3

**9. Exemption**

9.1 Exemptions have been granted by the Administration from the requirements of chapter 3 of Annex I of the Convention in accordance with regulation 3.1 on those items listed under paragraph(s) .....  
.....  
..... of this Record

**10. Equivalentents** (regulation 5)

10.1 Equivalentents have been approved by the Administration for certain requirements of Annex I on those items listed under paragraph(s) ..... of this Record

THIS IS TO CERTIFY that this Record is correct in all respects.

Issued at .....

(Place of issue of the Record)

.....

.....  
*(Signature of duly authorized official  
issuing the Record)*

*(Seal or stamp of the issuing authority, as appropriate)*

**APPENDIX III**  
**FORM OF OIL RECORD BOOK**

**OIL RECORD BOOK**

**PART I - Machinery space operations**

*(All Ships)*

Name of Ship: .....

Distinctive number  
or letters: .....

Gross tonnage: .....

Period from: ..... to: .....

Note: Oil Record Book Part I shall be provided to every oil tanker of 150 gross tonnage and above and every ship of 400 gross tonnage and above, other than oil tankers, to record relevant machinery space operations. For oil tankers, Oil Record Book Part II shall also be provided to record relevant cargo/ballast operations.

## **Introduction**

The following pages of this section show a comprehensive list of items of machinery space operations which are, when appropriate, to be recorded in the Oil Record Book Part I in accordance with regulation 17 of Annex I of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78). The items have been grouped into operational sections, each of which is denoted by a letter Code.

When making entries in the Oil Record Book Part I, the date, operational Code and item number shall be inserted in the appropriate Columns and the required particulars shall be recorded chronologically in the blank spaces.

Each completed operation shall be signed for and dated by the officer or officers in charge. The master of the Ship shall sign each completed page.

The Oil Record Book Part I contains many references to oil quantity. The limited accuracy of tank Measurement devices, temperature variations and clingage will affect the accuracy of these readings. The entries in the Oil Record Book Part I should be considered accordingly.

In the event of accidental or other exceptional discharge of oil statement shall be made in the Oil Record Book Part I of the circumstances of, and the reasons for, the discharge.

Any failure of the oil filtering equipment shall be noted in the Oil Record Book Part I.

The entries in the Oil Record Book Part I, for ships holding an IOPP Certificate, shall be at least in English, French or Spanish. Where entries in official language of the State whose flag the ship is entitled to fly are also used, this shall prevail in case of a dispute or discrepancy.

The Oil Record Book Part I shall be kept in such a place as to be readily available for inspection at all reasonable times and, except in the case of unmanned ships under tow, shall be kept on board the ship. It shall be preserved for a period of three years after the last entry has been made.

The competent authority of the Government of a Party to the Convention may inspect the Oil Record Book Part I on board any ship to which this Annex applies while the ship is in its port or offshore terminals and may make a copy of any entry in that book and may require the master of the ship to certify that the copy is a true copy of such entry. Any copy so made which has been certified by the master of the ship as a true copy of an entry in the Oil Record Book Part I shall be made admissible in any juridical proceedings as evidence of the facts stated in the entry. The inspection of an Oil Record Book Part I and the taking of a certified copy by the competent authority under this paragraph shall be performed as expeditiously as possible without causing the ship to be unduly delayed.



### LIST OF ITEMS TO BE RECORDED

**(A) Ballasting or cleaning of oil fuel tanks**

1. Identity of tank(s) ballasted.
2. Whether cleaned since they last contained oil and, if not, type of oil previously carried.
3. Cleaning process:
  - .1 position of ship and time at the start and completion of cleaning;
  - .2 identify tank(s) in which one or another method has been employed (rinsing through, steaming, cleaning with chemicals; type and quantity of chemicals used, in m<sup>3</sup>);
  - .3 identity of tank(s) into which cleaning water was transferred.
4. Ballasting:
  - .1 position of ship and time at start and end of ballasting;
  - .2 quantity of ballast if tanks are not cleaned, in m<sup>3</sup>.

**(B) Discharge of dirty ballast or cleaning water from oil fuel tanks referred to under Section A)**

5. Identity of tank(s).
6. Position of ship at start of discharge.
7. Position of ship on completion of discharge.
8. Ship's speed(s) during discharge.
9. Method of discharge:
  - .1 through 15 ppm equipment
  - .2 to reception facilities.
10. Quantity discharged, in m<sup>3</sup>.

**(C) Collection and disposal of oil residues (sludge and other oil residues)**

11. Collection of oil residues

Quantities of oil residues (sludge and other oil residues) retained on board. The quantity should be recorded weekly<sup>1</sup>: (This means that the quantity must be recorded once a week even if the voyage lasts more than one week)

- .1 - identity of tank(s) .....
- .2 - capacity of tank(s) ..... m<sup>3</sup>
- .3 - total quantity of retention ..... m<sup>3</sup>

12. Methods of disposal of residue.

State quantity of oil residues disposed of, the tank(s) emptied and the quantity of contents retained in m<sup>3</sup>:

- .1 to reception facilities (identify port)<sup>2</sup>;
- .2 transferred to another (other) tank(s) (indicate tank(s) and the total content of tank(s))
- .3 incinerated (indicate total time of operation);
- .4 other method (state which).

**(D) Non-automatic discharge overboard or disposal otherwise of bilge water which has accumulated in machinery spaces**

13. Quantity discharged or disposed of, in cubic metres.<sup>3</sup>

14. Time of discharge or disposal (starts and stop).

15. Method of discharge or disposal:

- .1 through 15 ppm equipment (state position at start and end);
- .2 to reception facilities (identify port)<sup>2</sup>;

---

<sup>1</sup> Tanks listed in item 3.1 of form A and B of the supplement in the IOPP Certificate used for sludge.

<sup>2</sup> Ship's masters should obtain from the operator of the reception facilities, which includes barges and tank trucks, a receipt or certificate detailing the quantity of tank washings, dirty ballast, residues or oily mixtures transferred, together with the time and date of the transfer. This receipt or certificate, if attached to the Oil Record Book Part I, may aid the master of the ship in proving that his ship was not involved in an alleged pollution incident. The receipt or certificate should be kept together with the Oil Record Book Part I.

<sup>3</sup> In case of discharge or disposal of bilge water from holding tank(s), state identity and capacity of holding tank(s) and quantity retained in holding tank.

- .3 transfer to slop tank or holding tank (indicate tank(s); state the total quantity retained in tank(s), in m<sup>3</sup>).

**(E) Automatic discharge overboard or disposal otherwise of bilge water which has accumulated in machinery spaces**

16. Time and position of ship at which the system has been put into automatic mode of operation for discharge overboard, through 15 ppm equipment.
17. Time when the system has been put into automatic mode of operation for transfer of bilge water to holding tank (identify tank).
18. Time when the system has been put into manual operation.

**(F) Condition of the oil filtering equipment**

19. Time of system failure<sup>4</sup>.
20. Time when system has been made operational.
21. Reasons for failure.

**(G) Accidental or other exceptional discharges of oil**

22. Time of occurrence.
23. Place or position of ship at time of occurrence.
24. Approximate quantity and type of oil.
25. Circumstances of discharge or escape, the reasons therefore and general remarks.

