Subject

Introduction of the outcomes of MEPC 54

ClassNK
Technical Information

No. TEC-0657
Date 27 April 2006

To whom it may concern

This is a summary report of the decisions and discussions taken at the fifty-forth session of the Marine Environment Protection Committee (MEPC 54) held on 20 - 24 March 2006.

1. Adoption of Mandatory Instruments

(1) Relating amendments to the revised MARPOL 73/78 Annex I (refer to Attachment 1)

The following amendments to the revised MARPOL 73/78 Annex I adopted at this session and will enter into force on 1 August 2007.

(i) Protection of oil fuel tanks (Regulation 12A)

The amendment to revised MARPOL Annex I to add new regulation (12A) concerning oil fuel tank protection and the consequential amendments to the IOPP Certificate Supplement (Form A and B) were adopted. This regulation will apply to all ships with an aggregate oil fuel capacity of 600 m^3 and above which the building contract is placed on or after 1 August 2007, or in the absence of a building contract, the keels of which are laid or which are at a similar stage of construction on or after 1 February 2008, or the delivery of which is on or after 1 August 2010. This regulation is prescribed arrangements of oil fuel tank in order to prevent the outflow of oil fuel from ships when the ship sustains the casualty.

(ii) Definition of heavy grade oils (Regulation 21)

The amendment to the regulation 21.2.2 of the revised MARPOL Annex I, (regulation 13H(2)(b) of the current Annex I), that specify "heavy grade oil (HGO)" was adopted. Although the current definition is limited the "fuel oils" having either a density at 15ºC higher than 900 kg/m^3 or a kinematic viscosity at 50 ºC higher than 180 mm^2/s, the amendment to this regulation include such as "oil" other than crude oils since "oils" having such as characteristics exist, other than fuel oils.

For the regulation 13H(2)(b) of the current Annex I, the Unified Interpretation same as above amendment to regulation 21.2.2 of the revised MARPOL Annex I have been approved at MEPC53. This Unified Interpretation also applies the amendment to the regulation 21.2.2 of the revised MARPOL Annex I to cover the period between 1 January 2007 and the entry into force date of the above amendment.

(2) Amendments to MARPOL 73/78 Annex IV (refer to Attachment 2)

The amendment to the MARPOL 73/78 Annex IV to introduce new regulation 13 concerning "Port State control (PSC) on operational requirements" was adopted and will enter into force on 1 August 2007.

(To be continued)

(3) Amendments to the Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (BCH Code) (refer to Attachment 3)
The consequential amendments to the BCH Code that related the revised MARPOL 73/78 Annex II and the revised IBC Code that will enter into force 1 January 2007 was adopted. The amendments will enter into force on 1 August 2007 but also was adopted the resolution concerning early and effective application of it on or after 1 January 2007 same as the implementation date on the revised MARPOL 73/78 Annex II and the revised IBC Code.

2. Guidelines for implementation of the Ballast Water Management Convention
(refer to Attachment 4)
For implementation of the Convention, Guidelines for approval and oversight of prototype ballast water treatment technology programmes (G10) was adopted at this session. This is specified requirements for the performance tests and technical procedures for the assessment, design and structures on prototype ballast water treatment technology programmes.

3. Unified Interpretation on Pump-room Bottom Protection
The new regulation 22 of the revised MARPOL 73/78 Annex I will be enter into force on 1 January 2007 and will require the protection of the pump room by double bottom to oil tankers of 5,000 DWT and above constructed on or after 1 January 2007 (refer to TEC-0608). At this session, the unified interpretation on this in regulation 22 was approved as follows;
- the term “pump-room” means a cargo pump-room. Ballast piping is permitted to be located within the pump-room double bottom provided any damage to that piping does not render the ship’s pumps located in the “pump-room” ineffective, and
- the double bottom protecting the “pump-room” can be a void tank, a ballast tank or, unless prohibited by other regulations, a fuel oil tank.

4. Approved Mandatory Instruments – expected to adopt at the next session (MEPC 55)
The following mandatory instruments were approved at this session, which are expected to adopt at the next session (MEPC 55).
(1) Draft amendments to MARPOL 73/78 Annex III
The draft amendments to MARPOL 73/78 Annex III (the draft revised Annex III) that prescribed requirements for the prevention of pollution by harmful substances carried by sea in packaged form was approved.
(2) Draft amendments to CAS (Condition Assessment Scheme)
The amendments to CAS in order to clarify concerning issues affecting flag Administration procedures on the occasion of a change of flag, recognized organization, ship ownership or management company during the course of a CAS survey or after the issue of a Statement of Compliance following a CAS survey.

(To be continued)

For any questions about the above, please contact:

NIPPON KAIJI KYOKAI (ClassNK)
External Affair Division, Administration Center, Head Office
Address: 4-7 Kioi-cho, Chiyoda-ku, Tokyo 102-8567, Japan
Tel.: +81-3-5226-2038
Fax: +81-3-5226-2039
E-mail: xad@classnk.or.jp

Attachment:

1. Amendments to the revised MARPOL 73/78 Annex I
   Resolution MEPC.141(54)
2. Amendments to MARPOL 73/78 Annex IV
   Resolution MEPC.143(54)
3. Amendments to BCH Code
   Resolution MEPC.144(54) & 145(54)
4. Guidelines for approval and oversight of prototype ballast water treatment technology programmes (G10)
   Resolution MEPC.140(54)

ANNEX 2

RESOLUTION MEPC.141(54)

Adopted on 24 March 2006

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

(Amendments to regulation 1, addition to regulation 12A, consequential amendments to the IOPP Certificate and amendments to regulation 21 of the 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),

NOTING ALSO that the revised Annex I to MARPOL 73/78 was adopted by resolution MEPC.117(52) and is expected to enter into force on 1 January 2007,

HAVING CONSIDERED proposed amendments to regulation 1, proposed new regulation 12A, consequential amendments to the Supplement (Forms A and B) of the IOPP Certificate, and proposed amendments to regulation 21 of the revised Annex I to MARPOL 73/78,

1. ADOPTS, in accordance with article 16(2)(d) of the 1973 Convention, the amendments to the revised Annex I of MARPOL 73/78, the text of which is set out at Annex to the present resolution;

2. DETERMINES, in accordance with article 16(2)(f)(iii) of the 1973 Convention, that the amendments shall be deemed to have been accepted on 1 February 2007, 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 said amendments shall enter into force on 1 August 2007 upon their 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 amendments contained in the Annex; and

5. REQUESTS FURTHER the Secretary-General to transmit to the Members of the Organization which are not Parties to MARPOL 73/78 copies of the present resolution and its Annex.

ANNEX 4

RESOLUTION MEPC.143(54)

Adopted on 24 March 2006

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

(Addition of regulation 13 to Annex IV 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 proposed new regulation 13 of Annex IV of MARPOL 73/78 concerning port State control on operational requirements,

1. ADOPTS, in accordance with article 16(2)(b), (c) and (d) of the 1973 Convention, the new regulation 13 of Annex IV of MARPOL 73/78, the text of which is set out at Annex to the present resolution;

2. DETERMINES, in accordance with article 16(2)(f)(iii) of the 1973 Convention, that the revised Annex IV shall be deemed to have been accepted on 1 February 2007, unless, prior to that date, not less than one third of the Parties to MARPOL 73/78 or by the 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 notified to the Organization their objections to the amendments;

3. INVITES Parties to MARPOL 73/78 to note that, in accordance with article 16(2)(g)(ii) of the 1973 Convention, the said amendments shall enter into force on 1 August 2007 upon their 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 amendments contained in the Annex; and

5. REQUESTS FURTHER the Secretary-General to transmit copies of this resolution and its Annex to Members of the Organization which are not Parties to MARPOL 73/78.

ANNEX

AMENDMENTS TO THE REVISED MARPOL ANNEX IV

The following new chapter 5 and regulation 13 are added after the existing regulation 12:

Chapter 5 – Port State Control

"**Regulation 13 – 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 sewage.

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 has 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 procedures for port State control adopted by the Organization by resolution A.787(19) and amended by resolution A.882(21); see IMO sales publication IMO-650E.

