INTERNATIONAL MARITIME ORGANIZATION

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Agenda item 21

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REPORT OF THE MARINE ENVIRONMENT PROTECTION COMMITTEE ON ITS SIXTY-SIXTH SESSION

LIST OF ANNEXES

1 INTRODUCTION – ADOPTION OF THE AGENDA

1.1 The sixty-sixth session of the Marine Environment Protection Committee was held at IMO Headquarters from 31 March to 4 April 2014, under the chairmanship of Mr. Arsenio Dominguez (Panama). The Vice-Chairman of the Committee, Dr. Naomi Parker (New Zealand), was also present.

1.2 As listed in document MEPC 66/INF.1, the session was attended by delegations from Members and Associate Members; by representatives from United Nations programmes, specialized agencies and other entities; by observers from intergovernmental organizations with agreements of cooperation; and by observers from non-governmental organizations in consultative status.

1.3 The session was also attended by the Chairman of the Council, Mr. J. G. Lantz (United States); the Chairman of the Facilitation Committee, Mr. Y. Melenas (Russian Federation); the Chairman of the Sub-Committee on Pollution Prevention and Response (PPR), Mr. S. Oftedal (Norway); the Chairman of the Sub-Committee on Ship Design and Construction (SDC), Mrs. A. Jost (Germany); and the Chairman of the Sub-Committee on Ship Systems and Equipment (SSE), Mr. S. Ota (Japan).

Opening address of the Secretary-General

1.4 The Secretary-General welcomed participants and delivered his opening address, the full text of which can be downloaded from the IMO website at the following link: http://www.imo.org/MediaCentre/SecretaryGeneral/Secretary-GeneralsSpeechesToMeetings.

Chairman's remarks

1.5 The Chairman thanked the Secretary-General for his opening address and stated that his advice and requests would be given every consideration in the deliberations of the Committee.

Malaysia Airlines flight MH 370

1.6 The delegations of Malaysia, Australia and China made statements concerning the incident of Malaysia Airlines flight MH 370 and the consequential search and recovery operations in the Indian Ocean, as set out in annex 20. The Chairman, on behalf of the Committee, expressed his deepest sympathy and condolences to the families and friends of the victims of the tragedy.

Adoption of the agenda

1.7 The Committee adopted the agenda (MEPC 66/1) and agreed to be guided by the provisional timetable (MEPC 66/1/1, annex 2, as revised), on the understanding that it was subject to adjustments depending on the progress made each day. The agenda, as adopted, with a list of documents considered under each agenda item, is set out in document MEPC 66/INF.38.

1.8 Following the announcement by the Chairman that he would, from that point onwards, conduct the meeting in English, the delegation of Spain, supported by the delegations of Argentina and France, expressed their concerns with that decision. Their statements are set out in annex 20. The delegation of the Russian Federation expressed the view that this was a personal decision by the Chairman which should be respected by the Committee.

Credentials

1.9 The Committee noted that the credentials of the delegations attending the session were in due and proper order.

2 HARMFUL AQUATIC ORGANISMS IN BALLAST WATER

2.1 The Committee noted that the number of Contracting Governments to the International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004 (BWM Convention), is currently 38, representing 30.38% of the world's merchant fleet tonnage. The Committee urged those States that have not yet ratified the Convention to do so at the earliest possible opportunity.

CONSIDERATION AND APPROVAL OF BALLAST WATER MANAGEMENT SYSTEMS THAT MAKE USE OF ACTIVE SUBSTANCES

2.2 The Committee noted that the twenty-sixth and twenty-seventh sessions of the GESAMP-Ballast Water Working Group (GESAMP-BWWG) had been held from 28 October to 1 November 2013 and from 9 to 13 December 2013, respectively, at IMO Headquarters, under the chairmanship of Mr. J. Linders. During the two sessions, GESAMP-BWWG had reviewed a total of six proposals for approval of ballast water management systems (BWMS) that make use of Active Substances, submitted by Germany, Italy and Japan.

Basic Approval

2.3 The Committee, having considered the recommendations contained in annexes 5 to 7 of the report of GESAMP-BWWG 26 (MEPC 66/2/7) and in annex 4 of the report of GESAMP-BWWG 27 (MEPC 66/2/10), agreed to grant Basic Approval to:

.1 ECOLCELL BTs Ballast Water Management System, proposed by Italy in document MEPC 66/2/1;

.2 ATPS-BLUE$_{sys}$ Ballast Water Management System, proposed by Japan in document MEPC 66/2/2;

.3 Ecomarine-EC Ballast Water Management System, proposed by Japan in document MEPC 66/2/3; and

.4 KURITA™ Ballast Water Management Systems, proposed by Japan in document MEPC 66/2/4.

2.4 The Committee invited the Administrations of Italy and Japan to take into account all the recommendations made in the aforementioned reports of GESAMP-BWWG 26 and 27 (MEPC 66/2/7, annexes 5 to 7 and MEPC 66/2/10, annex 4) during the further development of the systems.

Final Approval

2.5 The Committee, having considered the recommendations contained in annex 4 of the report of GESAMP-BWWG 26 (MEPC 66/2/7 and Corr.1), as well as the recommendations contained in annex 5 of the report of GESAMP-BWWG 27 (MEPC 66/2/10), agreed to grant Final Approval to:

.1 Ballast Water Management System with PERACLEAN® Ocean (SKY-SYSTEM®), proposed by Japan in document MEPC 66/2; and

.2 Evonik Ballast Water Treatment System with PERACLEAN® Ocean, proposed by Germany in document MEPC 66/2/5.

2.6 The Committee invited the Administrations of Germany and Japan to verify that all recommendations contained in the reports of GESAMP-BWWG 26 and 27 (MEPC 66/2/7 and Corr.1, annex 4, and MEPC 66/2/10, annex 5) are fully addressed prior to the issuance of the Type Approval Certificates.

2.7 The delegation of Germany commended the GESAMP-BWWG for its efforts in evaluating the Evonik Ballast Water Treatment System with PERACLEAN® Ocean, and confirmed that it concurred with all the conclusions made by the group and intended to reflect the recommendations and limitations described in annex 5 to document MEPC 66/2/10 in the Type Approval Certificate.

Future meetings of the GESAMP-BWWG

2.8 The Committee noted that the next regular session of the GESAMP-BWWG (i.e. the twenty-eighth session) has been tentatively scheduled to be held from 5 to 9 May 2014, and invited Members to submit their proposals for approval (application dossiers) and the non-confidential description of their BWMS to MEPC 67 as soon as possible, but not later than 11 April 2014.

2.9 The Committee further noted that the GESAMP-BWWG, having recognized the possibility that more than four proposals may be submitted for review and subsequent approval by MEPC 67, had expressed its availability to have an additional session (GESAMP-BWWG 29) in July 2014 to accommodate as many proposals as possible, provided that all the necessary conditions for organizing such a meeting are met. Any proposal for approval not reviewed at the twenty-eighth session and the additional session (i.e. the twenty-ninth session), due to time constraints, would be reviewed at the earliest session of the group after MEPC 67 and reported to MEPC 68 (MEPC 66/2/10, section 3 of the report of GESAMP-BWWG 27).

Other matters emanating from the GESAMP-BWWG meetings

2.10 Having considered the recommendations of the GESAMP-BWWG regarding the optimization of the evaluation of the proposals for approval, the Committee:

.1 reminded Administrations of their responsibility to conduct a careful completeness check to ensure that any future submission of applications for Basic or Final Approval satisfies all the provisions in the most recent version of the *Methodology for information gathering and conduct of work of the GESAMP-BWWG* (the Methodology) approved by the MEPC (currently BWM.2/Circ.13/Rev.1) (see also paragraph 2.40.1), to reduce the questions to the applicant during the evaluation;

.2 noted that, although applicants may have used data different from those in the Database of chemicals most commonly associated with treated ballast water as presented in document MEPC 65/INF.14 (Secretariat) and appendix 6 of the revised Methodology, the GESAMP-BWWG would use the data that the group considers to be the most appropriate for its evaluations; and

.3 in this respect, noted that the group may accept data different from that in the Database if the group can agree with the scientific justification presented by the applicant.

Organizational arrangements related to the evaluation and approval of BWMS

2.11 The Committee, having recalled that MEPC 62 had endorsed the proposal to conduct the stocktaking meetings on a yearly basis, noted that the Fifth Stocktaking Workshop on the activity of the GESAMP-BWWG had been held at IMO Headquarters from 4 to 6 September 2013, under the chairmanship of Mr. J. Linders, and its outcome has been circulated in document MEPC 66/2/6.

2.12 The Committee, having noted the outcome of the Fifth Stocktaking Workshop and the relevant information provided in document MEPC 66/INF.22, agreed to recommend that the GESAMP-BWWG Database should be used by applicants when preparing proposals for approval of BWMS.

2.13 Having considered the draft revised Methodology for information gathering and conduct of work of the GESAMP-BWWG, contained in annex 2 to document MEPC 66/2/6, the Committee instructed the Ballast Water Review Group to consider the draft revised Methodology in detail and report on its findings.

2.14 With regard to the date on which the revised Methodology should be applied, the Committee instructed the Ballast Water Review Group to consider the matter in detail and advise the Committee as appropriate.

Review of the availability of ballast water treatment technologies

2.15 The Committee noted the information regarding the latest type-approved BWMS provided in the following documents:

.1 MEPC 66/INF.9/Rev.1 (Norway) on the type approval of the MMC Ballast Water Management System;

.2 MEPC 66/INF.10 (France) on the type approval of the BIO-SEA® Ballast Water Management System;

.3 MEPC 66/INF.12 (China) on the type approval of the NiBallast™ Ballast Water Management System;

.4 MEPC 66/INF.13 (China) on the type approval of the Seascape® Ballast Water Management System;

.5 MEPC 66/INF.14 (China) on the type approval of the HY™-BWMS Ballast Water Management System;

.6 MEPC 66/INF.15 (China) on the type approval of the BALWAT Ballast Water Management System;

.7 MEPC 66/INF.16 (China) on the type approval of the Cyeco™ Ballast Water Management System;

.8 MEPC 66/INF.28 (Japan) on the type approval of the FineBallast MF Ballast Water Management System; and

.9 MEPC 66/INF.30 (Japan) on the type approval of the JFE BallastAce Ballast Water Management System,

which increases the total number of type-approved BWMS to 42.

2.16 The Committee thanked the delegations of China, France, Japan and Norway for the information provided and instructed the Ballast Water Review Group to take this information into consideration when conducting its future reviews.

2.17 The Committee noted the information provided in document MEPC 66/INF.29 (Republic of Korea) on the outcome of the 5th Global R&D Forum and Exhibition on Ballast Water Management where, inter alia, a memorandum of understanding establishing the GloBal TestNet had been signed by representatives of 16 ballast water treatment system testing organizations.

Consideration and adoption of amendments to and interpretations of BWM Guidelines

2.18 The Committee had for its consideration document MEPC 66/2/11 (ICS et al.) on the need to amend the *Guidelines for approval of ballast water management systems (G8)*. In this context, the observer from ICS proposed the development of an MEPC resolution to set out an agreed way forward with regard to concerns expressed pertaining to Guidelines (G8) and other matters related to the implementation of the BWM Convention.

2.19 A number of delegations noted that the Committee, at previous sessions, had already discussed the matter and decided that Guidelines (G8) should not be amended before the entry into force of the Convention, and that the concerns expressed in document MEPC 66/2/11 had already been addressed by resolution MEPC.228(65) and circular BWM.2/Circ.43. These delegations were also of the view that very little evidence had been provided on actual problems with type-approved BWMS to support the concerns expressed in document MEPC 66/2/11.

2.20 A number of other delegations, in supporting the proposals made in document MEPC 66/2/11, expressed concerns with the robustness of Guidelines (G8) and called for their revision.

2.21 A proposal was made to request the Secretariat to explore the possibility of conducting a study on the implementation of the ballast water performance standard described in regulation D-2, in order to provide a fact-based approach as to how Guidelines (G8) may be improved in the future.

2.22 Following discussion, the Committee did not support the development of an MEPC resolution as proposed by ICS, but agreed to request the Secretariat to explore the possibility of conducting a study on the implementation of the ballast water performance standard described in regulation D-2. In this context, the Committee requested the Secretariat to consider funding and execution modalities and submit a draft plan and terms of reference for such a study for consideration by MEPC 67. The Committee also invited interested Member Governments and international organizations to consider funding the study.

2.23 Taking into account the above, the Committee instructed the Ballast Water Review Group to consider the proposal in document MEPC 66/2/11 in detail and propose an appropriate course of action.

Consideration of the manner of application of the BWM Convention

2.24 The Committee considered document MEPC 66/2/9 (Canada), containing a draft BWM circular on *Guidance on entry or re-entry of ships into exclusive operation within waters under the jurisdiction of a single Party*. The Committee instructed the Ballast Water Review Group to consider the proposal in detail, taking into consideration comments made with regard to ensuring that it is fully compatible with the BWM Convention, and advise the Committee accordingly.

2.25 The Committee considered documents MEPC 66/2/8 and MEPC 66/INF.17 (India) on Port-based Mobile Ballast Water Treatment Facilities (BWTBoat) providing clarifications on the issues raised with regard to India's submission to MEPC 65 (MEPC 65/2/20) and containing an application for approval of the BWTBoat as an Other Method in accordance with regulation B-3.7 of the BWM Convention.

2.26 While the BWTBoat concept was widely supported, differing views were expressed regarding its possible status as an Other Method. In addition, some delegations were of the view that more consideration was needed regarding liability issues and ensuring that the concept provides treatment equivalent to that provided by reception facilities described in the *Guidelines for ballast water reception facilities (G5)*.

2.27 Consequently, the Committee instructed the Ballast Water Review Group to consider the proposal in document MEPC 66/2/8 in detail, taking into consideration document MEPC 66/INF.17, and propose an appropriate course of action.

2.28 The Committee noted document MEPC 66/INF.2 (Secretariat) on information on ballast water management guidelines, guidance documents and approved BWMS available on the IMO website. The Committee further noted that the information has been updated since document MEPC 66/INF.2 was published and that the list of relevant guidelines and guidance documents, as well as the list of approved BWMS, are updated, as necessary, after each session of MEPC.

2.29 Having noted the information provided in document MEPC 66/INF.27 (Germany) on ballast water sampling methods for assessing compliance with the standards of the BWM Convention, the Committee requested Member Governments and international organizations to submit further information and proposals related to ballast water sampling, analysis and contingency measures to the Sub-Committee on Pollution Prevention and Response (PPR), with a view to further developing and improving the relevant guidance documents and guidelines.

Outcome of sub-committees and work of other bodies concerning the BWM Convention

2.30 The Committee recalled that A 28 had adopted resolution A.1088(28) on *Application of the International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004*, to ease and facilitate the smooth implementation of the BWM Convention, as reported in document MEPC 66/12/4 (Secretariat).

2.31 Having noted the urgent matters emanating from PPR 1, as reported in document MEPC 66/11/4 (Secretariat), the Committee considered the action requested of it in paragraph 2.7 of the document, which concerns the finalization and approval of a draft BWM circular on *Guidance on stripping operations using eductors*. Recognizing that there had not been sufficient time to submit commenting documents on the outcome of PPR 1 to MEPC 66, the Committee decided to defer consideration of the matter to MEPC 67.

Establishment of the Ballast Water Review Group

2.32 The Committee established the Ballast Water Review Group and instructed it, taking into consideration the comments and decisions made in plenary, to:

.1 consider the draft revised Methodology for information gathering and conduct of work of the GESAMP-BWWG (MEPC 66/2/6, annex 2) in detail and advise the Committee on its approval for dissemination as a BWM circular;

.2 advise on the date that the revised Methodology should be applied to allow sufficient time for the applicants to fully implement the new provisions;

.3 consider the proposal in document MEPC 66/2/11 on the need to amend the *Guidelines for approval of ballast water management systems (G8)* and propose an appropriate course of action;

.4 consider the draft BWM circular on *Guidance on entry or re-entry of ships into exclusive operation within waters under the jurisdiction of a single Party*, as set out in document MEPC 66/2/9, and advise the Committee accordingly; and

.5 consider the proposal in document MEPC 66/2/8 on Port-based Mobile Ballast Water Treatment Facilities (BWTBoat), taking into consideration document MEPC 66/INF.17, and propose an appropriate course of action.

Report of the Ballast Water Review Group

2.33 Having considered the report of the Ballast Water Review Group (MEPC 66/WP.6), the Committee approved it in general and took action as outlined in the following paragraphs.

2.34 The observer from ICS, supported by the delegations of the Bahamas, Belize, Kiribati, Liberia, Nigeria, Tuvalu and Vanuatu and by the observers from IPTA, ITF, INTERTANKO, IMCA and IUMI, expressed disappointment with the outcome of the group, stating that the concerns raised in document MEPC 66/2/11 were not sufficiently addressed by the agreed study on the implementation of the ballast water performance standard described in regulation D-2. Concern was also expressed with regard to the unspecified time frame of the study. The full statement is set out in annex 20.

2.35 The observer from BIMCO, supported by the delegations of Belize and Liberia and by the observer from IUMI, also expressed concern with the study, stating that tangible results were unlikely to be reached prior to implementation of the BWM Convention. The full statement is set out in annex 20.

2.36 The observer from WSC, supported by the delegations of the Bahamas, Liberia and the observer from IUMI, also stressed the need to amend Guidelines (G8) without waiting for the results of the study. The full statement is set out in annex 20. In this connection, the delegation of Singapore pointed out that the study should first address the items listed in paragraphs 11.1 to 11.6 of document MEPC 66/WP.6, before considering other aspects.

2.37 Some other delegations supported the study and urged Member States to ratify the BWM Convention at their earliest opportunity. Several delegations stressed that proactive shipowners, who were already installing ballast water management systems on ships, should not be penalized as a result of any changes to the guidelines.

2.38 The delegation of Canada informed the Committee of their financial contribution of C$95.000, to be used for commencing the study. The Committee thanked the Government of Canada for its support.

2.39 Consequently, the Committee requested the Secretariat to consider the aforementioned comments, including the time frame for the study for further consideration by MEPC, together with any relevant submissions by Member Governments and international organizations. Furthermore, the Committee agreed that the aspects that the Secretariat is

requested to consider when planning the study (MEPC 66/WP.6, paragraph 11.5) should also include the views of Administrations not currently conducting type approvals.