**(H) Bunkering of fuel or bulk lubricating oil**

26. Bunkering:
  - .1 Place of bunkering.
  - .2 Time of bunkering.
  - .3 Type and quantity of fuel oil and identity of tank(s) (state quantity added, in tonnes and total content of tank(s)).
  - .4 Type and quantity of lubricating oil and identity of tank(s) (state quantity added, in tonnes and total content of tank (s)).

---

<sup>4</sup> The condition of the oil filtering equipment covers also the alarm and automatic stopping devices, if applicable.



**OIL RECORD BOOK**

**PART II – Cargo / Ballast Operations**

*(Oil Tankers)*

Name of Ship: .....

Distinctive number  
or letters: .....

Gross tonnage: .....

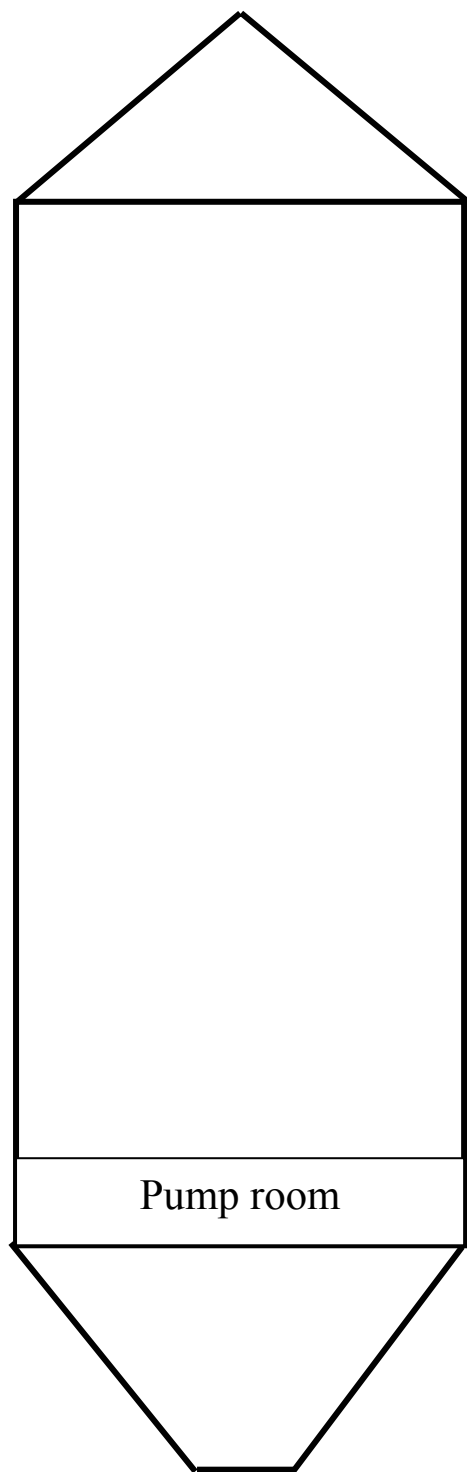
Period from: ..... to: .....

*Note:* Every oil tanker of 150 gross tonnage and above shall be provided with Oil Record Book Part II to record relevant cargo/ballast operations. Such a tanker shall also be provided with Oil Record Book Part I to record relevant machinery space operations.

Name of Ship .....

Distinctive number or letters .....

PLAN VIEW OF CARGO AND SLOP TANKS  
(to be completed on board)



Identification of tanks	Capacity
Depth of slop tank(s):	

(Give the capacity of each tank and the depth of slop tank(s))

## Introduction

The following pages of this section show a comprehensive list of items of cargo and ballast operations which are, when appropriate, to be recorded in the Oil Record Book Part II in accordance with regulation 36 of Annex I of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78). The items have been grouped into operational section, each of which is denoted by a code letter.

When making entries in the Oil Record Book Part II, the date, operational code and item number shall be inserted in the appropriate columns and the required particulars shall be recorded chronologically in the blank spaces.

Each completed operation shall be signed for and dated by the officer or officers in charge. Each completed page shall be countersigned by the master of the ship.

In respect of the oil tankers engaged in specific trades in accordance with regulation 2.5 of Annex I of MARPOL 73/78, appropriate entry in the Oil Record Book Part II shall be endorsed by the competent port State authority.\*

The Oil Record Book Part II contains many references to oil quantity. The limited accuracy of tank Measurement devices, temperature variations and clingage will affect the accuracy of these readings. The entries in the Oil Record Book Part II should be considered accordingly.

In the event of accidental or other exceptional discharge of oil a statement shall be made in the Oil Record Book Part II of the circumstances of, and the reasons for, the discharge.

Any failure of the oil discharge monitoring and control system shall be noted in the Oil Record Book Part II.

The entries in the Oil Record Book Part II, for ships holding an IOPP Certificate, shall be at least in English, French or Spanish. Where entries in an official language of the State whose flag the ship is entitled to fly are also used, this shall prevail in case of a dispute or discrepancy.

The Oil Record Book Part II shall be kept in such a place as to be readily available for inspection at all reasonable times and, except in the case of unmanned Ships under tow, shall be kept on board the Ship. It shall be preserved for a period of three years after the last entry has been made.

The competent authority of the Government of a Party to the Convention may inspect the Oil Record Book Part II on board any Ship to which this Annex applies while the Ship is in its port or offshore terminals and may make a copy of any entry in that book and may require the master of the Ship to certify that the copy is a true copy of such entry. Any copy so made which has been certified by the master of the Ship as a true copy of an entry in the Oil Record Book Part II shall be made admissible in any juridical proceedings as evidence of the facts stated in the entry. The inspection of an Oil Record Book Part II and taking of a certified copy by the competent authority under this paragraph shall be performed as expeditiously as possible without causing the ship to be unduly delayed.

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\* This sentence should only be inserted for the Oil Record Book of a tanker engaged in a specific trade.

## LIST OF ITEMS TO BE RECORDED

### (A) Loading of oil cargo

1. Place of loading.
2. Type of oil loaded and identity of tank(s).
3. Total quantity of oil loaded (state quantity added, in m<sup>3</sup> at 15°C and the total content of tank(s), in m<sup>3</sup>).

### (B) Internal transfer of oil cargo during voyage

4. Identity of tank(s):
  - .1 from:
  - .2 to: (state quantity transferred and total quantity of tank(s), in m<sup>3</sup>).
5. Was (were) the tank(s) in 4.1 emptied? (If not, state quantity retained, in m<sup>3</sup>.)

### (C) Unloading of oil cargo

6. Place of unloading.
7. Identity of tank(s) unloaded.
8. Was (were) the tank(s) emptied? (If not, state quantity retained, in m<sup>3</sup>.)

### (D) Crude oil washing (COW tankers only)

*(To be completed for each tank being crude oil washed)*

9. Port where crude oil washing was carried out or ship's position if carried out between two discharge ports.
10. Identity of tank(s) washed.<sup>1</sup>
11. Number of machines in use.
12. Time of start of washing.
13. Washing pattern employed.<sup>2</sup>
14. Washing line pressure.