ANNEX

AMENDMENTS TO THE REVISED MARPOL ANNEX I

1 Addition of paragraph 28.9 to regulation 1

The following new paragraph 28.9 is added after the existing paragraph 28.8 of regulation 1:

"28.9 ship delivered on or after 1 August 2010 means a ship:

.1 for which the building contract is placed on or after 1 August 2007; or

.2 in the absence of a building contract, the keels of which are laid or which are at a similar stage of construction on or after 1 February 2008; or

.3 the delivery of which is on or after 1 August 2010; or

.4 which have undergone a major conversion:

.1 for which the contract is placed after 1 August 2007; or

.2 in the absence of contract, the construction work of which is begun after 1 February 2008; or

.3 which is completed after 1 August 2010."

2 Addition of new regulation 12A on oil fuel tank protection

The following new regulation 12A is added after the existing regulation 12:

"Regulation 12A – Oil fuel tank protection

1 This regulation shall apply to all ships with an aggregate oil fuel capacity of 600 m^3 and above which are delivered on or after 1 August 2010, as defined in regulation 1.28.9 of this Annex.

2 The application of this regulation in determining the location of tanks used to carry oil fuel does not govern over the provisions of regulation 19 of this Annex.

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

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

.2 "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 draught to be assigned to the ship.

.3 "Light ship draught" is the moulded draught amidships corresponding to the lightweight.

.4 "Partial load line draught (d_P)" is the light ship draught plus 60% of the difference between the light ship draught and the load line draught d_S. The partial load line draught (d_p) shall be measured in metres.

.5 "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.

.6 "Breadth (B_S)" is the greatest moulded breadth of the ship, in metres, at or below the deepest load line draught (d_S).

.7 "Breadth (B_B)" is the greatest moulded breadth of the ship, in metres, at or below the waterline (d_B).

.8 "Depth (D_S)" is the moulded depth, in metres, measured at mid-length to the upper deck at side. For the purpose of the application, "upper deck" means the highest deck to which the watertight transverse bulkheads except aft peak bulkheads extend.

.9 "Length (L)" means 96% of the total length on a waterline at 85% 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.

.10 "Breadth (B)" means the maximum breadth of the ship, in metres, 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.

.11 "Oil fuel tank" means a tank in which oil fuel is carried, but excludes those tanks which would not contain oil fuel in normal operation, such as overflow tanks.

.12 "Small oil fuel tank" is an oil fuel tank with a maximum individual capacity not greater than 30 m^3.

.13 "C" is the ship's total volume of oil fuel, including that of the small oil fuel tanks, in m^3, at 98% tank filling.

.14 "Oil fuel capacity" means the volume of a tank in m^3, at 98% filling.

4 The provisions of this regulation shall apply to all oil fuel tanks except small oil fuel tanks, as defined in 3.12, provided that the aggregate capacity of such excluded tanks is not greater than 600 m^3.

5 Individual oil fuel tanks shall not have a capacity of over 2,500 m^3.

6 For ships, other than self-elevating drilling units, having an aggregate oil fuel capacity of 600 m^3 and above, oil fuel tanks shall be located above the moulded line of the bottom shell plating nowhere less than the distance h as specified below:

h = B/20 m or,

h = 2.0 m, whichever is the lesser.

The minimum value of h = 0.76 m

In the turn of the bilge area and at locations without a clearly defined turn of the bilge, the oil fuel tank boundary line shall run parallel to the line of the midship flat bottom as shown in Figure 1.

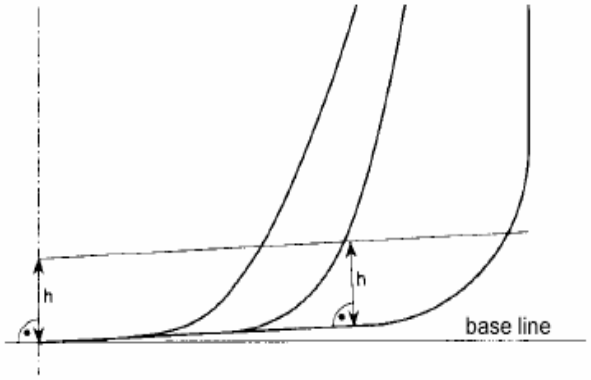


Figure 1 – Oil fuel tank boundary lines for the purpose of paragraph 6

7 For ships having an aggregate oil fuel capacity of 600 m^3 or more but less than 5,000 m^3, oil fuel tanks shall be located inboard of the moulded line of the side shell plating, nowhere less than the distance w which, as shown in Figure 2, is measured at any cross-section at right angles to the side shell, as specified below:

w = 0.4 + 2.4 C/20,000 m

The minimum value of w = 1.0 m, however for individual tanks with an oil fuel capacity of less than 500 m^3 the minimum value is 0.76 m.

8 For ships having an aggregate oil fuel capacity of 5,000 m^3 and over, oil fuel tanks shall be located inboard of the moulded line of the side shell plating, nowhere less than the distance w which, as shown in Figure 2, is measured at any cross-section at right angles to the side shell, as specified below:

w = 0.5 + C/20,000 m or

w = 2.0 m, whichever is the lesser.

The minimum value of w = 1.0 m

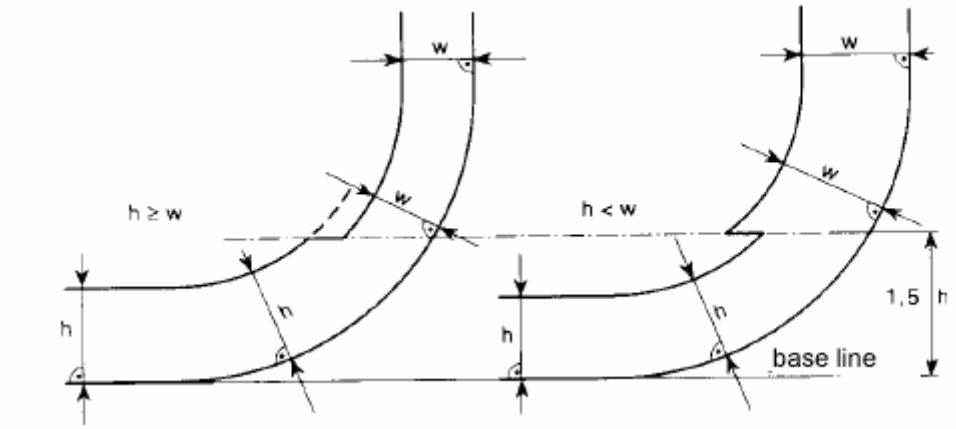


Figure 2 – Oil fuel tank boundary lines for the purpose of paragraphs 7 and 8

9 Lines of oil fuel piping located at a distance from the ship's bottom of less than *h*, as defined in paragraph 6, or from the ship's side less than *w*, as defined in paragraphs 7 and 8 shall be fitted with valves or similar closing devices within or immediately adjacent to the oil fuel tank. These valves shall be capable of being brought into operation from a readily accessible enclosed space the location of which is accessible from the navigation bridge or propulsion machinery control position without traversing exposed freeboard or superstructure decks. The valves shall close in case of remote control system failure (fail in a closed position) and shall be kept closed at sea at any time when the tank contains oil fuel except that they may be opened during oil fuel transfer operations.

10 Suction wells in oil fuel 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 the bottom shell plating is not less than 0.5 h.

11 Alternatively to paragraphs 6 and either 7 or 8, ships shall comply with the accidental oil fuel outflow performance standard specified below:

.1 The level of protection against oil fuel pollution in the event of collision or grounding shall be assessed on the basis of the mean oil outflow parameter as follows:

$O_M < 0.0157\text{-}1.14E\text{-}6 \cdot C$ $\quad 600\ m^3 \leq C < 5{,}000\ m^3$

$O_M < 0.010$ $\quad C \geq 5{,}000\ m^3$

Where O_M = mean oil outflow parameter;
C = total oil fuel volume.

.2 The following general assumption shall apply when calculating the mean oil outflow parameter:

.1 the ship shall be assumed loaded to the partial load line draught d_P without trim or heel;

.2 all oil fuel tanks shall be assumed loaded to 98% of their volumetric capacity;

.3 the nominal density of the oil fuel (ρ_n) shall generally be taken as 1,000 kg/m^3. If the density of the oil fuel is specifically restricted to a lesser value, the lesser value may be applied; and

.4 for the purpose of these outflow calculations, the permeability of each oil fuel tank shall be taken as 0.99, unless proven otherwise.

