LE GOUVERNEMENT
DU GRAND-DUCHÉ DE LUXEMBOURG
Ministère de l'Économie
et du Commerce extérieur

Commissariat aux Affaires Maritimes

Luxembourg, 7 December 2011

Circular CAM 008/2011

O/Ref. : AH/91505

Subject : BALLAST WATER MANAGEMENT CONVENTION

To : All Accredited Shipping Managers, ship owners, ship operators and designated persons of Luxembourg flagged ships

The Commissariat aux affaires maritimes is presently preparing the legal framework related to the accession by Luxembourg to the International Convention for the Control and Management of Ships' Ballast Water & Sediments (Convention).

The Convention was adopted by consensus at the International Maritime Organization on 13 February 2004. The Convention will enter into force 12 months after ratification by 30 States, representing 35% of the world gross tonnage.

As of 30 October 2011, 30 countries, representing 26,44% of the world gross tonnage have adopted the Convention.

Ballast water and sediment discharge controls are already in place in Australia, Brazil, and Canada, including the Great Lakes, and the St. Lawrence Seaway. The United States currently requires mandatory ballast water management practices for all vessels equipped with ballast water tanks bound for ports or places within the U.S. or entering U.S. waters; in certain States, the requirements regarding ballast water discharge controls may differ from those imposed by the federal government.

Therefore, all owners and Masters are required to apply the appropriate provisions of the "Guidance on Safety Aspects of Ballast Water Exchange at Sea" (IMO Resolution A.868(20)) attached to the present Circular.

Ship's Masters and officers involved in ballast water exchange at sea are instructed to familiarize themselves with the Convention's requirements, the abovementioned IMO guidance, and to work with the vessel owners and operators to ensure that the vessel-specific instructions are accurate and reflect the safety aspects identified in this document.

Therefore, companies are invited to :

- organise adequate training for all employees and shipboard personnel of all levels who require a general knowledge and understanding of the requirements of Ballast Water Management as required by the above mentioned IMO resolution;
- such training should be properly recorded;
- amend their ISM Code procedures and documentation accordingly.

Owners and Masters engaged in trade within the waters of the U.S. Canada, Brazil or Australia must implement Ballast Water Management Plans (BWMP).
The Commissariat aux affaires maritimes strongly recommends that ship owners, operators and Masters become familiar with the requirements of port State authorities regarding ballast water and sediment management and control procedures relative to the vessel's ports of call, including information that will be needed to obtain clearance.

Approval and certification of BWMPs will be delegated to authorised Recognised Organisations (ROs). At this stage, Documents of compliance may already be issued by ROs.

The following documents are annexed for your convenience:

- **BWM.2/Circ.36:** International Convention for the control and management of ships' ballast water and sediments, 2004
- **BWM.2/Circ.34:** List of ballast water management systems that make use of active substances which received basic and final approval
- **Resolution A.868(20):** Guidance on Safety Aspects of Ballast Water Exchange at Sea

You are requested to ensure adequate dissemination of this information within your company DPA's and to the Masters of concerned Luxembourg flagged vessels.

COMMISSARIAT AUX AFFAIRES MARITIMES
G.-D. DE LUXEMBOURG

(s) Robert BIWER
Government Commissioner
for maritime affairs

INTERNATIONAL MARITIME ORGANIZATION

IMO

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INTERNATIONAL CONFERENCE ON BALLAST WATER MANAGEMENT FOR SHIPS
Agenda item 8

BWM/CONF/36
16 February 2004
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ADOPTION OF THE FINAL ACT AND ANY INSTRUMENTS, RECOMMENDATIONS AND RESOLUTIONS RESULTING FROM THE WORK OF THE CONFERENCE

INTERNATIONAL CONVENTION FOR THE CONTROL AND MANAGEMENT OF SHIPS' BALLAST WATER AND SEDIMENTS, 2004

Text adopted by the Conference

1 As a result of its deliberations, as recorded in the Record of Decisions of the Plenary (BWM/CONF/RD/2/Rev.1) and the Final Act of the Conference (BWM/CONF/37), the Conference adopted the International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004.

2 The above-mentioned Convention, as adopted by the Conference, is annexed hereto.

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ANNEX

INTERNATIONAL CONVENTION FOR THE CONTROL AND MANAGEMENT OF SHIPS' BALLAST WATER AND SEDIMENTS, 2004

THE PARTIES TO THIS CONVENTION,

RECALLING Article 196(1) of the 1982 United Nations Convention on the Law of the Sea (UNCLOS), which provides that "States shall take all measures necessary to prevent, reduce and control pollution of the marine environment resulting from the use of technologies under their jurisdiction or control, or the intentional or accidental introduction of species, alien or new, to a particular part of the marine environment, which may cause significant and harmful changes thereto,"

NOTING the objectives of the 1992 Convention on Biological Diversity (CBD) and that the transfer and introduction of Harmful Aquatic Organisms and Pathogens via ships' ballast water threatens the conservation and sustainable use of biological diversity as well as decision IV/5 of the 1998 Conference of the Parties (COP 4) to the CBD concerning the conservation and sustainable use of marine and coastal ecosystems, as well as decision VI/23 of the 2002 Conference of the Parties (COP 6) to the CBD on alien species that threaten ecosystems, habitats or species, including guiding principles on invasive species,

NOTING FURTHER that the 1992 United Nations Conference on Environment and Development (UNCED) requested the International Maritime Organization (the Organization) to consider the adoption of appropriate rules on ballast water discharge,

MINDFUL of the precautionary approach set out in Principle 15 of the Rio Declaration on Environment and Development and referred to in resolution MEPC.67(37), adopted by the Organization's Marine Environment Protection Committee on 15 September 1995,

ALSO MINDFUL that the 2002 World Summit on Sustainable Development, in paragraph 34(b) of its Plan of Implementation, calls for action at all levels to accelerate the development of measures to address invasive alien species in ballast water,

CONSCIOUS that the uncontrolled discharge of Ballast Water and Sediments from ships has led to the transfer of Harmful Aquatic Organisms and Pathogens, causing injury or damage to the environment, human health, property and resources,

RECOGNIZING the importance placed on this issue by the Organization through Assembly resolutions A.774(18) in 1993 and A.868(20) in 1997, adopted for the purpose of addressing the transfer of Harmful Aquatic Organisms and Pathogens,

RECOGNIZING FURTHER that several States have taken individual action with a view to prevent, minimize and ultimately eliminate the risks of introduction of Harmful Aquatic Organisms and Pathogens through ships entering their ports, and also that this issue, being of worldwide concern, demands action based on globally applicable regulations together with guidelines for their effective implementation and uniform interpretation,

DESIRING to continue the development of safer and more effective Ballast Water Management options that will result in continued prevention, minimization and ultimate elimination of the transfer of Harmful Aquatic Organisms and Pathogens,

RESOLVED to prevent, minimize and ultimately eliminate the risks to the environment, human health, property and resources arising from the transfer of Harmful Aquatic Organisms and Pathogens through the control and management of ships' Ballast Water and Sediments, as well as to avoid unwanted side-effects from that control and to encourage developments in related knowledge and technology,

CONSIDERING that these objectives may best be achieved by the conclusion of an International Convention for the Control and Management of Ships' Ballast Water and Sediments,

HAVE AGREED as follows:

Article 1 *Definitions*

For the purpose of this Convention, unless expressly provided otherwise:

1 "Administration" means the Government of the State under whose authority the ship is operating. With respect to a ship entitled to fly a flag of any State, the Administration is the Government of that State. With respect to floating platforms engaged in exploration and exploitation of the sea-bed and subsoil thereof adjacent to the coast over which the coastal State exercises sovereign rights for the purposes of exploration and exploitation of its natural resources, including Floating Storage Units (FSUs) and Floating Production Storage and Offloading Units (FPSOs), the Administration is the Government of the coastal State concerned.

2 "Ballast Water" means water with its suspended matter taken on board a ship to control trim, list, draught, stability or stresses of the ship.

3 "Ballast Water Management" means mechanical, physical, chemical, and biological processes, either singularly or in combination, to remove, render harmless, or avoid the uptake or discharge of Harmful Aquatic Organisms and Pathogens within Ballast Water and Sediments.

4 "Certificate" means the International Ballast Water Management Certificate.

5 "Committee" means the Marine Environment Protection Committee of the Organization.

6 "Convention" means the International Convention for the Control and Management of Ships' Ballast Water and Sediments.

7 "Gross tonnage" means the gross tonnage calculated in accordance with the tonnage measurement regulations contained in Annex I to the International Convention on Tonnage Measurement of Ships, 1969 or any successor Convention.

8 "Harmful Aquatic Organisms and Pathogens" means aquatic organisms or pathogens which, if introduced into the sea including estuaries, or into fresh water courses, may create hazards to the environment, human health, property or resources, impair biological diversity or interfere with other legitimate uses of such areas.

9 "Organization" means the International Maritime Organization.

10 "Secretary-General" means the Secretary-General of the Organization.

11 "Sediments" means matter settled out of Ballast Water within a ship.

12 "Ship" means a vessel of any type whatsoever operating in the aquatic environment and includes submersibles, floating craft, floating platforms, FSUs and FPSOs.

Article 2 *General Obligations*

1 Parties undertake to give full and complete effect to the provisions of this Convention and the Annex thereto in order to prevent, minimize and ultimately eliminate the transfer of Harmful Aquatic Organisms and Pathogens through the control and management of ships' Ballast Water and Sediments.

2 The Annex forms an integral part of this Convention. Unless expressly provided otherwise, a reference to this Convention constitutes at the same time a reference to the Annex.

3 Nothing in this Convention shall be interpreted as preventing a Party from taking, individually or jointly with other Parties, more stringent measures with respect to the prevention, reduction or elimination of the transfer of Harmful Aquatic Organisms and Pathogens through the control and management of ships' Ballast Water and Sediments, consistent with international law.

4 Parties shall endeavour to co-operate for the purpose of effective implementation, compliance and enforcement of this Convention.

5 Parties undertake to encourage the continued development of Ballast Water Management and standards to prevent, minimize and ultimately eliminate the transfer of Harmful Aquatic Organisms and Pathogens through the control and management of ships' Ballast Water and Sediments.

6 Parties taking action pursuant to this Convention shall endeavour not to impair or damage their environment, human health, property or resources, or those of other States.

7 Parties should ensure that Ballast Water Management practices used to comply with this Convention do not cause greater harm than they prevent to their environment, human health, property or resources, or those of other States.

8 Parties shall encourage ships entitled to fly their flag, and to which this Convention applies, to avoid, as far as practicable, the uptake of Ballast Water with potentially Harmful Aquatic Organisms and Pathogens, as well as Sediments that may contain such organisms, including promoting the adequate implementation of recommendations developed by the Organization.

9 Parties shall endeavour to co-operate under the auspices of the Organization to address threats and risks to sensitive, vulnerable or threatened marine ecosystems and biodiversity in areas beyond the limits of national jurisdiction in relation to Ballast Water Management.

Article 3 *Application*

1 Except as expressly provided otherwise in this Convention, this Convention shall apply to:

(a) ships entitled to fly the flag of a Party; and

(b) ships not entitled to fly the flag of a Party but which operate under the authority of a Party.

2 This Convention shall not apply to:

(a) ships not designed or constructed to carry Ballast Water;

(b) ships of a Party which only operate in waters under the jurisdiction of that Party, unless the Party determines that the discharge of Ballast Water from such ships would impair or damage their environment, human health, property or resources, or those of adjacent or other States;

(c) ships of a Party which only operate in waters under the jurisdiction of another Party, subject to the authorization of the latter Party for such exclusion. No Party shall grant such authorization if doing so would impair or damage their environment, human health, property or resources, or those of adjacent or other States. Any Party not granting such authorization shall notify the Administration of the ship concerned that this Convention applies to such ship;

(d) ships which only operate in waters under the jurisdiction of one Party and on the high seas, except for ships not granted an authorization pursuant to sub-paragraph (c), unless such Party determines that the discharge of Ballast Water from such ships would impair or damage their environment, human health, property or resources, or those of adjacent of other States;

(e) any warship, naval auxiliary or other ship owned or operated by a State and used, for the time being, only on government non-commercial service. However, each Party shall ensure, by the adoption of appropriate measures not impairing operations or operational capabilities of such ships owned or operated by it, that such ships act in a manner consistent, so far as is reasonable and practicable, with this Convention; and

(f) permanent Ballast Water in sealed tanks on ships, that is not subject to discharge.

3 With respect to ships of non-Parties to this Convention, Parties shall apply the requirements of this Convention as may be necessary to ensure that no more favourable treatment is given to such ships.

Article 4 *Control of the Transfer of Harmful Aquatic Organisms and Pathogens Through Ships' Ballast Water and Sediments*

1 Each Party shall require that ships to which this Convention applies and which are entitled to fly its flag or operating under its authority comply with the requirements set forth in this Convention, including the applicable standards and requirements in the Annex, and shall take effective measures to ensure that those ships comply with those requirements.

2 Each Party shall, with due regard to its particular conditions and capabilities, develop national policies, strategies or programmes for Ballast Water Management in its ports and waters under its jurisdiction that accord with, and promote the attainment of the objectives of this Convention.

Article 5 *Sediment Reception Facilities*

1 Each Party undertakes to ensure that, in ports and terminals designated by that Party where cleaning or repair of ballast tanks occurs, adequate facilities are provided for the reception of Sediments, taking into account the Guidelines developed by the Organization. Such reception facilities shall operate without causing undue delay to ships and shall provide for the safe disposal of such Sediments that does not impair or damage their environment, human health, property or resources or those of other States.

2 Each Party shall notify the Organization for transmission to the other Parties concerned of all cases where the facilities provided under paragraph 1 are alleged to be inadequate.

Article 6 *Scientific and Technical Research and Monitoring*

1 Parties shall endeavour, individually or jointly, to:

(a) promote and facilitate scientific and technical research on Ballast Water Management; and

(b) monitor the effects of Ballast Water Management in waters under their jurisdiction.

Such research and monitoring should include observation, measurement, sampling, evaluation and analysis of the effectiveness and adverse impacts of any technology or methodology as well as any adverse impacts caused by such organisms and pathogens that have been identified to have been transferred through ships' Ballast Water.

2 Each Party shall, to further the objectives of this Convention, promote the availability of relevant information to other Parties who request it on:

(a) scientific and technology programmes and technical measures undertaken with respect to Ballast Water Management; and

(b) the effectiveness of Ballast Water Management deduced from any monitoring and assessment programmes.

Article 7 *Survey and certification*

1 Each Party shall ensure that ships flying its flag or operating under its authority and subject to survey and certification are so surveyed and certified in accordance with the regulations in the Annex.

2 A Party implementing measures pursuant to Article 2.3 and Section C of the Annex shall not require additional survey and certification of a ship of another Party, nor shall the Administration of the ship be obligated to survey and certify additional measures imposed by another Party. Verification of such additional measures shall be the responsibility of the Party implementing such measures and shall not cause undue delay to the ship.