2.40 With regard to the action requested of it by the Review Group, the Committee:

.1 approved the revised Methodology for information gathering and conduct of work of the GESAMP-BWWG, as set out in the annex to document MEPC 66/WP.6, for dissemination as BWM.2/Circ.13/Rev.2, to supersede the existing BWM.2/Circ.13/Rev.1 of 26 April 2012;

.2 agreed that the revised Methodology should be applied to all submissions for Basic Approval to MEPC 69 and onwards, and subsequent submissions for Final Approval of those systems;

.3 requested the Secretariat to take into account the comments in paragraphs 2.32 to 2.38 above and to include the aspects described in paragraphs 11 and 12 of document MEPC 66/WP.6 when planning a study on the implementation of the ballast water performance standard described in regulation D-2 of the Convention (see also paragraph 2.39);

.4 approved BWM.2/Circ.52 on *Guidance on entry or re-entry of ships into exclusive operation within waters under the jurisdiction of a single Party*;

.5 noted the view of the group that the BWTBoat concept proposed by India in document MEPC 66/2/8 does not need approval as an Other Method in accordance with regulation B-3.7 of the BWM Convention;

.6 invited submissions on draft guidance for situations when ballast water is loaded from a BWTBoat to a ship not intending to discharge the ballast water to another BWTBoat or reception facility to MEPC 67; and

.7 agreed to consider re-establishing the Ballast Water Review Group at MEPC 67, in accordance with the provisions of regulation D-5.1 of the BWM Convention.

3 RECYCLING OF SHIPS

3.1 The Committee, having noted that only one State (Norway) has acceded to the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009 (Hong Kong Convention), so far, urged Member States to ratify or accede to the Convention at their earliest convenience.

3.2 In this regard, the Committee welcomed a statement made by the delegation of France, informing the Committee that France expects to ratify the Hong Kong Convention within two months' time.

3.3 The Committee recalled that, since the adoption of the Hong Kong Convention, all six sets of guidelines required under the terms of the Convention had been finalized and adopted to ensure global, uniform and effective implementation and enforcement of the relevant requirements of the Convention and to assist States in the voluntary implementation of its technical standards in the interim period up to its entry into force.

3.4 The Committee also recalled that MEPC 65 had re-established the Correspondence Group on Ship Recycling and instructed it to further the work on the development of threshold values and exemptions for the materials to be listed in the Inventories of

Hazardous Materials (IHM) and to prepare amendments to the *2011 Guidelines for the Development of the Inventory of Hazardous Materials* (resolution MEPC.197(62)) (hereafter the Inventory Guidelines) accordingly.

Report of the correspondence group and comments thereon

3.5 In considering documents MEPC 66/3 and Corr.1, and MEPC 66/INF.11, reporting on the deliberations of the intersessional correspondence group, the Committee noted that the majority of threshold values had been determined, while a number of outstanding issues still needed further discussion. The Committee thanked the United States for its contribution as coordinator of the correspondence group and all the members of the group for the work done.

Development of threshold values for asbestos and related matters

3.6 The Committee considered document MEPC 66/3/3 (Japan), commenting on the report of the correspondence group, supporting a compromise proposal of 0.1% as the basis for the threshold value with a relaxation clause which allows the 1% threshold value to be applied subject to this being recorded in the Material Declaration and the IHM, suggesting that the threshold value for asbestos should apply not only to existing ships but also to new ships, and proposing that all applicable threshold values for hazardous materials listed in tables A and B of appendix 1 of the Inventory Guidelines should be recorded in both the IHM and the Material Declaration.

3.7 The Committee also considered document MEPC 66/3/4 (CSC), addressing threshold values for listing asbestos-contaminated materials in the IHM.

3.8 With regard to a threshold value for asbestos, the Committee noted that SDC 1 (MEPC 66/11/2, paragraphs 13 and 14), having been instructed by MSC 92 to consider the matter following a request by MEPC 65, had endorsed a compromise proposal of 0.1% as the threshold value and a footnote including a reference to the UN recommendation "Globally Harmonized System of Classification and Labelling of Chemicals (GHS)" as the basis for the value and a relaxation clause which allows the 1% threshold to be applied, subject to this being recorded in the Material Declaration and the IHM.

3.9 A number of delegations supported the proposal by Japan, while others were of the view that a threshold value for asbestos is only acceptable for sampling and listing asbestos in the IHM for existing ships, taking into account the prohibition of asbestos in new builds provided in SOLAS regulation II-1/3-5, and that such a value should not be higher than 0.1%.

3.10 The Committee noted that, within the limited time available, a resolution of the complex technical issues related to setting a threshold level for asbestos was not possible, and agreed to consider this issue further at MEPC 67.

Development of threshold values for radioactive substances

3.11 The Committee recalled that MEPC 65 had requested the Secretariat to liaise with the International Atomic Energy Agency (IAEA) to seek guidance on the threshold value for radioactive substances. In this connection, the Committee considered document MEPC 66/3/2 (Secretariat), providing a proposal by IAEA for a practical procedure to detect radioactive sources, radioactive materials and/or radioactive contamination during the recycling of ships and related actions.

3.12 The Committee thanked IAEA for its contribution, welcomed the proposal and requested the Secretariat to further liaise with IAEA to develop guidance on the threshold value for radioactive substances, with a view to facilitating finalization of the issue at a future session of the Committee.

Exemptions and bulk listings

3.13 Due to time constraints, the Committee was not able to take this matter forward and agreed to consider the issue further at MEPC 67.

Re-establishment of the correspondence group on ship recycling

3.14 Having considered the above issues, the Committee agreed to re-establish the Correspondence Group on Ship Recycling, under the coordination of the United States[1], with the following terms of reference:

.1 finalize the development of threshold values, exemptions and bulk listings applicable to the materials to be listed in Inventories of Hazardous Materials and prepare relevant amendments to the *2011 Guidelines for the Development of the Inventory of Hazardous Materials* (resolution MEPC.197(62)) accordingly; and

.2 submit a report to MEPC 67.

Report of the eleventh meeting of the Conference of the Parties to the Basel Convention

3.15 The Committee noted document MEPC 66/3/1 (UNEP Secretariat of the Basel Convention), which provided an overview of decision BC 11/16 on the environmentally sound dismantling of ships adopted by the eleventh meeting of the Conference of the Parties to the Basel Convention (28 April to 10 May 2013), informing the Committee that decision BC 11/16 underlined the importance of continued inter-agency cooperation between ILO, IMO and the Basel Convention on issues related to ship dismantling, and requesting the Secretariat of the Basel Convention to further develop implementation programmes for sustainable ship recycling, in conjunction with other organizations, in particular IMO and ILO.

Calculation of recycling capacity

3.16 The Committee noted information provided by the Secretariat (MEPC 66/INF.3) on the calculation of recycling capacity for meeting the entry-into-force conditions of the Hong Kong Convention.

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4 AIR POLLUTION AND ENERGY EFFICIENCY

4.1 The Committee agreed to consider under this agenda item, in addition to the documents submitted under it, the following five documents submitted under agenda item 7: MEPC 66/7/1 (Norway) on inclusion of gas only fuelled engines in MARPOL Annex VI, MEPC 66/7/4 and MEPC 66/INF.32 (Canada) on standard specification of shipboard gasification waste-to-energy systems and MEPC 66/7/5 and MEPC 66/INF.35 (Marshall Islands and IACS) on clarification of item 2.2.1 of the supplement to the IAPP Certificate; as well as relevant urgent matters emanating from PPR 1, as set out in document MEPC 66/11/4 (Secretariat).

AIR POLLUTION FROM SHIPS

Urgent matters emanating from PPR 1

4.2 The Committee noted that the urgent matters emanating from PPR 1 concerning the prevention of air pollution were reported in paragraphs 2.8 and 2.9 of document MEPC 66/11/4 and that PPR 1 had finalized two sets of guidelines for adoption at this session, namely the *2014 Guidelines in respect of the information to be submitted by an Administration to the Organization covering the certification of an approved method as required under regulation 13.7.1 of MARPOL Annex VI* and the *2014 Guidelines on the approved method process*, as set out in annexes 7 and 8 to document PPR 1/16, respectively.

2014 Guidelines in respect of the information to be submitted by an Administration to the Organization covering the certification of an approved method as required under regulation 13.7.1 of MARPOL Annex VI

4.3 Following consideration, the Committee, having agreed that the guidelines would apply only to a new approved method reported to the Organization, adopted resolution MEPC.242(66) on *2014 Guidelines in respect of the information to be submitted by an Administration to the Organization covering the certification of an approved method as required under regulation 13.7.1 of MARPOL Annex VI*, as set out in annex 1.

2014 Guidelines on the approved method process

4.4 Following consideration, the Committee, having agreed that the guidelines would apply only to a new approved method reported to the Organization, adopted resolution MEPC.243(66) on *2014 Guidelines on the approved method process*, as set out in annex 2.

Standard specification for shipboard incinerators

4.5 The Committee recalled that:

.1 MEPC 64, having noted the agreement at DE 56 that the capacity limit for shipboard incinerators should be increased from 1,500 kW to 4,000 kW, had approved MEPC.1/Circ.793 on *Type approval of shipboard incinerators*;

.2 DE 57, having agreed to the need to update the definitions section, as well as references to the MARPOL and SOLAS Conventions and IEC standards in the *Standard specification for shipboard incinerators* (resolution MEPC.76(40)), had requested the Secretariat to update these definitions and references; and

.3 MEPC 65, in noting the outcome of DE 57, had invited delegations to forward relevant information to the Secretariat to enable the preparation of a relevant document for submission to this session.

4.6 The Committee noted that the Secretariat, in cooperation with interested parties, had reviewed the standard specification and had prepared the draft 2014 standard specification for shipboard incinerators, as set out in the annex to document MEPC 66/4/1 (Secretariat).

4.7 In this regard, the Committee considered document MEPC 66/4/22 (IACS), proposing amendments to the draft 2014 standard specification, so that section A1.7 in annex 1 would not be limited to "passenger/cruise ships".

4.8 While some delegations supported the proposals by IACS, others were of the view that section A1.7 should remain limited to cruise ships and not include other ship types. Consequently, the Committee referred the matter to the working group for further consideration. The Committee also agreed that the definitions used in the draft 2014 standard specification should be consistent with the definitions set out in MARPOL Annex V and instructed the group to harmonize them, as appropriate.

4.9 Following discussion, the Committee instructed the working group (see paragraph 4.40) to finalize the draft 2014 standard specification for shipboard incinerators and the associated draft MEPC resolution, using the annex to document MEPC 66/4/1 as the basis, with a view to adoption at this session.

Review of fuel oil availability as required by regulation 14.8 of MARPOL Annex VI

4.10 The Committee recalled that:

.1 MEPC 62 had considered document MEPC 62/4/5 (United States), providing the report of the correspondence group on the assessment of availability of fuel oil under MARPOL Annex VI, including a draft methodology framework to examine the availability of compliant fuel (MEPC 62/24, paragraphs 4.44 to 4.49);

.2 no submission had been received at MEPC 63 on this matter, and the Committee had invited Member Governments and international organizations to submit concrete proposals to MEPC 64 for further consideration (MEPC 63/23, paragraphs 4.46 to 4.48).

.3 MEPC 64 had agreed that this matter should be reconsidered at a future session and invited Member Governments and international organizations to submit proposals to this session (MEPC 64/23, paragraphs 4.29 to 4.36).

4.11 The Committee had for its consideration the following documents:

.1 MEPC 66/4/8 (ICS), highlighting the increasing importance of reliably assessing the availability of compliant fuel oil in a timely manner, and suggesting that the fuel availability model (draft methodology framework) proposed by the correspondence group (MEPC 62/4/5) should be used to carry out this review;

.2 MEPC 66/4/18 (Netherlands and United Kingdom), providing information about recent developments in the European Union which had decided that ships operating in EU waters from 1 January 2020 would be required to use

fuel oil on board that met the 0.50% sulphur content standard, irrespective of the outcome of the Organization's fuel oil availability review, and suggesting that MEPC 66 could consider the pros and cons of conducting an earlier review and begin discussing its scope;

.3 MEPC 66/4/24 (United States et al.), expressing concerns about the premature completion of the refinery modelling for the review, and providing draft terms of reference for a correspondence group; and

.4 MEPC 66/4/28 (CSC), expressing the view that the review should take into account possible alternative compliance technologies and the upcoming revision of the IMO GHG Study.

4.12 In the ensuing discussion on the review of fuel oil availability, the following comments, inter alia, were made:

.1 the establishment of a correspondence group to consider the methodology for a review of fuel oil availability was generally supported;

.2 starting the review too soon could result in a decision being made using predominantly modelled supply and/or demand data and not actual market data, while starting the review too late could not leave sufficient time for the refinery industry to respond appropriately;

.3 preparatory work should begin as soon as possible so that when the Committee decided to initiate the review it could start without delay;

.4 the review should consider the factors affecting demand including use of alternative fuels and the energy efficiency of ships; and

.5 any actual supply/demand study should be executed on the basis of publicly available information only.

4.13 The observer from IPIECA expressed concerns regarding suggestions that there are already indications that sufficient fuel will be available to go ahead with the 2020 implementation date. The full text of the statement is set out in annex 20.

4.14 Following discussion, the Committee instructed the working group to consider and finalize terms of reference for a correspondence group for the fuel oil availability review.

Fuel oil quality

4.15 The Committee recalled that:

.1 MEPC 61, in considering the revised specification of marine fuels (ISO 8217:2010), taking into account issues regarding fuel oil characteristics and parameters addressing air quality, ship safety, engine performance and crew health, had agreed that relevant documents, as well as comments raised, should be further considered in detail by BLG 15;

.2 MEPC 62, noting that BLG 15 had considered these issues in detail and had concluded that more information and data were required to enable appropriate consideration, had considered document MEPC 62/4/4 (Norway and INTERTANKO) on the impact of bunker quality problems reported by ships; and

.3 MEPC 64 had noted the view of the Working Group on Air Pollution and Energy Efficiency relating to the procedures on sampling of fuel oil being used on board that, for further consideration of this matter, it would be necessary to invite further submissions (MEPC 64/23, paragraph 4.112.9).

4.16 The Committee had for its consideration the following documents:

.1 MEPC 66/4/16/Rev.1 (Liberia et al.), proposing to develop appropriate measures to mandate quality control prior to fuel oil being delivered to a ship, and providing possible actions to ensure proper enforcement of fuel oil quality control; and

.2 MEPC 66/4/26 (IBIA and BIMCO), expressing the view that the quality of marine fuel oil throughout the supply chain is of vital importance to crew health, ship safety and environmental protection, and providing a possible assurance process, parameters and elements of fuel quality which impact on safety, environmental pollution and health.

4.17 In the ensuing discussion on fuel oil quality, the following comments, inter alia, were made:

.1 fuel oil quality is having an impact on the safety of shipping and is an important factor for marine protection including control of emissions and energy efficiency;

.2 guidance should be prepared for those responsible for controlling and authorizing local fuel oil suppliers;

.3 there may be a need to consider a review and amendment of ISO standard 8217:2010 so that it aligns with the fuel oil quality requirements of marine diesel engine manufacturers, e.g. refinery catalyst fines;

.4 there is a need to consider the illegal blending of chemical wastes; and

.5 the supply and delivery of fuel oil to a ship and the assurance of fuel oil quality were commercial issues and any dispute between supplier and ship was a contractual matter regulated by domestic legislation.

4.18 Following discussion, the Committee agreed to develop possible quality control measures prior to fuel oil being delivered to a ship and invited Member Governments and international organizations to submit concrete proposals to MEPC 67.

Amendments to MARPOL Annex VI regarding engines fuelled solely by gaseous fuels

4.19 The Committee recalled that MEPC 65, having agreed to the conclusion of the correspondence group that engines fuelled solely by gaseous fuels, such as pure LNG, should be required to comply with the provisions of regulation 13 of MARPOL Annex VI, had invited Member Governments and international organizations to submit draft amendments to MARPOL Annex VI for consideration at this session, with a view to approval (MEPC 65/22, paragraph 4.60).

4.20 In this connection, the Committee considered document MEPC 66/7/1 (Norway), proposing amendments to MARPOL Annex VI in order to facilitate the inclusion of engines fuelled solely by gaseous fuels in the requirements.

4.21 Following discussion, the Committee instructed the working group to consider draft amendments to MARPOL Annex VI regarding engines solely fuelled by gaseous fuel, using the annex to document MEPC 66/7/1 as the basis, and advise the Committee accordingly.

Use of emerging waste-to-energy technology

4.22 The Committee considered documents MEPC 66/7/4 and MEPC 66/INF.32 (Canada), proposing to append standards that would allow the use of emerging waste-to-energy technology to MARPOL Annex VI, on the understanding that this technology uses ultra-low emission thermal processes to convert ship-generated wastes to gas which is then used on board as fuel.

4.23 In this connection, the Committee invited interested Member Governments to submit proposals for a relevant new output to a future session of the Committee for consideration, in accordance with the *Guidelines on the organization and method of work of the Maritime Safety Committee and the Marine Environment Protection Committee and their subsidiary bodies* (Committees' Guidelines) (MSC-MEPC.1/Circ.4/Rev.2), and noted the intention of Canada to submit a request for a new output to MEPC 67.

Guidance on the completion of item 2.2.1 of the Supplement to the IAPP Certificate

4.24 The Committee considered documents MEPC 66/7/5 and MEPC 66/INF.35 (Marshall Islands and IACS), providing a common approach to the "date" to be used for determining the applicable tier for engines, and proposing guidance on the completion of item 2.2.1 of the supplement to the IAPP Certificate.

4.25 The Committee noted that the proposed amendments to the IAPP Certificate would result in the need for a consequential amendment to regulation 13.7.3 of MARPOL Annex VI.

4.26 Following discussion, the Committee referred documents MEPC 66/7/5 and MEPC 66/INF.35 to the working group and instructed it to consider and prepare draft amendments to regulation 13.7.3 of MARPOL Annex VI and item 2.2.1 of the supplement to the IAPP Certificate and associated draft guidance.

Treatment of ozone-depleting substances used to service ships

4.27 The Committee recalled that MEPC 65 had requested the Secretariat to continue liaising with the Ozone Secretariat and to provide an update on the work of the Montreal Protocol, for consideration at this session to facilitate the Committee's deliberation of this issue (MEPC 65/22, paragraph 4.72).