.3 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 a non-dimensional oil outflow parameter O_M, as follows:

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

where:

O_{MS} = mean outflow for side damage, in m^3
O_{MB} = mean outflow for bottom damage, in m^3
C = total oil fuel volume.

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

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

where:

$O_{MB(0)}$ = mean outflow for 0 m tide condition, and
$O_{MB(2.5)}$ = mean outflow for minus 2.5 m tide condition, in m^3.

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

$$O_{MS} = \sum_{1}^{n} P_{S(i)}\ O_{S(i)} \quad [m^3]$$

where:

i = represents each oil fuel tank under consideration;
n = total number of oil fuel tanks;
$P_{S(i)}$ = the probability of penetrating oil fuel tank i from side damage, calculated in accordance with paragraph 11.6 of this regulation;
$O_{S(i)}$ = the outflow, in m^3, from side damage to oil fuel tank i, which is assumed equal to the total volume in oil fuel tank i at 98% filling.

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

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

where:

i = represents each oil fuel tank under consideration;
n = total number of oil fuel tanks;
$P_{B(i)}$ = the probability of penetrating oil fuel tank i from bottom damage, calculated in accordance with paragraph 11.7 of this regulation;
$O_{B(i)}$ = the outflow from oil fuel tank i, in m^3, calculated in accordance with paragraph 11.5.3 of this regulation; and
$C_{DB(i)}$ = factor to account for oil capture as defined in paragraph 11.5.4.

.2 $O_{MB(2.5)} = \sum_{1}^{n} P_{B(i)} O_{B(i)} C_{DB(i)}$ [m^3]

where:

i, n, $P_{B(i)}$ and $C_{DB(i)}$ = as defined in subparagraph .1 above
$O_{B(i)}$ = the outflow from oil fuel tank i, in m^3, after tidal change.

.3 The oil outflow $O_{B(i)}$ for each oil fuel 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 partial load line draught d_P.

.2 The oil fuel level after damage shall be calculated as follows:

$$h_F = \{(d_P + t_C - Z_l)(\rho_S)\}/\rho_n$$

where: h_F = the height of the oil fuel surface above Z_l, in m;
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 oil fuel tank above the baseline, in m;
ρ_S = density of seawater, to be taken as 1,025 kg/m^3; and,
ρ_n = nominal density of the oil fuel, as defined in 11.2.3.

.3 The oil outflow $O_{B(i)}$ for any tank bounding the bottom shell plating shall be taken not less than the following formula, but no more than the tank capacity:

$$O_{B(i)} = H_W \cdot A$$

where:

H_W = 1.0 m, when $Y_B = 0$

H_W = $B_B/50$ but not greater than 0.4 m, when Y_B is greater than $B_B/5$ or 11.5 m, whichever is less

"H_W" is to be measured upwards from the midship flat bottom line. In the turn of the bilge area and at locations without a clearly defined turn of the bilge, H_W is to be measured from a line parallel to the midship flat bottom, as shown for distance "h" in Figure 1.

For Y_B values outboard $B_B/5$ or 11.5 m, whichever is less, H_W is to be linearly interpolated.

Y_B = the minimum value of Y_B over the length of the oil fuel tank, where at any given location, Y_B is the transverse distance between the side shell at waterline d_B and the tank at or below waterline d_B.

A = the maximum horizontal projected area of the oil fuel tank up to the level of H_W from the bottom of the tank.

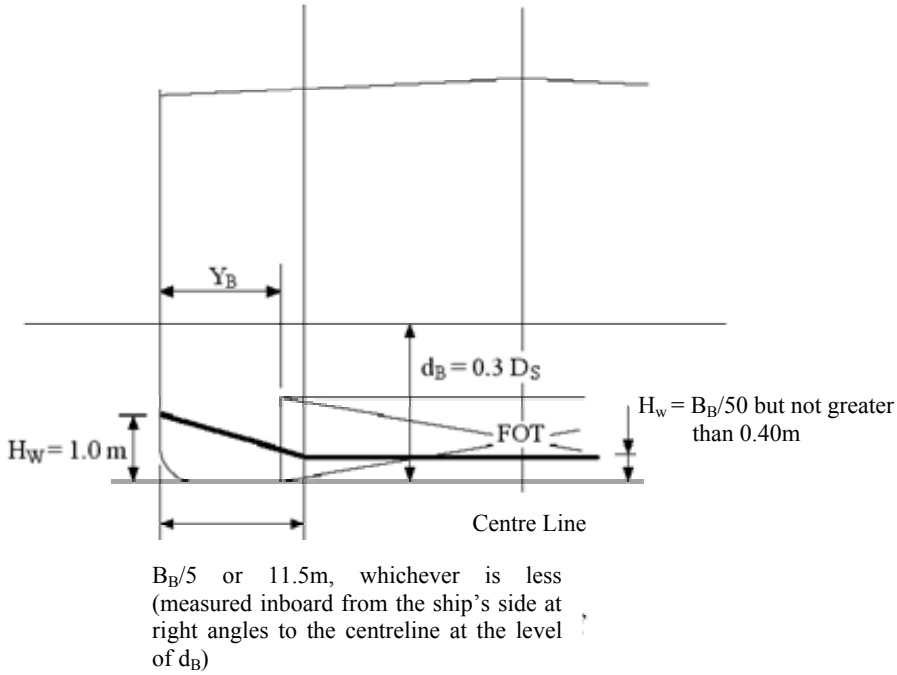


Figure 3 – Dimensions for calculation of the minimum oil outflow for the purpose of subparagraph 11.5.3.3

.4 In the case of bottom damage, a portion from the outflow from an oil fuel 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 oil fuel tanks bounded from below by non-oil compartments;

$C_{DB(i)}$ = 1 otherwise.

.6 The probability P_S of breaching a compartment from side damage shall be calculated as follows:

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

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;
P_{ST} = $(1 – P_{Sy})$ = probability the damage will extend transversely beyond the boundary defined by y;

.2 P_{Sa}, P_{Sf}, P_{Su} and P_{Sl} shall be determined by linear interpolation from the table of probabilities for side damage provided in 11.6.3, and P_{Sy} shall be calculated from the formulas provided in 11.6.3, 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} = probability the damage will lie entirely below the tank;
P_{Su} = probability the damage will lie entirely above the tank; and
P_{Sy} = probability the damage will lie entirely outboard 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 aft terminal of L to the aft most point on the compartment being considered, in m;
X_f = the longitudinal distance from aft terminal of L to the foremost point on the compartment being considered, in m;
Z_l = the vertical distance from the moulded baseline to the lowest point on the compartment being considered, in m. Where Z_l is greater than D_S, Z_l shall be taken as D_S;
Z_u = the vertical distance from the moulded baseline to the highest point on the compartment being considered, in m. Where Z_u is greater than D_S, Z_u shall be taken as 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 m[1].

In way of the turn of the bilge, y need not to be considered below a distance h above baseline, where h is lesser of B/10, 3 m or the top of the tank.

.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:

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

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

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

P_{Sy} is not to be taken greater than 1.

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

[1] 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 side. For asymmetrical arrangements reference is made to the Explanatory Notes on matters related to the accidental oil outflow performance, adopted by the Organization by resolution MEPC.122(52).

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

where: P_{BL} = $(1 – P_{Bf} – P_{Ba})$ = probability the damage will extend into the longitudinal zone bounded by X_a and X_f;
P_{BT} = $(1 – P_{Bp} – P_{Bs})$ = probability the damage will extend into transverse zone bounded by Y_p and Y_s; and
P_{BV} = $(1 – P_{Bz})$ = probability the damage will extend vertically above the boundary defined by z;

.2 P_{Ba}, P_{Bf}, P_{Bp} and P_{Bs} shall be determined by linear interpolation from the table of probabilities for bottom damage provided in 11.7.3, and P_{Bz} shall be calculated from the formulas provided in 11.7.3, 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} = probability the damage will lie entirely to port of the tank;
P_{Bs} = probability the damage will lie entirely to starboard the tank; and
P_{Bz} = 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 as defined in 11.6.2;

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;

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; 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.