Article 8 *Violations*

1 Any violation of the requirements of this Convention shall be prohibited and sanctions shall be established under the law of the Administration of the ship concerned, wherever the violation occurs. If the Administration is informed of such a violation, it shall investigate the matter and may request the reporting Party to furnish additional evidence of the alleged violation. If the Administration is satisfied that sufficient evidence is available to enable proceedings to be brought in respect of the alleged violation, it shall cause such proceedings to be taken as soon as possible, in accordance with its law. The Administration shall promptly inform the Party that reported the alleged violation, as well as the Organization, of any action taken. If the Administration has not taken any action within 1 year after receiving the information, it shall so inform the Party which reported the alleged violation.

2 Any violation of the requirements of this Convention within the jurisdiction of any Party shall be prohibited and sanctions shall be established under the law of that Party. Whenever such a violation occurs, that Party shall either:

(a) cause proceedings to be taken in accordance with its law; or

(b) furnish to the Administration of the ship such information and evidence as may be in its possession that a violation has occurred.

3 The sanctions provided for by the laws of a Party pursuant to this Article shall be adequate in severity to discourage violations of this Convention wherever they occur.

Article 9 *Inspection of Ships*

1 A ship to which this Convention applies may, in any port or offshore terminal of another Party, be subject to inspection by officers duly authorized by that Party for the purpose of determining whether the ship is in compliance with this Convention. Except as provided in paragraph 2 of this Article, any such inspection is limited to:

(a) verifying that there is onboard a valid Certificate, which, if valid shall be accepted; and

(b) inspection of the Ballast Water record book, and/or

(c) a sampling of the ship's Ballast Water, carried out in accordance with the guidelines to be developed by the Organization. However, the time required to analyse the samples shall not be used as a basis for unduly delaying the operation, movement or departure of the ship.

2 Where a ship does not carry a valid Certificate or there are clear grounds for believing that:

(a) the condition of the ship or its equipment does not correspond substantially with the particulars of the Certificate; or

(b) the master or the crew are not familiar with essential shipboard procedures relating to Ballast Water Management, or have not implemented such procedures;

a detailed inspection may be carried out.

3 In the circumstances given in paragraph 2 of this Article, the Party carrying out the inspection shall take such steps as will ensure that the ship shall not discharge Ballast Water until it can do so without presenting a threat of harm to the environment, human health, property or resources.

Article 10 *Detection of Violations and Control of Ships*

1 Parties shall co-operate in the detection of violations and the enforcement of the provisions of this Convention.

2 If a ship is detected to have violated this Convention, the Party whose flag the ship is entitled to fly, and/or the Party in whose port or offshore terminal the ship is operating, may, in addition to any sanctions described in Article 8 or any action described in Article 9, take steps to warn, detain, or exclude the ship. The Party in whose port or offshore terminal the ship is operating, however, may grant such a ship permission to leave the port or offshore terminal for the purpose of discharging Ballast Water or proceeding to the nearest appropriate repair yard or reception facility available, provided doing so does not present a threat of harm to the environment, human health, property or resources.

3 If the sampling described in Article 9.1(c) leads to a result, or supports information received from another port or offshore terminal, indicating that the ship poses a threat to the environment, human health, property or resources, the Party in whose waters the ship is operating shall prohibit such ship from discharging Ballast Water until the threat is removed.

4 A Party may also inspect a ship when it enters the ports or offshore terminals under its jurisdiction, if a request for an investigation is received from any Party, together with sufficient evidence that a ship is operating or has operated in violation of a provision in this Convention. The report of such investigation shall be sent to the Party requesting it and to the competent authority of the Administration of the ship concerned so that appropriate action may be taken.

Article 11 *Notification of Control Actions*

1 If an inspection conducted pursuant to Article 9 or 10 indicates a violation of this Convention, the ship shall be notified. A report shall be forwarded to the Administration, including any evidence of the violation.

2 In the event that any action is taken pursuant to Article 9.3, 10.2 or 10.3, the officer carrying out such action shall forthwith inform, in writing, the Administration of the ship concerned, or if this is not possible, the consul or diplomatic representative of the ship concerned, of all the circumstances in which the action was deemed necessary. In addition, the recognized organization responsible for the issue of certificates shall be notified.

3 The port State authority concerned shall, in addition to parties mentioned in paragraph 2, notify the next port of call of all relevant information about the violation, if it is unable to take action as specified in Article 9.3, 10.2 or 10.3 or if the ship has been allowed to proceed to the next port of call.

Article 12 *Undue Delay to Ships*

1 All possible efforts shall be made to avoid a ship being unduly detained or delayed under Article 7.2, 8, 9 or 10.

2 When a ship is unduly detained or delayed under Article 7.2, 8, 9 or 10, it shall be entitled to compensation for any loss or damage suffered.

Article 13 *Technical Assistance, Co-operation and Regional Co-operation*

1 Parties undertake, directly or through the Organization and other international bodies, as appropriate, in respect of the control and management of ships' Ballast Water and Sediments, to provide support for those Parties which request technical assistance:

(a) to train personnel;

(b) to ensure the availability of relevant technology, equipment and facilities;

(c) to initiate joint research and development programmes; and

(d) to undertake other action aimed at the effective implementation of this Convention and of guidance developed by the Organization related thereto.

2 Parties undertake to co-operate actively, subject to their national laws, regulations and policies, in the transfer of technology in respect of the control and management of ships' Ballast Water and Sediments.

3 In order to further the objectives of this Convention, Parties with common interests to protect the environment, human health, property and resources in a given geographical area, in particular, those Parties bordering enclosed and semi-enclosed seas, shall endeavour, taking into account characteristic regional features, to enhance regional co-operation, including through the conclusion of regional agreements consistent with this Convention. Parties shall seek to co-operate with the Parties to regional agreements to develop harmonized procedures.

Article 14 *Communication of information*

1 Each Party shall report to the Organization and, where appropriate, make available to other Parties the following information:

(a) any requirements and procedures relating to Ballast Water Management, including its laws, regulations, and guidelines for implementation of this Convention;

(b) the availability and location of any reception facilities for the environmentally safe disposal of Ballast Water and Sediments; and

(c) any requirements for information from a ship which is unable to comply with the provisions of this Convention for reasons specified in regulations A-3 and B-4 of the Annex.

2 The Organization shall notify Parties of the receipt of any communications under the present Article and circulate to all Parties any information communicated to it under subparagraphs 1(b) and (c) of this Article.

Article 15 *Dispute Settlement*

Parties shall settle any dispute between them concerning the interpretation or application of this Convention by negotiation, enquiry, mediation, conciliation, arbitration, judicial settlement, resort to regional agencies or arrangements or other peaceful means of their own choice.

Article 16 *Relationship to International Law and Other Agreements*

Nothing in this Convention shall prejudice the rights and obligations of any State under customary international law as reflected in the United Nations Convention on the Law of the Sea.

Article 17 *Signature, Ratification, Acceptance, Approval and Accession*

1 This Convention shall be open for signature by any State at the Headquarters of the Organization from 1 June 2004 to 31 May 2005 and shall thereafter remain open for accession by any State.

2 States may become Parties to the Convention by:

(a) signature not subject to ratification, acceptance, or approval; or

(b) signature subject to ratification, acceptance, or approval, followed by ratification, acceptance or approval; or

(c) accession.

3 Ratification, acceptance, approval or accession shall be effected by the deposit of an instrument to that effect with the Secretary-General.

4 If a State comprises two or more territorial units in which different systems of law are applicable in relation to matters dealt with in this Convention, it may at the time of signature, ratification, acceptance, approval, or accession declare that this Convention shall extend to all its territorial units or only to one or more of them and may modify this declaration by submitting another declaration at any time.

5 Any such declaration shall be notified to the Depositary in writing and shall state expressly the territorial unit or units to which this Convention applies.

Article 18 *Entry into Force*

1 This Convention shall enter into force twelve months after the date on which not less than thirty States, the combined merchant fleets of which constitute not less than thirty-five percent of the gross tonnage of the world's merchant shipping, have either signed it without reservation as to ratification, acceptance or approval, or have deposited the requisite instrument of ratification, acceptance, approval or accession in accordance with Article 17.

2 For States which have deposited an instrument of ratification, acceptance, approval or accession in respect of this Convention after the requirements for entry into force thereof have been met, but prior to the date of entry in force, the ratification, acceptance, approval or accession shall take effect on the date of entry into force of this Convention or three months after the date of deposit of instrument, whichever is the later date.

3 Any instrument of ratification, acceptance, approval or accession deposited after the date on which this Convention enters into force shall take effect three months after the date of deposit.

4 After the date on which an amendment to this Convention is deemed to have been accepted under Article 19, any instrument of ratification, acceptance, approval or accession deposited shall apply to this Convention as amended.

Article 19 *Amendments*

1 This Convention may be amended by either of the procedures specified in the following paragraphs.

2 Amendments after consideration within the Organization:

(a) Any Party may propose an amendment to this Convention. A proposed amendment shall be submitted to the Secretary-General, who shall then circulate it to the Parties and Members of the Organization at least six months prior to its consideration.

(b) An amendment proposed and circulated as above shall be referred to the Committee for consideration. Parties, whether or not Members of the Organization, shall be entitled to participate in the proceedings of the Committee for consideration and adoption of the amendment.

(c) Amendments shall be adopted by a two-thirds majority of the Parties present and voting in the Committee, on condition that at least one-third of the Parties shall be present at the time of voting.

(d) Amendments adopted in accordance with subparagraph (c) shall be communicated by the Secretary-General to the Parties for acceptance.

(e) An amendment shall be deemed to have been accepted in the following circumstances:

(i) An amendment to an article of this Convention shall be deemed to have been accepted on the date on which two-thirds of the Parties have notified the Secretary-General of their acceptance of it.

(ii) An amendment to the Annex shall be deemed to have been accepted at the end of twelve months after the date of adoption or such other date as determined by the Committee. However, if by that date more than one-third of the Parties notify the Secretary-General that they object to the amendment, it shall be deemed not to have been accepted.

(f) An amendment shall enter into force under the following conditions:

(i) An amendment to an article of this Convention shall enter into force for those Parties that have declared that they have accepted it six months after the date on which it is deemed to have been accepted in accordance with subparagraph (e)(i).

(ii) An amendment to the Annex shall enter into force with respect to all Parties six months after the date on which it is deemed to have been accepted, except for any Party that has:

(1) notified its objection to the amendment in accordance with subparagraph (e)(ii) and that has not withdrawn such objection; or

(2) notified the Secretary-General, prior to the entry into force of such amendment, that the amendment shall enter into force for it only after a subsequent notification of its acceptance.

(g) (i) A Party that has notified an objection under subparagraph (f)(ii)(1) may subsequently notify the Secretary-General that it accepts the amendment. Such amendment shall enter into force for such Party six months after the date of its notification of acceptance, or the date on which the amendment enters into force, whichever is the later date.

(ii) If a Party that has made a notification referred to in subparagraph (f)(ii)(2) notifies the Secretary-General of its acceptance with respect to an amendment, such amendment shall enter into force for such Party six months after the date of its notification of acceptance, or the date on which the amendment enters into force, whichever is the later date.

3 Amendment by a Conference:

(a) Upon the request of a Party concurred in by at least one-third of the Parties, the Organization shall convene a Conference of Parties to consider amendments to this Convention.

(b) An amendment adopted by such a Conference by a two-thirds majority of the Parties present and voting shall be communicated by the Secretary-General to all Parties for acceptance.

(c) Unless the Conference decides otherwise, the amendment shall be deemed to have been accepted and shall enter into force in accordance with the procedures specified in paragraphs 2(e) and (f) respectively.

4 Any Party that has declined to accept an amendment to the Annex shall be treated as a non-Party only for the purpose of application of that amendment.

5 Any notification under this Article shall be made in writing to the Secretary-General.

6 The Secretary-General shall inform the Parties and Members of the Organization of:

(a) any amendment that enters into force and the date of its entry into force generally and for each Party; and

(b) any notification made under this Article.

Article 20 *Denunciation*

1 This Convention may be denounced by any Party at any time after the expiry of two years from the date on which this Convention enters into force for that Party.

2 Denunciation shall be effected by written notification to the Depositary, to take effect one year after receipt or such longer period as may be specified in that notification.

Article 21 *Depositary*

1 This Convention shall be deposited with the Secretary-General, who shall transmit certified copies of this Convention to all States which have signed this Convention or acceded thereto.

2 In addition to the functions specified elsewhere in this Convention, the Secretary-General shall:

(a) inform all States that have signed this Convention, or acceded thereto, of:

(i) each new signature or deposit of an instrument of ratification, acceptance, approval or accession, together with the date thereof;

(ii) the date of entry into force of this Convention; and

(iii) the deposit of any instrument of denunciation from the Convention, together with the date on which it was received and the date on which the denunciation takes effect; and

(b) as soon as this Convention enters into force, transmit the text thereof to the Secretariat of the United Nations for registration and publication in accordance with Article 102 of the Charter of the United Nations.

Article 22 *Languages*

This Convention is established in a single original in the Arabic, Chinese, English, French, Russian and Spanish languages, each text being equally authentic.

DONE AT LONDON this thirteenth day of February, two thousand and four.

IN WITNESS WHEREOF the undersigned, being duly authorised by their respective Governments for that purpose, have signed this Convention.

ANNEX

REGULATIONS FOR THE CONTROL AND MANAGEMENT OF SHIPS' BALLAST WATER AND SEDIMENTS

SECTION A - GENERAL PROVISIONS

Regulation A-1 *Definitions*

For the purposes of this Annex:

1 "Anniversary date" means the day and the month of each year corresponding to the date of expiry of the Certificate.

2 "Ballast Water Capacity" means the total volumetric capacity of any tanks, spaces or compartments on a ship used for carrying, loading or discharging Ballast Water, including any multi-use tank, space or compartment designed to allow carriage of Ballast Water.

3 "Company" means the owner of the ship or any other organization or person such as the manager, or the bareboat charterer, who has assumed the responsibility for operation of the ship from the owner of the ship and who on assuming such responsibility has agreed to take over all the duties and responsibilities imposed by the International Safety Management Code[1].

4 "Constructed" in respect of a ship means a stage of construction where:

.1 the keel is laid; or

.2 construction identifiable with the specific ship begins;

.3 assembly of the ship has commenced comprising at least 50 tonnes or 1 percent of the estimated mass of all structural material, whichever is less; or

.4 the ship undergoes a major conversion.

5 "Major conversion" means a conversion of a ship:

.1 which changes its ballast water carrying capacity by 15 percent or greater, or

.2 which changes the ship type, or

.3 which, in the opinion of the Administration, is projected to prolong its life by ten years or more, or

.4 which results in modifications to its ballast water system other than component replacement-in-kind. Conversion of a ship to meet the provisions of regulation D-1 shall not be deemed to constitute a major conversion for the purpose of this Annex.

[1] Refer to the ISM Code adopted by the Organization by resolution A.741(18), as amended.

6 "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 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.

7 "Active Substance" 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.

Regulation A-2 *General Applicability*

Except where expressly provided otherwise, the discharge of Ballast Water shall only be conducted through Ballast Water Management in accordance with the provisions of this Annex.