4.28 The Committee noted that, as reported in document MEPC 66/4/2 (Secretariat), the thirty-third Open-ended Working Group in June 2013 had considered "Controlled substances used on ships"; that a review of refrigerant options for existing and new equipment on ships was being updated by the Technology Economic Assessment Panel with a target completion of April 2014; and that the twenty-fifth Meeting of Parties to the Montreal Protocol, held in October 2013, had not considered the treatment of ozone-depleting substances used by ships; and requested the Secretariat to continue liaising with the Ozone Secretariat and provide an update on the work of the Montreal Protocol for consideration at MEPC 68.

Sulphur monitoring for 2013

4.29 The Committee recalled that, in accordance with regulation 14.2 of MARPOL Annex VI and the *2010 Guidelines for monitoring the worldwide average sulphur content of fuel oils supplied for use on board ships* (resolution MEPC.192(61)), the results of sulphur monitoring should be presented to a subsequent session of the Committee every year.

4.30 In this connection, the Committee noted that, due to the fact that the sulphur content of fuel oil data for 2013 had not been available by the document submission deadline for this session, the sulphur monitoring report would be submitted by the Secretariat to MEPC 67 after this session and made available on IMODOCs as early as possible.

Studies on the use of LNG as a fuel

4.31 The Committee, having noted documents:

.1 MEPC 66/INF.8 (Secretariat), providing the report of a "Pilot Study on the use of Liquefied Natural Gas (LNG) as a fuel for a high-speed passenger ship from Port of Spain ferry terminal in Trinidad and Tobago"; and

.2 MEPC 66/INF.18 (Secretariat), providing the report of a "Feasibility study on the use of LNG as a fuel for international shipping in the North America Emission Control Area",

thanked the Governments of Norway and Canada, respectively, for donating funds for conducting the studies.

2009 Guidelines for exhaust gas cleaning systems

4.32 The Committee, having noted document MEPC 66/INF.31 (IMarEST), providing information on a study undertaken by the University College London (UCL) regarding linking laboratory measured pH recovery with a theoretical pH recovery mathematical model, in relation to wash water discharge pH as described in the *2009 Guidelines for exhaust gas cleaning systems* (resolution MEPC.184(59)), agreed to forward the document to PPR 2 for further consideration under the agenda item on *Review of relevant non-mandatory instruments as a consequence of the amended MARPOL Annex VI and the NO_x Technical Code*.

ENERGY EFFICIENCY OF SHIPS

4.33 The Committee noted that amendments to MARPOL Annex VI, incorporating a new chapter 4 on regulations on energy efficiency for ships, which makes the EEDI mandatory for new ships and the SEEMP for all (new and existing) ships, entered into force on 1 January 2013.

4.34 The Committee agreed to forward, without deliberation, the following documents to the working group (see paragraph 4.40), for consideration and action as set out in paragraphs 4.40.5 to 4.40.9:

.1 document MEPC 66/4 (Chairman of the working group at MEPC 65);

Guidelines on the method of calculation of the attained EEDI for new ships

.2 document MEPC 66/4/5 (Germany), proposing amendments to clarify the EEDI calculation for ships with dual-fuel engines, taking into account only ship design criteria that are known at the design stage; and document MEPC 66/4/23 (Denmark), providing comments with respect to the use of the C_F factor for dual-fuel engines and proposing that a dual-fuelled ship should be allowed to carry multiple attained EEDI values;

.3 document MEPC 66/4/20 (Germany and CESA), commenting on document MEPC 66/4 and proposing to refrain from calculation of the attained EEDI only for passenger ships having conventional propulsion as defined in regulation 2.32 of MARPOL Annex VI, as this ship type is not fully covered by the EEDI calculation guidelines;

.4 documents MEPC 66/4/7 and MEPC 66/INF.36 (Japan), proposing draft amendments to the *2012 Guidelines on the method of calculation of the attained EEDI for new ships*, to include LNG carriers. In this regard, the Committee noted an intervention by the delegation of Vanuatu that methane slip in engines, which results from the incomplete combustion of gas when used as a fuel, should be included in the attained EEDI calculation for LNG carriers, as methane (CH_4) had a global warming potential twenty times greater than CO_2. The delegation indicated that such methane slip inclusion could balance the energy efficiency "penalty" associated with "re-liquefaction" of boil off gases (BOG) versus the "benefit" of expending cargo to fuel the ship;

.5 document MEPC 66/4/12 (Japan), proposing amendments to the *2012 EEDI Calculation Guidelines* to add a new entry of refrigerated cargo carrier to the table of the correction factor for power f_j for ice-classed ships, providing their analysis; and document MEPC 66/4/27 (INTERFERRY and CESA), proposing draft amendments to the *Guidelines regarding the correction factor f_j for ro-ro cargo, ro-ro passenger and general cargo ships*, in order to ensure consistency;

.6 document MEPC 66/INF.34 (Japan and Spain), identifying some inconsistencies in the six sets of guidelines that IMO had developed, and providing a table for comparison purposes in order to prevent a misunderstanding of the definitions in these guidelines;

Guidelines on survey and certification of the EEDI

.7 document MEPC 66/4/5 (Germany), proposing amendments to the *Guidelines on survey and certification of the EEDI* for ships with dual-fuel engines;

.8 document MEPC 66/4/7 (Japan), proposing draft amendments to the guidelines to include LNG carriers;

Guidelines for the calculation of the coefficient f_w

.9 document MEPC 66/4/15 (China and Japan), proposing amendments to the interim guidelines in order to incorporate a calculation method and its verification;

Speed trials and model tests

.10 documents MEPC 66/4/4 and MEPC 66/INF.7 (ISO and ITTC), reporting on the progress made in harmonizing their standards and noting that Draft International Standard (DIS) 15016 had been developed, owing to the collaborative efforts of ISO and ITTC, and that DIS voting results should be obtained soon after MEPC 66, as voting closes on 8 April 2014;

Interim guidelines for determining minimum propulsion power to maintain the manoeuvrability of ships in adverse conditions

.11 documents MEPC 66/4/10 and MEPC 66/INF.25 (Netherlands), proposing to exclude ships of less than 20,000 DWT from the application of the minimum power requirements for phase 1 of the required EEDI requirements, based on the results of their study; and

Unified interpretation of regulation 2.24 of MARPOL Annex VI (MEPC.1/Circ.795)

.12 document MEPC 66/4/11 (Republic of Korea), proposing that both decrease of assigned freeboard and temporary increase of assigned freeboard should not be construed as a "major conversion".

Reviews required under regulation 21.6 of MARPOL Annex VI

4.35 The Committee recalled that:

.1 MEPC 65 had considered document MEPC 65/4/31 (IACS), proposing the development of an EEDI database in order to support the review of implementation of the EEDI provisions as detailed in regulation 21.6 of MARPOL Annex VI (MEPC 65/22, paragraph 4.122);

.2 at MEPC 65, several delegations had supported the establishment of the database in principle, but had expressed concern about the protection of intellectual property rights and commercially sensitive information, while others were of the view that, due to the confidentiality of the information, the database should not be established by any commercial entities; and that if the database was established under the management of the Secretariat, this might increase the administrative burden and result in additional costs, while the Organization was considering how to reduce the cost of the Secretariat (MEPC 65/22, paragraph 4.123); and

.3 MEPC 65, in noting the obligation of the Organization to undertake a review in phases 1 and 2 of the EEDI, had agreed to continue the discussion on this matter at this session, and had invited interested delegations to submit relevant documents (MEPC 65/22, paragraph 4.125).

4.36 The Committee had for its consideration the following documents:

.1 MEPC 66/4/13 (Liberia et al.), proposing to establish an EEDI database to assist the future review of technological development, as required under regulation 21.6 of MARPOL Annex VI, and providing a hypothetical example of what the database might look like and how such information might be interpreted; and

.2 MEPC 66/4/29 (CSC), expressing the view that participation in the EEDI database should be made mandatory for all ships covered by the EEDI regulation, and that a minimum level of transparency for the data should be guaranteed to assess whether the design performance of new ships matches the EEDI requirements.

4.37 In the ensuing discussion on the establishment of an EEDI database the following comments, inter alia, were made:

.1 the database should be established only if intellectual property rights are protected and commercial sensitivities are taken into account, with data supplied on a confidential basis to the Secretariat;

.2 the purpose is to review the status of technological developments and consequently there is no need to identify individual ships;

.3 the ship identification number should be included in the data sets for use by the Secretariat only to avoid duplication of data;

.4 transparency is important to safeguard the proper implementation of the EEDI and detect possible violations of the standard and is the norm for other transport modes, while other delegations advocated a minimum level of transparency which would ensure the anonymity of individual ships; and

.5 ship's reference speed is not a parameter included in the International Energy Efficiency Certificate and would add an administrative burden if it needed to be retrieved from a ship's technical file.

4.38 Following discussion, the Committee, having noted an intervention by the Secretariat which explained that, from its perspective, the data would be held confidentially with minimum administrative burden to be used solely by the review group, agreed to the establishment of an EEDI database and instructed the working group to consider the minimum data required to support the reviews required under regulation 21.6 of MARPOL Annex VI and to advise the Committee accordingly.

IMO model course on energy efficient operation of ships

4.39 The Committee noted that, as instructed by MEPC 65 (MEPC 65/22, paragraph 4.128), the Secretariat had published the IMO Model Course on Energy Efficient Operation of Ships (reference ET405E).

ESTABLISHMENT OF THE WORKING GROUP ON AIR POLLUTION AND ENERGY EFFICIENCY

4.40 The Committee established the Working Group on Air Pollution and Energy Efficiency, under the chairmanship of Mr. K. Yoshida (Japan), and instructed it, taking into account relevant documents as well as comments and decisions made in plenary, to:

.1 finalize the draft 2014 standard specification for shipboard incinerators, using the annex to document MEPC 66/4/1 as the basis, with a view to adoption at this session;

.2 prepare draft terms of reference for a correspondence group on fuel availability review, using the annex to document MEPC 66/4/24 as the basis;

.3 consider draft amendments to MARPOL Annex VI regarding engines solely fuelled by gaseous fuels, using the annex to document MEPC 66/7/1 as the basis, and advise the Committee accordingly;

.4 consider and prepare draft amendments to regulation 13.7.3 of MARPOL Annex VI and item 2.2.1 of the supplement to the IAPP Certificate and consider associated draft guidance, using the annexes to documents MEPC 66/7/5 and MEPC 66/INF.35, respectively, as the basis;

.5 further develop and finalize the draft *2014 Guidelines on the method of calculation of the attained Energy Efficiency Design Index (EEDI) for new ships*, using annex 2 to document MEPC 65/WP.10 as the basis, with a view to adoption at this session;

.6 review and, if possible, develop draft amendments to the *2012 Guidelines on survey and certification of the Energy Efficiency Design Index (EEDI),* as amended, using MEPC.1/Circ.816 as the basis;

.7 review and, if possible, develop draft amendments to the *Interim Guidelines for determining minimum propulsion power to maintain the manoeuvrability of ships in adverse conditions* (resolution MEPC.232(65)), using document MEPC 66/4/10 as the basis;

.8 consider proposed draft amendments to the *Interim Guidelines for the calculation of the coefficient f_w for decrease in ship speed in a representative sea condition for trial use* (MEPC.1/Circ.796);

.9 review and, if possible, develop draft amendments to the unified interpretation of regulation 2.24 of Annex VI (MEPC.1/Circ.795), using document MEPC 66/4/11 as the basis; and

.10 consider and recommend the minimum data required to support the reviews required under regulation 21.6 of MARPOL Annex VI, using document MEPC 66/4/13 as the basis.

REPORT OF THE WORKING GROUP

4.41 Having considered the report of the working group (MEPC 66/WP.7), the Committee approved it in general and took action as indicated in the following paragraphs.

2014 Standard Specification for Shipboard Incinerators

4.42 The Committee adopted resolution MEPC.244(66) on *2014 Standard Specification for Shipboard Incinerators*, as set out in annex 3.

4.43 In this connection, the Committee approved consequential amendments to the footnotes to regulations 16.3 and 16.6.1 of MARPOL Annex VI relating to the 2014 Standard Specification, as set out in annex 2 to document MEPC 66/WP.7, and requested the Secretariat to take the necessary action when preparing the next consolidated edition of the MARPOL Convention.

Correspondence group on the assessment of availability of fuel oil under MARPOL Annex VI

4.44 The Committee agreed to re-establish the Correspondence Group on the Assessment of Availability of Fuel Oil required under regulation 14.8 of MARPOL Annex VI, under the coordination of the United States[2], and instructed it to develop the methodology to determine the availability of fuel oil to comply with the fuel oil standard set out in regulation 14.1.3 of MARPOL Annex VI, using the annex to document MEPC 62/4/5 as the basis, and addressing in particular:

.1 how to use the supply/demand models identified through previous discussions of the draft methodology, giving consideration to the latest amendments to MARPOL Annex VI, and any new emission control areas (ECAs) that may be proposed or adopted;

.2 how to track changes in fuel oil demand and supply and what facilities or resources may need to be engaged; means to improve the accuracy of longer term forecasts should also be considered;

.3 how to forecast changes to marine fuel oil availability specified in regulation 14.1.3 of MARPOL Annex VI, on both a global level and for the regions defined in the refinery modelling tool, taking into account:

.1 the addition of new ECAs;

.2 changes in global fuel oil supply and demand as a result of projected economic activity or other influences;

.3 the impact of the use of alternative fuels such as LNG and biofuels; and

.4 the impact of the use of alternative compliance methods (abatement technology);

.4 an early review of actual and planned refinery supply capabilities based on publically available information to provide reliable data for the refinery supply modelling;

.5 appropriate terms of reference, including timeline and pros and cons for early review, required under regulation 14 of MARPOL Annex VI;

.6 resources needed to carry out the analysis;

.7 implications of competition regulations in place globally related to the exchange of business information and how it can be ensured that such regulations are complied with throughout; and

.8 provide a progress report to MEPC 67, with a view to the Committee adopting the terms of reference of the study at MEPC 68 in 2015.

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Engines solely fuelled by gaseous fuels

4.45 The Committee approved draft amendments to MARPOL Annex VI regarding engines solely fuelled by gaseous fuels, as set out in annex 4; requested the Secretary-General to circulate them in accordance with MARPOL article 16, with a view to adoption at MEPC 67; and invited interested Member Governments and international organizations to submit proposals for associated draft amendments to the NO_x Technical Code, including any consequential amendments, to MEPC 67 for consideration, with a view to approval.

Regulation 13.7.3 of MARPOL Annex VI and item 2.2.1 of the supplement to the IAPP Certificate

4.46 The Committee approved draft amendments to regulation 13.7.3 of MARPOL Annex VI and item 2.2.1 of the supplement to the IAPP Certificate, as set out in annex 4, and requested the Secretary-General to circulate them in accordance with MARPOL article 16, with a view to adoption at MEPC 67.

4.47 In this connection, the Committee also agreed, in principle, to draft guidance on the supplement to the IAPP Certificate, as set out in the annex to document MEPC 66/INF.35, and instructed the Secretariat to prepare a relevant draft circular, with a view to approval at MEPC 67.

Guidelines to support implementation of the EEDI

4.48 The Committee adopted resolution MEPC.245(66) on *2014 Guidelines on the Method of Calculation of the Attained Energy Efficiency Design Index (EEDI) for new ships*, as set out in annex 5.

4.49 The Committee noted that the group had prepared amendments to the *2012 Guidelines on Survey and Certification of the Energy Efficiency Design Index (EEDI), as amended* (resolution MEPC.213(63)), as set out in annex 7 to document MEPC 66/WP.7, with a view to finalization and adoption at MEPC 67.

4.50 The Committee endorsed the views of the group relating to the *Interim guidelines for determining minimum propulsion power to maintain the manoeuvrability of ships in adverse conditions* (resolution MEPC.232(65)) as follows:

.1 the interim guidelines are not applicable to ships of less than 20,000 DWT and no amendment to the interim guidelines was required; and

.2 noting that regulation 21.5 of MARPOL Annex VI applies to ships to which regulation 20 applies, it is necessary to develop guidelines for phases 2 and 3 under regulation 21.5 and thorough consideration of this issue would be required at a future session of the Committee.

4.51 The Committee invited further input on the *Interim guidelines for the calculation of the coefficient f_w for decrease in ship speed in a representative sea condition for trial use* (MEPC.1/Circ.796), to be submitted to MEPC 67, where improved guidelines are expected to be developed.

Amendments to the unified interpretations of MARPOL Annex VI (MEPC.1/Circ.795)

4.52 The Committee approved amendments to the interpretation of regulation 2.24 of MARPOL Annex VI, as contained in the unified interpretations of MARPOL Annex VI (MEPC.1/Circ.795), as set out in annex 6, and requested the Secretariat to issue a consolidated text of the unified interpretations, incorporating all amendments, for dissemination as MEPC.1/Circ.795/Rev.1.

Reviews required under regulation 21.6 of MARPOL Annex VI

4.53 With regard to the establishment of an EEDI database (see paragraph 4.38), the Committee agreed to the following minimum data needed to support the reviews required under regulation 21.6 of MARPOL Annex VI and invited IACS to submit these data to the Secretariat on an ad hoc basis in a timely manner to support the reviews:

.1 type of ship;

.2 capacity of ship (GT/DWT as appropriate);

.3 year of delivery;

.4 applicable Phase;

.5 required EEDI;

.6 attained EEDI; and

.7 use of innovative energy efficiency technologies (tick-box indication of whether the fourth and fifth terms of the numerator of the EEDI equation are employed).

TECHNICAL COOPERATION AND TRANSFER OF TECHNOLOGY

Implementation of resolution MEPC.229(65)

4.54 The Committee recalled that the MARPOL Annex VI amendments adopted by MEPC 62 (resolution MEPC.203(62)) included regulation 23 on *Promotion of technical cooperation and transfer of technology relating to the improvement of energy efficiency of ships*, and that MEPC 62 had agreed to develop an associated MEPC resolution on capacity building, technical assistance and transfer of technology.

4.55 The Committee also recalled that MEPC 65 had adopted resolution MEPC.229(65) on *Promotion of technical cooperation and transfer of technology relating to the improvement of energy efficiency of ships*, and that, through this resolution, it had decided to establish, with full stakeholder participation, an Ad Hoc Expert Working Group on Facilitation of Transfer of Technology for Ships (AHEWG-TT), which should report to the Committee, as set out in operative paragraph 3 of the resolution.