.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:

$P_{Bz} = (14.5 – 67\ z/D_S)\ (z/D_S)$ for $z/D_S \leq 0.1$
$P_{Bz} = 0.78 + 1.1\ \{(z/D_S - 0.1)\}$ for $z/D_S > 0.1$
P_{Bz} is not to be taken greater than 1.

.8 For the purpose of maintenance and inspection, any oil fuel tanks that do not border the outer shell plating shall be located no closer to the bottom shell plating than the minimum value of *h* in paragraph 6 and no closer to the side shell plating than the applicable minimum value of *w* in paragraph 7 or 8.

12 In approving the design and construction of ships to be built in accordance with this regulation, Administrations shall have due regard to the general safety aspects, including the need for maintenance and inspection of wing and double bottom tanks or spaces."

3 Consequential amendments to the Supplement of the IOPP Certificate (Forms A and B)

The following new paragraph 2A is added to the Supplement of the IOPP Certificate (Forms A and B):

"2A.1 The ship is required to be constructed according to regulation 12A and complies with the requirements of:

paragraphs 6 and either 7 or 8 (double hull construction) ☐

paragraph 11 (accidental oil fuel outflow performance). ☐

2A.2 The ship is not required to comply with the requirements of regulation 12A. ☐ ”

4 Amendments to regulation 21

The text of existing paragraph 2.2 of regulation 21 on Prevention of oil pollution from oil tankers carrying heavy grade oil as cargo is replaced by the following:

“oils, other than crude oils, having either a density at 15ºC higher than 900 kg/m^3 or a kinematic viscosity at 50ºC higher than 180 mm^2/s; or”

***

ANNEX 5

RESOLUTION MEPC.144(54)

Adopted on 24 March 2006

AMENDMENTS TO THE CODE FOR THE CONSTRUCTION AND EQUIPMENT OF SHIPS CARRYING DANGEROUS CHEMICALS IN BULK (BCH CODE)

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,

RECALLING ALSO resolution MEPC.20(22) by which the Committee adopted the Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (BCH Code),

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),

CONSIDERING that it is highly desirable for the provisions of the BCH Code which are mandatory under MARPOL 73/78 and recommendatory from a safety standpoint, to remain identical, when adopted by the Marine Environment Protection Committee and the Maritime Safety Committee,

HAVING CONSIDERED the proposed amendments to the BCH Code,

1. ADOPTS, in accordance with article 16(2)(b), (c) and (d) of the 1973 Convention, the amendments to the BCH Code, the text of which is set out at the annex to the present resolution;

2. DETERMINES, in accordance with article 16(2)(f)(iii) of the 1973 Convention, that the amendments to the BCH Code shall be deemed to have been accepted on 1 February 2007 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 amendments to the BCH Code shall enter into force on 1 August 2007 upon their acceptance in accordance with paragraph 2 above;

4. INVITES ALSO the Maritime Safety Committee to note this resolution and take action as appropriate;

5. REQUESTS the Secretary-General, in conformity with article 16(2)(e) of the 1973 Convention, to transmit to all Parties to MARPOL 73/78 certified copies of the present resolution and the text of the amendments to the BCH Code contained in the annex; and

6. 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

AMENDMENTS TO THE CODE FOR THE CONSTRUCTION AND EQUIPMENT OF SHIPS CARRYING DANGEROUS CHEMICALS IN BULK (BCH CODE)

The BCH Code is amended as follows:

Preamble

1 The following new paragraph is added:

"7 The Code has been revised to reflect the 2007 revision of MARPOL Annex II"

CHAPTER I
General

1.1 Purpose

2 In the second sentence, the words "as defined in regulation 1(1) of Annex II thereof" are deleted and the references to (Pollution Category) "A, B or C" are replaced by "X, Y or Z".

1.4 Definitions

3 Paragraph 1.4.16A is replaced by the following:

> "1.4.16A *Noxious Liquid Substance* means any substance indicated in the Pollution Category column of chapter 17 or 18 of the International Bulk Chemical Code, or the current MEPC.2/Circular or provisionally assessed under the provisions of regulation 6.3 of the amendments to the Annex of the Protocol of 1978 relative to the International Convention for the Prevention of Pollution from Ships, 1973, as falling into Category X, Y or Z."

4 In paragraph 1.4.16B the existing text is deleted and the word "Deleted" is inserted.

5 The paragraph number of the definition of "anniversary date" which was adopted as "1.4.16C" by resolution MEPC.41(29) is amended to read "1.4.16D".

1.7 Effective date

6 In the second sentence of paragraph 1.7.2, the reference to "regulation 1(12)" is replaced by "regulation 1.17".

1.8 New products

7 In the first sentence of paragraph 1.8, the reference to (Pollution Category) "A, B or C" is replaced by "X, Y or Z".

CHAPTER II
Cargo Containment

G – MATERIALS OF CONSTRUCTION

2.17 General

8 The existing text is replaced by the following:

"2.17.1 Structural materials used for tank construction, together with associated piping, pumps, valves, vents and their jointing materials, should be suitable at the temperature and pressure for the cargo to be carried in accordance with recognized standards. Steel is assumed to be the normal material of construction.

2.17.2 Where applicable, the following should be taken into account in selecting the material of construction:

.1 notch ductility at the operating temperature;

.2 corrosive effect of the cargo; and

.3 possibility of hazardous reactions between the cargo and the material of construction.

2.17.3 The shipper of the cargo is responsible for providing compatibility information to the ship operator and/or master. This must be done in a timely manner before transportation of the product. The cargo shall be compatible with all materials of construction such that:

.1 no damage to the integrity of the materials of construction is incurred; and

.2 no hazardous, or potentially hazardous reaction is created.

2.17.4 When a product is submitted to IMO for evaluation, and where compatibility of the product with materials referred to in paragraph 2.17 renders special requirements, the GESAMP/EHS Product Data Reporting Form shall provide information on the required materials of construction. These requirements shall be reflected in chapter IV and consequentially be referred to in *column o* of chapter 17 of the IBC Code. The reporting form shall also indicate if no special requirements are necessary. The producer of the product is responsible for providing the correct information."

2.18 Additional requirements

9 In paragraph 2.18, the existing text is deleted and the word "Deleted" is inserted.

CHAPTER III
Safety equipment and related considerations

E – FIRE PROTECTION

10 After the heading, the following words are inserted:

"(SOLAS regulations referred to in Part E mean, unless expressly provided otherwise, regulations in chapter II-2 of the International Convention for the Safety of Life at Sea, 1974 and its relevant amendments adopted before by resolution MSC.99(73))".

3.13 Fire safety arrangements

11 In paragraph 3.13.3 the existing text is deleted and the word "Deleted" is inserted.

12 The following new paragraph 3.13.5 is added:

"3.13.5 The following requirements in SOLAS chapter II-2, as adopted by MSC.99(73), should apply:

(a) regulations II-2/4.5.10.1.1 and 4.5.10.1.4 and a system for continuous monitoring of the concentration of flammable vapours shall be fitted on ships of 500 tons gross tonnage and over by the date of the first scheduled dry-docking after [the date of entry into force of the amendment], but not later than [3 years after the date of entry into force of the amendment]. Sampling points or detector heads should be located in suitable positions in order that potentially dangerous leakages are readily detected. When the flammable vapour concentration reaches a pre-set level which shall not be higher than 10% of the lower flammable limit, a continuous audible and visual alarm signal shall be automatically effected in the pump-room and cargo control room to alert personnel to the potential hazard. However, existing monitoring systems already fitted having a pre-set level not greater than 30% of the lower flammable limit may be accepted. Notwithstanding the above provisions, the Administration may exempt ships not engaged on international voyages from those requirements;

(b) regulations 13.3.4.2 to 13.3.4.5 and 13.4.3 should apply to ships of 500 tons gross tonnage and over;

(c) regulations in Part E of chapter II-2 of SOLAS Convention except regulations 16.3.2.2 and 16.3.2.3 thereof, should apply to ships, regardless of their sizes;

(d) where deep-fat cooking equipment is newly installed, regulation 10.6.4 should apply; and

(e) fire-extinguishing systems using Halon 1211, 1301, and 2402 and perfluorocarbons should not be newly installed as prohibited by regulation 10.4.1.3.".