Regulation A-3 *Exceptions*

The requirements of regulation B-3, or any measures adopted by a Party pursuant to Article 2.3 and Section C, shall not apply to:

1 the uptake or discharge of Ballast Water and Sediments necessary for the purpose of ensuring the safety of a ship in emergency situations or saving life at sea; or

2 the accidental discharge or ingress of Ballast Water and Sediments resulting from damage to a ship or its equipment:

.1 provided that all reasonable precautions have been taken before and after the occurrence of the damage or discovery of the damage or discharge for the purpose of preventing or minimizing the discharge; and

.2 unless the owner, Company or officer in charge wilfully or recklessly caused damage; or

3 the uptake and discharge of Ballast Water and Sediments when being used for the purpose of avoiding or minimizing pollution incidents from the ship; or

4 the uptake and subsequent discharge on the high seas of the same Ballast Water and Sediments; or

5 the discharge of Ballast Water and Sediments from a ship at the same location where the whole of that Ballast Water and those Sediments originated and provided that no mixing with unmanaged Ballast Water and Sediments from other areas has occurred. If mixing has occurred, the Ballast Water taken from other areas is subject to Ballast Water Management in accordance with this Annex.

Regulation A-4 *Exemptions*

1 A Party or Parties, in waters under their jurisdiction, may grant exemptions to any requirements to apply regulations B-3 or C-1, in addition to those exemptions contained elsewhere in this Convention, but only when they are:

.1 granted to a ship or ships on a voyage or voyages between specified ports or locations; or to a ship which operates exclusively between specified ports or locations;

.2 effective for a period of no more than five years subject to intermediate review;

.3 granted to ships that do not mix Ballast Water or Sediments other than between the ports or locations specified in paragraph 1.1; and

.4 granted based on the Guidelines on risk assessment developed by the Organization.

2 Exemptions granted pursuant to paragraph 1 shall not be effective until after communication to the Organization and circulation of relevant information to the Parties.

3 Any exemptions granted under this regulation shall not impair or damage the environment, human health, property or resources of adjacent or other States. Any State that the Party determines may be adversely affected shall be consulted, with a view to resolving any identified concerns.

4 Any exemptions granted under this regulation shall be recorded in the Ballast Water record book.

Regulation A-5 *Equivalent compliance*

Equivalent compliance with this Annex for pleasure craft used solely for recreation or competition or craft used primarily for search and rescue, less than 50 metres in length overall, and with a maximum Ballast Water capacity of 8 cubic metres, shall be determined by the Administration taking into account Guidelines developed by the Organization.

SECTION B – MANAGEMENT AND CONTROL REQUIREMENTS FOR SHIPS

Regulation B-1 *Ballast Water Management Plan*

Each ship shall have on board and implement a Ballast Water Management plan. Such a plan shall be approved by the Administration taking into account Guidelines developed by the Organization. The Ballast Water Management plan shall be specific to each ship and shall at least:

1 detail safety procedures for the ship and the crew associated with Ballast Water Management as required by this Convention;

2 provide a detailed description of the actions to be taken to implement the Ballast Water Management requirements and supplemental Ballast Water Management practices as set forth in this Convention;

3 detail the procedures for the disposal of Sediments:

.1 at sea; and

.2 to shore;

4 include the procedures for coordinating shipboard Ballast Water Management that involves discharge to the sea with the authorities of the State into whose waters such discharge will take place;

5 designate the officer on board in charge of ensuring that the plan is properly implemented;

6 contain the reporting requirements for ships provided for under this Convention; and

7 be written in the working language of the ship. If the language used is not English, French or Spanish, a translation into one of these languages shall be included.

Regulation B-2 *Ballast Water Record Book*

1 Each ship shall have on board a Ballast Water record book that may be an electronic record system, or that may be integrated into another record book or system and, which shall at least contain the information specified in Appendix II.

2 Ballast Water record book entries shall be maintained on board the ship for a minimum period of two years after the last entry has been made and thereafter in the Company's control for a minimum period of three years.

3 In the event of the discharge of Ballast Water pursuant to regulations A-3, A-4 or B-3.6 or in the event of other accidental or exceptional discharge of Ballast Water not otherwise exempted by this Convention, an entry shall be made in the Ballast Water record book describing the circumstances of, and the reason for, the discharge.

4 The Ballast Water record book shall be kept readily available for inspection at all reasonable times and, in the case of an unmanned ship under tow, may be kept on the towing ship.

5 Each operation concerning Ballast Water shall be fully recorded without delay in the Ballast Water record book. Each entry shall be signed by the officer in charge of the operation concerned and each completed page shall be signed by the master. The entries in the Ballast Water record book shall be in a working language of the ship. If that language is not English, French or Spanish the entries shall contain a translation into one of those languages. When entries in an official national language of the State whose flag the ship is entitled to fly are also used, these shall prevail in case of a dispute or discrepancy.

6 Officers duly authorized by a Party may inspect the Ballast Water record book on board any ship to which this regulation applies while the ship is in its port or offshore terminal, and may make a copy of any entry, and require the master to certify that the copy is a true copy. Any copy so certified shall be admissible in any judicial proceeding as evidence of the facts stated in the entry. The inspection of a Ballast Water record book and the taking of a certified copy shall be performed as expeditiously as possible without causing the ship to be unduly delayed.

Regulation B-3 *Ballast Water Management for Ships*

1 A ship constructed before 2009:

.1 with a Ballast Water Capacity of between 1,500 and 5,000 cubic metres, inclusive, shall conduct Ballast Water Management that at least meets the standard described in regulation D-1 or regulation D-2 until 2014, after which time it shall at least meet the standard described in regulation D-2;

.2 with a Ballast Water Capacity of less than 1,500 or greater than 5,000 cubic metres shall conduct Ballast Water Management that at least meets the standard described in regulation D-1 or regulation D-2 until 2016, after which time it shall at least meet the standard described in regulation D-2.

2 A ship to which paragraph 1 applies shall comply with paragraph 1 not later than the first intermediate or renewal survey, whichever occurs first, after the anniversary date of delivery of the ship in the year of compliance with the standard applicable to the ship.

3 A ship constructed in or after 2009 with a Ballast Water Capacity of less than 5,000 cubic metres shall conduct Ballast Water Management that at least meets the standard described in regulation D-2.

4 A ship constructed in or after 2009, but before 2012, with a Ballast Water Capacity of 5,000 cubic metres or more shall conduct Ballast Water Management in accordance with paragraph 1.2.

5 A ship constructed in or after 2012 with a Ballast Water Capacity of 5000 cubic metres or more shall conduct Ballast Water Management that at least meets the standard described in regulation D-2.

6 The requirements of this regulation do not apply to ships that discharge Ballast Water to a reception facility designed taking into account the Guidelines developed by the Organization for such facilities.

7 Other methods of Ballast Water Management may also be accepted as alternatives to the requirements described in paragraphs 1 to 5, provided that such methods ensure at least the same level of protection to the environment, human health, property or resources, and are approved in principle by the Committee.

Regulation B-4 *Ballast Water Exchange*

1 A ship conducting Ballast Water exchange to meet the standard in regulation D-1 shall:

.1 whenever possible, conduct such Ballast Water exchange at least 200 nautical miles from the nearest land and in water at least 200 metres in depth, taking into account the Guidelines developed by the Organization;

.2 in cases where the ship is unable to conduct Ballast Water exchange in accordance with paragraph 1.1, such Ballast Water exchange shall be conducted taking into account the Guidelines described in paragraph 1.1 and as far from the nearest land as possible, and in all cases at least 50 nautical miles from the nearest land and in water at least 200 metres in depth.

2 In sea areas where the distance from the nearest land or the depth does not meet the parameters described in paragraph 1.1 or 1.2, the port State may designate areas, in consultation with adjacent or other States, as appropriate, where a ship may conduct Ballast Water exchange, taking into account the Guidelines described in paragraph 1.1.

3 A ship shall not be required to deviate from its intended voyage, or delay the voyage, in order to comply with any particular requirement of paragraph 1.

4 A ship conducting Ballast Water exchange shall not be required to comply with paragraphs 1 or 2, as appropriate, if the master reasonably decides that such exchange would threaten the safety or stability of the ship, its crew, or its passengers because of adverse weather, ship design or stress, equipment failure, or any other extraordinary condition.

5 When a ship is required to conduct Ballast Water exchange and does not do so in accordance with this regulation, the reasons shall be entered in the Ballast Water record book.

Regulation B-5 *Sediment Management for Ships*

1 All ships shall remove and dispose of Sediments from spaces designated to carry Ballast Water in accordance with the provisions of the ship's Ballast Water Management plan.

2 Ships described in regulation B-3.3 to B-3.5 should, without compromising safety or operational efficiency, be designed and constructed with a view to minimize the uptake and undesirable entrapment of Sediments, facilitate removal of Sediments, and provide safe access to allow for Sediment removal and sampling, taking into account guidelines developed by the Organization. Ships described in regulation B-3.1 should, to the extent practicable, comply with this paragraph.

Regulation B-6 *Duties of Officers and Crew*

Officers and crew shall be familiar with their duties in the implementation of Ballast Water Management particular to the ship on which they serve and shall, appropriate to their duties, be familiar with the ship's Ballast Water Management plan.

SECTION C – SPECIAL REQUIREMENTS IN CERTAIN AREAS

Regulation C-1 *Additional Measures*

1 If a Party, individually or jointly with other Parties, determines that measures in addition to those in Section B are necessary to prevent, reduce, or eliminate the transfer of Harmful Aquatic Organisms and Pathogens through ships' Ballast Water and Sediments, such Party or Parties may, consistent with international law, require ships to meet a specified standard or requirement.

2 Prior to establishing standards or requirements under paragraph 1, a Party or Parties should consult with adjacent or other States that may be affected by such standards or requirements.

3 A Party or Parties intending to introduce additional measures in accordance with paragraph 1 shall:

.1 take into account the Guidelines developed by the Organization.

.2 communicate their intention to establish additional measure(s) to the Organization at least 6 months, except in emergency or epidemic situations, prior to the projected date of implementation of the measure(s). Such communication shall include:

.1 the precise co-ordinates where additional measure(s) is/are applicable;

.2 the need and reasoning for the application of the additional measure(s), including, whenever possible, benefits;

.3 a description of the additional measure(s); and

.4 any arrangements that may be provided to facilitate ships' compliance with the additional measure(s).

. 3 to the extent required by customary international law as reflected in the United Nations Convention on the Law of the Sea, as appropriate, obtain the approval of the Organization.

4 A Party or Parties, in introducing such additional measures, shall endeavour to make available all appropriate services, which may include but are not limited to notification to mariners of areas, available and alternative routes or ports, as far as practicable, in order to ease the burden on the ship.

5 Any additional measures adopted by a Party or Parties shall not compromise the safety and security of the ship and in any circumstances not conflict with any other convention with which the ship must comply.

6 A Party or Parties introducing additional measures may waive these measures for a period of time or in specific circumstances as they deem fit.

Regulation C-2 *Warnings Concerning Ballast Water Uptake in Certain Areas and Related Flag State Measures*

1 A Party shall endeavour to notify mariners of areas under their jurisdiction where ships should not uptake Ballast Water due to known conditions. The Party shall include in such notices the precise coordinates of the area or areas, and, where possible, the location of any alternative area or areas for the uptake of Ballast Water. Warnings may be issued for areas:

.1 known to contain outbreaks, infestations, or populations of Harmful Aquatic Organisms and Pathogens (e.g., toxic algal blooms) which are likely to be of relevance to Ballast Water uptake or discharge;

.2 near sewage outfalls; or

.3 where tidal flushing is poor or times during which a tidal stream is known to be more turbid.

2 In addition to notifying mariners of areas in accordance with the provisions of paragraph 1, a Party shall notify the Organization and any potentially affected coastal States of any areas identified in paragraph 1 and the time period such warning is likely to be in effect. The notice to the Organization and any potentially affected coastal States shall include the precise coordinates of the area or areas, and, where possible, the location of any alternative area or areas for the uptake of Ballast Water. The notice shall include advice to ships needing to uptake Ballast Water in the area, describing arrangements made for alternative supplies. The Party shall also notify mariners, the Organization, and any potentially affected coastal States when a given warning is no longer applicable.

Regulation C-3 *Communication of Information*

The Organization shall make available, through any appropriate means, information communicated to it under regulations C-1 and C-2.

SECTION D - STANDARDS FOR BALLAST WATER MANAGEMENT

Regulation D-1 *Ballast Water Exchange Standard*

1 Ships performing Ballast Water exchange in accordance with this regulation shall do so with an efficiency of at least 95 percent volumetric exchange of Ballast Water.

2 For ships exchanging Ballast Water by the pumping-through method, pumping through three times the volume of each Ballast Water tank shall be considered to meet the standard described in paragraph 1. Pumping through less than three times the volume may be accepted provided the ship can demonstrate that at least 95 percent volumetric exchange is met.

Regulation D-2 *Ballast Water Performance Standard*

1 Ships conducting Ballast Water Management in accordance with this regulation shall discharge less than 10 viable organisms per cubic metre greater than or equal to 50 micrometres in minimum dimension and less than 10 viable organisms per millilitre less than 50 micrometres in minimum dimension and greater than or equal to 10 micrometres in minimum dimension; and discharge of the indicator microbes shall not exceed the specified concentrations described in paragraph 2.

2 Indicator microbes, as a human health standard, shall include:

.1 Toxicogenic *Vibrio cholerae* (O1 and O139) with less than 1 colony forming unit (cfu) per 100 millilitres or less than 1 cfu per 1 gram (wet weight) zooplankton samples ;

.2 *Escherichia coli* less than 250 cfu per 100 millilitres;

.3 Intestinal Enterococci less than 100 cfu per 100 milliliters.

Regulation D-3 *Approval requirements for Ballast Water Management systems*

1 Except as specified in paragraph 2, Ballast Water Management systems used to comply with this Convention must be approved by the Administration taking into account Guidelines developed by the Organization.

2 Ballast Water Management systems which make use of Active Substances or preparations containing one or more Active Substances to comply with this Convention shall be approved by the Organization, based on a procedure developed by the Organization. This procedure shall describe the approval and withdrawal of approval of Active Substances and their proposed manner of application. At withdrawal of approval, the use of the relevant Active Substance or Substances shall be prohibited within 1 year after the date of such withdrawal.

3 Ballast Water Management systems used to comply with this Convention must be safe in terms of the ship, its equipment and the crew.

Regulation D-4 Prototype Ballast Water Treatment Technologies

1 For any ship that, prior to the date that the standard in regulation D-2 would otherwise become effective for it, participates in a programme approved by the Administration to test and evaluate promising Ballast Water treatment technologies, the standard in regulation D-2 shall not apply to that ship until five years from the date on which the ship would otherwise be required to comply with such standard.

2 For any ship that, after the date on which the standard in regulation D-2 has become effective for it, participates in a programme approved by the Administration, taking into account Guidelines developed by the Organization, to test and evaluate promising Ballast Water technologies with the potential to result in treatment technologies achieving a standard higher than that in regulation D-2, the standard in regulation D-2 shall cease to apply to that ship for five years from the date of installation of such technology.