---

<sup>1</sup> When an individual tank has more machines than can be operated simultaneously, as described in the Operations and Equipment Manual, then the section being crude oil washed should be identified, e.g. No.2 centre, forward section.

<sup>2</sup> In accordance with the Operations and Equipment Manual, enter whether single-stage or multi-stage method of washing is employed. If multi-stage method is used, give the vertical arc covered by the machines and the number of times that arc is covered for that particular stage of the programme.



15. Time washing was completed or stopped.
16. State method of establishing that tank(s) was (were) dry.
17. Remarks.<sup>3</sup>

**(E) Ballasting of cargo tanks**

18. Position of ship at start and end of ballasting.
19. Ballasting process:
  - .1 identity of tank(s) ballasted;
  - .2 time of start and end; and
  - .3 quantity of ballast received. Indicate total quantity of ballast for each tank involved in operation, in m<sup>3</sup>.

**(F) Ballasting of dedicated clean ballast tanks (CBT tankers only)**

20. Identity of tank(s) ballasted.
21. Position of ship when water intended for flushing, or port ballast was taken to dedicated clean ballast tank(s).
22. Position of ship when pump(s) and lines were flushed to slop tank.
23. Quantity of the oily water which, after line flushing, is transferred to the slop tank(s) or cargo tank(s) in which slop is preliminarily stored (identify tank(s)). State total quantity, in m<sup>3</sup>.
24. Position of ship when additional ballast water was taken to dedicated clean ballast tank(s).
25. Time and position of ship when valves separating the dedicated clean ballast tanks from cargo and stripping lines were closed.
26. Quantity of clean ballast taken on board, in m<sup>3</sup>.

**(G) Cleaning of cargo tanks**

27. Identity of tank(s) cleaned.
28. Port or ship's position.
29. Duration of cleaning.

---

<sup>3</sup> If the programmes given in the Operations and Equipment Manual are not followed, then the reasons must be given under Remarks.

30. Method of cleaning.<sup>4</sup>
31. Tank washings transferred to:
  - .1 reception facilities (state port and quantity, in m<sup>3</sup>)<sup>5</sup>; and
  - .2 sloptank(s) or cargo tank(s) designated as sloptank(s) (identify tank(s); state quantity transferred and total quantity, in m<sup>3</sup>).

**(H) Discharge of dirty ballast**

32. Identity of tank(s).
33. Time and position of ship at start of discharge into the sea.
34. Time and position of ship on completion of discharge into the sea.
35. Quantity discharged into the sea, in m<sup>3</sup>.
36. Ship's speed(s) during discharge.
37. Was the discharge monitoring and control system in operation during the discharge?
38. Was a regular check kept on the effluent and the surface of the water in the locality of the discharge?
39. Quantity of oily water transferred to slop tank(s) (identify slop tank(s). State total quantity, in m<sup>3</sup>).
40. Discharged to shore reception facilities (identify port and quantity involved, in m<sup>3</sup>).<sup>5</sup>

**(I) Discharge of water from slop tanks into the sea**

41. Identity of slop tanks.
42. Time of settling from last entry of residues, or
43. Time of settling from last discharge.

---

<sup>4</sup> Hand-hosing, machine washing and/or chemical cleaning. Where chemically cleaned, the chemical concerned and amount used should be stated.

<sup>5</sup> Ships' masters should obtain from the operator of the reception facilities, which include barges and tank trucks, a receipt or certificate detailing the quantity of tank washings, dirty ballast, residues or oily mixtures transferred together with the time and date of the transfer. This receipt or certificate, if attached to the Oil Record Book Part II, may aid the master of the ship in proving that his ship was not involved in an alleged pollution incident. The receipt or the certificate should be kept together with the Oil Record Book Part II.

44. Time and position of ship at start of discharge.
45. Ullage of total contents at start of discharge.
46. Ullage of oil/water interface at start of discharge.
47. Bulk quantity discharged, in m<sup>3</sup> and rate of discharge, in m<sup>3</sup>/hour.
48. Final quantity discharged, in m<sup>3</sup> and rate of discharge, in m<sup>3</sup>/hour.
49. Time and position of ship on completion of discharge.
50. Was the discharge monitoring and control system in operation during the discharge?
51. Ullage of oil/ water interface on completion of discharge, in metres.
52. Ship's speed(s) during discharge.
53. Was regular check kept on the effluent and the surface of water in the locality of the discharge?
54. Confirm that all applicable valves in the ship's piping system have been closed on completion of discharge from the slop tanks.

**(J) Disposal of residues and oily mixtures not otherwise dealt with**

55. Identity of tanks.
56. Quantity disposed of from each tank. (State the quantity retained, in m<sup>3</sup>.)
57. Method of disposal:
  - .1 to reception facilities (identify port and quantity involved)<sup>5</sup>;
  - .2 mixed with cargo (state quantity);
  - .3 transferred to (an)other tank(s) (identify tank(s); state quantity transferred and total quantity in tank(s), in m<sup>3</sup>); and
  - .4 other method (state which); state quantity disposed of, in m<sup>3</sup>.

**(K) Discharge of clean ballast contained in cargo tanks**

58. Position of ship at start of clean ballast.

---

<sup>5</sup> Ships' masters should obtain from the operator of the reception facilities, which include barges and tank trucks, a receipt or certificate detailing the quantity or tank washings, dirty ballast, residues or oily mixtures transferred together with the time and date of the transfer. This receipt or certificate, if attached to the Oil Record Book Part II, may aid the master of the ship in proving that his ship was not involved in an alleged pollution incident. The receipt or the certificate should be kept together with the Oil Record Book Part II.

59. Identity of tank(s) discharged.
60. Was (were) the tank(s) empty on completion?
61. Position of ship on completion if different from 58.
62. Was a regular check kept on the effluent and the surface of the water in the locality of the discharge?

**(L) Discharge of ballast from dedicated clean ballast tanks (CBT tankers only)**

63. Identity of tank(s) discharged.
64. Time and position of ship at start of discharge of clean ballast into the sea.
65. Time and position of ship on completion of discharge into the sea.
66. Quantity discharged, in m<sup>3</sup>:
  - .1 into the sea; or
  - .2 to reception facility (identify port).<sup>5</sup>
67. Was there any indication of oil contamination of the ballast water before or during discharge into the sea?
68. Was the discharge monitored by an oil content meter?
69. Time and position of ship when valves separating dedicated clean ballast tanks from the cargo and stripping lines were closed on completion of deballasting.

**(M) Condition of oil discharge monitoring and control system**

70. Time of system failure.
71. Time when system has been made operational.
72. Reasons for failure.

**(N) Accidental or other exceptional discharges of oil**

73. Time of occurrence.
74. Port or ship's position at time of occurrence.

---

<sup>5</sup> Ships' masters should obtain from the operator of the reception facilities, which include barges and tank trucks, a receipt or certificate detailing the quantity or tank washings, dirty ballast, residues or oily mixtures transferred, together with the time and date of the transfer. This receipt or certificate, if attached to the Oil Record Book Part II, may aid the master of the ship in proving that his ship was not involved in an alleged pollution incident. The receipt or the certificate should be kept together with the Oil Record Book Part II.