4.56 The Committee had for its consideration the following three documents:

.1 MEPC 66/4/17 (Angola et al.), providing a proposal for the implementation of resolution MEPC.229(65), including the elements of the resolution that need to be operationalized;

.2 MEPC 66/4/31, (Belgium et al.), providing comments on document MEPC 66/4/17; and

.3 MEPC 66/INF.24 (Secretariat), informing the Committee of the technical cooperation activities that the Secretariat has undertaken in relation to the implementation of MARPOL Annex VI, in particular chapter 4 thereof.

4.57 In the ensuing discussion on the implementation of resolution MEPC.229(65), the following comments, inter alia, made were:

.1 the delegations that expressed a view confirmed their support for the implementation of the resolution, and emphasized its importance in the context of the implementation of MARPOL Annex VI;

.2 the urgency of initiating the work of the AHEWG-TT at this session of the Committee was stressed, in particular in view of the fact that the amendments to Annex VI entered into force on 1 January 2013;

.3 the information provided by the Secretariat in document MEPC 66/INF.24 illustrated that activities on technical assistance and capacity building in relation to this matter are already under way and will continue in the future;

.4 several delegations stressed the need for the AHEWG-TT to prepare a draft plan for its future work, including the possible convening of meetings or technical workshops; and

.5 given the ad hoc nature of this expert working group, the group, once operationalized, would establish its own modalities for work, as mandated through resolution MEPC.229(65), and only report back to the Committee as requested.

4.58 The Committee also noted, with great appreciation, the contribution of US$80,000 by Norway for the organization of workshops on the transfer of technology.

Establishment of the Ad Hoc Expert Working Group on Facilitation of Transfer of Technology for Ships (AHEWG-TT)

4.59 The Committee established the AHEWG-TT, under the chairmanship of Mr. D. Ntuli (South Africa), and instructed it, on the basis of operative paragraph 3 of resolution MEPC.229(65) and taking into account comments made in plenary, to:

.1 assess the potential implications and impacts of the implementation of the regulations in chapter 4 of MARPOL Annex VI, in particular, on developing States, as a means to identify their technology transfer and financial needs, if any; and

.2 identify and create an inventory of energy efficiency technologies for ships; identify barriers to transfer of technology, in particular to developing States, including associated costs, and possible sources of funding and make recommendations, including the development of a model agreement enabling the transfer of financial and technological resources and capacity building between Parties, for the implementation of the regulations in chapter 4 of MARPOL Annex VI.

Report of the working group

4.60 Having considered the report of the AHEWG-TT (MEPC 66/WP.8), the Committee approved it in general and took action as follows:

.1 endorsed the work plan of the AHEWG-TT, as set out in the annex to document MEPC 66/WP.8;

.2 invited Member States and other stakeholders to contribute in any manner possible, as appropriate, to the work of the group;

.3 requested the Secretariat to provide support to the group, as appropriate; and

.4 noted that the AHEWG-TT would hold its second session at IMO Headquarters on 9 and 10 October 2014, and requested the group to provide a progress report to MEPC 67.

4.61 Several delegations expressed their appreciation for the progress made by the AHEWG-TT, stressed the need to make progress with the implementation of the group's work plan as a matter of urgency, and called upon the Secretariat to give priority to the work of the group, including administrative and logistic support.

4.62 In the ensuing discussion, the Committee noted the need for a balance between urgency and workload, both for the members of the group and the Secretariat, and encouraged the AHEWG-TT to finish its work as soon as practicably possible, but no later than MEPC 69, as set out in the work plan.

4.1 FURTHER TECHNICAL AND OPERATIONAL MEASURES FOR ENHANCING ENERGY EFFICIENCY OF INTERNATIONAL SHIPPING

4.1.1 The Committee recalled that:

.1 MEPC 65 had discussed a proposal by the United States (MEPC 65/4/19) to enhance energy efficiency in international shipping through a phased approach; and comments by Belgium et al. (MEPC 65/4/30), supporting the development of further technical and operational measures to enhance the energy efficiency of ships;

.2 at MEPC 65, there was considerable support for the approach proposed by the United States, especially for the data collection phase, but some delegations had been of the view that there was a need for more ideas and additional information; and

.3 MEPC 65 had agreed to establish a sub-item under agenda item 4 (Air pollution and energy efficiency) for discussion of further technical and operational measures for enhancing the energy efficiency of international shipping, and to establish a working group under this sub-item at this session; and had invited submissions on the proposals in documents MEPC 65/4/19 and MEPC 65/4/30 to this session (MEPC 65/22, paragraph 4.147).

4.1.2 The Committee had for its consideration the following documents:

.1 MEPC 66/4/3 (ICS), recognizing the need to establish a system for collecting accurate figures for annual CO_2 emissions, using the "bottom-up" approach agreed at MEPC 65, and supporting the development of amendments to MARPOL for the monitoring and reporting of individual ships' fuel consumption as soon as possible;

.2 MEPC 66/4/6 (Germany and Japan), providing detailed technical explanations of the three metric options set out in document MEPC 65/4/30: annual EEOI; Individual Ship Performance Indicator (ISPI); and Fuel Oil Reduction Strategy (FORS); and, where applicable, presenting steps for the necessary data collection linked to each option;

.3 MEPC 66/4/9 (Austria et al.), proposing a set of key elements and obligations for a system to collect data on CO_2 emissions and energy efficiency of ships;

.4 MEPC 66/4/14 (Belgium et al.), providing an analysis of the various alternatives put forward to enhance the energy efficiency of maritime transport, including the possibility of using a phased approach, starting with data collection;

.5 MEPC 66/4/19 (Belgium et al.), supporting the development and implementation of a robust system and discussing several key aspects of an energy efficiency data collection system, as well as offering suggestions for consideration of the possible scope, the data collection and reporting process, the obligations of flag State Administrations and of each ship, and a centralized database;

.6 MEPC 66/4/21 (India), recognizing the need to establish a system for collecting accurate figures on annual CO_2 emissions from shipping, but urging the Committee that the immediate priority should be to encourage the full and effective implementation of the technical and operational measures that have already been adopted by the Organization, before embarking upon further regulations for energy efficiency in shipping;

.7 MEPC 66/4/25 (Angola et al.), proposing that the effective implementation of resolution MEPC.229(65) should be a top priority and that, upon effective implementation of the resolution, the Committee may consider properly addressing fundamental issues of enhancing energy efficiency in international shipping, including compliance with the "common but differentiated responsibilities" (CBDR) principle and minimizing impacts on developing countries; and

.8 MEPC 66/4/30 and MEPC 66/INF.33 (CSC), presenting a new study entitled "Economic impacts of MRV of fuel and emissions in maritime transport" on monitoring methods for shipping GHG emissions and providing an update on the process towards establishing an ISO standard to measure changes in hull and propeller performance (ISO-19030).

4.1.3 In the ensuing discussion, the following comments, inter alia, were made:

.1 a number of delegations expressed the view that the development of a data collection system and an appropriate methodology to describe the energy efficiency of a ship are interrelated;

.2 some delegations expressed the view that the initial focus should be to develop a data collection system with the development of a methodology to enhance the energy efficiency of ships to be considered once sufficient relevant data has been collected; and

.3 other delegations expressed the view that the choice of a specific methodology, after having considered and identified the purpose, would determine the amount, frequency and quality of data to be collected, and so the initial focus should be on the development of a methodology.

Establishment of the Working Group on Further Technical and Operational Measures for Enhancing Energy Efficiency of International Shipping

4.1.4 Following consideration, the Committee established the Working Group on Further Technical and Operational Measures for Enhancing Energy Efficiency of International Shipping, under the chairmanship of Mr. A. Chrysostomou (Cyprus), and instructed it, taking into account documents MEPC 65/4/19, MEPC 65/4/30, MEPC 65/4/34, MEPC 65/4/35 and MEPC 65/INF.3/Rev.1, the documents submitted to this session under this agenda item, and the comments and decisions made in plenary, to consider the development of a data collection system for fuel consumption of ships, including identification of the core elements of such a system.

Report of the working group

4.1.5 Having considered the report of the working group (MEPC 66/WP.9), the Committee approved it in general and took action as follows:

.1 noted the progress made on the consideration of the development of a data collection system for ships, including identification of the core elements;

.2 noted paragraph 25 of the report of the working group;

.3 encouraged interested delegations to voluntarily submit data resulting from any monitoring programme and metric testing to the Committee; and

.4 noted that the group was not mandated to discuss the potential direct and indirect impacts of establishing future technical and operational measures including data collection system, and that if the final decision was to establish a mandatory data collection system, the Organization would need to consider the matter further under its technical cooperation and capacity-building programmes.

Establishment of a correspondence group

4.1.6 The Committee, noting that further work should be undertaken intersessionally, agreed to establish a Correspondence Group on Further Technical and Operational Measures for Enhancing Energy Efficiency, under the coordination of Cyprus[3], and instructed it, using document MEPC 66/WP.9 as the basis, to:

.1 consider the development of a data collection system for fuel consumption of ships, including identification of the core elements of such a system; and

.2 submit a report to MEPC 67.

5 REDUCTION OF GHG EMISSIONS FROM SHIPS

IMO Update Study for the GHG Emissions Estimate for International Shipping

5.1 The Committee recalled that MEPC 65 had agreed to the terms of reference of the Update Study (MEPC 65/22/Add.1, annex 19) and that a steering committee that was geographically balanced, equitably representing developing and developed countries and of a manageable size should be established (MEPC 65/22, paragraph 5.7.3); and requested the Secretariat to initiate the Update Study in accordance with the terms of reference, including establishing the steering committee as agreed by the Committee (MEPC 65/22, paragraph 5.10).

5.2 The Committee considered document MEPC 66/5/1 (Steering Committee Coordinator), containing a status report on the Update Study, following the award of contract to UCL Consultants Ltd (UCLC) and the first and second meetings of the Steering Committee.

5.3 The Committee noted an oral update by the Steering Committee Coordinator, Dr. L. Mazany (Canada), informing it that, at the end of February 2014, UCLC had submitted a progress report and the Steering Committee had met on 6 March 2014 to review and monitor the progress of the Update Study, and that the Steering Committee members were of the view that the work was on track to meet the completion date for the third IMO GHG Update Study 2014 and the terms of reference of the study were being met.

5.4 In the ensuing discussion, the following general comments, inter alia, made were:

.1 the delegation of China expressed the view that the fundamental rules of fairness, balance, transparency and inclusiveness were not followed by some members of the Steering Committee, in particular in the process of the evaluation of tender proposals and recommendation of award of contract, and that its report failed to indicate some key information; the delegation therefore reserved its position with regard to the tender result and possibly to future findings of the update study;

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.2 a number of delegations recalled that the report of the Expert Workshop on the update of GHG emissions estimate for international shipping (MEPC 65/5/2) had encouraged the participation of developing countries and that this should be considered for future studies;

.3 other delegations noted the importance of the study and the need for sufficient time to be given to the work to assure the quality of the final outcome;

.4 the delegation of the United Kingdom, supported by a number of other delegations, fully endorsed the conduct and the outcome of the deliberations of the Steering Committee; and

.5 a number of delegations expressed the view that the Steering Committee and its Coordinator worked transparently in accordance with the terms of reference for the Steering Committee and following the IMO procurement policy, and that the objectivity and integrity of the Coordinator was not in any doubt.

5.5 As requested, the statements by the delegations of China and the United Kingdom are set out in annex 20.

5.6 The Committee thanked the Steering Committee Coordinator, the Vice-Coordinator and the members of the Steering Committee for their hard work, welcomed the progress made and noted that the report of the third IMO GHG Study 2014 is expected to be considered at MEPC 67.

UNFCCC matters

5.7 The Committee noted document MEPC 66/5 (Secretariat) on the outcome of the Bonn and Warsaw Climate Change Conferences held in 2013, and that the United Nations Secretary-General will be hosting a parallel initiative, the Climate Summit, in New York on 23 September 2014.

5.8 The Committee requested the Secretariat to continue its cooperation with the UNFCCC Secretariat, to attend relevant UNFCCC meetings and, as necessary, to bring the outcome of the work of IMO to the attention of appropriate UNFCCC bodies and meetings.

6 CONSIDERATION AND ADOPTION OF AMENDMENTS TO MANDATORY INSTRUMENTS

6.1 The Committee was invited to consider and adopt proposed amendments to:

.1 MARPOL Annexes I, II, III, IV, V and VI (to make the use of the Code on Implementation of IMO Instruments (III Code) mandatory);

.2 MARPOL Annex I (mandatory carriage requirements for a stability instrument);

.3 MARPOL Annex V (Record of Garbage Discharge);

.4 MARPOL Annex VI and the NO_X Technical Code 2008 (amendments to regulations 2, 13, 19, 20 and 21 of MARPOL Annex VI, the supplement to the IAPP Certificate and the NO_X Technical Code 2008);

.5 the BCH Code (cargo containment and Form of Certificate of Fitness); and

.6 the IBC Code (general, ship survival capability and location of cargo tanks, cargo tank venting and gas-freeing arrangements, environmental control, fire protection and fire extinction, special requirements, summary of minimum requirements and Form of Certificate of Fitness).

6.2 The Committee noted that the text of the aforementioned amendments had been circulated, in accordance with article 16(2)(a) of MARPOL, to all Member Governments and Parties to MARPOL by Circular Letter No.3370 of 4 June 2013.

Draft amendments to MARPOL Annexes I, II, III, IV, V and VI to make the use of the III Code mandatory

6.3 The Committee recalled that MEPC 64 had considered and approved draft amendments to MARPOL Annexes I, II, III, IV, V and VI to make the use of the III Code mandatory, with a view to adoption at MEPC 66, after the envisaged adoption of the III Code at A 28. The Committee recalled further that MEPC 65 had concurred with modifications to the definitions of "Audit Scheme" and "Audit Standard" as agreed by MSC 91.

6.4 The Committee noted that A 28, having considered the recommendations made by the MSC and the MEPC, had adopted resolutions A.1070(28) on *IMO Instruments Implementation Code (III Code)*; A.1067(28) on *Framework and procedures for the IMO Member State Audit Scheme*; and A.1068(28) on *Transition from the Voluntary IMO Member State Audit Scheme to the IMO Member State Audit Scheme*.

6.5 In this connection, the Committee also noted that the Assembly, having considered draft amendments to the 1966 Load Lines Convention, the 1969 Tonnage Measurement Convention and the 1972 Collision Regulations, together with documents commenting on them, had agreed to a number of modifications to the draft amendments to the above-mentioned instruments, as set out in paragraphs 40, 44 and 49 of document A 28/6(b)/2. The Assembly, having adopted resolutions A.1083(28), A.1084(28) and A.1085(28) on amendments to the 1966 Load Lines Convention, the 1969 Tonnage Measurement Convention and the 1972 Collision Regulations, respectively, invited the MSC and the MEPC to take them into account when considering the corresponding amendments to SOLAS, MARPOL, STCW and the 1988 LL Protocol, with a view to aligning them with those adopted by the Assembly.

6.6 The Committee considered the draft amendments to MARPOL Annexes I, II, III, IV, V and VI to make the use of the III Code mandatory, as set out in annexes 1 and 2 of document MEPC 66/6/7 (Secretariat), which incorporate relevant modifications as agreed by the Assembly, and confirmed their contents, subject to editorial improvements, if any.

6.7 The Committee agreed that the entry-into-force date of the above-mentioned draft amendments should be 1 January 2016, the same date of entry into force of the amendments to SOLAS and other mandatory instruments to make the use of the III Code mandatory.

Draft amendments to MARPOL Annex I on mandatory carriage requirements for a stability instrument

6.8 The Committee recalled that the draft amendments to MARPOL Annex I on mandatory carriage requirements for a stability instrument, as set out in the annex to document MEPC 66/6/1 (Secretariat), had been developed by SLF 55 and approved by MEPC 65.

6.9 In considering the above-mentioned draft amendments, the Committee instructed the drafting group to adjust the text of new paragraph 6 of regulation 28 of MARPOL Annex I to better reflect the fact that the proposed amendments apply both to new and existing ships, and to use uniform wording when referencing recommendatory guidelines.

6.10 Subsequently, the Committee confirmed the contents of the proposed amendments, subject to editorial improvements, if any.

6.11 The Committee agreed that the entry-into-force date of the above-mentioned draft amendments should be 1 January 2016.

Draft amendments to the BCH Code

6.12 The Committee recalled that the draft amendments to the Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (BCH Code), as set out in the annex to document MEPC 66/6/4 (Secretariat), had been developed by SLF 55 and approved by MEPC 65.

6.13 The Committee noted that no comments had been submitted on the draft amendments and confirmed their contents, subject to editorial improvements, if any.

6.14 The Committee agreed that the entry-into-force date of the above-mentioned draft amendments should be 1 January 2016.

Draft amendments to the IBC Code

6.15 The Committee recalled that the draft amendments to the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code), as set out in the annex to document MEPC 66/6/5 (Secretariat), had been prepared by BLG 17 and SLF 55 and approved by MEPC 65.

6.16 The Committee considered the outcome of PPR 1 concerning the above draft amendments (MEPC 66/11/4, paragraph 2.1), which proposed to delete the asterisk at the end of draft new paragraph 15.13.5.1 of the IBC Code. Following discussion, the Committee agreed not to delete the asterisk and instead to use the text of the original footnote to existing paragraph 15.13.5 of the IBC Code as the text of the footnote to new paragraphs 15.13.5.1 and 15.13.5.2.

6.17 In this connection, the Committee also considered comments made by several delegations concerning the perceived inconsistency in the text of proposed new paragraphs 15.13.5.1 and 15.13.5.2 of the IBC Code, as well as the need to align the draft amendments to the IBC Code with the related draft amendments to SOLAS chapter II-2. Following consideration, the Committee agreed to replace the word "shall" with the word "may" in the first sentence of paragraph 15.13.5.2. The Committee further instructed the drafting group to consider the need for additional text in that paragraph to regulate the timing of application of inert gas by existing ships.

6.18 Subsequently, the Committee confirmed the contents of the draft amendments, as further modified, subject to editorial improvements, if any.

6.19 The Committee agreed that the entry-into-force date of the above-mentioned draft amendments should be 1 January 2016.