3 In establishing and carrying out any programme to test and evaluate promising Ballast Water technologies, Parties shall:

.1 take into account Guidelines developed by the Organization, and

.2 allow participation only by the minimum number of ships necessary to effectively test such technologies.

4 Throughout the test and evaluation period, the treatment system must be operated consistently and as designed.

Regulation D-5 *Review of Standards by the Organization*

1 At a meeting of the Committee held no later than three years before the earliest effective date of the standard set forth in regulation D-2, the Committee shall undertake a review which includes a determination of whether appropriate technologies are available to achieve the standard, an assessment of the criteria in paragraph 2, and an assessment of the socio-economic effect(s) specifically in relation to the developmental needs of developing countries, particularly small island developing States. The Committee shall also undertake periodic reviews, as appropriate, to examine the applicable requirements for ships described in regulation B-3.1 as well as any other aspect of Ballast Water Management addressed in this Annex, including any Guidelines developed by the Organization.

2 Such reviews of appropriate technologies shall also take into account:

.1 safety considerations relating to the ship and the crew;

.2 environmental acceptability, i.e., not causing more or greater environmental impacts than they solve;

.3 practicability, i.e., compatibility with ship design and operations;

.4 cost effectiveness, i.e., economics; and

.5 biological effectiveness in terms of removing, or otherwise rendering not viable, Harmful Aquatic Organisms and Pathogens in Ballast Water.

3 The Committee may form a group or groups to conduct the review(s) described in paragraph 1. The Committee shall determine the composition, terms of reference and specific issues to be addressed by any such group formed. Such groups may develop and recommend proposals for amendment of this Annex for consideration by the Parties. Only Parties may participate in the formulation of recommendations and amendment decisions taken by the Committee.

4 If, based on the reviews described in this regulation, the Parties decide to adopt amendments to this Annex, such amendments shall be adopted and enter into force in accordance with the procedures contained in Article 19 of this Convention.

SECTION E - SURVEY AND CERTIFICATION REQUIREMENTS FOR BALLAST WATER MANAGEMENT

Regulation E-1 *Surveys*

1 Ships of 400 gross tonnage and above to which this Convention applies, excluding floating platforms, FSUs and FPSOs, shall be subject to surveys specified below:

.1 An initial survey before the ship is put in service or before the Certificate required under regulation E-2 or E-3 is issued for the first time. This survey shall verify that the Ballast Water Management plan required by regulation B-1 and any associated structure, equipment, systems, fitting, arrangements and material or processes comply fully with the requirements of this Convention.

.2 A renewal survey at intervals specified by the Administration, but not exceeding five years, except where regulation E-5.2, E-5.5, E-5.6, or E-5.7 is applicable. This survey shall verify that the Ballast Water Management plan required by regulation B-1 and any associated structure, equipment, systems, fitting, arrangements and material or processes comply fully with the applicable requirements of this Convention.

.3 An intermediate survey within three months before or after the second Anniversary date or within three 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. The intermediate surveys shall ensure that the equipment, associated systems and processes for Ballast Water Management 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 E-2 or E-3.

.4 An annual survey within three months before or after each Anniversary date, including a general inspection of the structure, any equipment, systems, fittings, arrangements and material or processes associated with the Ballast Water Management plan required by regulation B-1 to ensure that they have been maintained in accordance with paragraph 9 and remain satisfactory for the service

for which the ship is intended. Such annual surveys shall be endorsed on the Certificate issued under regulation E-2 or E-3.

.5 An additional survey either general or partial, according to the circumstances, shall be made after a change, replacement, or significant repair of the structure, equipment, systems, fittings, arrangements and material necessary to achieve full compliance with this Convention. The survey shall be such as to ensure that any such change, replacement, or significant repair has been effectively made, so that the ship complies with the requirements of this Convention. Such surveys shall be endorsed on the Certificate issued under regulation E-2 or E-3.

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

3 Surveys of ships for the purpose of enforcement of the provisions of this Convention 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.

4 An Administration nominating surveyors or recognizing organizations to conduct surveys, as described in paragraph 3 shall, as a minimum, empower such nominated surveyors or recognized organizations[2] to:

.1 require a ship that they survey to comply with the provisions of this Convention; and

.2 carry out surveys and inspections if requested by the appropriate authorities of a port State that is a Party.

5 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 for the information of their officers.

6 When the Administration, a nominated surveyor, or a recognized organization determines that the ship's Ballast Water Management does not conform to the particulars of the Certificate required under regulation E-2 or E-3 or is such that the ship is not fit to proceed to sea without presenting a threat of harm to the environment, human health, property or resources such surveyor or organization shall immediately ensure that corrective action is taken to bring the ship into compliance. A surveyor or organization shall be notified immediately, and it shall ensure that the Certificate is not issued or is withdrawn as appropriate. If the ship is in the port of another Party, the appropriate authorities of the port State shall 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, including any action described in Article 9.

[2] Refer to 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.

7 Whenever an accident occurs to a ship or a defect is discovered which substantially affects the ability of the ship to conduct Ballast Water Management in accordance with this Convention, the owner**,** operator or other person in charge 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 is necessary. If the ship is in a port of another Party, the owner**,** operator or other person in charge 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.

8 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.

9 The condition of the ship and its equipment, systems and processes shall be maintained to conform with the provisions of this Convention to ensure that the ship in all respects will remain fit to proceed to sea without presenting a threat of harm to the environment, human health, property or resources.

10 After any survey of the ship under paragraph 1 has been completed, no change shall be made in the structure, any equipment, fittings, arrangements or material associated with the Ballast Water Management plan required by regulation B-1 and covered by the survey without the sanction of the Administration, except the direct replacement of such equipment or fittings.

Regulation E-2 *Issuance or Endorsement of a Certificate*

1 The Administration shall ensure that a ship to which regulation E-1 applies is issued a Certificate after successful completion of a survey conducted in accordance with regulation E-1. A Certificate issued under the authority of a Party shall be accepted by the other Parties and regarded for all purposes covered by this Convention as having the same validity as a Certificate issued by them.

2 Certificates shall be issued or endorsed either by the Administration or by any person or organization duly authorized by it. In every case, the Administration assumes full responsibility for the Certificate.

Regulation E-3 *Issuance or Endorsement of a Certificate by Another Party*

1 At the request of the Administration, another Party may cause a ship to be surveyed and, if satisfied that the provisions of this Convention are complied with, shall issue or authorize the issuance of a 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 a Certificate issued by the Administration.

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

Regulation E-4 *Form of the Certificate*

The Certificate shall be drawn up in the official language of the issuing Party, in the form set forth in Appendix I. If the language used is neither English, French nor Spanish, the text shall include a translation into one of these languages.

Regulation E-5 *Duration and Validity of the Certificate*

1 A Certificate shall be issued for a period specified by the Administration that shall not exceed five years.

2 For renewal surveys:

.1 Notwithstanding the requirements of paragraph 1, when the renewal survey is completed within three 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 five years from the date of expiry of the existing Certificate.

.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 five years from the date of expiry of the existing Certificate.

.3 When the renewal survey is completed more than three 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 five years from the date of completion of the renewal survey.

3 If a Certificate is issued for a period of less than five years, the Administration may extend the validity of the Certificate beyond the expiry date to the maximum period specified in paragraph 1, provided that the surveys referred to in regulation E-1.1.3 applicable when a Certificate is issued for a period of five 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 five months from the expiry date.

5 If a ship at the time when the 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 three months, and a ship to which such 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 five 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 five 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 paragraph 2.2, 5 or 6 of this regulation. In these special circumstances, the new Certificate shall be valid to a date not exceeding five years from the date of completion of the renewal survey.

8 If an annual survey is completed before the period specified in regulation E-1, then:

.1 the Anniversary date shown on the Certificate shall be amended by endorsement to a date which shall not be more than three months later than the date on which the survey was completed;

.2 the subsequent annual or intermediate survey required by regulation E-1 shall be completed at the intervals prescribed by that regulation using the new Anniversary date;

.3 the expiry date may remain unchanged provided one or more annual surveys, as appropriate, are carried out so that the maximum intervals between the surveys prescribed by regulation E-1 are not exceeded.

9 A Certificate issued under regulation E-2 or E-3 shall cease to be valid in any of the following cases:

.1 if the structure, equipment, systems, fittings, arrangements and material necessary to comply fully with this Convention is changed, replaced or significantly repaired and the Certificate is not endorsed in accordance with this Annex;

.2 upon transfer of the ship to the flag of another State. A new Certificate shall only be issued when the Party issuing the new Certificate is fully satisfied that the ship is in compliance with the requirements of regulation E-1. In the case of a transfer between Parties, if requested within three months after the transfer has taken place, the Party whose flag the ship was formerly entitled to fly shall, as soon as possible, transmit to the Administration copies of the Certificates carried by the ship before the transfer and, if available, copies of the relevant survey reports;

.3 if the relevant surveys are not completed within the periods specified under regulation E-1.1; or

.4 if the Certificate is not endorsed in accordance with regulation E-1.1.

APPENDIX I

FORM OF INTERNATIONAL BALLAST WATER MANAGEMENT CERTIFICATE

INTERNATIONAL BALLAST WATER MANAGEMENT CERTIFICATE

Issued under the provisions of the International Convention for the Control and Management of Ships' Ballast Water and Sediments (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[1]

Name of ship .....

Distinctive number or letters .....

Port of registry .....

Gross Tonnage .....

IMO number[2] .....

Date of Construction ……

Ballast Water Capacity (in cubic metres) .....

Details of Ballast Water Management Method(s) Used

Method of Ballast Water Management used ……...

Date installed (if applicable) .....

Name of manufacturer (if applicable) .....

[1] Alternatively, the particulars of the ship may be placed horizontally in boxes.

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

The principal Ballast Water Management method(s) employed on this ship is/are:

☐ in accordance with regulation D-1

☐ in accordance with regulation D-2
(describe) .....

☐ the ship is subject to regulation D-4

THIS IS TO CERTIFY:

1 That the ship has been surveyed in accordance with regulation E-1 of the Annex to the Convention; and

2 That the survey shows that Ballast Water Management on the ship complies with the Annex to the Convention.

This certificate is valid until …… subject to surveys in accordance with regulation E-1 of the Annex to 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)

ENDORSEMENT FOR ANNUAL AND INTERMEDIATE SURVEY(S)

THIS IS TO CERTIFY that a survey required by regulation E-1 of the Annex to 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 E-5.8.3**

THIS IS TO CERTIFY that, at an annual/intermediate* survey in accordance with regulation E-5.8.3 of the Annex to the Convention, the ship was found to comply with the relevant provisions of the Convention:

Signed .....
(Signature of 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 E-5.3 APPLIES**

The ship complies with the relevant provisions of the Convention, and this Certificate shall, in accordance with regulation E-5.3 of the Annex to the Convention, be accepted as valid until……

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

Place .....

Date.....….

(Seal or stamp of the authority, as appropriate)

**ENDORSEMENT WHERE THE RENEWAL SURVEY HAS BEEN
COMPLETED AND REGULATION E-5.4 APPLIES**

The ship complies with the relevant provisions of the Convention and this Certificate shall, in accordance with regulation E-5.4 of the Annex to the Convention, be accepted as valid until ……

Signed .....
(Signature of 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 E-5.5 OR E-5.6 APPLIES

This Certificate shall, in accordance with regulation E-5.5 or E-5.6* of the Annex to the Convention, be accepted as valid until ……..

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

Place .....

Date.....…

(Seal or stamp of the authority, as appropriate)

ENDORSEMENT FOR ADVANCEMENT OF ANNIVERSARY DATE WHERE REGULATION E-5.8 APPLIES

In accordance with regulation E-5.8 of the Annex to the Convention the new Anniversary date is …….

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

Place .....

Date.....…

(Seal or stamp of the authority, as appropriate)

In accordance with regulation E-5.8 of the Annex to 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

APPENDIX II

FORM OF BALLAST WATER RECORD BOOK

INTERNATIONAL CONVENTION FOR THE CONTROL AND MANAGEMENT OF SHIPS' BALLAST WATER AND SEDIMENTS

Period From: ….…… To: ……..

Name of Ship ……..……...

IMO number …….……..…….….

Gross tonnage ……

Flag ……

Total Ballast Water capacity (in cubic metres) …….….

The ship is provided with a Ballast Water Management plan ☐

Diagram of ship indicating ballast tanks:

1 Introduction

In accordance with regulation B-2 of the Annex to the International Convention for the Control and Management of Ships' Ballast Water and Sediments, a record is to be kept of each Ballast Water operation. This includes discharges at sea and to reception facilities.

2 Ballast Water and Ballast Water Management

"Ballast Water" means water with its suspended matter taken on board a ship to control trim, list, draught, stability, or stresses of a ship. Management of Ballast Water shall be in accordance with an approved Ballast Water Management plan and taking into account Guidelines[3] developed by the Organization.

3 Entries in the Ballast Water Record Book

Entries in the Ballast Water record book shall be made on each of the following occasions:

3.1 When Ballast Water is taken on board:

[3] Refer to the Guidelines for the control and management of ships' ballast water to minimize the transfer of harmful aquatic organisms and pathogens adopted by the Organization by resolution A.868(20).

.1 Date, time and location port or facility of uptake (port or lat/long), depth if outside port

.2 Estimated volume of uptake in cubic metres

.3 Signature of the officer in charge of the operation.

3.2 Whenever Ballast Water is circulated or treated for Ballast Water Management purposes:

.1 Date and time of operation

.2 Estimated volume circulated or treated (in cubic metres)

.3 Whether conducted in accordance with the Ballast Water Management plan

.4 Signature of the officer in charge of the operation

3.3 When Ballast Water is discharged into the sea:

.1 Date, time and location port or facility of discharge (port or lat/long)

.2 Estimated volume discharged in cubic metres plus remaining volume in cubic metres

.3 Whether approved Ballast Water Management plan had been implemented prior to discharge

.4 Signature of the officer in charge of the operation.

3.4 When Ballast Water is discharged to a reception facility:

.1 Date, time, and location of uptake

.2 Date, time, and location of discharge

.3 Port or facility

.4 Estimated volume discharged or taken up, in cubic metres

.5 Whether approved Ballast Water Management plan had been implemented prior to discharge

.6 Signature of officer in charge of the operation

3.5 Accidental or other exceptional uptake or discharges of Ballast Water:

.1 Date and time of occurrence

.2 Port or position of the ship at time of occurrence

.3 Estimated volume of Ballast Water discharged

.4 Circumstances of uptake, discharge, escape or loss, the reason therefore and general remarks.

.5 Whether approved Ballast Water Management plan had been implemented prior to discharge

.6 Signature of officer in charge of the operation

3.6 Additional operational procedure and general remarks

4 Volume of Ballast Water

The volume of Ballast Water onboard should be estimated in cubic metres. The Ballast Water record book contains many references to estimated volume of Ballast Water. It is recognized that the accuracy of estimating volumes of ballast is left to interpretation.