F – PERSONAL PROTECTION

13 After the heading, the following words are inserted:

"(SOLAS regulations referred to in Part F mean, unless expressly provided otherwise, regulations in chapter II-2 of the International Convention for the Safety of Life at Sea, 1974 and its relevant amendments adopted before by resolution MSC.99(73))".

CHAPTER IV
Special requirements

4.12 Materials of construction

14 In paragraph 4.12, the existing text is deleted and the word "Deleted" is inserted.

4.15 Cargo contamination

15 In paragraph 4.15.1, the existing text is deleted and the word "Deleted" is inserted.

CHAPTER V
Operational requirements

5.2 Cargo information

16 In paragraph 5.2.5, the viscosity figure "25 mPa", which appears twice, is replaced with "50 mPa".

17 In paragraph 5.2.6, the existing text is deleted and the word "Deleted" is inserted.

18 In paragraph 5.2.7, the existing text is deleted and the word "Deleted" is inserted.

CHAPTER VA
Additional measures for the protection of the marine environment

19 The existing text is deleted and the word "Deleted" is inserted.

CHAPTER VI
Summary of minimum requirements

20 The IBC/BCH cross-references to the requirements under Materials of construction (column *m*) and the following cross-references under special requirements (column *o*) are deleted:

"IBC Code reference	BCH Code reference
15.16.1	4.15.1
16.2.7	5.2.6
16.2.8	5.2.7
16A.2.2	5A.2.2"

CHAPTER VIII

Transport of liquid chemical wastes

21 In paragraph 8.3.2.2 reference to "chapter 19" of the IBC Code is replaced by "chapter 20".

APPENDIX

Model form of Certificate of Fitness for the
Carriage of Dangerous Chemicals in Bulk

22 The existing form is replaced by the following:

"**MODEL FORM OF CERTIFICATE OF FITNESS FOR THE CARRIAGE OF DANGEROUS CHEMICALS IN BULK**

CERTIFICATE OF FITNESS FOR THE CARRIAGE OF DANGEROUS CHEMICALS IN BULK

(*Official seal*)

Issued under the provisions of the

CODE FOR THE CONSTRUCTION AND EQUIPMENT OF SHIPS CARRYING DANGEROUS CHEMICALS IN BULK
(resolutions MSC.9(53) and MEPC.20(22), as amended)

under the authority of the Government of

……

(*full official designation of country*)

by……
(*full designation of the competent person or organization recognized by the Administration*)

Particulars of ship[1]

Name of ship …….
Distinctive number or letters …….
Port of registry …….
Gross tonnage …….
Ship Type (Code paragraph 2.2.4) …….
IMO Number[2] …….

Date on which keel was laid or on which the ship was at a similar stage of construction or (in the case of a converted ship) date on which conversion to chemical tanker was commenced …….

The ship also complies fully with the following amendments to the Code:

……

……

[1] Alternatively, the particulars of the ship may be placed horizontally in boxes.
[2] In accordance with IMO ship identification number scheme adopted by the Organization by resolution A.600(15).

The ship is exempted from compliance with the following provisions of the Code:

……
……

THIS IS TO CERTIFY:

1 That the ship has been surveyed in accordance with the provisions of section 1.6 of the Code;

2 That the survey showed that the construction and equipment of the ship and the condition thereof are in all respects satisfactory and that the ship:

.1 complies with the relevant provisions of the Code applicable to ships referred to in 1.7.2;

.2 complies with the relevant provisions of the Code applicable to ships referred to in 1.7.3;

3 That the ship has been provided with a manual in accordance with Appendix 4 of MARPOL Annex II as called for by regulation 14 of the Annex, and that the arrangements and equipment of the ship prescribed in the Manual are in all respects satisfactory;

4 That the ship meets the requirements for the carriage in bulk of the following products, provided that all relevant operational provisions of the Code and MARPOL Annex II are observed:

Product	Conditions of carriage (tank numbers, etc.)	Pollution Category
Continued on attachment 1, additional signed and dated sheets[3] Tank numbers referred to in this list are identified on attachment 2, signed and dated tank plan.		

5 That, in accordance with 1.7.3/2.2.5[3], the provisions of the Code are modified in respect of the ship in the following manner:

…….

6 That the ship must be loaded:

.1 in accordance with the loading conditions provided in the approved loading manual, stamped and dated ..... and signed by a responsible officer of the Administration, or of an organization recognized by the Administration[3];

[3] Delete as appropriate.

.2 in accordance with the loading limitations appended to this Certificate[3].

Where it is required to load the ship other than in accordance with the above instruction, then the necessary calculations to justify the proposed loading conditions should be communicated to the certifying Administration who may authorize in writing the adoption of the proposed loading condition[4].

This Certificate is valid until ……..……[5]
subject to surveys in accordance with 1.6 of the Code.

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*)

Notes on completion of Certificate:

1 The Certificate can be issued only to ships entitled to fly the flags of States which are a Party to MARPOL 73/78.

2 Ship Type: Any entry under this column must relate to all relevant recommendations, e.g., an entry "Type 2" should mean Type 2 in all respects prescribed by the Code. This column would not usually apply in the cases of an existing ship and in such a case should be noted "see paragraph 2.2".

3 Products: Products listed in chapter 17 of the Code, or which have been evaluated by the Administration in accordance with 1.8 of the Code, should be listed. In respect of the latter "new" products, any special requirements provisionally prescribed should be noted.

4 Products: The list of products the ship is suitable to carry should include the noxious liquid substances of Category Z which are not covered by the Code and should be identified as "chapter 18 Category Z".

5 *deleted*

---

[3] Delete as appropriate.

[4] Instead of being incorporated in the Certificate, this text may be appended to the Certificate if signed and stamped.

[5] Insert the date of expiry as specified by the Administration in accordance with 1.6.6.1 of the Code. The day and the month of this day correspond to the anniversary date as defined in 1.4.16D of the Code, unless amended in accordance with 1.6.6.8 of the Code.

6 Conditions of carriage: If a Certificate is issued to a ship which is modified in accordance with the provision of regulation 1(12) of MARPOL Annex II the Certificate should indicate in the top of the table of products and conditions of carriage the following statement: "This ship is certificated to carry only pollution hazard chemicals".

ENDORSEMENT FOR ANNUAL AND INTERMEDIATE SURVEYS

THIS IS TO CERTIFY that at a survey required by 1.6.2 of the Code the ship was found to comply with the relevant provisions of the Code.

Annual survey: Signed .....
(*Signature of duly authorized official*)
Place .....
Date (*dd/mm/yyyy*) .....

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

Annual/Intermediate[3] survey: Signed .....
(*Signature of duly authorized official*)
Place .....
Date (*dd/mm/yyyy*) .....

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

Annual/Intermediate[3] survey: Signed .....
(*Signature of duly authorized official*)
Place .....
Date (*dd/mm/yyyy*) .....

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

Annual survey: Signed .....
(*Signature of duly authorized official*)
Place .....
Date (*dd/mm/yyyy*) .....

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

[3] Delete as appropriate.

ANNUAL/INTERMEDIATE SURVEY IN ACCORDANCE WITH PARAGRAPH 1.6.6.8.3

THIS IS TO CERTIFY that, at an annual/intermediate[3] survey in accordance with paragraph 1.6.6.8.3 of the Code, the ship was found to comply with the relevant provisions of the Convention:

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

Place .....

Date (*dd/mm/yyyy*) .....

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

ENDORSEMENT TO EXTEND THE CERTIFICATE IF VALID FOR LESS THAN 5 YEARS WHERE PARAGRAPH 1.6.6.3 APPLIES

The ship complies with the relevant provisions of the Convention, and this Certificate shall, in accordance with paragraph 1.6.6.3 of the Code, be accepted as valid until .....

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

Place .....

Date (*dd/mm/yyyy*) .....

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

ENDORSEMENT WHERE THE RENEWAL SURVEY HAS BEEN COMPLETED AND PARAGRAPH 1.6.6.4 APPLIES

The ship complies with the relevant provisions of the Convention, and this Certificate shall, in accordance with paragraph 1.6.6.4 of the Code, be accepted as valid until .....

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

Place .....

Date (*dd/mm/yyyy*) .....

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

[3] Delete as appropriate.