Draft amendments to MARPOL Annex V on Record of Garbage Discharge

6.20 The Committee recalled that the draft amendments to MARPOL Annex V on Record of Garbage Discharge, as set out in the annex to document MEPC 66/6/2 (Secretariat), had been approved by MEPC 65, following the consideration of the proposal contained in document MEPC 65/7/6 (Australia et al.).

6.21 The Committee had for its consideration document MEPC 66/6/9 (Bahamas), which suggested reconsidering the adoption of the draft amendments to MARPOL Annex V, due to perceived discrepancies between the text of the Convention and the form of the Garbage Record Book.

6.22 In the ensuing discussion, the Committee noted the support for the need to address the discrepancies identified in document MEPC 66/6/9. A number of delegations also suggested that the Garbage Record Book should be amended to cater for recording the disposal of residues of solid bulk cargo, in particular when those cargo residues are classified as harmful to the marine environment.

6.23 Following consideration, the Committee agreed to postpone adoption of the draft amendments to MEPC 67 and invited interested Member Governments and international organizations to submit comments on the circulated draft amendments (MEPC 66/6/2) to that session, for consideration, with a view to adoption of the above-mentioned amendments.

Draft amendments to MARPOL Annex VI and the NO_X Technical Code 2008

6.24 The Committee recalled that the draft amendments to MARPOL Annex VI and the NO_X Technical Code 2008, as set out in the annex to document MEPC 66/6/3 (Secretariat), had been approved by MEPC 65 and consist of the following:

.1 amendments to regulation 13 of MARPOL Annex VI and the Supplement to the International Air Pollution Prevention (IAPP) Certificate concerning the effective date of the Tier III NO_X emission standards;

.2 amendments to regulations 2, 19, 20 and 21 of MARPOL Annex VI concerning the application of the EEDI (extension of its application to LNG carriers, ro-ro cargo ships (vehicle carriers), ro-ro cargo ships, ro-ro passenger ships and cruise passenger ships having non-conventional propulsion and exemption of ships not propelled by mechanical means and cargo ships having ice-breaking capability); and

.3 amendments to the NO_X Technical Code 2008 to certify dual-fuel engines.

Draft amendments concerning the effective date of the Tier III NO_X emission standards

6.25 The Committee had for its consideration the following documents, proposing further modifications to the draft amendments concerning the effective date of the Tier III NO_X emission standards:

.1 MEPC 66/6/6 and Corr.1 (Canada et al.), commenting on the technical questions raised in document MEPC 65/4/27, expressing the view that the relevant emission control technology is clearly available, and proposing to retain the existing effective date of 1 January 2016, with the exception of a five-year delay for large yachts (greater than 24 m in length and less than 500 gross tonnage); and

.2 MEPC 66/6/10 (Marshall Islands and Norway), proposing that the effective date of 1 January 2016 be retained for the existing NO_X emission control areas (ECAs) (the North American Emission Control Area and the United States Caribbean Sea Area) with the exception of a five-year delay in implementation for large yachts, and that the effective date be postponed to 1 January 2021 for ECAs that may be designated in the future to control emissions of NO_X.

6.26 The Committee also had for its consideration the following documents, commenting on the draft amendments concerning the effective date of the Tier III NO_X emission standards:

.1 MEPC 66/6/8 and MEPC 66/6/17 (Russian Federation), commenting on document MEPC 66/6/6 and providing additional grounds for the proposed change of the effective date of Tier III NO_X emission standards to 1 January 2021, as approved by MEPC 65;

.2 MEPC 66/6/12 (CESA), expressing concerns that a postponement of the effective date of the Tier III NO_X emission standards would create undue uncertainty in the maritime regulatory framework and would have a detrimental impact on the shipbuilding industry;

.3 MEPC 66/6/14 (ACOPS), providing cost estimates of Tier III compliant marine Selective Catalytic Reduction (SCR) technology, and supporting the view expressed in document MEPC 66/6/6 that the costs are small when compared both to the total capital and operating cost of a ship and to the substantial human health and welfare benefits that will be achieved from reduced NO_X emissions;

.4 MEPC 66/6/15 (BIMCO and WSC), expressing concerns that the draft amendments, as contained in document MEPC 66/6/3, if adopted, would undermine the regulatory stability that MARPOL Annex VI has established, and suggesting that the compromise proposal in document MEPC 66/6/10 may provide a way forward;

.5 MEPC 66/6/16 (CSC et al.), suggesting that postponing the effective date of the Tier III NO_X emission standards was not technically justified and would give cause to a series of extremely negative consequences, and suggesting to retain the existing effective date of 1 January 2016.

6.27 In this connection, the Committee further noted the information contained in document MEPC 66/INF.4 (EUROMOT) on the application status of Tier III compliant technologies.

6.28 In the ensuing discussion, the majority of delegations that spoke supported the modifications proposed in document MEPC 66/6/6, that is to retain the existing effective date of 1 January 2016, with the exception of a five-year delay for large yachts (greater than 24 m in length and of less than 500 gross tonnage). Those delegations expressed, inter alia, the following views:

.1 postponing the effective date is not technologically justified as the review conducted by the correspondence group, in accordance with regulation 13.10 of MARPOL Annex VI, had concluded that technologies for implementing the Tier III NO_x standards are available, and that the effective date of 1 January 2016 should be retained;

.2 the newly released report on "Climate Impacts, Adaptation and Vulnerability" by the United Nations Intergovernmental Panel on Climate Change (IPCC) proved the need to use the best available technologies to reduce NO_X emissions from shipping;

.3 postponing the effective date would adversely affect future cooperation of industry stakeholders, including engine manufacturers and the shipbuilding industry, which have undertaken huge financial investments to develop compliant engine and adapt ship designs;

.4 postponing the effective date would affect the Organization's commitment and ability to address the environmental impact of international shipping; and

.5 the proposed exception of a five-year delay for large yachts would provide the needed time for relevant industries to comply with the NO_X Tier III emission standards.

6.29 The delegations of Palau, Niue and Benin (in chronological order), in supporting the proposals in document MEPC 66/6/6, made statements as set out in annex 20.

6.30 A number of other delegations indicated their support for the original draft amendments as circulated, that is to postpone the effective date by five years. Those delegations expressed, inter alia, the following views:

.1 the development of the Selective Catalytic Reduction (SCR) technology has not reached an acceptable level, and its serious drawbacks have not been rectified; and Exhaust Gas Recirculation (EGR) technology and the use of LNG as fuel for ships other than gas carriers are still at a very early stage;

.2 ammonia slip and generation of CO_2 emissions as part of the SCR chemical reaction and methane slip in gas engines may lead to an environmental impact that negates the benefit of reducing NO_X emissions, and these concerns should be carefully addressed; and

.3 the economic burden associated with compliance with NO_X Tier III emission standards for shipowners and operators needs to be properly considered.

6.31 With regard to concerns expressed that document MEPC 66/6/6 should be considered as a new proposal for amendments to MARPOL Annex VI, which would need to be circulated six months prior to consideration, the Committee agreed that the document in question was commenting on document MEPC 66/6/3 and that, therefore, the proposals made therein should be considered as modifications to the basic proposal.

6.32 A number of delegations supported the compromise proposal contained in document MEPC 66/6/10, stressing the need for a pragmatic solution in the spirit of cooperation. Those delegations stated that the principle of non-retrofitting for existing ships, which, in their view, was agreed upon when adopting the revised MARPOL Annex VI, should be maintained in any future amendments. Consequently, the effective date of 1 January 2016 shall only apply to existing ECAs for NO_x as listed in paragraphs 6.1 and 6.2 of regulation 13 of MARPOL Annex VI. The effective dates of NO_X Tier III emission standards for any future ECAs for NO_x would be later than 1 January 2016.

6.33 Following extensive discussion, the Committee agreed to further modifications to the draft amendments to regulation 13 of MARPOL Annex VI, as suggested in document MEPC 66/6/6, namely:

.1 to retain the effective date of 1 January 2016 for the existing emission control areas for NO_x as listed in paragraphs 6.1 and 6.2 of regulation 13 of MARPOL Annex VI; and

.2 to establish an exception of a five-year delay for large yachts (greater than 24 m in length and of a gross tonnage of less than 500).

6.34 The Committee also agreed to the suggestion of the delegation of the Cook Islands on the need to further improve the text of regulation 13 of MARPOL Annex VI, with a view to clarifying the effective dates of NO_X Tier III emission standards for any future ECAs for NO_x (see paragraph 6.32).

6.35 In this connection, the Committee considered a compromise text prepared by a group of interested delegations, which, in their view, provided Parties establishing new ECAs for NO_x with the flexibility to apply the NO_X Tier III emission standards to ships constructed on or after the date of circulation of a proposal for adoption of an ECA. This would effectively mean a maximum of two years prior to establishment of an ECA and would also give the industry certainty as to when the NO_X Tier III emission standards could apply, limiting retrospective application. The Committee noted that those delegations had proposed, inter alia, new text for subparagraph 3 of regulation 13.5.1 of MARPOL Annex VI, as follows:

".3 that ship is operating in an emission control area designated for Tier III NO_X control under paragraph 6 of this regulation, other than an emission control area described in paragraph 5.1.2 of this regulation, and is constructed on or after the date of circulation for adoption of the new emission control area, or a later date, as may be specified in the amendment designating the NO_X Tier III emission control area."

6.36 The delegation of Ireland, in suggesting that the adoption of these amendments should be postponed to MEPC 67 to allow sufficient time for all Parties to study the full implications of the effects of these significant amendments and that the wording "used solely for recreational purposes" be replaced by the wording "pleasure yachts not engaged in trade" for consistency with the term used in SOLAS chapter I, made a statement, the full text of which is set out in annex 20.

6.37 The delegation of China expressed the view that the wording "the date of circulation for adoption" used in the suggested text of subparagraph 3 of regulation 13.5.1, referred to in paragraph 6.35 above, was neither feasible in practice and would cause legal and economic disputes among Parties, nor in conformity with fundamental principles of international law, and, if agreed, would set a dangerous precedent for the Organization.

6.38 The delegation of Spain raised concern that the suggested flexibility for setting up effective dates of new ECAs for NO_x would allow ships that need to comply with NO_x Tier III emission standards in existing ECAs to not necessarily comply with the same standards in the new ECAs; and would potentially encourage the use of old ships to operate in those areas, in order to avoid compliance with the NO_x Tier III emission standards, which is against the principle of using best available technologies to protect the marine environment, with the consequent implications also for safety. The delegation of Spain further indicated that they would consider applying MARPOL article 16(2)(f)(ii) to express that approval will be

necessary before the amendments enter into force for their country if the Committee adopts the amendments in question at the current session.

6.39 Notwithstanding the above, the Committee, having noted that the majority of the delegations that spoke were in favour of the compromise text (see paragraph 6.35), agreed to refer it to the drafting group for consideration and finalization.

Draft amendments concerning the application of the EEDI

6.40 The Committee had for its consideration the following documents commenting on the draft amendments to regulations 2, 19, 20 and 21 of MARPOL Annex VI concerning the application of the EEDI:

.1 MEPC 66/6/11 (China), seeking clarification on the interpretation of hybrid propulsion, commenting on size limitation of ro-ro passenger ships and proposing further modifications to the draft amendments to regulations 5.4.2, 21.1 and 21.4 of MARPOL Annex VI; and

.2 MEPC 66/6/13 (Japan), proposing further modifications to the draft amendments to regulations 2.38 and 2.43 of MARPOL Annex VI, with a view to clarifying the date on which regulations 20 and 21 of MARPOL Annex VI shall apply to ships.

6.41 The Committee, having considered document MEPC 66/6/11, took the following decisions:

.1 agreed to replace the words "a ship" in the first sentence of regulation 5.4.2 of MARPOL Annex VI with the words "a new ship";

.2 instructed the Working Group on Air Pollution and Energy Efficiency, established under agenda item 4, to consider the suggestion that, for table 1 in regulation 21.1 of MARPOL Annex VI, DWT be used for the size limitation of ro-ro passenger ships, rather than gross tonnage, and advise the Committee accordingly (see paragraph 6.46);

.3 did not agree to the proposed modifications to regulation 21.4 of MARPOL Annex VI; and

.4 agreed to the need to clarify the term "hybrid propulsion" used in the definition of "non-conventional propulsion" and invited Member Governments and international organizations to submit relevant comments and proposals to MEPC 67 for detailed consideration.

6.42 In this connection, several delegations questioned whether the Committee's agreement on the incorporation in the circulated draft amendments (MEPC 66/6/3) of modifications to regulation 5.4.2 of MARPOL Annex VI had followed the procedure for amendments as set out in article 16 of MARPOL. They were of the view that those modifications should be considered as a new proposal, which would need to be circulated six months before being considered by the Committee, as the original draft amendments do not contain any amendments to that regulation.

6.43 The Committee stressed that procedures for amendments should always be strictly followed and, moreover, agreed that the proposed modifications should be considered as consequential amendments to MARPOL Annex VI, following the approval of unified interpretations of MARPOL Annex VI (MEPC.1/Circ.795), taking into account that those

modifications would have a bearing on the other amendments to the EEDI requirements approved by MEPC 65.

6.44 The Committee, having considered document MEPC 66/6/13, agreed to the proposed new definition of "ships constructed on or after 1 September 2015" as well as further modifications to the definition of "LNG carriers", as set out in paragraphs 6 and 7 of the document.

6.45 The Committee also agreed to further modify the definition of "conventional propulsion" in draft new paragraph 40 of regulation 2 of MARPOL Annex VI to read:

> "40 Conventional propulsion in relation to chapter 4 of this Annex means a method of propulsion where a main reciprocating internal combustion engine(s) is the prime mover and coupled to a propulsion shaft either directly or through a gear box."

6.46 In relation to paragraph 6.41.2, the Committee, having considered the relevant part of the report of the Working Group on Air Pollution and Energy Efficiency (MEPC 66/WP.7, paragraphs 5 and 6), concurred with the proposal by China for the use of DWT in table 1 of regulation 21.1 of MARPOL Annex VI.

Draft amendments to the NO_X Technical Code 2008

6.47 The Committee agreed to further modify the definition of "marine diesel engine" in paragraph 1.3.10 of the NO_X Code to read:

> "1.3.10 *Marine diesel engine* means any reciprocating internal combustion engine operating on liquid or dual fuel, to which regulation 13 applies, including booster/compound systems if applied.
>
> Where an engine is intended to be operated normally in the gas mode, i.e. with the gas fuel as the main fuel and with liquid fuel as the pilot or balance fuel, the requirements of regulation 13 have to be met only for this operation mode. Operation on pure liquid fuel resulting from restricted gas supply in cases of failures shall be exempted for the voyage to the next appropriate port for the repair of the failure."

Entry-into-force date of the amendments to MARPOL Annex VI and the NO_X Technical Code 2008

6.48 The Committee agreed that the entry-into-force date of the above draft amendments should be 1 September 2015.

Establishment of the Drafting Group on Amendments to Mandatory Instruments

6.49 The Committee established the Drafting Group on Amendments to Mandatory Instruments and instructed it, taking into account comments, proposals and decisions made in plenary, to prepare:

> .1 the final text of the draft amendments to MARPOL Annexes I, II, III, IV, V and VI to make the use of the III Code mandatory, together with the associated MEPC resolutions;

.2 the final text of the draft amendments to MARPOL Annex I on mandatory carriage requirements for a stability instrument, together with the associated MEPC resolution;

.3 the final text of the draft amendments to the BCH Code, together with the associated MEPC resolution;

.4 the final text of the draft amendments to the IBC Code, together with the associated MEPC resolution; and

.5 the final text of the draft amendments to MARPOL Annex VI and the NO_X Technical Code 2008, together with the associated MEPC resolution.

Report of the drafting group

6.50 Having considered the report of the drafting group (MEPC 66/WP.10 and MEPC 66/WP.10/Add.1), the Committee approved it in general and took action as indicated below.

Adoption of the amendments to MARPOL Annexes I, II, III, IV, V and VI to make the use of the III Code mandatory

6.51 The Committee considered the final text of the draft amendments to MARPOL Annexes I, II, III, IV and V to make the use of the III Code mandatory, prepared by the drafting group (MEPC 66/WP.10, annex 1), and adopted the amendments by resolution MEPC.246(66), as set out in annex 7.

6.52 The Committee considered the final text of the draft amendments to MARPOL Annex VI to make the use of the III Code mandatory, prepared by the drafting group (MEPC 66/WP.10, annex 2), and adopted the amendments by resolution MEPC.247(66), as set out in annex 8.

6.53 In adopting resolutions MEPC.246(66) and MEPC.247(66), the Committee determined, in accordance with article 16(2)(f)(ii) of the 1973 MARPOL Convention, that the adopted amendments to MARPOL Annexes I, II, III, IV, V and VI shall be deemed to have been accepted on 1 July 2015 (unless, prior to that date, objections are communicated to the Secretary-General of the Organization, as provided for in article 16(2)(f)(iii) of the Convention) and shall enter into force on 1 January 2016, in accordance with article 16(2)(g)(ii) of the Convention.

6.54 The delegation of Greece made a declaration in relation to the adoption of the amendments concerning the III Code, as set out in annex 20. The delegations of Austria, Belgium, Bulgaria, Croatia, Cyprus, Denmark, Estonia, Finland, France, Germany, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovenia, Spain, Sweden and the United Kingdom associated themselves with the declaration made by the delegation of Greece.

6.55 In response to the above-mentioned declaration, the delegation of Japan made a statement, as set out in annex 20. The delegations of Australia, the Bahamas, Canada, China, the Cook Islands, Liberia, the Marshall Islands, Panama, the Philippines, the Republic of Korea, the Russian Federation, Singapore, Tuvalu, the United States and Vanuatu associated themselves with the statement made by the delegation of Japan.

6.56 The delegation of the United States made a statement in relation to the III Code, as set out in annex 20. The delegation of China associated itself with the statement made by the delegation of the United States.

Adoption of the amendments to MARPOL Annex I on mandatory carriage requirements for a stability instrument

6.57 The Committee considered the final text of the draft amendments to MARPOL Annex I on mandatory carriage requirements for a stability instrument, prepared by the drafting group (MEPC 66/WP.10, annex 3), and adopted the amendments by resolution MEPC.248(66), as set out in annex 9.