RECORD OF BALLAST WATER OPERATIONS

SAMPLE BALLAST WATER RECORD BOOK PAGE

Name of Ship: ……

Distinctive number or letters …….

Date	Item (number)	Record of operations/signature of officers in charge

Signature of master ……..

INTERNATIONAL MARITIME ORGANIZATION

E

BWM.2/Circ.34
9 August 2011

INTERNATIONAL CONVENTION FOR THE CONTROL AND MANAGEMENT OF SHIPS' BALLAST WATER AND SEDIMENTS, 2004

List of ballast water management systems that make use of Active Substances which received Basic and Final Approval

1 The Ballast Water Management Convention (BWM Convention) provides in its regulation D-3.2 that ballast water management systems that make use of Active Substances to comply with the Convention shall be approved by IMO based on a procedure developed by the Organization. According to regulation A-1.7 of the same Convention, an Active Substance is 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 The Marine Environment Protection Committee (MEPC), at its fifty-third session (18 to 22 July 2005), adopted the "Procedure for approval of ballast water management systems that make use of Active Substances (G9)" by resolution MEPC.126(53). At the same session, MEPC established a Technical Group (GESAMP-Ballast Water Working Group) under the auspices of GESAMP*, to evaluate Active Substances and the relevant systems and advise the MEPC accordingly.

3 MEPC 57 (31 March to 4 April 2008) adopted resolution MEPC.169(57), which revokes resolution MEPC.126(53) and contains the revised "Procedure for approval of ballast water management systems that make use of Active Substances (G9)".

4 Section 8 of Procedure (G9) sets out the methodology to be followed for the two-tier approval of ballast water management systems that make use of Active Substances and requests IMO to record the Basic and Final Approvals and to circulate the list once a year.

5 Following the consideration of the relevant reports of the GESAMP-BWWG, MEPC, at its sixty-second session (11 to 15 July 2011), granted seven Basic Approvals and two Final Approvals to ballast water management systems that make use of Active Substances. The annexes to this circular contain relevant information on the ballast water management systems that received Basic and Final Approval from March 2006 until August 2011.

6 This circular supersedes Circular BWM.2/Circ.30.

* GESAMP stands for IMO/FAO/UNESCO-IOC/WMO/IAEA/UN/UNDP/UNEP/UNIDO Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection.

7 Information regarding the systems that received Type Approval Certification can be found on the IMO website at http://www.imo.org/home.html.

8 Member Governments are invited to bring this circular to the attention of all the parties concerned.

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ANNEX 1

LIST OF BALLAST WATER MANAGEMENT SYSTEMS THAT MAKE USE OF ACTIVE SUBSTANCES WHICH RECEIVED BASIC APPROVAL IN ACCORDANCE WITH PROCEDURE (G9)

Name of the system and MEPC document related to the proposal for Basic Approval	Name of manufacturer	Relevant GESAMP-Ballast Water Working Group report	Date of Basic Approval	Specifications
1. Peraclean® Ocean (subsequently changed to SEDNA® Ballast Water Management System (using Peraclean® Ocean)) MEPC 53/2/12 (Germany)	Degussa GmbH, Germany	MEPC 54/2/12, annex 5	24 March 2006 (MEPC 54)	Flag State Administration was invited to authorize onboard testing only when the concerns identified in annex 5 of the report of the first meeting of the GESAMP-Ballast Water Working Group (MEPC 54/2/12) had been addressed to its complete satisfaction.
2. Electro-Clean (electrolytic disinfection) system (subsequently changed to Electro-Cleen™) MEPC 54/2/3 (Republic of Korea)	Techcross Ltd. and Korea Ocean Research and Development Institute (KORDI)	MEPC 54/2/12, annex 6	24 March 2006 (MEPC 54)	Flag State Administration was invited to authorize onboard testing only when the concerns identified in annex 6 of the report of the first meeting of the GESAMP–Ballast Water Working Group (MEPC 54/2/12) had been addressed to its complete satisfaction.
3. Special Pipe Ballast Water Management System (combined with Ozone treatment) MEPC 55/2 (Japan)	Japan Association of Marine Safety (JAMS)	MEPC 55/2/16, annex 5	13 October 2006 (MEPC 55)	Flag State Administration was invited to take into account all the recommendations indicated in annex 5 of the report of the second meeting of the GESAMP-Ballast Water Working Group (MEPC 55/2/16) during further development of the system.
4. EctoSys™ electrochemical system MEPC 55/2/4 (Sweden)	Permascand AB, Sweden, subsequently acquired by RWO GmbH, Germany	MEPC 55/2/16, annex 7	13 October 2006 (MEPC 55)	Flag State Administration was invited to take into account all the recommendations indicated in annex 7 of the report of the second meeting of the GESAMP-Ballast Water Working Group (MEPC 55/2/16) during further development of the system.

Name of the system and MEPC document related to the proposal for Basic Approval	Name of manufacturer	Relevant GESAMP-Ballast Water Working Group report	Date of Basic Approval	Specifications
5. PureBallast System MEPC 55/2/5 (Sweden)	Alfa Laval/Wallenius Water AB	MEPC 56/2/2, annex 5	13 July 2007 (MEPC 56)	Not applicable.
6. NK Ballast Water Treatment System (subsequently changed to NK-O3 BlueBallast System (Ozone)) MEPC 55/2/3 and MEPC 55/2/27 (Republic of Korea)	NK Company Ltd., Republic of Korea	MEPC 56/2/2, annex 6	13 July 2007 (MEPC 56)	Flag State Administration was invited to take into account all the recommendations indicated in annex 6 of the report of the third meeting of the GESAMP-Ballast Water Working Group (MEPC 56/2/2) during further development of the system.
7. Hitachi Ballast Water Purification System (ClearBallast) MEPC 57/2/2 (Japan)	Hitachi, Ltd. /Hitachi Plant Technologies, Ltd.	MEPC 57/2, annex 5	4 April 2008 (MEPC 57)	Flag State Administration was invited to take into account all the recommendations indicated in annex 5 of the report of the fourth meeting of the GESAMP-Ballast Water Working Group (MEPC 57/2) during further development of the system.
8. Resource Ballast Technologies System MEPC 56/2/3 (South Africa)	Resource Ballast Technologies (Pty) Ltd.	MEPC 57/2/10, annex 5	4 April 2008 (MEPC 57)	Flag State Administration was invited to take into account all the recommendations indicated in annex 5 of the report of the fifth meeting of the GESAMP-Ballast Water Working Group (MEPC 57/2/10) during further development of the system.

LIST OF BALLAST WATER MANAGEMENT SYSTEMS THAT MAKE USE OF ACTIVE SUBSTANCES WHICH RECEIVED BASIC APPROVAL IN ACCORDANCE WITH PROCEDURE (G9) (continued)

Name of the system and MEPC document related to the proposal for Basic Approval	Name of manufacturer	Relevant GESAMP-Ballast Water Working Group report	Date of Basic Approval	Specifications
9. GloEn-Patrol™ Ballast Water Management System MEPC 57/2/4 (Republic of Korea)	Panasia Co., Ltd.	MEPC 57/2/10, annex 6	4 April 2008 (MEPC 57)	Flag State Administration was invited to take into account all the recommendations indicated in annex 6 of the report of the fifth meeting of the GESAMP-Ballast Water Working Group (MEPC 57/2/10) during further development of the system.
10. OceanSaver® Ballast Water Management System (OS BWMS) MEPC 57/2/6 (Norway)	MetaFil AS	MEPC 57/2/10, annex 8	4 April 2008 (MEPC 57)	Flag State Administration was invited to take into account all the recommendations indicated in annex 8 of the report of the fifth meeting of the GESAMP-Ballast Water Working Group (MEPC 57/2/10) during further development of the system.
11. TG Ballastcleaner and TG Environmentalguard System MEPC 57/2/8 (Japan)	The Toagosei Group (TG Corporation, Toagosei Co. Ltd. and Tsurumi Soda Co. Ltd.)	MEPC 58/2/7, annex 5	10 October 2008 (MEPC 58)	Flag State Administration was invited to take into account all the recommendations indicated in annex 5 of the report of the sixth meeting of the GESAMP-Ballast Water Working Group (MEPC 58/2/7) during further development of the system.
12. Greenship Sedinox Ballast Water Management System MEPC 57/2/7 (Netherlands)	Greenship Ltd.	MEPC 58/2/7, annex 6	10 October 2008 (MEPC 58)	Flag State Administration was invited to take into account all the recommendations indicated in annex 6 of the report of the sixth meeting of the GESAMP-Ballast Water Working Group (MEPC 58/2/7) during further development of the system.

LIST OF BALLAST WATER MANAGEMENT SYSTEMS THAT MAKE USE OF ACTIVE SUBSTANCES WHICH RECEIVED BASIC APPROVAL IN ACCORDANCE WITH PROCEDURE (G9) (continued)

Name of the system and MEPC document related to the proposal for Basic Approval	Name of manufacturer	Relevant GESAMP-Ballast Water Working Group report	Date of Basic Approval	Specifications
13. Ecochlor® Ballast Water Treatment System MEPC 58/2/2 (Germany)	Ecochlor, INC, Acton (USA)	MEPC 58/2/8, annex 5	10 October 2008 (MEPC 58)	Flag State Administration was invited to take into account all the recommendations indicated in annex 5 of the report of the seventh meeting of the GESAMP-Ballast Water Working Group (MEPC 58/2/8) during further development of the system.
14. Blue Ocean Shield Ballast Water Management System MEPC 59/2/2 (China)	China Ocean Shipping (Group) Company (COSCO)	MEPC 59/2/16, annex 7	17 July 2009 (MEPC 59)	Flag State Administration was invited to take into account all the recommendations indicated in annex 7 of the report of the eighth meeting of the GESAMP-Ballast Water Working Group (MEPC 59/2/16) during further development of the system.
15. Hyundai Heavy Industries Co., Ltd. (HHI) Ballast Water Management System (EcoBallast) MEPC 59/2/4 (Republic of Korea)	Hyundai Heavy Industries Co., Ltd., Republic of Korea	MEPC 59/2/16, annex 8	17 July 2009 (MEPC 59)	Flag State Administration was invited to take into account all the recommendations indicated in annex 8 of the report of the eighth meeting of the GESAMP-Ballast Water Working Group (MEPC 59/2/16) during further development of the system.
16. AquaTriComb™ Ballast Water Treatment System MEPC 59/2/8 (Germany)	Aquaworx ATC GmbH	MEPC 59/2/19, annex 6	17 July 2009 (MEPC 59)	Flag State Administration was invited to take into account all the recommendations indicated in annex 6 of the report of the ninth meeting of the GESAMP-Ballast Water Working Group (MEPC 59/2/19) during further development of the system.

LIST OF BALLAST WATER MANAGEMENT SYSTEMS THAT MAKE USE OF ACTIVE SUBSTANCES WHICH RECEIVED BASIC APPROVAL IN ACCORDANCE WITH PROCEDURE (G9) (continued)

Name of the system and MEPC document related to the proposal for Basic Approval	Name of manufacturer	Relevant GESAMP-Ballast Water Working Group report	Date of Basic Approval	Specifications
17. SiCURE™ Ballast Water Management System MEPC 59/2/11 (Germany)	Siemens Water Technologies	MEPC 60/2/11, annex 6	26 March 2010 (MEPC 60)	Flag State Administration was invited to take into account all the recommendations indicated in annex 6 of the report of the tenth meeting of the GESAMP-Ballast Water Working Group (MEPC 60/2/11) during further development of the system.
18. Sunrui Ballast Water Management System (subsequently changed to BalClor Ballast Water Management System) MEPC 60/2/3 (China)	Qingdao Sunrui Corrosion and Fouling Control Company	MEPC 60/2/12, annex 6	26 March 2010 (MEPC 60)	Flag State Administration was invited to take into account all the recommendations indicated in annex 6 of the report of the eleventh meeting of the GESAMP-Ballast Water Working Group (MEPC 60/2/12) during further development of the system.
19. DESMI Ocean Guard Ballast Water Management System MEPC 60/2/4 (Denmark)	DESMI Ocean Guard A/S	MEPC 60/2/12, annex 7	26 March 2010 (MEPC 60)	Flag State Administration was invited to take into account all the recommendations indicated in annex 7 of the report of the eleventh meeting of the GESAMP-Ballast Water Working Group (MEPC 60/2/12) during further development of the system.

LIST OF BALLAST WATER MANAGEMENT SYSTEMS THAT MAKE USE OF ACTIVE SUBSTANCES WHICH RECEIVED BASIC APPROVAL IN ACCORDANCE WITH PROCEDURE (G9) (continued)

Name of the system and MEPC document related to the proposal for Basic Approval	Name of manufacturer	Relevant GESAMP-Ballast Water Working Group report	Date of Basic Approval	Specifications
20. Blue Ocean Guardian Ballast Water Management System (subsequently changed to "ARA Ballast" Ballast Water Management System) MEPC 60/2/5 (Republic of Korea)	21st Century Shipbuilding Co., Ltd.	MEPC 60/2/12, annex 8	26 March 2010 (MEPC 60)	Flag State Administration was invited to take into account all the recommendations indicated in annex 8 of the report of the eleventh meeting of the GESAMP-Ballast Water Working Group (MEPC 60/2/12) during further development of the system.
21. Hyundai Heavy Industries Co., Ltd. (HHI) Ballast Water Management System (HiBallast) MEPC 60/2/6 (Republic of Korea)	Hyundai Heavy Industries Co., Ltd., Republic of Korea	MEPC 60/2/16, annex 4	26 March 2010 (MEPC 60)	Flag State Administration was invited to take into account all the recommendations indicated in annex 4 of the report of the twelfth meeting of the GESAMP-Ballast Water Working Group (MEPC 60/2/16) during further development of the system.
22. Kwang San Co., Ltd. (KS) Ballast Water Management System "En-Ballast" MEPC 60/2/7 (Republic of Korea)	Kwang San Co., Ltd.	MEPC 60/2/16, annex 5	26 March 2010 (MEPC 60)	Flag State Administration was invited to take into account all the recommendations indicated in annex 5 of the report of the twelfth meeting of the GESAMP-Ballast Water Working Group (MEPC 60/2/16) during further development of the system.