75. Approximate quantity, in m<sup>3</sup>, and type of oil.

76. Circumstances of discharge or escape, the reasons therefore and general remarks.

**(O) Additional operational procedures and general remarks**

*TANKERS ENGAGED IN SPECIFIC TRADES*

**(P) Loading of ballast water**

77. Identity of tank(s) ballasted.

78. Position of ship when ballasted.

79. Total quantity of ballast loaded in cubic metres.

80. Remarks.

**(Q) Re-allocation of ballast water within the ship**

81. Reason for re-allocation.

**(R) Ballast water discharge to reception facility**

82. Port(s) where ballast water was discharged.

83. Name or designation of reception facility.

84. Total quantity of ballast water discharged in cubic metres.

85. Date, signature and stamp of port authority official.



**ANNEX 26****RESOLUTION MEPC.159(55)****Adopted on 13 October 2006****REVISED GUIDELINES ON IMPLEMENTATION OF EFFLUENT STANDARDS  
AND PERFORMANCE TESTS FOR SEWAGE TREATMENT PLANTS**

THE MARINE ENVIRONMENT PROTECTION COMMITTEE,

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

NOTING resolution MEPC.2(VI) adopted on 3 December 1976 by which the Marine Environment Protection Committee adopted, at its sixth session, the Recommendation on International Effluent Standards and Guidelines for Performance Tests for Sewage Treatment Plants and invited Governments to apply the Effluent Standards and Guidelines for approving sewage treatment plants; to take steps to establish testing programmes in accordance with the Guidelines for Performance Tests; and provide the Organization with a list of sewage treatment plants meeting the standards,

NOTING ALSO resolution MEPC.115(51) adopted on 1 April 2004 by which the Marine Environment Protection Committee adopted, at its fifty-first session, the revised MARPOL Annex IV and which entered into force on 1 August 2005,

NOTING FURTHER the provisions of regulation 9.1.1 of MARPOL Annex IV, in which reference is made to the above-mentioned guidelines,

RECOGNIZING that resolution MEPC.2(VI) should be amended in order that current trends for the protection of the marine environment and developments in the design and effectiveness of commercially available sewage treatment plants be reflected; and the proliferation of differing unilateral more stringent standards that might be imposed worldwide be avoided,

HAVING CONSIDERED the recommendation made by the Sub-Committee on Bulk Liquids and Gases, at its tenth session,

1. ADOPTS the Revised Guidelines on Implementation of Effluent Standards and Performance Tests for Sewage Treatment Plants, the text of which is set out in the Annex to this resolution;
2. INVITES Governments to:
  - (a) implement the Revised Guidelines on Implementation of Effluent Standards and Performance Tests for Sewage Treatment Plants and apply them so that all equipment installed on board on or after 1 January 2010 meets the Revised Guidelines in so far as is reasonable and practicable; and

- (b) provide the Organization with information on experiences gained from their application and, in particular, on successful testing of equipment against the Standards;

3. FURTHER INVITES Governments to issue an appropriate “Certificate of type approval for Sewage Treatment Plants” as referred to in paragraph 5.4.2 and the annex of the Revised Guidelines and to recognize such certificates issued under the authority of other Governments as having the same validity as certificates issued by them; and

4. SUPERSEDES the Recommendation on International Effluent Standards and Guidelines for Performance Tests for Sewage Treatment Plants contained in resolution MEPC.2(VI).



ANNEX

**REVISED GUIDELINES ON IMPLEMENTATION OF EFFLUENT STANDARDS  
AND PERFORMANCE TESTS FOR SEWAGE TREATMENT PLANTS**

**TABLE OF CONTENTS**

- 1 Introduction
- 2 Definitions
- 3 General
- 4 Standards
- 5 Testing considerations
- 6 Renewal and additional surveys
- 7 Familiarization of ship personnel in the use of the sewage treatment plant

ANNEX

Form of Certificate of Type Approval for Sewage Treatment Plants and Appendix

## **REVISED GUIDELINES ON IMPLEMENTATION OF EFFLUENT STANDARDS AND PERFORMANCE TESTS FOR SEWAGE TREATMENT PLANTS**

### **1 INTRODUCTION**

1.1 The Marine Environment Protection Committee (MEPC) of the International Maritime Organization (IMO) adopted resolution MEPC.2(VI) Recommendation on International Effluent Standards and Guidelines for Performance Tests for Sewage Treatment Plants in 1976.

1.2 This document contains the Revised Guidelines on Implementation of Effluent Standards and Performance Tests for Sewage Treatment Plants (Guidelines). These Guidelines are intended to assist Administrations in establishing operational performance testing programmes for sewage treatment plants for the purpose of type approval under regulation 9.1.1 of Annex IV of the Convention.

1.3 These Guidelines apply to sewage treatment plants installed on board on or after 1 January 2010.

### **2 DEFINITIONS**

Annex IV – the revised Annex IV of the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) as amended by resolution MEPC.115(51).

Convention – the International Convention for the Prevention of Pollution from Ships 1973/1978 (MARPOL 73/78).

Geometric mean – the  $n$ th root of the product of  $n$  numbers.

Greywater – is drainage from dishwater, shower, laundry, bath and washbasin drains.

Testing onboard – testing carried out on a sewage treatment plant that has been installed upon a ship.

Testing ashore – testing carried out on a sewage treatment plant prior to installation e.g. in the factory.

Thermotolerant coliforms – the group of coliform bacteria which produce gas from lactose in 48 hours at 44.5°C. These organisms are sometimes referred to as “faecal coliforms”; however, the term “thermotolerant coliforms” is now accepted as more appropriate, since not all of these organisms are of faecal origin.

### **3 GENERAL**

3.1 An approved sewage treatment plant must meet the standards in section 4 and the tests outlined in these Guidelines. It should also be noted that, when ships are operating approved sewage treatment plants, Annex IV also provides that the effluent shall not produce visible floating solids or cause discolouration of the surrounding water.

3.2 It is acknowledged that the performance of sewage treatment plants may vary considerably when the system is tested ashore under simulated shipboard conditions or onboard a ship under actual operating conditions. Where testing ashore demonstrates that a system complies with the standards, but subsequent onboard testing does not meet the standards, the Administration should determine the reason and take it into account when deciding whether to type approve the plant.

3.3 It is recognized that Administrations may wish to modify the specific details outlined in these Guidelines to take account of very large, very small or unique sewage treatment plants.

#### 4 STANDARDS

4.1 For the purpose of regulation 4.1 of Annex IV, a sewage treatment plant should satisfy the following effluent standards when tested for its Certificate of Type Approval by the Administration:

.1 Thermotolerant Coliform Standard

The geometric mean of the thermotolerant coliform count of the samples of effluent taken during the test period should not exceed 100 thermotolerant coliforms/100 ml as determined by membrane filter, multiple tube fermentation or an equivalent analytical procedure.

.2 Total Suspended Solids (TSS) Standard

(c) The geometric mean of the total suspended solids content of the samples of effluent taken during the test period shall not exceed 35 mg/l.