ENDORSEMENT TO EXTEND THE VALIDITY OF THE CERTIFICATE UNTIL REACHING THE PORT OF SURVEY OR FOR A PERIOD OF GRACE WHERE PARAGRAPH 1.6.6.5 OR 1.6.6.6 APPLIES

This Certificate shall, in accordance with paragraph 1.6.6.5/1.6.6.6[3] of the Code, be accepted as valid until ……...……

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

Place .....

Date (*dd/mm/yyyy*) .....

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

ENDORSEMENT FOR ADVANCEMENT OF ANNIVERSARY DATE WHERE PARAGRAPH 1.6.6.8 APPLIES

In accordance with paragraph 1.6.6.8 of the Code, the new anniversary date is .....

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

Place .....

Date (*dd/mm/yyyy*) .....

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

In accordance with paragraph 1.6.6.8, the new anniversary date is .....

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

Place .....

Date (*dd/mm/yyyy*) .....

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

[3] Delete as appropriate.

ATTACHMENT 1
TO THE
CERTIFICATE OF FITNESS FOR THE CARRIAGE OF DANGEROUS CHEMICALS IN BULK

Continued list of products to those specified in section 3, and their conditions of carriage.

Products	Conditions of carriage (tank numbers, etc.)	Pollution Category

Date

(*as for Certificate*)

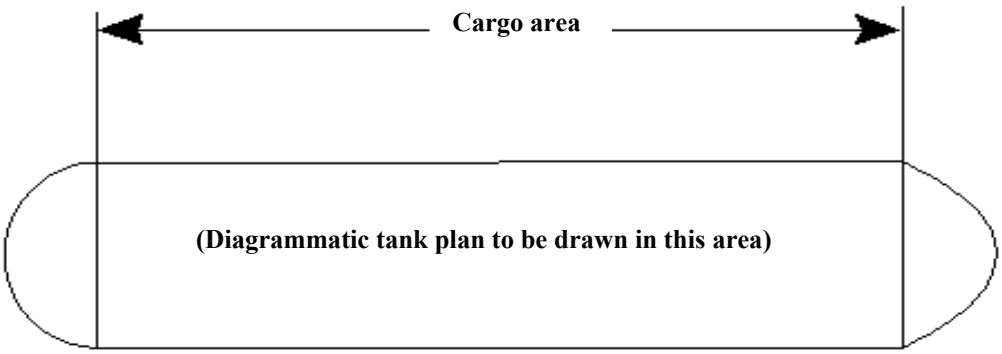
(*Signature of official issuing the Certificate and/or seal of issuing authority*)

ATTACHMENT 2
TO THE
CERTIFICATE OF FITNESS FOR THE CARRIAGE OF DANGEROUS CHEMICALS IN BULK

TANK PLAN (specimen)

Name of ship: .....

Distinctive number or letters: .....



Date .....

(*as for Certificate*)

.....

(*Signature of official issuing the Certificate and/or seal of issuing authority*)"

***

ANNEX 6

RESOLUTION MEPC.145(54)

Adopted on 24 March 2006

EARLY AND EFFECTIVE APPLICATION OF THE 2006 AMENDMENTS TO THE CODE FOR THE CONSTRUCTION AND EQUIPMENT OF SHIPS CARRYING DANGEROUS CHEMICALS IN BULK (BCH CODE)

THE MARINE ENVIRONMENT PROTECTION COMMITTEE,

RECALLING Article 38(a) of the Convention of 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,

RECALLING ALSO resolution MEPC.20(22) by which the Committee adopted the Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (BCH Code),

HAVING ADOPTED, by resolution MEPC.144(54), the 2006 amendments to the BCH Code,

NOTING that article 16(2)(f)(iii) of the International Convention for the Prevention of Pollution from Ships, 1973 (the 1973 Convention) provides that the aforesaid amendments to the BCH Code shall be deemed to have been accepted on 1 February 2007, unless, prior to that date, not less than one third of the Parties to MARPOL 73/78 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 objections to the amendments,

NOTING ALSO that in accordance with article 16(2)(g)(ii) of the 1973 Convention, the aforesaid amendments to the BCH Code, shall enter into force on 1 August 2007 upon their deemed acceptance in accordance with article 16(2)(f)(iii) of the 1973 Convention,

NOTING IN PARTICULAR that the purpose of the BCH Code is to recommend suitable design criteria, construction standards and other safety measures for ships transporting dangerous and noxious chemical substances in bulk to minimize the risk to the ship, its crew and the environment,

1. INVITES Parties to MARPOL 73/78 to consider the application of the aforesaid amendments to the BCH Code, as soon as practically possible to ships entitled to fly their flag, taking into account that the revised Annex II of MARPOL 73/78 and the amended International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk (IBC Code) are expected to enter into force on 1 January 2007;

2. INVITES ALSO the maritime industry to implement the aforesaid amendments to the BCH Code, as soon as possible taking note of the expected entry into force date of the instruments referred to in paragraph 1 above; and

3. INVITES FURTHER the Maritime Safety Committee to note this resolution and take action as appropriate.

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ANNEX 1

DRAFT RESOLUTION MEPC.140(54)

Adopted on 24 March 2006

GUIDELINES FOR APPROVAL AND OVERSIGHT OF PROTOTYPE BALLAST WATER TREATMENT TECHNOLOGY PROGRAMMES (G10)

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 conferred upon it by the international conventions for the prevention and control of marine pollution,

RECALLING ALSO that the International Conference on Ballast Water Management for Ships held in February 2004 adopted the International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004 (the Ballast Water Management Convention) together with four Conference resolutions,

NOTING that regulation A-2 of the Ballast Water Management Convention requires that discharge of ballast water shall only be conducted through Ballast Water Management in accordance with the provisions of the Annex to the Convention,

NOTING FURTHER that regulation D-4.3 of the Ballast Water Management Convention provides that, in establishing and carrying out any programme to test and evaluate promising Ballast Water technologies, Parties shall take into account Guidelines developed by the Organization,

NOTING ALSO that resolution 1 adopted by the International Conference on Ballast Water Management for Ships invited the Organization to develop these Guidelines as a matter of urgency,

HAVING CONSIDERED, at its fifty-fourth session, the draft Guidelines for approval and oversight of prototype ballast water treatment technology programmes developed by the Ballast Water Working Group,

1. ADOPTS the Guidelines for approval and oversight of prototype ballast water treatment technology programmes as set out in the annex to this resolution;

2. INVITES Governments to apply the Guidelines as soon as possible, or when the Convention becomes applicable to them; and

3. AGREES to keep the Guidelines under review.

ANNEX

GUIDELINES FOR APPROVAL AND OVERSIGHT OF PROTOTYPE BALLAST WATER TREATMENT TECHNOLOGY PROGRAMMES (G10)

Content

GUIDELINES FOR APPROVAL AND OVERSIGHT OF PROTOTYPE BALLAST WATER TREATMENT TECHNOLOGY PROGRAMMES (G10)

1 INTRODUCTION

General

1.1 These Guidelines provide recommendations for Administrations on the approval and oversight of programmes for prototype ballast water treatment technologies in accordance with regulation D-4 of the "International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004" (the Convention). The intention of regulation D-4 is to provide opportunities to test and evaluate promising ballast water treatment technologies aboard ships with the potential to meet or exceed the performance standards in regulation D-2 of the Convention. The document may also assist manufacturers, ship owners and other stakeholders undertaking development activities in the area of ballast water treatment. The Guidelines also make recommendations on criteria for approval of such programmes. Recommendations outlined in these Guidelines should be applied in an objective, consistent and transparent way and their application should be evaluated periodically by the Organization.

1.2 Regulations referred to in these Guidelines are those contained in the Convention.

1.3 The Guidelines include general recommendations on design and construction, technical procedures for overall performance testing and evaluation, procedures for the issuance of a Statement of Compliance in accordance with regulation D-4 and Administration oversight responsibilities.

1.4 As the level of ballast water management knowledge, experience and subsequently technological achievements continue to develop, these Guidelines may require updating. Periodical review of their content in light of such developments should be carried out and any revisions duly circulated by the Organization.

Purpose

1.5 The main purpose of these Guidelines is to:

.1 assist Administrations to approve or reject proposed programmes and in cases where approval is granted, to issue a Statement of Compliance under regulation D-4;

.2 describe the responsibilities of the Administration in the oversight of the programme's execution; and

.3 encourage a uniform interpretation and application of regulation D-4.