6.58 In adopting resolution MEPC.248(66), the Committee determined, in accordance with article 16(2)(f)(ii) of the 1973 MARPOL Convention, that the adopted amendments to MARPOL Annex I shall be deemed to have been accepted on 1 July 2015 (unless, prior to that date, objections are communicated to the Secretary-General of the Organization, as provided for in article 16(2)(f)(iii) of the Convention) and shall enter into force on 1 January 2016, in accordance with article 16(2)(g)(ii) of the Convention.

Adoption of the amendments to the BCH Code

6.59 The Committee considered the final text of the draft amendments to the BCH Code, prepared by the drafting group (MEPC 66/WP.10, annex 4), and adopted the amendments by resolution MEPC.249(66), as set out in annex 10.

6.60 In adopting resolution MEPC.249(66), the Committee determined, in accordance with article 16(2)(f)(iii) of the 1973 MARPOL Convention, that the adopted amendments to the BCH Code shall be deemed to have been accepted on 1 July 2015 (unless, prior to that date, objections are communicated to the Secretary-General of the Organization, as provided for in article 16(2)(f)(iii) of the Convention) and shall enter into force on 1 January 2016, in accordance with article 16(2)(g)(ii) of the Convention.

Adoption of the amendments to the IBC Code

6.61 The Committee considered the final text of the draft amendments to the IBC Code, prepared by the drafting group (MEPC 66/WP.10, annex 5), and noted the comments made by a number of delegations concerning the footnote to new paragraphs 15.13.5.1 and 15.13.5.2 of the IBC Code. Following discussion, the Committee invited MSC 93 to consider and decide on the final text for the above-mentioned footnote when adopting the same amendments, bearing in mind that the footnote would not be included in the authentic text and that the issue in question relates to a safety aspect.

6.62 Subsequently, the Committee adopted the amendments to the IBC Code by resolution MEPC.250(66), as set out in annex 11.

6.63 In adopting resolution MEPC.250(66), the Committee determined, in accordance with article 16(2)(f)(iii) of the 1973 MARPOL Convention, that the adopted amendments to the IBC Code shall be deemed to have been accepted on 1 July 2015 (unless, prior to that date, objections are communicated to the Secretary-General of the Organization, as provided for in article 16(2)(f)(iii) of the Convention) and shall enter into force on 1 January 2016, in accordance with article 16(2)(g)(ii) of the Convention.

Adoption of the amendments to MARPOL Annex VI and the NO_X Technical Code 2008

6.64 The Committee considered the final text of the draft amendments to MARPOL Annex VI and the NO_X Technical Code 2008, prepared by the drafting group (MEPC 66/WP.10/Add.1, annex), and agreed:

.1 to replace the definition "a ship constructed on or after 1 September 2015", in regulation 2.43 of MARPOL Annex VI, with the definition "a ship delivered on or after 1 September 2019" as follows:

"A *ship delivered on or after 1 September 2019* means a ship:

.1 for which the building contract is placed on or after 1 September 2015; or

.2 in the absence of a building contract, the keel of which is laid, or which is at a similar stage of construction, on or after 1 March 2016; or

.3 the delivery of which is on or after 1 September 2019. ";

.2 to replace the words "constructed on or after 1 September 2015", in regulation 19.3 and the third footnote to table 1 in regulation 21.2 of MARPOL Annex VI, with the words "delivered on or after 1 September 2019"; and

.3 that the final text of subparagraph .3 of regulation 13.5.1 of MARPOL Annex VI should read:

".3 that ship is operating in an emission control area designated for Tier III NO_X control under paragraph 6 of this regulation, other than an emission control area described in paragraph 5.1.2, and is constructed on or after the date of adoption of such an emission control area, or a later date as may be specified in the amendment designating the NO_X Tier III emission control area, whichever is later."

6.65 Subsequently, the Committee adopted the amendments to MARPOL Annex VI and the NO_X Technical Code 2008 by resolution MEPC.251(66), as set out in annex 12.

6.66 In adopting resolution MEPC.251(66), the Committee determined, in accordance with article 16(2)(f)(ii) of the 1973 MARPOL Convention, that the adopted amendments to MARPOL Annex VI and the NO_X Technical Code 2008, shall be deemed to have been accepted on 1 March 2015 (unless, prior to that date, objections are communicated to the Secretary-General of the Organization, as provided for in article 16(2)(f)(iii) of the Convention) and shall enter into force on 1 September 2015, in accordance with article 16(2)(g)(ii) of the Convention.

6.67 The delegation of the Russian Federation, supported by a number of delegations, commended the Committee for adopting, by consensus, the amendments to MARPOL Annex VI concerning the effective date of the Tier III NO_X emission standards and urged that more research and studies be carried out to address the potential operational safety and environmental effects associated with NO_X emission reduction technologies (see paragraph 6.30).

6.68 A number of delegations stated that they shared the concerns expressed by the delegations of Ireland and Spain (see paragraphs 6.36 and 6.38) that the amendments had been adopted hastily, and some of them indicated their intention to consider applying MARPOL article 16(2)(f)(ii) with regard to the procedure for acceptance of the amendments.

6.69 The observer from CSC, supported by the observer from FOEI, made a statement in relation to the adoption of the above-mentioned amendments, as set out in annex 20.

6.70 The delegation of Cyprus, supported by a number of other delegations, pointed out that, in its statement, the observer from CSC had mentioned that the Committee had rejected the proposal contained in document MEPC 66/6/10, which was not factual. Those delegations commended the Committee for having, in its wisdom, through constructive negotiation, reached a compromise in the spirit of cooperation and adopted the amendments by consensus.

Instructions to the Secretariat

6.71 In adopting the above-mentioned amendments, the Committee authorized the Secretariat, when preparing the authentic texts of the amendments, as appropriate, to make any editorial corrections that may be identified, including updating references to renumbered paragraphs, and to bring to the attention of the Committee any errors or omissions that require action by the Parties to MARPOL.

7 INTERPRETATIONS OF, AND AMENDMENTS TO, MARPOL AND RELATED INSTRUMENTS

7.1 The Committee noted that of the nine documents submitted under this agenda item, documents MEPC 66/7/1, MEPC 66/7/4, MEPC 66/7/5, MEPC 66/INF.32 and MEPC 66/INF.35 had been considered under agenda item 4 (Air pollution and energy efficiency).

Use of electronic record books under MARPOL

7.2 The Committee recalled that MEPC 65 had established a Correspondence Group on the Use of Electronic Record Books under MARPOL and had instructed it to prepare draft guidance for the use of electronic record books under MARPOL, taking into account the ongoing work of the FAL Committee on electronic access to certificates and documents.

7.3 The Committee considered the report of the correspondence group (MEPC 66/7), which provided the text of draft guidance for the use of electronic record books under MARPOL and raised a number of outstanding issues that need further consideration.

7.4 The Committee noted general support for the outcome of the correspondence group; however, a number of delegations highlighted that the use of electronic record books should be considered optional. The Committee also noted concerns on the certification and verification of electronic record books, and that the electronic record book should achieve the same level of integrity as a hard copy required under MARPOL, in particular concerning the requirement that each completed page of the record book shall be signed by the master of the ship.

7.5 Acknowledging the merits of electronic record-keeping in general, but realizing that further work on the matter was necessary, the Committee re-established the Correspondence Group on the Use of Electronic Record Books under MARPOL, under the

coordination of Australia[4], and instructed it, taking into account the comments and decisions made in plenary, to:

.1 finalize the draft guidance for the use of electronic record books under MARPOL, on the basis of the annex to document MEPC 66/7 and taking into account the ongoing work of the FAL Committee in this respect;

.2 consider and prepare any necessary amendments and/or unified interpretations of annexes of MARPOL, as appropriate, in order to allow for the use of electronic record books;

.3 consider the need for any consequential amendments to the *Procedures for port State control, 2011* (resolution A.1052(27)); and

.4 submit a written report to MEPC 68.

Boiler/economizer washdown water

7.6 The Committee had for its consideration document MEPC 66/7/2 (Japan, Panama, ICS and INTERCARGO), which presented the environmental testing results for boiler/economizer washdown water; proposed that it should be regarded as "other similar discharges" essential to the operation of a ship, rather than "operational waste"; and provided proposed amendments to the *2012 Guidelines for the implementation of MARPOL Annex V* (resolution MEPC.219(63)) as well as a draft MEPC circular on *Best management practice for boiler/economizer washdown water*.

7.7 Following discussion and acknowledging that more work was needed to prepare adequate guidance, the Committee reiterated its decision taken at MEPC 65 that any Member Government wishing to pursue the matter further should submit a proposal for a new output to be included in the biennial agenda of the PPR Sub-Committee to the Committee for its consideration, in accordance with the Committees' Guidelines.

Proposed amendments to regulation 43 of MARPOL Annex I

7.8 The Committee considered document MEPC 66/7/3 (United Kingdom and United States), proposing draft amendments to regulation 43 (Special requirements for the use or carriage of oils in the Antarctic area) of MARPOL Annex I to prohibit ships from carrying heavy grade oil on board as ballast for use as fuel outside of the Antarctic area.

7.9 Following discussion, the Committee approved the draft amendments to regulation 43 of MARPOL Annex I, as set out in annex 13, and requested the Secretary-General to circulate them in accordance with MARPOL article 16, with a view to adoption at MEPC 67.

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Information flyer on revised *Guidance on the management of spoilt cargoes*

7.10 The Committee noted the information contained in document MEPC 66/INF.5 (Secretariat), concerning a flyer on the revised *Guidance on the management of spoilt cargoes*, prepared by the London Convention/Protocol Scientific Group, as an information resource for outreach and technical cooperation activities.

8 IMPLEMENTATION OF THE OPRC CONVENTION AND THE OPRC-HNS PROTOCOL AND RELEVANT CONFERENCE RESOLUTIONS

8.1 The Committee recalled that this had been a permanent agenda item which enabled consideration of the report of the OPRC-HNS Technical Group, as well as other submissions and proposals related to preparedness for, response to and cooperation in case of pollution incidents involving oil and hazardous and noxious substances.

8.2 The Committee recalled also that, in accordance with the review and reform initiatives of the Organization reflected in the outcome of MSC 92 and MEPC 65 on the restructuring of the sub-committees, the OPRC-HNS Technical Group, which used to meet in the week preceding MEPC, had met from 28 to 31 January 2014 and reported to PPR 1. As provided by paragraph 6.9 of the Committees' Guidelines, the outcome of PPR 1 regarding OPRC-HNS will be reported to MEPC 67, due to the close proximity of PPR 1 to the current session of the Committee.

8.3 The Committee noted that, having approved the arrangements for the future work on matters relating to the OPRC Convention and the OPRC-HNS Protocol, PPR 1 had agreed that the OPRC-HNS Technical Group would cease to meet as an intersessional working group and its work had been integrated in the work programme of the PPR Sub-Committee.

8.4 The Committee recalled further that, having considered document MEPC 65/8 (Secretariat) with regard to the finalized draft text of the Manual on Chemical Pollution to address legal and administrative aspects of HNS incidents and having noted that several delegations supported the need for a more in-depth review of the manual, MEPC 65 had deferred a decision on the matter and invited interested delegations to submit any comments on the draft manual to MEPC 66, accordingly.

8.5 Having considered document MEPC 66/8 (United States) which sets out the suggested changes to the finalized draft text of the Manual on Chemical Pollution to address legal and administrative aspects of HNS incidents, the Committee agreed with the changes proposed and, following a proposal by ICS supported by others, decided to replace the word "should" in paragraph 2.3.2 of part II of the draft manual with the word "must".

8.6 The Committee approved the Manual on Chemical Pollution to address legal and administrative aspects of HNS incidents and requested the Secretariat to carry out the final editing and to prepare the manual for publication through the IMO Publishing Service.

9 IDENTIFICATION AND PROTECTION OF SPECIAL AREAS AND PARTICULARLY SENSITIVE SEA AREAS

9.1 The Committee had for its consideration documents MEPC 66/9 and Corr.1 (Secretariat), regarding draft text for a footnote to reflect consequential changes in pollution categories carried by certain types of ships listed in annex 3, section II (Collision avoidance, navigation, routeing measures), of resolution MEPC.101(48) (Identification of the Wadden Sea as a Particularly Sensitive Sea Area), resulting from the revision of MARPOL Annex II.

9.2 Having reconsidered the draft text and the comments made, the Committee agreed that the footnote should read as follows:

> "(*) As a consequence of the revision of MARPOL Annex II that entered into force on 1 January 2007, the categorization of noxious liquid substances has been revised for the types of ships described. The consequential amendments to the existing Deep-Water Route and Traffic Separation Scheme from North Hinder to the German Bight via the Frisian Junction were adopted by MSC 83 (MSC 83/28, annex 24) and disseminated by means of COLREG.2/Circ.59."

and requested the Secretariat to reflect this footnote in the electronic version of the resolution on the IMO website and in any new edition of the IMO PSSA publication.

9.3 The Committee reminded Member Governments that have ships operating in the area of a designated PSSA to bring any concerns regarding the associated protective measures to IMO so that any necessary adjustments may be made. Member Governments that originally submitted the application for designation with the associated protective measures should also bring to IMO any concerns and proposals for additional measures or modifications to any associated protective measure or the PSSA itself (resolution A.982(24)).

9.4 The Committee noted the information provided in the following documents:

.1 MEPC 66/INF.6 (Secretariat), concerning a communication by the Secretariat of the Convention on Biological Diversity regarding summary reports on the description of areas that meet the criteria for Ecologically and Biologically Significant Marine Areas (EBSAs); and

.2 MEPC 66/INF.20 (Australia), informing the Committee of the outcome of a Regional Workshop on Particularly Sensitive Sea Areas and other IMO tools for area-specific management.

10 INADEQUACY OF RECEPTION FACILITIES

MEPC circulars related to port reception facilities

10.1 The Committee recalled that MEPC 65 had approved the update and revision of five circulars related to port reception facilities and instructed the Secretariat to consolidate all five circulars into one and submit the consolidated version to MEPC 66 for consideration.

10.2 The Committee considered document MEPC 66/10 (Secretariat), providing in the annex the consolidated version of all five circulars. The observer from IHMA, supported by the observer from IAPH, suggested that MARPOL Annex VI waste, including ozone-depleting substances and equipment containing such substances, and exhaust gas-cleaning residues, should be added to the table in appendix 2 (Standard format of the advance notification form for waste delivery to port reception facilities) of the draft consolidated guidance. The Committee agreed to the proposal.

10.3 Subsequently, the Committee approved MEPC.1/Circ.834 on *Consolidated guidance for port reception facility providers and users*.

Regional workshop on port reception facilities

10.4 The Committee noted the information provided by the United States in document MEPC 66/INF.37 on the outcome of the second of two IMO regional workshops on port reception facilities.

Availability of port reception facilities

10.5 The Committee urged all Parties to the MARPOL Convention, in particular port States, to fulfil their treaty obligations to provide reception facilities for wastes generated during the operation of ships, and all Member Governments to keep up to date the information in the port reception facility database on GISIS regarding the availability of reception facilities in their ports and terminals.

11 REPORTS OF SUB-COMMITTEES

11.1 The Committee had for its consideration the outcome of STW 44 and DSC 18, as well as urgent matters emanating from PPR 1 and SDC 1.

OUTCOME OF STW 44

11.2 The Committee noted that the Sub-Committee on Standards of Training and Watchkeeping (STW, now the Sub-Committee on Human Element, Training and Watchkeeping (HTW)) had held its forty-fourth session from 29 April to 3 May 2013 and that the report of that session had been issued as document STW 44/19. Matters of relevance to the work of the Committee are reported in document MEPC 66/11/1.

Guidelines for the reactivation of the Safety Management Certificate following an operational interruption of the SMS due to lay-up

11.3 The Committee approved the draft MSC-MEPC circular on *Guidelines for the reactivation of the Safety Management Certificate following an operational interruption of the SMS due to lay-up over a certain period*, as set out in annex 1 to document STW 44/19, subject to concurrent approval by MSC 93.

Guidance on safety when transferring persons at sea

11.4 The Committee approved the draft MSC-MEPC circular on *Guidance on safety when transferring persons at sea*, set out in annex 2 to document STW 44/19, subject to concurrent approval by MSC 93.

Proposed ISM Code amendments

11.5 Having noted the discussions of STW 44 regarding proposed amendments to the ISM Code concerning the transfer of ship maintenance and failure records, the Committee endorsed the decision of the Sub-Committee not to develop relevant amendments to the Code, subject to concurrent endorsement by MSC 93.

OUTCOME OF DSC 18

11.6 The Committee noted that the Sub-Committee on Dangerous Goods, Solid Cargoes and Containers (DSC, now Sub-Committee on Carriage of Cargoes and Containers (CCC)) had held its eighteenth session from 16 to 20 September 2013 and that the report of that

session had been issued as document DSC 18/13. Matters of relevance to the work of the Committee are reported in document MEPC 66/11.

New section for environmentally hazardous substances under the IMSBC Code

11.7 The Committee noted the Sub-Committee's discussions with regard to establishing a new section for environmentally hazardous substances within the IMSBC Code, in relation to the revised MARPOL Annex V, by developing an indicative list of solid bulk cargoes, and its agreement to establish a correspondence group to undertake this work.

Consequential amendments to MARPOL Annex III

11.8 The Committee approved consequential draft amendments to MARPOL Annex III developed by the Sub-Committee, in relation to the latest set of draft amendments to the IMDG Code, as set out in annex 14, and requested the Secretary-General to circulate them in accordance with MARPOL, article 16, with a view to adoption at MEPC 67, to ensure harmonization with other modes of transport with respect to the exclusion of class 7 material from Marine Pollutants/Environmentally Hazardous Substances requirements.

Biennial agenda and report on status of planned outputs of the HLAP

11.9 The Committee noted that points 3 and 4 of the action requested of the Committee (MEPC 66/11, paragraphs 2.3 and 2.4) relating to the biennial agenda of the CCC for 2014-2015, the provisional agenda for CCC 1 and the report of planned outputs of the HLAP had been considered under agenda item 18 on the work programme of the Committee and subsidiary bodies (see paragraphs 18.17 to 18.19).

URGENT MATTERS EMANATING FROM PPR 1

11.10 The Committee noted that the Sub-Committee on Pollution Prevention and Response (PPR) had held its first session from 3 to 7 February 2014 and that the report of that session had been issued as document PPR 1/16. Matters of relevance to the work of the Committee requiring urgent action are reported in document MEPC 66/11/4, while the remaining matters will be considered at MEPC 67.