LIST OF BALLAST WATER MANAGEMENT SYSTEMS THAT MAKE USE OF ACTIVE SUBSTANCES WHICH RECEIVED BASIC APPROVAL IN ACCORDANCE WITH PROCEDURE (G9) (continued)

Name of the system and MEPC document related to the proposal for Basic Approval	Name of manufacturer	Relevant GESAMP-Ballast Water Working Group report	Date of Basic Approval	Specifications
23. OceanGuard™ Ballast Water Management System MEPC 60/2/8 (Norway)	Qingdao Headway Technology Co., Ltd.	MEPC 60/2/16, annex 6	26 March 2010 (MEPC 60)	Flag State Administration was invited to take into account all the recommendations indicated in annex 6 of the report of the twelfth meeting of the GESAMP-Ballast Water Working Group (MEPC 60/2/16) during further development of the system.
24. Severn Trent De Nora BalPure® Ballast Water Management System MEPC 60/2/9 (Germany)	Severn Trent De Nora (STDN), LLC	MEPC 60/2/16, annex 7	26 March 2010 (MEPC 60)	Flag State Administration was invited to take into account all the recommendations indicated in annex 7 of the report of the twelfth meeting of the GESAMP-Ballast Water Working Group (MEPC 60/2/16) during further development of the system.
25. Techwin Eco Co., Ltd. (TWECO) Ballast Water Management System (Purimar) (subsequently changed to Purimar Ballast Water Management System) MEPC 61/2 (Republic of Korea)	Techwin Eco Co., Ltd.	MEPC 61/2/15, annex 4	1 October 2010 (MEPC 61)	Flag State Administration was invited to take into account all the recommendations indicated in annex 4 of the report of the thirteenth meeting of the GESAMP-Ballast Water Working Group (MEPC 61/2/15) during further development of the system.
26. AquaStar Ballast Water Management System MEPC 61/2/1 (Republic of Korea)	AQUA Eng. Co., Ltd.	MEPC 61/2/15, annex 5	1 October 2010 (MEPC 61)	Flag State Administration was invited to take into account all the recommendations indicated in annex 5 of the report of the thirteenth meeting of the GESAMP-Ballast Water Working Group (MEPC 61/2/15) during further development of the system.

LIST OF BALLAST WATER MANAGEMENT SYSTEMS THAT MAKE USE OF ACTIVE SUBSTANCES WHICH RECEIVED BASIC APPROVAL IN ACCORDANCE WITH PROCEDURE (G9) (continued)

Name of the system and MEPC document related to the proposal for Basic Approval	Name of manufacturer	Relevant GESAMP-Ballast Water Working Group report	Date of Basic Approval	Specifications
27. Kuraray Ballast Water Management System MEPC 61/2/6 (Japan)	Kuraray Co., Ltd.	MEPC 61/2/21, annex 4	1 October 2010 (MEPC 61)	Flag State Administration was invited to take into account all the recommendations indicated in annex 4 of the report of the fourteenth meeting of the GESAMP-Ballast Water Working Group (MEPC 61/2/21) during further development of the system.
28. ERMA FIRST Ballast Water Management System MEPC 61/2/11 (Greece)	ERMA FIRST ESK ENGINEERING SOLUTIONS S.A.	MEPC 62/2/11, annex 5	15 July 2011 (MEPC 62)	Flag State Administration was invited to take into account all the recommendations indicated in annex 5 of the report of the fifteenth meeting of the GESAMP-Ballast Water Working Group (MEPC 62/2/11) during further development of the system.
29. BlueSeas Ballast Water Management System MEPC 61/2/12 (Singapore)	Envirotech and Consultancy Pte. Ltd.	MEPC 62/2/11, annex 6	15 July 2011 (MEPC 62)	Flag State Administration was invited to take into account all the recommendations indicated in annex 6 of the report of the fifteenth meeting of the GESAMP-Ballast Water Working Group (MEPC 62/2/11) during further development of the system.
30. SKY-SYSTEM® with Peraclean® Ocean Ballast Water Management System MEPC 62/2 (Japan)	Katayama Chemical, Inc.	MEPC 62/2/12, annex 4	15 July 2011 (MEPC 62)	Flag State Administration was invited to take into account all the recommendations indicated in annex 4 of the report of the sixteenth meeting of the GESAMP-Ballast Water Working Group (MEPC 62/2/12) during further development of the system.

LIST OF BALLAST WATER MANAGEMENT SYSTEMS THAT MAKE USE OF ACTIVE SUBSTANCES WHICH RECEIVED BASIC APPROVAL IN ACCORDANCE WITH PROCEDURE (G9) (continued)

Name of the system and MEPC document related to the proposal for Basic Approval	Name of manufacturer	Relevant GESAMP-Ballast Water Working Group report	Date of Basic Approval	Specifications
31. JFE BallastAce that makes use of NeoChlor Marine® Ballast Water Management System MEPC 62/2/1 (Japan)	JFE Engineering Corporation	MEPC 62/2/12, annex 5	15 July 2011 (MEPC 62)	Flag State Administration was invited to take into account all the recommendations indicated in annex 5 of the report of the sixteenth meeting of the GESAMP-Ballast Water Working Group (MEPC 62/2/12) during further development of the system.
32. BallastMaster Ballast Water Management System MEPC 62/2/2 (Germany)	GEA Westfalia Separator Systems GmbH	MEPC 62/2/12, annex 6	15 July 2011 (MEPC 62)	Flag State Administration was invited to take into account all the recommendations indicated in annex 6 of the report of the sixteenth meeting of the GESAMP-Ballast Water Working Group (MEPC 62/2/12) during further development of the system.
33. BlueWorld Ballast Water Management System MEPC 62/2/3 (Singapore)	Envirotech and Consultancy Pte. Ltd.	MEPC 62/2/12, annex 7	15 July 2011 (MEPC 62)	Flag State Administration was invited to take into account all the recommendations indicated in annex 7 of the report of the sixteenth meeting of the GESAMP-Ballast Water Working Group (MEPC 62/2/12) during further development of the system.
34. Neo-Purimar™ Ballast Water Management System MEPC 62/2/7 (Republic of Korea)	SAMSUNG HEAVY INDUSTRIES Co., Ltd.	MEPC 62/2/18, annex 7	15 July 2011 (MEPC 62)	Flag State Administration was invited to take into account all the recommendations indicated in annex 7 of the report of the sixteenth meeting of the GESAMP-Ballast Water Working Group (MEPC 62/2/18) during further development of the system.

***

ANNEX 2

LIST OF BALLAST WATER MANAGEMENT SYSTEMS THAT MAKE USE OF ACTIVE SUBSTANCES WHICH RECEIVED FINAL APPROVAL IN ACCORDANCE WITH PROCEDURE (G9)

Name of the system and MEPC document related to the proposal for Final Approval	Name of manufacturer	Relevant GESAMP-Ballast Water Working Group report	Date of Final Approval	Specifications	Remarks
1. PureBallast System MEPC 56/2/1 (Norway)	Alfa Laval/ Wallenius Water AB	MEPC 56/2/2, annex 5	13 July 2007 (MEPC 56)	Flag State Administration was invited to verify that the concerns raised in annex 5 of the report of the third meeting of the GESAMP-Ballast Water Working Group (MEPC 56/2/2) with regard to ship and crew safety have been fully addressed prior to the issuance of Type Approval certificate.	Type Approved by Norway June 2008
2. SEDNA® Ballast Water Management System (Using Peraclean® Ocean) MEPC 57/2/5 (Germany)	Degussa GmbH, Germany	MEPC 57/2/10, annex 7	4 April 2008 (MEPC 57)	Flag State Administration was invited to take into account all the recommendations contained in annex 7 of the report of the fifth meeting of the GESAMP-Ballast Water Working Group (MEPC 57/2/10) prior to the issuance of Type Approval Certificate.	Type Approved by Germany 10 June 2008
3. Electro-Cleen™ System MEPC 58/2 (Republic of Korea)	Techcross Ltd. and Korea Ocean Research and Development Institute (KORDI)	MEPC 58/2/7, annex 7	10 October 2008 (MEPC 58)	Not applicable.	Type Approved by the Republic of Korea December 2008

LIST OF BALLAST WATER MANAGEMENT SYSTEMS THAT MAKE USE OF ACTIVE SUBSTANCES WHICH RECEIVED FINAL APPROVAL IN ACCORDANCE WITH PROCEDURE (G9) (continued)

Name of the system and MEPC document related to the proposal for Final Approval	Name of manufacturer	Relevant GESAMP-Ballast Water Working Group report	Date of Final Approval	Specifications	Remarks
4. OceanSaver® Ballast Water Management System (OS BWMS) MEPC 58/2/1 (Norway)	MetaFil AS	MEPC 58/2/8, annex 4	10 October 2008 (MEPC 58)	Flag State Administration was invited to verify that all the recommendations contained in annex 4 of the report of the seventh meeting of the GESAMP-BWWG (MEPC 58/2/8) have been fully addressed prior to the issuance of a Type Approval Certificate.	Type Approved by Norway 17 April 2011
5. RWO Ballast Water Management System (CleanBallast) MEPC 59/2 (Germany)	RWO GmbH Marine Water Technology, Germany	MEPC 59/2/16, annex 5	17 July 2009 (MEPC 59)	Flag State Administration was invited to verify that all the recommendations contained in annex 5 of the report of the eighth meeting of the GESAMP-BWWG (MEPC 59/2/16) have been fully addressed prior to the issuance of a Type Approval Certificate.	
6. NK-O3 BlueBallast System (Ozone) MEPC 59/2/3 (Republic of Korea)	NK Company Ltd., the Republic of Korea	MEPC 59/2/16, annex 6	17 July 2009 (MEPC 59)	Flag State Administration was invited to verify that all the recommendations contained in annex 6 of the report of the eighth meeting of the GESAMP-BWWG (MEPC 59/2/16) have been fully addressed prior to the issuance of a Type Approval Certificate.	Type Approved by the Republic of Korea 24 November 2009

LIST OF BALLAST WATER MANAGEMENT SYSTEMS THAT MAKE USE OF ACTIVE SUBSTANCES WHICH RECEIVED FINAL APPROVAL IN ACCORDANCE WITH PROCEDURE (G9) (continued)

Name of the system and MEPC document related to the proposal for Final Approval	Name of manufacturer	Relevant GESAMP-Ballast Water Working Group report	Date of Final Approval	Specifications	Remarks
7. Hitachi Ballast Water Purification System (ClearBallast) MEPC 59/2/5 (Japan)	Hitachi, Ltd. /Hitachi Plant Technologies, Ltd.	MEPC 59/2/19, annex 4	17 July 2009 (MEPC 59)	Flag State Administration was invited to verify that all the recommendations contained in annex 4 of the report of the ninth meeting of the GESAMP-BWWG (MEPC 59/2/19) have been fully addressed prior to the issuance of a Type Approval Certificate.	Type Approved by Japan 5 March 2010
8. Greenship Sedinox Ballast Water Management System MEPC 59/2/6 (Netherlands)	Greenship Ltd	MEPC 59/2/19, annex 5	17 July 2009 (MEPC 59)	Flag State Administration was invited to verify that all the recommendations contained in annex 5 of the report of the ninth meeting of the GESAMP-BWWG (MEPC 59/2/19) have been fully addressed prior to the issuance of a Type Approval Certificate.	
9. GloEn-Patrol™ Ballast Water Management System MEPC 59/2/7 (Republic of Korea)	Panasia Co., Ltd.	MEPC 60/2/11, annex 4	26 March 2010 (MEPC 60)	Flag State Administration was invited to verify that all the recommendations contained in annex 4 of the report of the tenth meeting of the GESAMP-BWWG (MEPC 60/2/11) have been fully addressed prior to the issuance of a Type Approval Certificate.	Type Approved by the Republic of Korea 4 December 2009

LIST OF BALLAST WATER MANAGEMENT SYSTEMS THAT MAKE USE OF ACTIVE SUBSTANCES WHICH RECEIVED FINAL APPROVAL IN ACCORDANCE WITH PROCEDURE (G9) (continued)

Name of the system and MEPC document related to the proposal for Final Approval	Name of manufacturer	Relevant GESAMP-Ballast Water Working Group report	Date of Final Approval	Specifications	Remarks
10. Resource Ballast Technologies System MEPC 59/2/10 (South Africa)	Resource Ballast Technologies (Pty) Ltd.	MEPC 60/2/11, annex 7	26 March 2010 (MEPC 60)	Flag State Administration was invited to verify that all the recommendations contained in annex 7 of the report of the tenth meeting of the GESAMP-BWWG (MEPC 60/2/11) have been fully addressed prior to the issuance of a Type Approval Certificate.	Type Approved by South Africa 19 April 2011
11. JFE BallastAce® Ballast Water Management System MEPC 60/2/2 (Japan)	JFE Engineering Corporation	MEPC 60/2/12, annex 5	26 March 2010 (MEPC 60	Flag State Administration was invited to verify that all the recommendations contained in annex 5 of the report of the eleventh meeting of the GESAMP-BWWG (MEPC 60/2/12) have been fully addressed prior to the issuance of a Type Approval Certificate.	Type Approved by Japan 26 May 2010 and 25 March 2011
12. Hyundai Heavy Industries Co., Ltd. (HHI) Ballast Water Management System (EcoBallast) MEPC 60/2/1 (Republic of Korea)	Hyundai Heavy Industries Co., Ltd.	MEPC 59/2/16, annex 8	26 March 2010 (MEPC 60	Flag State Administration was invited to verify that all the recommendations contained in annex 8 of the report of the eighth meeting of the GESAMP-BWWG (MEPC 59/2/16) have been fully addressed prior to the issuance of a Type Approval Certificate.	

LIST OF BALLAST WATER MANAGEMENT SYSTEMS THAT MAKE USE OF ACTIVE SUBSTANCES WHICH RECEIVED FINAL APPROVAL IN ACCORDANCE WITH PROCEDURE (G9) (continued)

Name of the system and MEPC document related to the proposal for Final Approval	Name of manufacturer	Relevant GESAMP-Ballast Water Working Group report	Date of Final Approval	Specifications	Remarks
13. Special Pipe Hybrid Ballast Water Management System combined with Ozone treatment version (SP-Hybrid BWMS Ozone version) MEPC 61/2/2 (Japan)	Mitsui Engineering & Shipbuilding Co., Ltd.	MEPC 61/2/15, annex 6	1 October 2010 (MEPC 61)	Flag State Administration was invited to verify that all the recommendations contained in annex 6 of the report of the thirteenth meeting of the GESAMP-BWWG (MEPC 61/2/15) have been fully addressed prior to the issuance of a Type Approval Certificate.	
14. "ARA Ballast" Ballast Water Management System MEPC 61/2/5 (Republic of Korea)	21st Century Shipbuilding Co., Ltd.	MEPC 61/2/15, annex 8	1 October 2010 (MEPC 61)	Flag State Administration was invited to verify that all the recommendations contained in annex 8 of the report of the thirteenth meeting of the GESAMP-BWWG (MEPC 61/2/15) have been fully addressed prior to the issuance of a Type Approval Certificate.	
15. BalClor Ballast Water Management System MEPC 61/2/4 (China)	Qingdao Sunrui Corrosion and Fouling Control Company	MEPC 61/2/15, annex 9	1 October 2010 (MEPC 61)	Flag State Administration was invited to verify that all the recommendations contained in annex 9 of the report of the thirteenth meeting of the GESAMP-BWWG (MEPC 61/2/15) have been fully addressed prior to the issuance of a Type Approval Certificate.	Type Approved by China 28 January 2011

LIST OF BALLAST WATER MANAGEMENT SYSTEMS THAT MAKE USE OF ACTIVE SUBSTANCES WHICH RECEIVED FINAL APPROVAL IN ACCORDANCE WITH PROCEDURE (G9) (continued)

Name of the system and MEPC document related to the proposal for Final Approval	Name of manufacturer	Relevant GESAMP-Ballast Water Working Group report	Date of Final Approval	Specifications	Remarks
16. OceanGuard™ Ballast Water Management System MEPC 61/2/7 (Norway)	Qingdao Headway Technology Co., Ltd.	MEPC 61/2/21, annex 5	1 October 2010 (MEPC 61)	Flag State Administration was invited to verify that all the recommendations contained in annex 5 of the report of the fourteenth meeting of the GESAMP-BWWG (MEPC 61/2/21) have been fully addressed prior to the issuance of a Type Approval Certificate.	
17. Ecochlor® Ballast Water Management System MEPC 61/2/8 (Germany)	Ecochlor, Inc, Acton, United States	MEPC 61/2/21, annex 6	1 October 2010 (MEPC 61)	Flag State Administration was invited to verify that all the recommendations contained in annex 6 of the report of the fourteenth meeting of the GESAMP-BWWG (MEPC 61/2/21) have been fully addressed prior to the issuance of a Type Approval Certificate.	
18. Severn Trent De Nora BalPure® Ballast Water Management System MEPC 61/2/9 (Germany)	Severn Trent De Nora (STDN), LLC	MEPC 61/2/21, annex 7	1 October 2010 (MEPC 61)	Flag State Administration was invited to verify that all the recommendations contained in annex 7 of the report of the fourteenth meeting of the GESAMP-BWWG (MEPC 61/2/21) have been fully addressed prior to the issuance of a Type Approval Certificate.	