(d) Where the sewage treatment plant is tested onboard ship, the maximum total suspended solids content of the samples of effluent taken during the test period may be adjusted to take account of the total suspended solid content of the flushing water. In allowing this adjustment in maximum TSS, Administrations shall ensure sufficient tests of TSS are taken of the flushing water throughout the testing period to establish an accurate geometric mean to be used as the adjustment figure (defined as  $x$ ). In no cases shall the maximum allowed TSS be greater than 35 plus  $x$  mg/l.

Method of testing should be by:

- .1 filtration of representative sample through a 0.45  $\mu\text{m}$  filter membrane, drying at 105°C and weighing; or
- .2 centrifuging of a representative sample (for at least five minutes with mean acceleration of 2,800-3,200 g), drying at least 105°C and weighing; or
- .3 other internationally accepted equivalent test standard.

.3 Biochemical Oxygen Demand and Chemical Oxygen Demand

Administrations should satisfy themselves that the sewage treatment plant is designed to reduce both soluble and insoluble organic substances to meet the requirement that, the geometric mean of 5-day Biochemical Oxygen Demand (BOD<sub>5</sub>) of the samples of effluent taken during the test period does not exceed 25 mg/l and the Chemical Oxygen Demand (COD) does not exceed 125 mg/l. The test method standard should be ISO 15705:2002 for COD and ISO 5815-1:2003 for BOD<sub>5</sub>, or other internationally accepted equivalent test standards.

.4 pH

The pH of the samples of effluent taken during the test period shall be between 6 and 8.5.

.5 Zero or non-detected values

For thermolerant coliforms, zero values should be replaced with a value of 1 thermotolerant coliform/100 ml to allow the calculation of the geometric mean. For total suspended solids, biochemical oxygen demand and chemical oxygen demand, values below the limit of detection should be replaced with one half the limit of detection to allow the calculation of the geometric mean.

4.2 Where the sewage treatment plant has been tested ashore, the initial survey should include installation and commissioning of the sewage treatment plant.

## 5 TESTING CONSIDERATIONS

5.1 Testing of the operational performance of a sewage treatment plant should be conducted in accordance with the following subparagraphs. Unless otherwise noted, the subparagraphs apply to testing both onboard and ashore.

### 5.2 Raw sewage quality

5.2.1 Sewage treatment plants tested ashore - the influent should be fresh sewage consisting of faecal matter, urine, toilet paper and flush water to which, for testing purposes primary sewage sludge has been added as necessary to attain a minimum total suspended solids concentration appropriate for the number of persons and hydraulic loading for which the sewage treatment plant will be certified. The testing should take into account the type of system (for example vacuum or gravity toilets) and any water or greywater that may be added for flushing to the sewage before treatment. In any case the influent concentration of total suspended solids should be no less than 500 mg/l.

5.2.2 Sewage treatment plants tested onboard - the influent may consist of the sewage generated under normal operational conditions. In any case the average influent concentration of total suspended solids should be no less than 500 mg/l.

### **5.3 Duration and timing of test**

5.3.1 The duration of the test period should be a minimum of 10 days and should be timed to capture normal operational conditions, taking into account the type of system and the number of persons and hydraulic loading for which the sewage treatment plant will be type approved. The test should commence after steady-state conditions have been reached by the sewage treatment plant under test.

### **5.4 Loading factors**

5.4.1 During the test period the sewage treatment plant should be tested under conditions of minimum, average and maximum volumetric loadings.

- .1 For testing ashore, these loadings will be as laid down in the manufacturer's specifications. Figure 1 shows suggested timings for sampling each loading factor.
- .2 For testing onboard, minimum loading will represent that generated by the number of persons on the ship when it is alongside in port, and average and maximum loadings will represent those generated by the number of persons on the ship at sea and will take account of meal times and watch rotations.

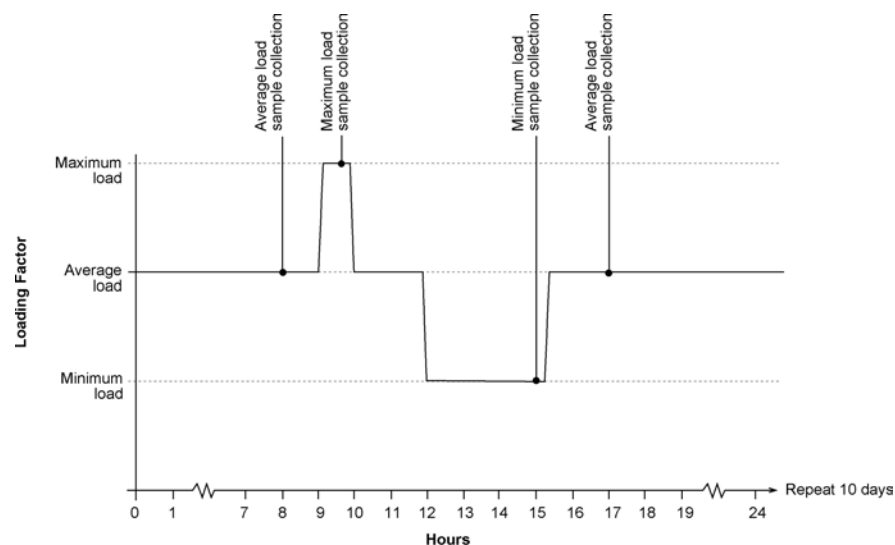
5.4.2 The Administration should undertake to assess the capability of the sewage treatment plant to produce an effluent in accordance with the standards prescribed by section 4 following minimum, average and maximum volumetric loadings. The range of conditions under which the effluent standards were met should be recorded on the Certificate of Type Approval. The form of the Certificate of Type Approval and appendix is set out in the annex to these Guidelines.

### **5.5 Sampling methods and frequency**

5.5.1 Administrations should ensure that the sewage treatment plant is installed in a manner which facilitates the collection of samples. Sampling should be carried out in a manner and at a frequency which is representative of the effluent quality. Figure 1 provides a suggested frequency for sampling, however, the frequency should take account of the residence time of the influent in the sewage treatment plant. A minimum of 40 effluent samples should be collected to allow a statistical analysis of the testing data (e.g. geometric mean, maximum, minimum, variance).

5.5.2 An influent sample should be taken and analyzed for every effluent sample taken and the results recorded to ensure compliance with section 4. If possible, additional influent and effluent samples should be taken to allow for a margin of error. Samples should be appropriately preserved prior to analysis particularly if there is to be a significant delay between collection and analysis or during times of high ambient temperature.

5.5.3 Any disinfectant residual in samples should be neutralized when the sample is collected to prevent unrealistic bacteria kill or chemical oxidation of organic matter by the disinfectant brought about by artificially extended contact times. Chlorine (if used) concentration and pH should be measured prior to neutralization.



**Figure 1: Suggested hydraulic loading factors and sampling frequency for testing sewage treatment plants. May be modified as necessary to take account of characteristics of individual sewage treatment plants**

## 5.6 Analytical testing of effluent

5.6.1 The Administration should give consideration to the recording of other parameters in addition to those required (thermotolerant coliforms, total suspended solids, BOD<sub>5</sub>, COD, pH and residual chlorine) with a view to future technological development. Parameters which might be considered include total solids, volatile solids, settleable solids, volatile suspended solids, turbidity, total phosphorus, total organic carbon, total coliforms and faecal streptococci.