11.11 The Committee also noted that of the action requested of it (MEPC 66/11/4, paragraph 2), point 1 concerning draft amendments to the IBC Code had been considered under item 6 (see paragraph 6.16), point 7 concerning ballast water management had been considered under agenda item 2 (see paragraph 2.31), and points 8 and 9 concerning air pollution from ships had been dealt with under agenda item 4 (see paragraphs 4.3 and 4.4); while points 10 to 12 concerning the biennial agenda of the Sub-Committee had been considered under agenda item 18 (see paragraphs 18.20 to 18.22).

Evaluation of new products

11.12 The Committee endorsed the evaluation by PPR 1 of new products, as set out in annex 1 to document PPR 1/16, for inclusion in list 1 of the associated annually issued MEPC.2 circular on *Categorization of liquid substances*, with validity for all countries and no expiry date.

Evaluation of trade-named mixture products

11.13 The Committee endorsed the evaluation by PPR 1 of trade-named mixtures presenting safety hazards, as set out in annex 2 to document PPR 1/16, for inclusion in list 3 of the MEPC.2 circular, with validity for all countries and no expiry date.

Evaluation of cargo tank cleaning additives

11.14 The Committee endorsed the evaluation by PPR 1 of cargo tank cleaning additives found to meet the requirements of regulation 13.5.2 of MARPOL Annex II, as set out in annex 3 to document PPR 1/16, for inclusion in the next edition of the MEPC.2 circular.

Clarification on the use of cleaning products

11.15 The Committee endorsed the Sub-Committee's decision to include new text in annex 10 of the MEPC.2 circular, providing clarification on the use of cleaning products, as set out in annex 4 to document PPR 1/16.

Guidance on products requiring oxygen-dependent inhibitors

11.16 The Committee approved the draft MSC-MEPC circular on *Products requiring oxygen-dependent inhibitors*, as set out in annex 5 to document PPR 1/16, subject to concurrent approval by MSC 93.

URGENT MATTERS EMANATING FROM SDC 1

General

11.17 The Committee noted that the Sub-Committee on Ship Design and Construction (SDC) had held its first session from 20 to 24 January 2014 and that the report of that session had been issued as document SDC 1/26. Matters of relevance to the work of the Committee were reported in document MEPC 66/11/2.

11.18 The Committee recalled that the outcome of SDC 1 concerning ship recycling, in particular with regard to the threshold values for asbestos, had been considered under agenda item 3 (see paragraphs 3.6 to 3.10).

Polar Code matters

11.19 The Committee noted that SDC 1 had agreed, in principle, to the draft International Code for ships operating in polar waters (Polar Code) and associated draft SOLAS and MARPOL amendments to make the Code mandatory, as set out in annexes 1 to 3 to document SDC 1/26, for submission to MEPC 66 and MSC 93 for further consideration, with a view to their adoption at future sessions, taking into account that a number of provisions still remained in square brackets throughout the draft Code.

Application of part II-A of the Polar Code

11.20 The Committee noted that, while the SDC 1 Polar Code Working Group had agreed that application of the Code should be harmonized with the application provisions of SOLAS, some delegations had pointed out that the proposed provisions in part II-A had been negotiated with the understanding that MARPOL applicability for each of the parent annexes would be extended to the corresponding chapters of part II-A, with exceptions provided on a regulation-by-regulation basis.

11.21 The Committee had for its consideration the following documents:

.1 MEPC 66/11/5 (Netherlands and Panama), paragraphs 2 to 4, supporting extending the applicability of the relevant MARPOL Annexes to the corresponding chapters of part II-A and that discharge requirements should apply to all ships;

.2 MEPC 66/11/11 (CESA), suggesting that the two-step approach – i.e. first step SOLAS ships, next step non-SOLAS ships – should also apply to part II-A and the need to differentiate between new and existing ships; and

.3 MEPC 66/11/12 (United States), supporting extending the applicability of the relevant MARPOL Annexes to the corresponding chapters of part II-A, and the application of part II-A to new and existing ships, with exemptions for some provisions that require structural requirements or significant machinery additions.

11.22 Following discussion, the Committee agreed that the applicability of the relevant MARPOL Annexes should be extended to the corresponding chapters of part II-A, that operational requirements should be applied to both new and existing ships, and that exemptions should be considered for any additional structural requirements.

Goal-based approach

11.23 The Committee recalled that SDC 1, having noted concerns that the goal of MARPOL is wider than that of the Polar Code, had agreed to refer the matter to the Committee for further consideration.

11.24 In this connection, the Committee considered document MEPC 66/11/13 (United States), proposing to delete or clarify functional requirements in part II-A because of the perceived ambiguity as to the legal obligations of Member Governments.

11.25 In the ensuing discussion, the majority of the delegations that spoke supported the proposal by the United States, stressing that the goal-based approach is not suitable for the environmental part of the Code and that the Committee should focus on approving appropriate prescriptive provisions.

11.26 Several other delegations suggested that the goal-based approach should be retained in the environmental part of the Code, as it had been agreed since the beginning of its development. Those delegations were of the view that goal-based standards are clear, verifiable, long-standing and implementable, providing sufficient flexibility for alternative designs and arrangements and encouraging technology development in the long term.

11.27 Following consideration, the Committee agreed to delete the goals and functional requirements from part II-A of the Code and that each chapter in that part should consist only of prescriptive requirements. The Committee further agreed that any interested parties wishing to explore the future use of the draft goals and functional requirements, as set out in annex 3 to document SDC 1/26, should submit a proposal for a new output, in accordance with the Committees' Guidelines, to the Committee for consideration.

Prevention of pollution from oil

11.28 The Committee noted that SDC 1, having recalled the decision of MEPC 65 concerning the prohibition of any discharge into the sea of oil or oily mixtures from any ships,

had not agreed to the changes to paragraph 1.4.1.2 of chapter 1 of part II-A of the draft Code proposed by the Russian Federation (SDC 1/3/18).

11.29 The Committee considered document MEPC 66/11/3 (Russian Federation), which proposed to allow ships operating in Arctic waters to discharge oily mixtures from machinery spaces under the conditions stipulated for special areas under MARPOL Annex I; however, having established that it had not received sufficient support, did not agree to the proposal.

Prevention of pollution from noxious liquid substances (NLS)

11.30 The Committee recalled that SDC 1, having considered paragraph 2.4.2.2 of part II-A of the Code, which states that, for new category A and B ships, all tanks used for carriage of NLS shall be separated from the outer shell by a distance of not less than 760 mm, had referred the matter to the Committee for further consideration.

11.31 In the ensuing discussion, a number of delegations supported the inclusion of the above-mentioned new requirement. However, other delegations expressed their support for the view described in paragraph 5 of document MEPC 66/11/5, that additional structural requirements should first be subject to a full impact assessment regarding pros and cons and consequences for other IMO conventions and codes.

11.32 Following discussion, the Committee instructed the correspondence group (see paragraph 11.53) to consider the matter in detail and advise it accordingly.

Requirements for port reception facilities

11.33 The Committee recalled that SDC 1, having considered proposals concerning the provision of port reception facilities in Arctic waters (SDC 1/3/1, SDC 1/3/19 and SDC 1/3/23), had agreed to invite the Committee to further consider the matter as it is of policy nature.

11.34 In this connection, the Committee had for its consideration document MEPC 66/11/8 (Canada), which suggested that the availability of waste reception facilities within polar areas should not impede or delay the implementation of the prohibition of discharges of oil and oily mixtures as part of the Polar Code.

11.35 During the discussion, the following views, inter alia, were expressed:

.1 zero tolerance of illegal discharges from ships can be effectively enforced only when there are adequate reception facilities in ports, and the intention of the proposed regulatory text on port reception facilities is to provide support to the international shipping industry and to ensure that the Code can fully stand the test of time;

.2 the proposed requirements on port reception facilities for ports within the Arctic area would be excessively burdensome for Arctic States and affected communities; and

.3 the current capacity for waste reception in polar regions is aligned with current demand and should be considered adequate, and commonly-used practices as well as new technologies are available that allow ships to comply with the discharge prohibition.

11.36 Following discussion, the Committee agreed to the need for the provision of adequate reception facilities in Arctic waters, but also that this should not constitute a

condition for implementation of the Code. The Committee instructed the correspondence group to prepare relevant text for inclusion in part II-A of the Code, taking into account regulation 38 (Reception facilities) of MARPOL Annex I, as well as the proposals in document SDC 1/3/1 and paragraph 6 of document SDC 1/3/19.

Certification and documentation

11.37 The Committee recalled that SDC 1 had noted that the certification and verification regime, in terms of the status of the Polar Ship Certificate, the Polar Water Operational Manual and implementation of the certification requirements with respect to existing statutory certification in SOLAS and MARPOL, requires further consideration, and that the documentation of the operational capabilities and limitations expected to be included in the Certificate remains to be defined.

11.38 In this connection, the Committee considered paragraphs 6 to 8 of document MEPC 66/11/5, commenting on the certification and documentation requirements, and, following consideration, agreed that, with a view to alleviating the administrative burden, compliance with the Polar Code should be reflected in the existing certificates, manuals and record books under the relevant Annexes to MARPOL. The Committee instructed the correspondence group to conduct a comprehensive review of certificate and documentation requirements in the Polar Code, taking into account the existing requirements in MARPOL, and consider including provisions for single voyages.

Other proposals relating to the draft Polar Code

11.39 The Committee, having considered document MEPC 66/11/6 (Finland), commenting on the recommendatory guidance in part II-B concerning the use of non-toxic biodegradable lubricants or water-based systems for lubricated components located outside the underwater hull, agreed to the modifications to paragraph 3.3 of part II-B of the Code, as set out in paragraph 6 of the document.

11.40 The Committee, having considered document MEPC 66/11/10 (Germany), which commented on the titles of part II-A and part II-B, the text of paragraph 4.4.3 of part II-A concerning the discharge of sewage and the text of some guidance in part II-B, and paragraphs 11.2 to 11.8 of document MEPC 66/11/5, which commented on various paragraphs in part II-A, agreed to refer the above two documents to the correspondence group for detailed consideration, bearing in mind the Committee's decisions on certification and verification (see paragraphs 11.37 and 11.38).

Draft amendments to MARPOL to make the Polar Code mandatory

11.41 The Committee recalled that SDC 1 had agreed, in principle, to draft amendments to MARPOL Annexes I, II, IV and V, as set out in annex 1 of the report of SDC 1 (SDC 1/26), subject to the Committee's decisions on the text remaining in square brackets.

11.42 The Committee had for its consideration the following documents:

.1 MEPC 66/11/5 (Netherlands and Panama), paragraphs 9 and 10, proposing to make the Polar Code mandatory via a separate chapter in every relevant Annex to MARPOL using a similar structure as the proposed chapter XIV of SOLAS to make the Polar Code mandatory;

.2 MEPC 66/11/9 (Germany), supporting the structure of the draft MARPOL amendments, as contained in annex 1 to document SDC 1/26,

and commenting on the text for regulation 1 on definitions and regulation 2 on application;

.3 MEPC 66/11/14 (United States), proposing that the relevant environmental regulations under the Polar Code be given effect by being placed directly in the text of the relevant MARPOL Annexes, rather than through incorporation of part II-A of the Code by reference, and identifying issues that must be addressed in the amendments and introduction of the Polar Code if the Committee decides to retain the structure of the draft MARPOL amendments as agreed by SDC 1; and

.4 MEPC 66/11/15, MEPC 66/11/16, MEPC 66/11/17 and MEPC 66/11/18 (United States), providing text of draft amendments to MARPOL Annexes I, II, IV and V, respectively, using the approach suggested in document MEPC 66/11/14.

11.43 With regard to the structure of the amendments to MARPOL to make the relevant part of the Polar Code mandatory, the Committee noted that a slight majority of the delegations that spoke supported the approach as described in paragraphs 9 and 10 of document MEPC 66/11/5.

11.44 A number of other delegations supported the proposal in document MEPC 66/11/14, stressing that it enhances clarity and simplicity and ensures that all regulations are appropriately treated with respect to existing MARPOL provisions, including cross references and generally applicable exceptions.

11.45 Several delegations, in supporting the structure of the draft MARPOL amendments agreed by SDC 1, as set out in annex 1 to document SDC 1/26, raised concerns regarding the proposal to develop a separate chapter in every relevant Annex to MARPOL, in particular as to how these chapters would relate to the various existing MARPOL provisions for ships operating in the Antarctic area.

11.46 Following discussion, the Committee agreed to use the approach and structure as described in paragraphs 9 and 10 of document MEPC 66/11/5 for the development of associated MARPOL amendments to make the Polar Code mandatory. Subsequently, the Committee instructed the correspondence group to prepare such draft amendments, also taking into account paragraphs 6 to 10 of document MEPC 66/11/14, which identified issues that need be addressed in developing MARPOL amendments and the introduction part of the Polar Code, and document MEPC 66/11/9, which commented on the text of definitions and application of the draft MARPOL amendments.

Proposed savings clause

11.47 The Committee, having considered document MEPC 66/11/7 (Canada), which proposed the inclusion of a clause in the draft MARPOL amendments to clarify the relationship between the Polar Code, other international agreements and international law, did not agree to the proposal. The Committee noted that the majority of the delegations that spoke were of the view that article 9(2) of MARPOL already brings sufficient precision as to the nature of the relationship between the provisions contained in the Polar Code and other relevant international law; that the inclusion of a saving clause in part II-A of the Code could cause confusion and potential legal uncertainty; and that the provisions of part II-A of the Code are not expected to conflict with other relevant international law.

11.48 Following the Committee's decision on the matter, the delegation of Canada made a statement, as set out in annex 20.

Establishment of a Polar Code Correspondence Group

11.49 The Committee noted that SDC1 had requested that maximum resources should be made available and allocated by the Committees with a view to ensuring that the Code is completely developed prior to its adoption.

11.50 In response to that request, the Chairman proposed that the Committee, following the detailed deliberation in plenary, should establish a correspondence group and instruct it to finalize parts II-A and II-B of the Code, together with the draft associated amendments to MARPOL. A Working Group on the Polar Code could be established at MEPC 67 during which the Committee would be expected to approve the Polar Code and the associated draft amendments to MARPOL, with a view to their adoption at MEPC 68.

11.51 Some delegations pointed out that this suggested timeline for adoption of the Polar Code and the associated amendments to MARPOL was different from the one discussed at SDC 1. The Chairman responded that, due to other priorities, regrettably no working group on the Code could be established at this session, necessitating adjustments to the foreseen timeline.

11.52 Several delegations proposed a meeting of an Intersessional Polar Code Working Group, to be held during the week before MEPC 67, to allow sufficient time for the work, while some other delegations raised concerns over the limited resources of small delegations to cope with additional intersessional groups. The Committee agreed to take a decision on this matter under agenda item 18 (see paragraph 18.35).

11.53 Following discussion, the Committee established a Polar Code Correspondence Group under the coordination of the United Kingdom[5] and instructed it, taking into account the comments and decisions made in plenary, to:

.1 finalize parts II-A and II-B of the draft International Code for Ships Operating in Polar Waters, using annex 3 to document SDC 1/26 as the basis and taking into account documents MEPC 66/11/5 (paragraphs 2 to 9 and 11.2 to 11.8), MEPC 66/11/6, MEPC 66/11/9 (paragraphs 5.1 to 5.6), MEPC 66/11/10, MEPC 66/11/12, MEPC 66/11/13, SDC 1/3/1 and SDC 1/3/19 (paragraph 6);

.2 finalize the draft amendments to the relevant Annexes of MARPOL to make the Polar Code mandatory, based on the approach and structure described in document MEPC 66/11/5 (paragraphs 9 and 10) and taking into account MEPC 66/11/14 (paragraphs 6 to 10); and

.3 submit a written report to MEPC 67.

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12 WORK OF OTHER BODIES

12.1 The Committee had for its consideration the outcome of FAL 38 (MEPC 66/12), MSC 92 (MEPC 66/12/2), C 110 (MEPC 66/12/1), C 111 and C/ES 27 (MEPC 66/12/3) and A 28 (MEPC 66/12/4).

Outcome of FAL 38

12.2 The Committee noted that the thirty-eighth session of the Facilitation Committee (FAL 38) had been held from 8 to 12 April 2013 and that the report of that session had been circulated as document FAL 38/15. Matters of interest to the Committee were summarized in document MEPC 66/12 (Secretariat).

12.3 The Committee considered two action items relevant to its work, as contained in paragraph 3 of document MEPC 63/12. With regard to the first action item, the Committee, in considering FAL.5/Circ.39 on *Interim guidelines for use of printed versions of electronic certificates*, as requested by FAL 38, noted that MSC 92, having considered the same request and having noted that the FAL Committee had established a Correspondence Group on Electronic Access to Certificates and Documents which should, inter alia, put together lessons learned through the implementation of the above-mentioned interim guidelines, had instructed III 1 to consider them in detail and report to MSC, as appropriate.

12.4 Taking the above into consideration, the Committee agreed to defer consideration of the matter to MEPC 67, by when the outcome of the work being undertaken by the III Sub-Committee, as well as the outcome of FAL 39, would be available and could be taken into account.

12.5 The Committee noted that point 2 of the action requested, concerning the revised *Guidelines on the organization and method of work of the Facilitation Committee* (FAL.3/Circ.209), had been considered under agenda item 19 on application of the Committees' Guidelines (see paragraphs 19.1 to 19.3).

Outcome of MSC 92, C 110, C 111, C/ES.27 and A 28

12.6 The Committee noted the decisions of MSC 92 (MEPC 66/12/2), C 110 (MEPC 66/12/1), C 111 and C/ES.27 (MEPC 66/12/3) and A 28 (MEPC 66/12/4) and further noted that the outcome of C/ES.27 concerning the Council's request to the Committee to review a number of outputs had been considered under agenda item 18 on the work programme of the Committee and subsidiary bodies (see paragraphs 18.1 to 18.16).

13 HARMFUL ANTI-FOULING SYSTEMS FOR SHIPS

13.1 The Committee noted that the International Convention on the Control of Harmful Anti-Fouling Systems on Ships, 2001 (AFS Convention), had been in force since 17 September 2008 and that, to date, the Convention has 66 Parties, representing 82.32% of the gross tonnage of the world's merchant fleet. Consequently, the Committee invited those States that have not yet ratified the Convention to do so at the earliest opportunity.