LIST OF BALLAST WATER MANAGEMENT SYSTEMS THAT MAKE USE OF ACTIVE SUBSTANCES WHICH RECEIVED FINAL APPROVAL IN ACCORDANCE WITH PROCEDURE (G9) (continued)

Name of the system and MEPC document related to the proposal for Final Approval	Name of manufacturer	Relevant GESAMP-Ballast Water Working Group report	Date of Final Approval	Specifications	Remarks
19. HiBallast Ballast Water Management System MEPC 62/2/5 (Republic of Korea)	HYUNDAI HEAVY INDUSTRIES Co., Ltd.	MEPC 62/2/18, annex 5	15 July 2011 (MEPC 62)	Flag State Administration was invited to verify that all the recommendations contained in annex 5 of the report of the seventeenth meeting of the GESAMP-BWWG (MEPC 62/2/18) have been fully addressed prior to the issuance of a Type Approval Certificate.	
20. Purimar Ballast Water Management System MEPC 62/2/6 (Republic of Korea)	Samsung Heavy Industries Co., Ltd. (SHI)	MEPC 62/2/18, annex 6	15 July 2011 (MEPC 62)	Flag State Administration was invited to verify that all the recommendations contained in annex 6 of the report of the seventeenth meeting of the GESAMP-BWWG (MEPC 62/2/18) have been fully addressed prior to the issuance of a Type Approval Certificate.	

INTERNATIONAL MARITIME ORGANIZATION

IMO

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A 20/Res.868
1 December 1997
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ASSEMBLY
20th session
Agenda item 11

RESOLUTION A.868(20)
adopted on 27 November 1997

GUIDELINES FOR THE CONTROL AND MANAGEMENT OF SHIPS' BALLAST WATER TO MINIMIZE THE TRANSFER OF HARMFUL AQUATIC ORGANISMS AND PATHOGENS

THE ASSEMBLY,

RECALLING Article 15(j) of the Convention on the International Maritime Organization concerning the functions of the Assembly in relation to regulations and guidelines concerning prevention and control of marine pollution from ships,

RECALLING ALSO resolution A.774(18) by which it recognized that the uncontrolled discharge of ballast water and sediment from ships has led to the transfer of harmful aquatic organisms and pathogens, causing injury to public health and damage to property and the environment, and accordingly adopted Guidelines for Preventing the Introduction of Unwanted Aquatic Organisms and Pathogens from Ships' Ballast Water and Sediment Discharges, and further that the Marine Environment Protection Committee (MEPC) and the Maritime Safety Committee (MSC) shall keep the ballast water issue and the application of the Guidelines under review with a view to further developing the Guidelines as a basis for a new Annex to MARPOL 73/78,

RECALLING FURTHER that the 1992 United Nations Conference on Environment and Development (UNCED), in its Agenda 21 requests IMO to consider the adoption of appropriate rules on ballast water discharge to prevent the spread of non-indigenous organisms, and further proclaims in its Declaration on Environment and Development that States shall widely apply the precautionary approach according to their capabilities,

BEARING IN MIND that MEPC/Circ.288 recognized that the existing Guidelines do not provide a complete solution towards the total prevention of the introduction of harmful aquatic organisms and pathogens, but urged that focus should be directed on measures aimed at minimizing the risks, emphasizing further that in applying the existing Guidelines, the ship's safety was of paramount importance,

NOTING the objectives of the Convention on Biological Diversity, 1992, and that the transfer and introduction of alien aquatic species with ballast water threatens the conservation and sustainable use of biological diversity,

NOTING FURTHER the status of work carried out by MEPC as requested by resolution A.774(18) concerning the development of legally binding provisions on ballast water management together with guidelines for their effective implementation, as well as the Guidance on Safety Aspects of Ballast Water Exchange at Sea prepared by the Sub-Committee on Ship Design and Equipment, and distributed as MEPC/Circ.329 and MSC/Circ.806, both of 30 June 1997,

RECOGNIZING that several States have taken unilateral action by adopting legally binding provisions for local, regional or national application with a view to minimizing the risks of introducing harmful aquatic organisms and pathogens through ships entering their ports, and also that this issue, being of worldwide concern, demands action based on globally applicable regulation together with guidelines for their effective implementation and uniform interpretation,

HAVING CONSIDERED the recommendation of the MEPC at its fortieth session on this issue,

1. ADOPTS the Guidelines for the Control and Management of Ships' Ballast Water to Minimize the Transfer of Harmful Aquatic Organisms and Pathogens set out in the Annex to the present resolution;

2. REQUESTS Governments to take urgent action in applying these Guidelines, including the dissemination thereof to the shipping industry, to use them as a basis for any measures they adopt with a view to minimizing the risks of introducing harmful aquatic organisms and pathogens, and to report to the MEPC on any experience gained in their implementation;

3. REQUESTS ALSO the MEPC to work towards completion of legally binding provisions on ballast water management in the form of a new Annex to MARPOL 73/78, together with guidelines for their uniform and effective implementation with a view to their consideration and adoption in the year 2000;

4. REQUESTS FURTHER the MSC to include in its workplan the evaluation of information received from interested parties, particularly that relevant to 12.2 of the Guidelines adopted herewith, with a view to determining the hazards and potential consequences for various existing ship types and operations. The MSC is also requested to consider any other relevant issues concerning ballast water management as well as design objectives for new ships, with a view to minimizing to the extent possible risks of introducing harmful aquatic organisms and pathogens with ships' ballast water and sediments;

5. REVOKES resolution A.774(18).

ANNEX

GUIDELINES FOR THE CONTROL AND MANAGEMENT OF SHIPS' BALLAST WATER TO MINIMIZE THE TRANSFER OF HARMFUL AQUATIC ORGANISMS AND PATHOGENS

Contents

1 Introduction

1.1 Studies carried out in several countries have shown that many species of bacteria, plants, and animals can survive in a viable form in the ballast water and sediment carried in ships, even after journeys of several months' duration. Subsequent discharge of ballast water or sediment into the waters of port States may result in the establishment of harmful aquatic organisms and pathogens which may pose threats to indigenous human, animal and plant life, and the marine environment. Although other media have been identified as being responsible for transferring organisms between geographically separated water bodies, ballast water discharge from ships appears to have been among the most prominent.

1.2 The potential for ballast water discharge to cause harm has been recognised not only by the International Maritime Organization but also by the World Health Organization, which is concerned about the role of ballast water as a medium for the spreading of epidemic disease bacteria.

1.3 These Guidelines are not to be regarded as a certain solution to the problem. Rather, each part of them should be viewed as a tool which, if correctly applied, will help to minimize the risks associated with ballast water discharge. As scientific and technological advances are made, the Guidelines will be refined to enable the risk to be more adequately addressed. In the interim, port States, flag States and other parties that can assist in mitigating this problem should exercise due care and diligence in an effort to conform to the maximum extent possible with the Guidelines.

1.4 The selection of appropriate methods of risk minimization will depend upon several factors, including the type or types of organisms being targeted, the level of risk involved, its environmental acceptability, the economic and ecological costs involved and the safety of ships.

2 Definitions

For the purposes of these Guidelines, the following definitions apply:

Administration means the Government of the State under whose authority the ship is operating.

Convention means MARPOL 73/78 (International Convention for the Prevention of Pollution from Ships, 1973, and the Protocol of 1978 related thereto).

Member States means States that are Members of the International Maritime Organization.

Organization means the International Maritime Organization (IMO).

Port State authority means any official or organisation authorized by the Government of a port State to administer guidelines or enforce standards and regulations relevant to the implementation of national and international shipping control measures.

Treatment means a process or mechanical, physical, chemical or biological method to kill, remove or render infertile, harmful or potentially harmful organisms within ballast water.

3 Application

The Guidelines are directed to Member States and can apply to all ships; however, a port State authority shall determine the extent to which they do apply.

4 Guideline objectives and background

4.1 The objectives of these Guidelines, developed under technical and scientific guidance, are intended to assist Governments and appropriate authorities, ship masters, operators and owners, and port authorities, as well as other interested parties, in minimizing the risk of introducing harmful aquatic organisms and pathogens from ships' ballast water and associated sediments while protecting ships' safety.

4.2 The Guidelines allow port States to exempt ships within the area under their jurisdiction from part or all of the relevant provisions. Notwithstanding, any administration wishing to apply restrictions to ballast water operations should still follow these Guidelines, when developing legislation or procedures.

4.3 In order that the Guidelines may be implemented in a standard and uniform manner, all Member State Governments, ship operators, other appropriate authorities and interested parties are requested to apply these Guidelines.

5 Dissemination of information

5.1 Administrations are encouraged to maintain and exchange information relevant to these Guidelines through the Organization. Accordingly, administrations are encouraged to provide the Organization with the following:

.1 Information on severe outbreaks or infestations of harmful aquatic organisms which may pose a risk;

.2 Copies of current domestic laws and regulations;

.3 Technical and research information;

.4 Education materials (such as audio and video tapes) and printed materials; and

.5 Location and terms of use of alternative exchange zones, contingency strategies, availability of shore reception facilities, fees, etc.

5.2 Member States, applying ballast water and sediment discharge procedures, should notify the Organization of specific requirements and provide to the Organization, for the information of other Member States and non-governmental organizations, copies of any regulations, standards, exemptions or guidelines being applied. Verification and detailed information concerning port State requirements should be obtained by the ship prior to arrival.

5.3 Port State authorities should provide the widest possible distribution of information on ballast water and sediment management and treatment requirements that are being applied to shipping. Failure to do so may lead to unnecessary delays for ships seeking entry to port States.

5.4 Shipping organizations and ships' managers should be familiar with the requirements of port State authorities with respect to ballast water and sediment management and treatment procedures, including information that will be needed to obtain entry clearance.

5.5 Member States are invited to provide the Organization with details of any research and development studies that they carry out with respect to the impact and control of harmful aquatic organisms and pathogens in ships' ballast water and sediment.

5.6 Member States should provide to the Organization details of records describing reasons why existing requirements could not be complied with, e.g. force majeure, heavy weather, failure of equipment, or lack of information concerning port State requirements.

6 Training and education

6.1 Training for ships' masters and crews as appropriate should include instructions on the application of ballast water and sediment management and treatment procedures, based upon the information contained in these Guidelines. Instruction should also be provided on the maintenance of appropriate records and logs. Governments should ensure that their marine training organizations include this in the contents of their syllabus.

6.2 The application of processes and procedures concerning ballast water management are currently at the core of the solution to minimize the introduction of harmful aquatic organisms and pathogens.

6.3 Governments are encouraged to include knowledge of duties regarding the control of pollution of the sea by harmful aquatic organisms and pathogens in their training requirements for certificates.

7 Procedures for ships and port States

7.1 Procedures for ships

7.1.1 Every ship that carries ballast water should be provided with a ballast water management plan to assist in the minimization of transfer of harmful aquatic organisms and pathogens. The intent of the plan should be to provide safe and effective procedures for ballast water management.

7.1.2 The ballast water management plan should be specific to each ship.

7.1.3 The ballast water management plan should be included in the ship's operational documentation. Such a plan should address, *inter alia*:

- relevant parts of these Guidelines;
- approval documentation relevant to treatment equipment;
- an indication of records required; and
- the location of possible sampling points.

7.2 Procedures for port States

7.2.1 Reception and treatment facilities should be made available for the environmentally safe disposal of ballast tank sediments.

7.2.2 Discharge of ship's ballast water into port reception and/or treatment facilities may provide an acceptable means of control. Port State authorities wishing to utilize this strategy should ensure that the facilities are adequate.

8 Recording and reporting procedures

8.1 Procedures for ships

8.1.1 Where a port State authority requires that specific ballast water procedures and/or treatment option(s) be undertaken, and due to weather, sea conditions or operational impracticability such action cannot be taken, the master should report this fact to the port State authority as soon as possible and, where appropriate, prior to entering seas under its jurisdiction.

8.1.2 To facilitate the administration of ballast water management and treatment procedures on board each ship, a responsible officer should be appointed to maintain appropriate records and to ensure that ballast water management and/or treatment procedures are followed and recorded.

8.1.3 When taking on or discharging ballast water, as a minimum, the dates, geographical locations, ship's tank(s) and cargo holds, ballast water temperature and salinity as well as the amount of ballast water loaded or discharged should be recorded. A suitable format is shown in appendix 1. The record should be made available to the port State authority.

8.1.4 The location and suitable access points for sampling ballast or sediment should be described in the ship's ballast water management plan. This will allow crew members to provide maximum assistance when officers of the port State authority require a sample of the ballast water or sediment.

8.2 Procedures for port States

8.2.1 Consistent with 5.2 above, port States should provide ships with the following information:

- details of their requirements concerning ballast water management;
- location and terms of use of alternative exchange zones;
- any other port contingency arrangements; and
- the availability, location, capacities of and applicable fees relevant to reception facilities that are being provided for the environmentally safe disposal of ballast water and associated sediment.

8.2.2 To assist ships in applying the precautionary practices described in 9.1.1 below, port States should inform local agents and/or the ship of areas and situations where the uptake of ballast water should be minimized, such as:

- areas with outbreaks, infestations or known populations of harmful organisms and pathogens;
- areas with current phytoplankton blooms (algal blooms, such as red tides);
- nearby sewage outfalls;
- nearby dredging operations;
- when a tidal stream is known to be the more turbid; and
- areas where tidal flushing is known to be poor.

9 Ships' operational procedures

9.1 Precautionary practices

9.1.1 Minimizing uptake of harmful aquatic organisms, pathogens and sediments

When loading ballast, every effort should be made to avoid the uptake of potentially harmful aquatic organisms, pathogens and sediment that may contain such organisms. The uptake of ballast water should be minimized or, where practicable, avoided in areas and situations such as:

- areas identified by the port State in connection with advice relating to 8.2.2 above;
- in darkness when bottom-dwelling organisms may rise up in the water column;
- in very shallow water; or
- where propellers may stir up sediment.