## 5.7 Disinfectant residual

5.7.1 The potential adverse environmental effects of many disinfectant residuals and by-products, such as those associated with the use of chlorine or its compounds, are well recognized. It is, therefore, recommended that Administrations encourage the use of ozone, ultra-violet irradiation or any other disinfectants which minimize adverse environmental effects, whilst pursuing the thermotolerant coliform standard. When chlorine is used as a disinfectant, the Administration should be satisfied that the best technical practice is used to keep the disinfectant residual in the effluent below 0.5 mg/l.

## 5.8 Scaling considerations

5.8.1 Only full-scale marine sewage treatment plants should be accepted for testing purposes. The Administration may certify a range of the manufacturer's equipment sizes employing the same principles and technology, but due consideration must be given to limitations on performance which might arise from scaling up or scaling down. In the case of very large, very small or unique sewage treatment plants, certification may be based on results of prototype tests. Where possible, confirmatory tests should be performed on the final installation of such sewage treatment plants.

## **5.9 Environmental testing of the sewage treatment plant**

5.9.1 The Administration should be satisfied that the sewage treatment plant can operate under conditions of tilt consistent with internationally acceptable shipboard practice.

5.9.2 Tests for certification should be carried out over the range of temperature and salinity specified by the manufacturer, and the Administration should be satisfied that such specifications are adequate for the conditions under which the equipment must operate.

5.9.3 Control and sensor components should be subjected to environmental testing to verify their suitability for marine use. The Test Specifications section in part 3 of the annex to resolution MEPC.107(49) provides guidance in this respect.

5.9.4 Any limitation on the conditions of operation should be recorded on the Certificate.

5.9.5 The Administration should also consider requiring the manufacturer to include in the operating and maintenance manuals, a list of chemicals and materials suitable for use in the operation of the sewage treatment plant.

## **5.10 Other considerations**

5.10.1 The type and model of the sewage treatment plant and the name of the manufacturer should be noted by means of a durable label firmly affixed directly to the sewage treatment plant. This label should include the date of manufacture and any operational or installation limits considered necessary by the manufacturer or the Administration.

5.10.2 Administrations should examine the manufacturer's installation, operating and maintenance manuals for adequacy and completeness. The ship should have on board at all times a manual detailing the operational and maintenance procedures for the sewage treatment plant.

5.10.3 Qualifications of testing facilities should be carefully examined by the Administration as a prerequisite to their participation in the testing programme. Every attempt should be made to assure uniformity among the various facilities.

## **6 RENEWAL AND ADDITIONAL SURVEYS**

6.1 Administrations should endeavour to ensure, when conducting renewal or additional surveys in accordance with regulations 4.1.2 and 4.1.3 of Annex IV, that the sewage treatment plant continues to perform in accordance with the conditions outlined in regulation 4.1.1 of Annex IV.

## **7 FAMILIARIZATION OF SHIP PERSONNEL IN THE USE OF THE SEWAGE TREATMENT PLANT**

7.1 Recognizing that the appropriate regulations relating to familiarization are contained within the Ships Safety Management Systems under the International Safety Management Code, Administrations are reminded that ship staff training should include familiarization in the operation and maintenance of the sewage treatment plant.

ANNEX

FORM OF CERTIFICATE OF TYPE APPROVAL  
FOR SEWAGE TREATMENT PLANTS AND APPENDIX

BADGE  
OR  
CIPHER

NAME OF ADMINISTRATION

**CERTIFICATE OF TYPE APPROVAL  
FOR SEWAGE TREATMENT PLANTS**

This is to certify that the Sewage Treatment Plant, Type .....,  
having a designed hydraulic loading of ..... cubic metres per day, (m<sup>3</sup>/day), an organic loading of  
..... kg per day Biochemical Oxygen Demand (BOD) and of the design shown on Drawings Nos. ....  
manufactured by .....

has been examined and satisfactorily tested in accordance with the International Maritime Organization  
resolution MEPC.159(55) to meet the operational requirements referred to in regulation 9.1.1 of Annex IV  
of the International Convention for the Prevention of Pollution from Ships, 1973/78 as modified by  
resolution MEPC.115(51).

The tests on the sewage treatment plant were carried out  
ashore at\* .....  
onboard at\* .....  
and completed on .....

The sewage treatment plant was tested and produced an effluent which, on analysis, produces:

- (i) a geometric mean of no more than 100 thermotolerant coliforms/100 ml;
- (ii) a geometric mean of total suspended solids of 35 mg/l if tested ashore or the maximum total  
suspended solids not exceeding 35 plus  $x$  mg/l for the ambient water used for flushing purposes if  
tested on board;
- (iii) a geometric mean of 5-day Biochemical Oxygen Demand (BOD<sub>5</sub>) of no more than 25 mg/l;
- (iv) a geometric mean of Chemical Oxygen Demand of no more than 125 mg/l;
- (v) pH of the effluent is between 6 and 8.5.

The Administration is satisfied that the sewage treatment plant can operate at angles of inclination  
of 22.5° in any plane from the normal operating position.

Details of the tests and the results obtained are shown on the Appendix to this Certificate.

A plate or durable label containing data of the manufacturer's name, type and serial numbers, hydraulic  
loading and date of manufacture is to be fitted on each sewage treatment plant.

A copy of this Certificate shall be carried on board any ship equipped with the above described sewage  
treatment plant.

Official stamp Signed .....

Administration of .....

Dated this.....day.....of.....20....

\* Delete as appropriate.



BADGE  
OR  
CIPHER

APPENDIX TO  
CERTIFICATE OF TYPE APPROVAL FOR SEWAGE TREATMENT PLANTS

Test results and details of tests conducted on samples from the Sewage Treatment Plant in accordance with resolution MEPC.159(55):

Sewage Treatment Plant, Type .....  
 Manufactured by .....  
 Organization conducting the test .....  
 Designed hydraulic loading ..... m<sup>3</sup>/day  
 Designed organic loading ..... kg/day BOD

Number of effluent samples tested .....  
 Number of influent samples tested .....  
 Raw sewage (influent) quality ..... mg/l Total Suspended Solids  
 Maximum hydraulic loading ..... m<sup>3</sup>/day  
 Minimum hydraulic loading ..... m<sup>3</sup>/day  
 Average hydraulic loading ..... m<sup>3</sup>/day

Geometric Mean of Total  
 Suspended Solids ..... mg/l  
 Geometric Mean of the thermotolerant  
 coliform count ..... coliforms/100 ml  
 Geometric Mean of BOD<sub>5</sub> ..... mg/l

Type of disinfectant used .....  
 If Chlorine - residual Chlorine:  
     Maximum ..... mg/l  
     Minimum ..... mg/l  
     Geometric Mean ..... mg/l

Was the sewage treatment plant tested with:  
     Fresh Water flushing? ..... Yes/No\*  
     Salt Water flushing? ..... Yes/No\*  
     Fresh and Salt Water flushing? ..... Yes/No\*  
     Greywater added? ..... Yes – proportion: /No\*

Was the sewage treatment plant tested against the environmental conditions specified in section 5.9 of resolution MEPC.159(55):  
     Temperature ..... Yes/No\*  
     Humidity ..... Yes/No\*  
     Inclination ..... Yes/No\*  
     Vibration ..... Yes/No\*  
     Reliability of Electrical and Electronic Equipment ..... Yes/No\*

Limitations and the conditions of operation are imposed:  
     Salinity .....  
     Temperature .....  
     Humidity .....  
     Inclination .....  
     Vibration .....