Applicability

1.6 These Guidelines apply to programmes established to test and evaluate promising ballast water treatment technologies in accordance with regulation D-4.

Programme requirements

1.7 The Programme for prototype ballast water treatment technologies in accordance with these Guidelines should contain the following three main steps:

.1 **Programme Application, Submission and Approval**: The submission should include a detailed plan describing the prototype technology and implementation of the programme as described in Section 3. Further, the applicant should include evidence on the potential of the prototype technologies meeting or exceeding the performance standard in regulation D-2. If the prototype ballast water treatment technology makes use of Active Substances, or preparations containing one or more Active Substances, the substances should have received Basic Approval, as described by the Procedure for the Approval of Ballast Water Management systems that make use of Active Substances (G9). All of the above information should be the basis for the Administration in its evaluation and approval of the submitted programme. In the case where a programme is approved, the applicant may proceed in accordance with the approved programme taking into account any conditions set by the Administration.

.2 **Installation Survey and Statement of Compliance**: The installation of the prototype ballast water treatment technology in accordance with the approved Programme should be verified by an installation survey. Provided that this survey confirms adherence to the approved programme, including any applicable conditions set by the Administration, a Statement of Compliance under regulation D-4 may be issued by the Administration.

.3 **Performance Evaluations and Reporting**: During the test and evaluation period, a prototype ballast water treatment technology should be subjected to on-going experimental testing and evaluation according to the approved programme to evaluate both the engineering and biological performance under shipboard operating conditions. Reporting to the Administration should be of the form and schedule in accordance with the approved programme.

2 DEFINITIONS

2.1 Prototype Ballast Water Treatment Technology - means any integrated system of ballast water treatment equipment as under regulation D-4, participating in a programme for testing and evaluation with the potential of meeting or exceeding the ballast water performance standard in regulation D-2 including treatment equipment, all associated control equipment, monitoring equipment and sampling facilities. A prototype ballast water treatment technology may be a mechanical, physical, chemical, or biological unit process, either singularly or in combination that may or may not use Active Substances that remove, render harmless, or avoid the uptake or discharge of Harmful Aquatic Organisms and Pathogens within ballast water and sediments.

Prototype ballast water treatment technologies may operate at the uptake or discharge of ballast water, during the voyage or in any combination of these phases.

2.2 Ballast Water Management Plan - is the document referred to in regulation B-1 of the Convention describing the ballast water management processes and procedures on board individual ships.

2.3 Active Substances - means a substance or organism, including a virus or a fungus that has a general or specific action on or against Harmful Aquatic Organisms and Pathogens.

2.4 Control Equipment - refers to the installed equipment required for proper functioning of the prototype ballast water treatment technology.

2.5 Monitoring Equipment - refers to the equipment installed for assessment of the correct operation of the prototype ballast water treatment technology.

2.6 Convention - means the International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004.

2.7 Sampling Facilities - refers to the means provided for sampling treated or untreated ballast water as needed in these Guidelines.

3 PROGRAMME APPLICATION REQUIREMENTS

3.1 This section provides the detailed elements and documentation that should be included in a Programme and Programme Application as defined in section 1.7.1. The Programme Application should contain information on the following aspects:

.1 participants
.2 ballast water treatment technology description
.3 ship description
.4 installation and installation survey description
.5 performance test and evaluation description
.6 time schedule and reporting

3.2 All relevant and requested documentation describing the Programme for which the applicant is applying for approval should be submitted to the Administration. The application should only encompass one prototype ballast water treatment technology and should not normally result in installations in more than three ships. Prototype installations onboard more than one ship should be justified in the application and may rest upon technology development requirements related to, for example:

- capacity issues;
- geographical areas of operation;
- specific onboard conditions varying as a function of ship type; and
- refit to existing vessels versus installations onboard new vessels.

3.3 The Programme Application should also take into account safety and environmental regulations which have to be met by the ship so as to ensure that other international and/or national requirements are not compromised by the prototype ballast water treatment technology.

3.4 The Programme should implement appropriate quality control measures in accordance with recognized international standards to which all participants specified in Section 3.5 should be required to comply.

Participants

3.5 The Programme should provide an overview of the different participants included in the Programme Application including, as appropriate:

- the ship owner or operator;
- the manufacturer(s); and
- the testing institution or any laboratories, institution(s) or companies carrying out elements of or the entire programme or advising the manufacturer in carrying out the programme.

3.6 The roles and responsibilities of each of the identified participants should be clearly described within the Programme Application.

Ballast water treatment technology description

3.7 The Programme Application should include information regarding design, construction, operation and functioning of the proposed ballast water treatment technology. The information should also include any foreseen conditions limiting its application with respect to voyage duration, ship type, capacity (flow rate and/or volume) or any other such condition if relevant.

3.8 The Programme Application should contain documentation on the potential of the prototype technologies meeting or exceeding the performance standard in regulation D-2. Recognized scientific and statistical practices should have been utilized in the preparation of this documentation.

3.9 The construction, operation and maintenance of the technology should be adequately described to allow for consideration by the Administration and this should include:

.1 The prototype ballast water treatment technology should have a configuration and construction suitable for shipboard installation and normal onboard operation;

.2 Design, construction and material should be suitable for the purpose for which the equipment is intended, the working conditions to which it should be subjected and the environmental conditions onboard. This should include considerations of:

.1 vibration – to ensure that there are no potential resonance occurring;

.2 temperature – to assure safe and proper operations and performance of the technology over a range of temperatures applicable for shipboard installations;

.3 humidity – to ensure the suitability of equipment exposed to humidity/ water as applicable to shipboard installations;

.4 power fluctuation – to ensure proper functioning over a voltage/frequency variation; and

.5 inclination – to assure that the technology should operate during those scenarios it is intended for, taking into account the motion of the vessel and that it should remain safe and not represent any danger to crew or ship onboard during inclination.

.3 Routine maintenance of the prototype ballast water treatment technology and trouble-shooting procedures should be clearly described by the manufacturer in a operating and maintenance manual.

.4 The prototype ballast water treatment technology should be provided with simple and effective means for its operation and control.

.5 In case of a failure compromising the proper operation of the prototype ballast water treatment technology, audible and visual alarm signals are to be activated at all stations from where ballast water operations may be controlled.

.6 The prototype ballast water treatment technology programme should provide for record keeping of the entire ballast water operations including:

.1 record of operations and any malfunctioning during operations;

.2 record of all essential parameters necessary to ensure proper functioning;

.3 date and time of start and end of the ballast operation; and

.4 ballast operation mode (loading, discharge, transfer).

.7 The prototype ballast water treatment technology should allow for sampling such that representative samples of the ship's ballast water can be collected as described in the experimental design as described in the Programme Application.

3.10 The Programme Application should include descriptions of the working principles, use if any Active Substances, operational conditions and application feasibility of the prototype ballast water treatment technology.

3.11 The Programme Application should include an assessment of the potential effects upon other personnel, shipboard systems and structure, highlighting any special safety provisions that maybe necessary due to the characteristics of the installation and/or operation of the prototype ballast water treatment technology.

Ship description

3.12 The Programme Application should include a full and complete description of the ship(s) in which the prototype ballast water treatment technology is to be installed. This description should include:

- ships' name;
- date of construction;
- flag;
- port of registry;
- gross tonnage;
- dead weight;
- IMO number;
- length (bp);
- beam;
- international call sign;
- deepest ballast drafts (normal and heavy weather);
- total ballast capacity of the ship in cubic metres and other units if applicable to the ship.

3.13 The description should also include normal operational ballast flow rates and volumes, and, to the extent possible, typical voyage lengths and routes.