9.1.2 Removing ballast sediment on a timely basis

Where practicable, routine cleaning of the ballast tank to remove sediments should be carried out in mid-ocean or under controlled arrangements in port or dry dock, in accordance with the provisions of the ship's ballast water management plan.

9.1.3 Avoiding unnecessary discharge of ballast water

If it is necessary to take on and discharge ballast water in the same port to facilitate safe cargo operations, care should be taken to avoid unnecessary discharge of ballast water that has been taken up in another port.

9.2 Ballast water management options

9.2.1 Ballast water exchange

Near-coastal (including port and estuarine) organisms released in mid-ocean, and oceanic organisms released in coastal waters, do not generally survive.

When exchanging ballast at sea, guidance on safety aspects of ballast water exchange as set out in appendix 2 should be taken into account. Furthermore, the following practices are recommended:

- where practicable, ships should conduct ballast exchange in deep water, in open ocean and as far as possible from shore. Where this is not possible, requirements developed within regional agreements may be in operation, particularly in areas within 200 nautical miles from shore. Consistent with 9.1.2 above, all of the ballast water should be discharged until suction is lost, and stripping pumps or eductors should be used if possible;
- where the flow-through method is employed in open ocean by pumping ballast water into the tank or hold and allowing the water to overflow, at least three times the tank volume should be pumped through the tank;

- where neither form of open ocean exchange is practicable, ballast exchange may be accepted by the port State in designated areas; and

- other ballast exchange options approved by the port State.

9.2.2 Non-release or minimal release of ballast water

In cases where ballast exchange or other treatment options are not possible, ballast water may be retained in tanks or holds. Should this not be possible, the ship should only discharge the minimum essential amount of ballast water in accordance with port States' contingency strategies.

9.2.3 Discharge to reception facilities

If reception facilities for ballast water and/or sediments are provided by a port State, they should, where appropriate, be utilized.

9.2.4 Emergent and new technologies and treatments

9.2.4.1 If suitable new and emergent treatments and technologies prove viable, these may substitute for, or be used in conjunction with, current options. Such treatments could include thermal methods, filtration, disinfection including ultraviolet light, and other such means acceptable to the port State.

9.2.4.2 Results concerning the application and effectiveness of new ballast water management technologies and associated control equipment should be notified to the Organization with a view to evaluation and incorporation, as appropriate, into these Guidelines.

10 Port State considerations

The following is provided for the guidance of port State authorities in the implementation of their ballast water management programme, and to assess risks in relation to the ballast water containing harmful aquatic organisms and pathogens.

10.1 Highly disparate conditions between uptake and discharge ports

Significantly different conditions may exist between port(s) of origin and the port in which ballast water is discharged. Examples include freshwater ballast being released into highly saline ports. There may be organisms capable of surviving such extreme transfers; however, there is a lower probability of species establishment under such transport events.

10.2 Ballast water age

The length of time during which ballast water is within an enclosed ballast tank may also be a factor in determining the number of surviving organisms, because of the absence of light, decreasing nutrients and oxygen, changes of salinity and other factors. However, the maximum length of survival of organisms in ballast water varies, and in many cases is not known. Water of an age of 100 days should be considered the minimum for applying this consideration. Ballast water and sediments may contain dinoflagellate cysts and other organisms capable of surviving for a much longer length of time.

10.3 Presence of target organisms

10.3.1 Under certain circumstances it may be possible to determine if one or more target species are present in the water of a specific port and have been ballasted in a ship. In these circumstances, the receiving port State authority may invoke management measures accordingly. Even if such target species are not present, however, it should be noted that the ship may still be carrying many untargetted species which, if released in new waters, could be potentially harmful.

10.3.2 Port States are encouraged to carry out biological baseline surveys in their ports and to disseminate the results of their investigations.

11 Enforcement and monitoring by port states

11.1 Consistent with the precautionary approach to environmental protection, these Guidelines can apply to all ships unless specifically exempted by a port State authority within its jurisdiction. In accordance with 5.2 above, port State authorities should inform the Organization on how the Guidelines are being applied.

11.2 Member States have the right to manage ballast water by national legislation. However, any ballast discharge restrictions should be notified to the Organization.

11.3 In all cases, a port State authority should consider the overall effect of ballast water and sediment discharge procedures on the safety of ships and those on board. Guidelines will be ineffective if compliance is dependent upon the acceptance of operational measures that put a ship or its crew at risk. Port States should not require any action of the master which imperils the lives of seafarers or the safety of the ship.

11.4 It is essential that ballast water and sediment management procedures be effective as well as environmentally safe, practicable, designed to minimize costs and delays to the ship, and based upon these Guidelines whenever possible.

11.5 Any instructions or requirements of a ship should be provided in a timely manner and be clear and concise.

11.6 Port States should on request provide a visiting ship with any requested information relative to ballast water management and its potential effects with respect to harmful aquatic organisms and pathogens.

11.7 Any enforcement or monitoring activities should be undertaken in a fair, uniform and nationally consistent manner at all ports within the port State. Where there are compelling reasons whereby nationally consistent procedures cannot be followed, then deviations should be reported to the Organization.

11.8 Compliance monitoring should be undertaken by port State authorities by, for example, taking and analysing ballast water and sediment samples to test for the continued survival of harmful aquatic organisms and pathogens.

11.9 Where ballast water or sediment sampling for compliance or effectiveness monitoring is being undertaken, port State authorities should minimize delays to ships when taking such samples.

11.10 When sampling for research or compliance monitoring, the port State authority should give as much notice as possible to the ship that sampling will occur, to assist in planning staffing and operational resources.

11.11 The master has a general obligation to provide reasonable assistance for the above monitoring which may include provision of officers or crew, provision of the ship's plans, records pertaining to ballast arrangements and details concerning the location of sampling points.

11.12 Sampling methods for research and monitoring is the responsibility of the individual port State. The Organization welcomes information on new or innovative methods of sampling and/or analysis, and any relevant information should be provided to it.

11.13 Port State authorities should indicate to the master or responsible officer the purpose for which a sample is taken (i.e., monitoring, research or enforcement). Results of analyses of samples should be made available to ship's operators on request.

11.14 Port State authorities may sample or require samples to analyse ballast water and sediment, before permitting a ship to proceed to discharge its ballast water in environmentally sensitive locations. In the event that harmful aquatic organisms or pathogens are found to be present in the samples, a port State's contingency strategy may be applied.

12 Future considerations in relation to ballast water exchange

12.1 Research needs

Operational measures such as ballast water exchange may be appropriate in the short term; however, there is a clear need for further research. These Guidelines should be revised and adjusted in the light of results concerning new ballast water management options.

12.2 Long-term evaluation of safety aspects in relation to ballast water exchange

Recognizing the need to evaluate the hazards and potential consequences for various types of ships and operations, interested parties should carry out detailed studies and provide information relevant to:

- experience gained from carrying out ballast water exchange at sea, including any samples/model procedures;

- operational precautions and procedures implemented to avoid potential hazards and consequences that may arise during the ballast water exchange at sea;

- an evaluation of the safety margins between the actual metacentric height and stresses versus the allowable seagoing limits specified in the approved trim and stability booklet and loading manual, relevant to different types of ships and loading conditions;

- any hazards which may arise due to human element issues relative to the responsible execution of ballast water exchange at sea in a manner which may not be fully prudent;

- operational procedures carried out prior to initiating the ballast water exchange at sea and check points during the exchange;

- the extent of training and management necessary to ensure that the process of ballast water exchange at sea is effectively monitored and controlled on board;

- plan of action to incorporate any unique procedures should an emergency occur which may affect the exchange of ballast water at sea; and

- the decision-making process, taking into account relevant safety matters, including ship's position, weather conditions, machinery performance, ballast system inspection and maintenance, crew safety and availability.

13 Ballast system design

Builders, owners and classification societies should take these Guidelines into consideration when designing new ships or modifying existing ships.

BALLAST WATER REPORTING FORM

(TO BE PROVIDED TO PORT STATE AUTHORITY UPON REQUEST)

1. VESSEL INFORMATION

Vessel Name:	Type:	IMO Number:	
Owner:	GT:	Call Sign:	
Flag:	Arrival Date:	Agent:	
Last Port and Country:		Arrival Port:	
Next Port and Country:			

2. BALLAST WATER

Specify units: m^3, MT, LT, ST
Total Ballast Water on Board:
Total Ballast Water Capacity:

3. BALLAST WATER TANKS

BALLAST WATER MANAGEMENT PLAN ON BOARD? YES ____ NO ____ HAS THIS BEEN IMPLEMENTED? ____ YES ____ NO

TOTAL NO. OF TANKS ON BOARD_____ NO. OF TANKS IN BALLAST_____ **IF NONE IN BALLAST GO TO NO. 5.**

NO. OF TANKS EXCHANGED_____ NO. OF TANKS NOT EXCHANGED_____

4. BALLAST WATER HISTORY: RECORD ALL TANKS THAT WILL BE DEBALLASTED IN PORT STATE OF ARRIVAL; IF NONE GO TO NO. 5.

Tanks/Holds (List multiple sources/tank separately)	BW SOURCE				BW EXCHANGE circle one: Empty/Refill or Flow Through					BW DISCHARGE			
	DATE DDMMYY	PORT or LAT. LONG.	VOLUME (units)	TEMP (units)	DATE DDMMYY	ENDPOINT LAT. LONG.	VOLUME (units)	% Exch.	SEA Hgt. (m)	DATE DDMMYY	PORT or LAT. LONG.	VOLUME (units)	SALINITY (units)

Ballast Water Tank Codes: Forepeak=FP, Aftpeak=AP, Double Bottom=DB, Wing=WT, Topside=TS, Cargo Hold=CH, O=Other

IF EXCHANGES WERE NOT CONDUCTED, STATE OTHER CONTROL ACTION(S) TAKEN:_____

IF NONE, STATE REASON WHY NOT. _____

5. IMO BALLAST WATER GUIDELINES ON BOARD (RES. A 20/868)? YES ____ NO ____

RESPONSIBLE OFFICER'S NAME AND TITLE (PRINTED) AND SIGNATURE _____

APPENDIX 2

GUIDANCE ON SAFETY ASPECTS OF BALLAST WATER EXCHANGE AT SEA

1 Introduction

1.1 This document is intended to provide guidance on the safety aspects of ballast water exchange at sea. The different types of ships which may be required to undertake ballast water exchange at sea make it presently impractical to provide specific guidelines for each ship type. Shipowners are cautioned that they should consider the many variables that apply to their ships. Some of these variables include type and size of ship, ballast tank configurations and associated pumping systems, trading routes and associated weather conditions, port State requirements and manning.

1.2 Ballast water exchange at sea procedures contained in relevant management plans should be individually assessed for their effectiveness from the environmental protection point of view as well as from the point of view of their acceptability in terms of structural strength and stability.

1.3 In the absence of a more scientifically based means of control, exchange of ballast water in deep ocean areas or open seas currently offers a means of limiting the probability that fresh water or coastal aquatic species will be transferred in ballast water. Two methods of carrying out ballast water exchange at sea have been identified:

.1 the sequential method, in which ballast tanks are pumped out and refilled with clean water; and/or

.2 the flow-through method, in which ballast tanks are simultaneously filled and discharged by pumping in clean water.

2 Safety precautions

2.1 Ships engaged in ballast water exchange at sea should be provided with procedures which account for the following, as applicable:

.1 avoidance of over and under-pressurization of ballast tanks;

.2 free surface effects on stability and sloshing loads in tanks that may be slack at any one time;

.3 admissible weather conditions;

.4 weather routeing in areas seasonably affected by cyclones, typhoons, hurricanes, or heavy icing conditions;

.5 maintenance of adequate intact stability in accordance with an approved trim and stability booklet;

.6 permissible seagoing strength limits of shear forces and bending moments in accordance with an approved loading manual;

.7 torsional forces, where relevant;

.8 minimum/maximum forward and aft draughts;

.9 wave-induced hull vibration;

.10 documented records of ballasting and/or de-ballasting;

.11 contingency procedures for situations which may affect the ballast water exchange at sea, including deteriorating weather conditions, pump failure, loss of power, etc.;

.12 time to complete the ballast water exchange or an appropriate sequence thereof, taking into account that the ballast water may represent 50 % of the total cargo capacity for some ships; and

.13 monitoring and controlling the amount of ballast water.

2.2 If the flow through method is used, caution should be exercised, since:

.1 air pipes are not designed for continuous ballast water overflow;

.2 current research indicates that pumping of at least three full volumes of the tank capacity could be needed to be effective when filling clean water from the bottom and overflowing from the top; and

.3 certain watertight and weathertight closures (e.g. manholes) which may be opened during ballast exchange, should be re-secured.

2.3 Ballast water exchange at sea should be avoided in freezing weather conditions. However, when it is deemed absolutely necessary, particular attention should be paid to the hazards associated with the freezing of overboard discharge arrangements, air pipes, ballast system valves together with their means of control, and the accretion of ice on deck.

2.4 Some ships may need the fitting of a loading instrument to perform calculations of shear forces and bending moments induced by ballast water exchange at sea and to compare with the permissible strength limits.

2.5 An evaluation should be made of the safety margins for stability and strength contained in allowable seagoing conditions specified in the approved trim and stability booklet and the loading manual, relevant to individual types of ships and loading conditions. In this regard particular account should be taken of the following requirements:

.1 stability to be maintained at all times to values not less than those recommended by the Organization (or required by the Administration);

.2 longitudinal stress values not to exceed those permitted by the ship's classification society with regard to prevailing sea conditions; and

.3 exchange of ballast in tanks or holds where significant structural loads may be generated by sloshing action in the partially filled tank or hold to be carried out in favourable sea and swell conditions so that the risk of structural damage is minimized.

2.6 The ballast water management plan should include a list of circumstances in which ballast water exchange should not be undertaken. These circumstances may result from critical situations of an exceptional

nature, *force majeure* due to stress of weather, or any other circumstances in which human life or safety of the ship is threatened.

3 **Crew training and familiarization**

3.1 The ballast water management plan should include the nomination of key shipboard control personnel undertaking ballast water exchange at sea.

3.2 Ships' officers and ratings engaged in ballast water exchange at sea should be trained in and familiarized with the following:

.1 the ship's pumping plan, which should show ballast pumping arrangements, with positions of associated air and sounding pipes, positions of all compartment and tank suctions and pipelines connecting them to ship's ballast pumps and, in the case of use of the flow through method of ballast water exchange, the openings used for release of water from the top of the tank together with overboard discharge arrangements;

.2 the method of ensuring that sounding pipes are clear, and that air pipes and their non-return devices are in good order;

.3 the different times required to undertake the various ballast water exchange operations;

.4 the methods in use for ballast water exchange at sea if applicable with particular reference to required safety precautions; and

.5 the method of on-board ballast water record keeping, reporting and recording of routine soundings.

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