Results of other parameters tested .....  
 Official stamp ..... Signed .....  
 Administration of ..... Dated this ..... day of ..... 20 .....

\*\*\*

\* Delete as appropriate.

**ANNEX 2**

**RESOLUTION MSC.256(84)  
(adopted on 16 May 2008)**

**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 amendment procedure applicable to the Annex to the Convention, other than to the provisions of chapter I thereof,

HAVING CONSIDERED, at its eighty-fourth 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 2009, 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 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 2010 upon their acceptance in accordance with paragraph 2 above;
4. RECOMMENDS the Contracting Governments concerned to issue certificates complying with the annexed amendments at the first renewal survey on or after 1 January 2010;
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. 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 THE INTERNATIONAL CONVENTION FOR THE SAFETY OF  
LIFE AT SEA, 1974, AS AMENDED**

**CHAPTER II-1  
CONSTRUCTION – STRUCTURE, SUBDIVISION AND STABILITY,  
MACHINERY AND ELECTRICAL INSTALLATIONS**

**Regulation 3-4 – Emergency towing arrangements on tankers**

1 The existing regulation 3-4 is replaced by the following:

**“Regulation 3-4  
Emergency towing arrangements and procedures**

**1 Emergency towing arrangements on tankers**

1.1 Emergency towing arrangements shall be fitted at both ends on board every tanker of not less than 20,000 tonnes deadweight.

1.2 For tankers constructed on or after 1 July 2002:

- .1 the arrangements shall, at all times, be capable of rapid deployment in the absence of main power on the ship to be towed and easy connection to the towing ship. At least one of the emergency towing arrangements shall be pre-rigged ready for rapid deployment; and
- .2 emergency towing arrangements at both ends shall be of adequate strength taking into account the size and deadweight of the ship, and the expected forces during bad weather conditions. The design and construction and prototype testing of emergency towing arrangements shall be approved by the Administration, based on the Guidelines developed by the Organization\*.

1.3 For tankers constructed before 1 July 2002, the design and construction of emergency towing arrangements shall be approved by the Administration, based on the Guidelines developed by the Organization\*.

**2 Emergency towing procedures on ships**

2.1 This paragraph applies to:

- .1 all passenger ships, not later than 1 January 2010;
- .2 cargo ships constructed on or after 1 January 2010; and
- .3 cargo ships constructed before 1 January 2010, not later than 1 January 2012.

2.2 Ships shall be provided with a ship-specific emergency towing procedure. Such a procedure shall be carried aboard the ship for use in emergency situations and shall be based on existing arrangements and equipment available on board the ship.

2.3 The procedure<sup>\*\*</sup> shall include:

- .1 drawings of fore and aft deck showing possible emergency towing arrangements;
- .2 inventory of equipment on board that can be used for emergency towing;
- .3 means and methods of communication; and
- .4 sample procedures to facilitate the preparation for and conducting of emergency towing operations.”

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\* Refer to the Guidelines on emergency towing arrangements for tankers, adopted by the Maritime Safety Committee by resolution MSC.35(63), as amended.

\*\* Refer to the Guidelines for owners/operators on preparing emergency towing procedures (MSC.1/Circ.1255).

2 The following new regulation 3-9 is added after the existing regulation 3-8:

**“Regulation 3-9  
Means of embarkation on and disembarkation from ships**

1 Ships constructed on or after 1 January 2010 shall be provided with means of embarkation on and disembarkation from ships for use in port and in port related operations, such as gangways and accommodation ladders, in accordance with paragraph 2, unless the Administration deems that compliance with a particular provision is unreasonable or impractical\*.

2 The means of embarkation and disembarkation required in paragraph 1 shall be constructed and installed based on the guidelines developed by the Organization\*\*.

3 For all ships the means of embarkation and disembarkation shall be inspected and maintained\*\* in suitable condition for their intended purpose, taking into account any restrictions related to safe loading. All wires used to support the means of embarkation and disembarkation shall be maintained as specified in regulation III/20.4.”

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\* Circumstances where compliance may be deemed unreasonable or impractical may include where the ship:

- .1 has small freeboards and is provided with boarding ramps; or
- .2 is engaged in voyages between designated ports where appropriate shore accommodation/embarkation ladders (platforms) are provided.

\*\* Refer to the Guidelines for construction, installation, maintenance and inspection/survey of accommodation ladders and gangways, to be developed by the Organization.

**CHAPTER II-2**  
**CONSTRUCTION – FIRE PROTECTION, FIRE DETECTION AND**  
**FIRE EXTINCTION**

**Regulation 10 – Fire fighting**

3 The following new paragraph 4.1.5 is added after the existing paragraph 4.1.4:

“4.1.5 By the first scheduled dry-docking after 1 January 2010, fixed carbon dioxide fire-extinguishing systems for the protection of machinery spaces and cargo pump-rooms on ships constructed before 1 July 2002 shall comply with the provisions of paragraph 2.2.2 of chapter 5 of the Fire Safety Systems Code.”

**Regulation 19 – Carriage of dangerous goods**

4 In paragraph 4, the words “, as defined in regulation VII/2,” are deleted.

**Regulation 20 – Protection of vehicle, special category and ro-ro spaces**

5 The existing paragraph 6.1.4 is replaced by the following paragraph 6.1.4 and new paragraph 6.1.5 is added after paragraph 6.1.4 as follows:

“6.1.4 The requirement of this paragraph shall apply to ships constructed on or after 1 January 2010. Ships constructed on or after 1 July 2002 and before 1 January 2010 shall comply with the previously applicable requirements of paragraph 6.1.4, as amended by resolution MSC.99(73). When fixed pressure water-spraying systems are fitted, in view of the serious loss of stability which could arise due to large quantities of water accumulating on the deck or decks during the operation of the fixed pressure water-spraying system, the following arrangements shall be provided:

.1 in passenger ships:

.1.1 in the spaces above the bulkhead deck, scuppers shall be fitted so as to ensure that such water is rapidly discharged directly overboard, taking into account the guidelines developed by the Organization\* ;

.1.2.1 in ro-ro passenger ships, discharge valves for scuppers, fitted with positive means of closing operable from a position above the bulkhead deck in accordance with the requirements of the International Convention on Load Lines in force, shall be kept open while the ships are at sea;

.1.2.2 any operation of valves referred to in paragraph 6.1.4.1.2.1 shall be recorded in the log-book;