Installation and installation survey description

3.14 The Programme Application should fully describe the manner in which the equipment should be integrated into the ship and should provide the following for the onboard installation:

.1 process flow diagram of the prototype ballast water treatment technology;

.2 "equipment arrangement" drawings of the proposed prototype ballast water treatment installation. These should show scaled lay-outs of the spaces and important mechanical and structural features such as major propulsion and electrical components, bulkheads and pillars, and doors and other means of access/egress;

.3 "piping arrangement" drawing of the prototype ballast water treatment system installation, including ballast and cross-connected piping systems, sample piping, and the operational outlets for treated effluent and any waste streams;

.4 information relating to onboard safety matters;

.5 an assessment of the potential effects upon other shipboard systems and the ship's structure, highlighting those aspects of the design and operation of the system, and its integration into the ship, to be put in place to prevent any compromises to crew and ship safety;

.6 assurance of adequate safety interlocks and failsafe measures to ensure subdivision boundaries, structural integrity, and vessel stability are not compromised;

.7 assurance that new piping and flows should not result in unsafe ballasting or deballasting situations, e.g., overpressure;

.8 assurance that escape arrangements in manned spaces are not compromised;

.9 arrangements for maintaining the integrity any boundary between safe and hazardous spaces;

.10 attention to restrictions related to the use of electrical equipment in hazardous areas; and

.11 a provision for safe storage and use of Active Substances.

3.15 The installation survey description should contain a listing of those items which should be validated at the survey and these include, as a minimum, the following:

.1 updated, as-installed diagrammatic drawings of any additional pumping and piping arrangements, identifying the operational outlets for treated effluent and any waste streams. Special consideration may have to be given to installations on ships that have unusual pumping and piping arrangements, as well as restrictions related to the use of electrical equipment in hazardous areas;

.2 equipment manuals, supplied by manufacturers, which should contain details of the major components of the treatment system;

.3 operations and technical manual for the complete installed prototype ballast water treatment. This manual should cover the arrangements and operation of the system as a whole and should specifically describe the parts of the system which may not be covered by the manufacturer's equipment manuals. The operations section of the manual should include normal operational procedures and procedures for the discharge of untreated water in the event of malfunction of the equipment. The technical section of the manual should include adequate information (description and diagrammatic drawings of the pumping and piping arrangements, of the monitoring system and electrical/electronic wiring diagrams) to enable fault finding and should include instructions for keeping a maintenance record;

.4 the installation should comply with manufacturer's specific installation criteria. A technical installation specification defining, *inter alia,* the location and mounting of components, arrangements for maintaining the integrity of any boundary between safe and hazardous spaces, and the arrangement of the sample piping;

.5 the Ballast Water Management Plan; and

.6 any other conditions required by the Administration.

3.16 The Programme Application should provide a recommended test and survey procedure. This procedure should specify all the checks to be carried out in a functional test and should provide guidance for the surveyor when carrying out the on-board survey of the treatment system. This procedure may be amended as necessary prior to the survey and with the concurrence of the Administration.

Performance test and evaluation description

3.17 A full description of the onboard tests and evaluations to be undertaken should be provided. When available standard methods for the collection, handling (including concentration), storage, and analysis of samples should be applied. These methods should be clearly referenced and described in test plans and in reports. This includes methods for detecting, concentrating, enumerating, and identifying organisms and for determining viability. When non-standard methods are used they should be validated, documented and reported. A description of the experimental design and sampling procedure should be provided.

3.18 The Programme should evaluate:

.1 the biological efficacy of the installed prototype ballast water treatment technology;

.2 the operational performance which should include, but not be limited to:

- unplanned maintenance and manning requirements
- operational data relative to manufacturer's specification
- consideration of the environmental conditions identified in section 3.9.2;

.3 the effects upon the ship's systems and structure; and

.4 any other characteristics identified by the participants or the Administration.

3.19 Experimental Design and Protocols should include:

.1 a general description of the experimental test including the experimental hypotheses being tested and methods for the determination of biological efficacy and operational performance. The Programme Application should identify the test locations, source waters, and relevant environmental water conditions, to the extent possible. The overall study plan should take full advantage of the range of locations provided by the vessel's operations, to the extent practicable;

.2 a detailed description for each of the experiments including:

.1 ballast water sample collection for each treatment and control, identification and number of replicate tanks, ballast water samples and time points encompassed in the test;

.2 description of test runs: replicate tests (tests at same location and environmental conditions) and comparative tests (tests at different locations or environmental conditions). Description of how the efficacy of the treatment process should be evaluated; include a description of how the efficacy should be quantified, as well as a description of the comparison of biological efficacies;

.3 the plan should address statistical analysis (including power analysis) and data confidence issues. Fully describe the intended statistical tests, use of controls, and replicates for each experiment; and

.4 how the experiment accounts for the range of seasons, organic matter content, turbidity, pH, salinity, etc. likely to be encountered in operation and, to the extent possible, describe the range of these variables;

.3 the experimental design should address the operation of the ship's systems whose arrangements (e.g., cross connections) have the potential to confound the resulting data.

Time schedule and reporting

3.20 The Programme Application should include procedures and schedules for reporting the progress and status of the Programme through all phases. Reporting to the Administration should occur on a regular basis throughout the Programme. In addition, reporting should include the results and evaluation of all conducted experiments.

3.21 The Programme Application should present an overall time schedule compliant with project management standards. This schedule should include an estimation of major task element time lines. Each of these should have an anticipated period of performance and execution and include events such as approval of the Programme by the Administration, the installation survey, experimental and progress reports. Major task elements should include the installation of the prototype ballast water treatment technology into the ship, initiation and execution of experiments and maintenance periods.

4 INSTALLATION SURVEY AND STATEMENT OF COMPLIANCE

Installation survey

4.1 Following approval of the Programme Application, the Programme may proceed to installing the onboard prototype ballast water treatment technology.

4.2 Following installation a survey should be performed by the Administration, or any designated body appointed by the Administration to act on its behalf, to verify that the system installation has been carried out in accordance with the approved Programme and that the workmanship of the installation is satisfactory.

Statement of Compliance

4.3 Upon successful completion of the Installation Survey a Statement of Compliance may be issued by the Administration, or by a person or organization duly authorized by the Administration. In every case, the Administration assumes full responsibility for the Statement of Compliance. The recommended format for the Statement of Compliance is given in the Appendix.

4.4 The Statement of Compliance should be valid until five years after the dates specified in regulations D-4.1 and D-4.2, as appropriate.

5 PERFORMANCE REQUIREMENT FOR ALREADY INSTALLED SYSTEMS

5.1 Ships with already installed prototype ballast water treatment technologies that wish to make use of the provision of regulation D-4, may do so provided that a Programme Application is approved by the Administration.

6 PROGRAMME OVERSIGHT

6.1 The Administration or any designated body appointed by the Administration to act on its behalf should ensure that the Programme as approved is followed.

6.2 The Administration should revoke the Statement of Compliance if the ship fails to follow the approved Programme or otherwise does not comply with the conditions of regulation D-4.4.

APPENDIX 1

Statement of Compliance for a Prototype Ballast Water Treatment Technology

(Official seal)

Issued under the provisions of

GUIDELINES FOR APPROVAL AND OVERSIGHT OF PROTOTYPE BALLAST WATER TREATMENT TECHNOLOGY PROGRAMMES (G10)

(Resolution MEPC.140(54)),
under the authority of the Government of (*full designation of country)*
by *(full designation of the competent person or organization recognized by the Administration)*

Particulars of ship

Name of ship

IMO Number*

Distinctive number or letters

Port of registry

Gross tonnage

Ballast Water Capacity, Volume and Flow Rates

Date on which keel was laid or ship was at a similar stage of construction or, (in the case of a converted ship) date on which conversion was commenced

Date by which the ship is required to comply with regulation D-2

Date on which the prototype ballast water treatment system was installed

Name and address of prototype ballast water treatment technology manufacturer

Trade name of technology

Serial number or other identifying marking

Name of Active Substance and details of Basic Approval

Brief description of the prototype technology

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

THIS IS TO CERTIFY:

1. That the ship has a prototype ballast water treatment system which is subject to a programme approved in accordance with regulation D-4 by the Government of (*insert Government title*) on *(insert date of approval of programme)*.

2. That the prototype ballast water treatment technology installation has been surveyed in accordance with Section 4 of the annex to resolution MEPC.140(54).

3. A copy of the approved programme is on board the ship together with equipment, operations and maintenance manuals for the prototype ballast water treatment technology.

This Statement is valid until *(date)*

(Place of issue of Statement)

(Date of issue)

(Signature of authorized official issuing the Statement)

(Seal or stamp of the authority, as appropriate)

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