.1.3 in the spaces below the bulkhead deck, the Administration may require pumping and drainage facilities to be provided additional to the requirements of regulation II-1/35-1. In such case, the drainage system shall be sized to remove no less than 125% of the combined capacity

of both the water-spraying system pumps and the required number of fire hose nozzles, taking into account the guidelines developed by the Organization\*. The drainage system valves shall be operable from outside the protected space at a position in the vicinity of the extinguishing system controls. Bilge wells shall be of sufficient holding capacity and shall be arranged at the side shell of the ship at a distance from each other of not more than 40 m in each watertight compartment;

- .2 in cargo ships, the drainage and pumping arrangements shall be such as to prevent the build-up of free surfaces. In such case, the drainage system shall be sized to remove no less than 125% of the combined capacity of both the water-spraying system pumps and the required number of fire hose nozzles, taking into account the guidelines developed by the Organization\*. The drainage system valves shall be operable from outside the protected space at a position in the vicinity of the extinguishing system controls. Bilge wells shall be of sufficient holding capacity and shall be arranged at the side shell of the ship at a distance from each other of not more than 40 m in each watertight compartment. If this is not possible, the adverse effect upon stability of the added weight and free surface of water shall be taken into account to the extent deemed necessary by the Administration in its approval of the stability information\*\*. Such information shall be included in the stability information supplied to the master as required by regulation II-1/5-1.

6.1.5 On all ships, for closed vehicles and ro-ro spaces and special category spaces, where fixed pressure water-spraying systems are fitted, means shall be provided to prevent the blockage of drainage arrangements, taking into account the guidelines developed by the Organization\*. Ships constructed before 1 January 2010 shall comply with the requirements of this paragraph by the first survey after 1 January 2010.”

\* Refer to the Guidelines for drainage systems in closed vehicle and ro-ro spaces and special category spaces, to be developed by the Organization.

\*\* Refer to the Recommendation on fixed fire-extinguishing systems for special category spaces, adopted by the Organization by resolution A.123(V).

### CHAPTER III LIFE-SAVING APPLIANCES AND ARRANGEMENTS

#### Regulation 6 – Communications

6 The existing paragraph 2.2 is replaced by the following:

#### “2.2 Search and rescue locating devices

At least one search and rescue locating device shall be carried on each side of every passenger ship and of every cargo ship of 500 gross tonnage and upwards. At least one search and rescue locating device shall be carried on every cargo ship of 300 gross

tonnage and upwards but less than 500 gross tonnage. Such search and rescue locating devices shall conform to the applicable performance standards not inferior to those adopted by the Organization\*. The search and rescue locating devices\*\* shall be stowed in such location that they can be rapidly placed in any survival craft other than the liferaft or liferafts required by regulation 31.1.4. Alternatively one search and rescue locating device shall be stowed in each survival craft other than those required by regulation 31.1.4. On ships carrying at least two search and rescue locating devices and equipped with free-fall lifeboats one of the search and rescue locating devices shall be stowed in a free-fall lifeboat and the other located in the immediate vicinity of the navigation bridge so that it can be utilized on board and ready for transfer to any of the other survival craft.”

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\* Refer to the Recommendation on performance standards for survival craft radar transponders for use in search and rescue operations, adopted by the Organization by resolution MSC.247(83) (A.802(19)), as amended) and the Recommendation on performance standards for survival craft AIS Search and Rescue transmitter (AIS SART), adopted by the Organization by resolution MSC.246(83).

\*\* One of these search and rescue locating devices may be the search and rescue locating device required by regulation IV/7.1.3.

## **Regulation 26 – Additional requirements for ro-ro passenger ships**

7 The existing paragraph 2.5 is replaced by the following:

“2.5 Liferafts carried on ro-ro passenger ships shall be fitted with a search and rescue locating device in the ratio of one search and rescue locating device for every four liferafts. The search and rescue locating device shall be mounted inside the liferaft so its antenna is more than one metre above the sea level when the liferaft is deployed, except that for canopied reversible liferafts the search and rescue locating device shall be so arranged as to be readily accessed and erected by survivors. Each search and rescue locating device shall be arranged to be manually erected when the liferaft is deployed. Containers of liferafts fitted with search and rescue locating devices shall be clearly marked.”

## **CHAPTER IV RADIOCOMMUNICATIONS**

### **Regulation 7 – Radio equipment: General**

8 In paragraph 1, subparagraph .3 is replaced by the following:

“.3 a search and rescue locating device capable of operating either in the 9 GHz band or on frequencies dedicated for AIS, which:”

## **APPENDIX CERTIFICATES**

### **Record of Equipment for Passenger Ship Safety Certificate (Form P)**

9 In the Record of Equipment for Passenger Ship Safety Certificate (Form P), in section 2, the existing item 11.1 is replaced by the following:

- “11.1 Number of search and rescue locating devices
- 11.1.1 Radar search and rescue transponders (SART)
- 11.1.2 AIS search and rescue transmitters (AIS-SART)”

and in section 3, the existing item 6 is replaced by the following:

- “6 Ship’s search and rescue locating device
- 6.1 Radar search and rescue transponder (SART)
- 6.2 AIS search and rescue transmitter (AIS-SART)”

### **Record of Equipment for Cargo Ship Safety Equipment Certificate (Form E)**

10 In the Record of Equipment for Cargo Ship Safety Equipment Certificate (Form E), in section 2, the existing item 9.1 is replaced by the following:

- “9.1 Number of search and rescue locating devices
- 9.1.1 Radar search and rescue transponders (SART)
- 9.1.2 AIS search and rescue transmitters (AIS-SART)”

### **Record of Equipment for Cargo Ship Radio Certificate (Form R)**

11 In the Record of Equipment for Cargo Ship Safety Radio Certificate (Form R), in section 2, the existing item 6 is replaced by the following:

- “6 Ship’s search and rescue locating device
- 6.1 Radar search and rescue transponder (SART)
- 6.2 AIS search and rescue transmitter (AIS-SART)”

### **Record of Equipment for the Nuclear Passenger Ship Safety Certificate (Form PNUC)**

12 In the Record of Equipment for Nuclear Passenger Ship Safety Certificate (Form PNUC), in section 2, the existing item 11.1 is replaced by the following:

- “11.1 Number of search and rescue locating devices
- 11.1.1 Radar search and rescue transponders (SART)
- 11.1.2 AIS search and rescue transmitters (AIS-SART)”

and in section 3, the existing item 6 is replaced by the following:

- “6 Ship’s search and rescue locating device
- 6.1 Radar search and rescue transponder (SART)
- 6.2 AIS search and rescue transmitter (AIS-SART)”



### **Record of Equipment for the Nuclear Cargo Ship Safety Certificate (Form CNUC)**

13 In the Record of Equipment for Nuclear Cargo Ship Safety Certificate (Form CNUC), in section 2, item 9 is deleted and items 10, 10.1 and 10.2 are renumbered as items 9, 9.1 and 9.2 respectively; and the renumbered item 9.1 is replaced by the following:

- “9.1 Number of search and rescue locating devices
- 9.1.1 Radar search and rescue transponders (SART)
- 9.1.2 AIS search and rescue transmitters (AIS-SART)”

and in section 3, the existing item 6 is replaced by the following:

- “6 Ship’s search and rescue locating device
- 6.1 Radar search and rescue transponder (SART)
- 6.2 AIS search and rescue transmitter (AIS-SART)”

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