13.2 The Committee noted document MEPC 66/INF.21 (ISO), which provided information on ISO standard 13073 on risk assessment on anti-fouling systems on ships, consisting of:

Part 1: Marine environmental risk assessment method of biocidally Active Substances used for anti-fouling systems on ships (published on 1 August 2012);

Part 2: Marine environmental risk assessment method for anti-fouling systems using biocidally Active Substances on ships (published on 1 June 2013); and

Part 3: Human health risk assessment for the application and removal of anti-fouling systems (under voting for new work item proposal).

13.3 The Committee also noted document MEPC 66/INF.23 (Australia and New Zealand) on guidelines to support local decision making on anti-fouling and in-water cleaning activities, in line with the AFS Convention and the *Guidelines for the control and management of ships' biofouling to minimize the transfer of invasive aquatic species* (resolution MEPC.207(62)).

14 PROMOTION OF IMPLEMENTATION AND ENFORCEMENT OF MARPOL AND RELATED INSTRUMENTS

14.1 The Committee, having recalled that this is a standing item in its work programme with the purpose of fostering compliance and dealing with implementation issues in respect of MARPOL and other related instruments, mandatory or recommendatory, noted that no submissions had been received under this agenda item.

15 TECHNICAL COOPERATION ACTIVITIES FOR THE PROTECTION OF THE MARINE ENVIRONMENT

15.1 The Committee noted the information provided in document MEPC 66/15 (Secretariat) on the Organization's technical cooperation activities related to the protection of the marine environment that had been implemented between 9 February and 27 December 2013, under the Integrated Technical Cooperation Programme (ITCP) as well as under the major projects financed through external sources. These activities were aimed at assisting Member States in the implementation of the provisions of the relevant IMO Conventions (AFS, BWM, MARPOL, OPRC, OPRC-HNS, Ship Recycling, etc.), including the London Protocol. The Committee noted that during the reporting period, a total of 55 technical cooperation activities had been implemented at global, regional and national level.

15.2 The Committee further noted that, during the period under review, significant progress had been achieved in executing a number of projects financed mainly by external sources, which had been implemented under the direct supervision of the Marine Environment Division of the Organization.

15.3 The Committee also noted the information provided in document MEPC 66/15/1 (Secretariat) on the additional activities, carried out with support from the REMPEC during the reporting period, related to the implementation of the Protocol to the Barcelona Convention concerning cooperation in preventing pollution from ships and, in case of emergency, combating pollution of the Mediterranean Sea.

15.4 The delegation of Brazil, while expressing its appreciation for the work of the Secretariat in delivering the ITCP, highlighted the relationship between the specific ITCP activities on effective implementation and enforcement of energy efficiency measures for ships and the activities related to resolution MEPC.229(65) on *Promotion of technical cooperation and transfer of technology relating to the improvement of energy efficiency of ships*, and further suggested that such specific activities could be a way forward to support the work of the Ad Hoc Expert Working Group on Facilitation of Transfer of Technology for Ships (see paragraphs 4.54 to 4.62).

15.5 The delegations of Croatia, Finland, Indonesia and the Philippines highlighted the importance of IMO ITCP activities and donor-supported projects such as the Norad and GloBallast projects and the key role that these activities and projects play in capacity-building for implementation of the IMO conventions, and encouraged the Secretariat to continue its capacity-building efforts. The Committee also noted, with appreciation, the information provided by the delegation of Sri Lanka regarding the hosting of two regional meetings related to the OPRC-HNS and BWM Conventions.

15.6 Summarizing, the Chairman recalled that the constituent programmes of the IMO ITCP could only be delivered if the required funding is secured from internal resources and/or external donor contributions. He expressed appreciation for all the financial and in-kind contributions to the ITCP and major projects and invited Member Governments and international organizations to continue and, if possible, increase their appreciable support for IMO technical cooperation activities so that successful delivery of the programme could be achieved.

16 ROLE OF THE HUMAN ELEMENT

16.1 The Committee recalled that MSC 89 and MEPC 62 had agreed to entrust a leading and coordinating role to the Sub-Committee on Standards of Training and Watchkeeping (STW, now the Human Element, Training and Watchkeeping (HTW) Sub-Committee, after the restructuring of the Sub-Committees agreed in 2013) to address the issue of the human element.

16.2 The Committee also recalled that MEPC 63 had agreed that it would refer human element issues relating to the environment directly to the Joint MSC/MEPC Working Group on the Human Element, and that the Working Group should consider the issues referred to it without further discussion in the plenary of the STW Sub-Committee.

16.3 The Committee further recalled that MEPC 65, while having noted that no documents had been submitted under this agenda item, had agreed to keep the item on the agenda to consider any human element related issues and the outcome of the STW Sub-Committee on the matter, as appropriate.

16.4 The Committee, having noted that no submissions had been received under the agenda item for two consecutive sessions, agreed to the deletion of the item from its agenda, in view of the terms of reference of the HTW Sub-Committee which include the promotion and implementation of the Organization's human element strategy, and instructed the HTW Sub-Committee to report future matters related to the human element to the Committee under the agenda item on reports of sub-committees.

17 NOISE FROM COMMERCIAL SHIPPING AND ITS ADVERSE IMPACTS ON MARINE LIFE

17.1 The Committee had for its consideration the outcome of work undertaken by the DE Sub-Committee to develop technical guidelines to address the issue of underwater noise from commercial shipping and its adverse impacts on marine life (MEPC 66/17).

17.2 The Committee recalled that MEPC 65 had noted that DE 57 had been held from 18 to 22 March 2013 and its report had been circulated as document DE 57/25. The Committee also recalled that, given the close proximity of DE 57 and MEPC 65, MEPC 65 had decided to consider the outcome of DE 57 on the matter of underwater noise at the current session.

17.3 The Committee noted that DE 57 had agreed to a draft MEPC circular on *Guidelines for the reduction of underwater noise from commercial shipping*, as set out in the annex to document MEPC 66/17, for consideration, with a view to approval, by the Committee.

17.4 Following consideration of the draft guidelines, the Committee, having agreed to remove the square brackets around paragraph 1.3 of the preamble and to expand the title to better reflect the objectives, approved MEPC.1/Circ.833 on *Guidelines for the reduction of underwater noise from commercial shipping to address adverse impacts on marine life* and requested the Secretariat to issue the circular as soon as possible.

17.5 In considering the issue of future work on this topic, as set out in paragraph 6 of document MEPC 66/17, the Committee noted, inter alia, that:

.1 a large number of gaps in knowledge remained and no comprehensive assessment of this issue was possible at this stage. In this context, it was highlighted that sound levels in the marine environment and the contribution from various sources was a complex issue. The wide variety of ship types, sizes, speeds and operational characteristics all contributed to this complexity;

.2 given these complexities, setting future targets for underwater sound levels emanating from ships was premature and would be difficult to evaluate at this time; and

.3 more research was needed, in particular on the measurement and reporting of underwater sound radiating from ships.

17.6 Given the importance of this issue, the Committee invited Member Governments that wished to pursue these matters further to submit proposals for appropriate new outputs to a future session, in accordance with the Committees' Guidelines.

18 WORK PROGRAMME OF THE COMMITTEE AND SUBSIDIARY BODIES

Outcome of C/ES.27

18.1 The Committee noted that the twenty-seventh extraordinary session of the Council had been held on 21 and 22 November 2013 and that the Council, having considered document C/ES.27/3 on the report of the thirteenth session of the Ad Hoc Working Group on the Organization's Strategic Plan (CWGSP 13), had requested the committees to take specific actions as follows:

.1 strict discipline regarding unplanned outputs should be observed at all levels; and

.2 before any work is undertaken during a biennium, an appropriate output should be formulated and included in the High-level Action Plan (HLAP) of the Organization, in accordance with the relevant procedures, it being understood that minor corrections/issues could continue to be considered by the committees under the agenda item "Any other business".

18.2 The Committee noted that CWGSP 13 had reviewed the HLAP and noted that a number of planned outputs, as set out in part A of the annex to document MEPC 66/18 (i.e. outputs 5.2.3.6, 5.3.1.1, 7.2.2.1, 10.0.1.1 and 10.0.1.2) were not sufficiently specific to allow the clear identification of the actual product from each planned output, and that C/ES.27 had consequently requested the Committee, together with the MSC, as appropriate, to review these outputs and examine whether they can be more clearly identified.

Output 5.2.3.6 on amendments to MARPOL Annex I and associated circulars

18.3 The Committee noted that output 5.2.3.6 is a continuous item under its purview and has been referred to it by C/ES.27 for consideration of scope.

18.4 Having considered comments made by the delegation of the Netherlands, supported by a number of other delegations, the Committee, having noted that the output was open-ended and not properly specified in SMART terms as defined in paragraph 8.5 of the *Guidelines on the application of the Strategic Plan and the High-Level Action Plan of the Organization* (resolution A.1062(28)) (Guidelines on the application of the HLAP), agreed to delete the output from the HLAP. The Committee requested the Secretariat to inform the Council accordingly.

Output 7.2.2.1 on safety and pollution hazards of chemicals and preparation of consequential amendments to MARPOL Annex II and the IBC Code taking into account recommendations of GESAMP-EHS

18.5 The Committee noted that output 7.2.2.1 is a continuous item under its purview and has been referred to the Committee by C/ES.27 for consideration of scope.

18.6 The Committee, in considering relevant comments by the delegation of the Netherlands, supported by a number of other delegations, agreed to amend the title of the output to read "Safety and pollution hazards of chemicals and preparation of consequential amendments to the IBC Code, taking into account recommendations of GESAMP-EHS" given that it relates specifically to chapters 17 and 18 of the IBC Code, and not to consequential amendments to MARPOL Annex II; and to amend the biennial agenda of the PPR Sub-Committee accordingly, and requested the Secretariat to inform the Council, the MSC and the ESPH Working Group of this decision.

Outputs 5.3.1.1, 10.0.1.1 and 10.0.1.2

18.7 In considering outputs 5.3.1.1 (Harmonization of PSC activities), 10.0.1.1 (Goal-based new ship construction standards for tankers and bulk carriers) and 10.0.1.2 (Goal-based ship construction standards for all types of ships, including safety, security and protection of the marine environment), the Committee noted that these are continuous outputs under the purview of the MSC and the MEPC, except for output 10.0.1.2 with 2015 as the target completion year, and have been referred to the Committee by C/ES.27 for consideration of scope.

18.8 Having considered that the above outputs are within the scope of the HLAP and having noted that C/ES.27 had also requested the MSC to review them, the Committee decided to defer any discussion on the three outputs to MEPC 67, awaiting the outcome of MSC 93 on the matter.

Outputs 7.1.2.9 and 7.2.3.2

18.9 The Committee noted that C/ES.27 had also requested it to provide clarification on the procedure followed for the acceptance of new planned outputs 7.1.2.9 (Revised Section II of the Manual on Oil Pollution – Contingency Planning) and 7.2.3.2 (Updated OPRC Model training courses), as set out in part B of the annex to document MEPC 66/18.

18.10 In considering output 7.1.2.9, the Committee recalled that MEPC 61, having considered a submission by Sweden (MEPC 61/8/4) setting out key requirements for the establishment of a response system for oil and HNS spill incidents, had concluded by

referring the document to the OPRC-HNS Technical Group (TG), instructing it to assess and prioritize the information and to submit the results of this analysis to MEPC 62 for further consideration. The Committee also recalled that MEPC 62 had requested the OPRC-HNS TG to submit a more comprehensive assessment to MEPC 64.

18.11 The Committee recalled that OPRC-HNS TG 15 had agreed that the development of elements for HNS contingency planning was a high-priority item and suggested that delegations submit to MEPC 64 a proposal for a new output.

18.12 The Committee also recalled that, in the case of contingency planning for offshore units, sea ports and oil handling facilities, the group had considered these items to be a priority and thus had agreed that the revision of section II of the Manual on Oil Pollution to address contingency planning for offshore units, sea ports and oil handling facilities was a more suitable way forward, rather than establishing a new instrument and, consequently, the issue had been approved by MEPC 65 as a post-biennial planned output for the 2014-2015 biennium.

18.13 In considering output 7.2.3.2, the Committee recalled that MEPC 62 had endorsed participation of the OPRC-HNS TG in reviewing and updating the OPRC model training courses, levels 1 to 3, to be undertaken by the Secretariat as an activity under the IMO ITCP, having recognized that the information contained therein was dated and the look and feel of the courses required modernization.

18.14 The Committee recalled that OPRC-HNS TG 13 had agreed to draft terms of reference for the redevelopment of the level 3 model training course and had endorsed the Secretariat's proposal to engage a consultant to undertake the work, and that OPRC-HNS TG 15 had reviewed the revised and updated level 3 model training course materials, which were subsequently finalized by the Secretariat, based on the recommendations of OPRC-HNS TG 15.

18.15 The Committee also recalled that MEPC 65 had approved the planned outputs and the provisional agenda of OPRC-HNS TG 16, at which output 7.2.3.2 had been accepted as a post-biennial planned output for the 2014-2015 biennium. The Committee noted that OPRC-HNS TG 16 had agreed with the recommendation of the Secretariat to put the publication of the level 3 model training course materials in abeyance until the completion of the levels 1 and 2 course materials to ensure editorial consistency amongst all the course materials across levels.

18.16 Having reviewed the information clarifying the acceptance process of outputs 7.1.2.9 and 7.2.3.2 at previous sessions, the Committee agreed to inform the Council accordingly. Having noted comments by the delegation of the Bahamas on the need for sufficient oversight and adherence to the Committees' Guidelines, the Committee concurred with the request of the Council to take specific actions consistent with paragraph 18.1 above when undertaking any work during a biennium, and noted the Chairman's request to continue to strictly follow the Committees' Guidelines.

Items on the biennial agendas of the CCC, HTW, NCSR, SDC and SSE Sub-Committees relating to environmental issues

18.17 The Committee, having considered the annex to document MEPC 66/WP.2, which contains the items on the 2014-2015 biennial agendas of the CCC, HTW, NCSR, SDC and SSE Sub-Committees relating to environmental issues, noted that the chairmen of the above sub-committees had prepared the biennial status reports in consultation with the Secretariat, on the basis of the guidelines on the application of the HLAP, taking into account that

planned outputs included in the HLAP should explicitly form the basis of the biennial work of all IMO organs.

18.18 The Committee also noted that the biennial agendas of the HTW, SDC and SSE Sub-Committees as contained in the HLAP for the 2014-2015 biennium (resolution A.1061(28)) had been updated, taking into account the outcome of the respective first sessions of the above sub-committees, which had been held before the current session of the Committee.

18.19 The Committee, subject to the concurrent decision of MSC 93, approved the items relating to environmental issues on the biennial agendas of the CCC, HTW, NCSR, SDC and SSE Sub-Committees, as set out in annex 15.

Biennial agenda of the PPR Sub-Committee and provisional agenda for PPR 2

18.20 The Committee, in considering the biennial agenda of the PPR Sub-Committee and the provisional agenda for PPR 2, as contained in annex 1 to document MEPC 66/WP.3, noted that PPR 1 had revised and agreed on the planned outputs of the Sub-Committee for the 2014-2015 biennium and on the provisional agenda for PPR 2, taking into consideration the biennial status report of the Sub-Committee.

18.21 The Committee also noted that PPR 1 had made the following proposals related to outputs 2.0.1.2 (Guidelines for port State control under the 2004 BWM Convention, including guidance on ballast water sampling and analysis) and 7.1.2.13 (Code for the transport and handling of limited amounts of hazardous and noxious liquid substances in bulk on offshore support vessels):

.1 output 2.0.1.2 should be split into two outputs: one on port State control guidelines under the BWM Convention, with the III and PPR Sub-Committees as coordinating and associated organ, respectively; and the other one on guidance on ballast water sampling and analysis, with the PPR and III Sub-Committees as coordinating and associated organ, respectively; and

.2 for output 7.1.2.13, the SSE Sub-Committee should be added as an additional associated organ.

18.22 Following consideration, the Committee, having agreed to:

.1 keep output 2.0.1.2 as one output on the biennial agenda of the PPR Sub-Committee and not to split the item as requested by PPR 1; and

.2 add the SSE Sub-Committee as an additional associated organ under output 7.1.2.13,

approved in principle the revised biennial agenda of the PPR Sub-Committee and the provisional agenda for PPR 2, as set out in annex 16, taking into account the outcome of the current session, subject to further deliberation at MEPC 67, following consideration of the remaining actions requested by PPR 1 (see paragraph 11.10).

Biennial agenda of the III Sub-Committee and provisional agenda for III 1

18.23 The Committee, having considered annex 2 to document MEPC 66/WP.3, recalled that MSC 92 and MEPC 65 had approved the biennial agenda of the III Sub-Committee and

the provisional agenda for III 1 and noted that the relevant outputs are included in the HLAP for the 2014-2015 biennium.

18.24 Having considered a proposal to amalgamate outputs 2.0.1.21 (Summary reports and analyses of mandatory reports under MARPOL) and 7.1.3.1 (Consideration and analysis of reports on alleged inadequacy of port reception facilities) (MEPC 66/WP.3, paragraph 6) and to include the new output in the biennial agenda of the III Sub-Committee, the Committee did not agree to the proposal, noting that C/ES.27 had deleted output 2.0.1.21 from the HLAP and transferred it to the Secretariat's business plan.

18.25 The Committee, subject to the concurrent decision of MSC 93, confirmed the biennial agenda of the III Sub-Committee and the provisional agenda for III 1, as set out in annex 17, taking into account the outcome of this session.

Status of planned outputs of the MEPC for the 2014-2015 biennium

18.26 The Committee noted that, in accordance with paragraph 9.1 of the guidelines on the application of the HLAP, the reports on the status of planned outputs included in the HLAP for the 2014–2015 biennium should be prepared and annexed to the report of each session of the sub-committees and committees and to the biennial report of the Council to Assembly, and that such reports should separately identify unplanned outputs accepted for inclusion in the biennial agendas.

18.27 The Committee further noted that, pursuant to the guidelines on the application of the HLAP, the Assembly had requested it to ensure that it reported progress towards fulfilling the Organization's aims and objectives using the framework of strategic directions, high-level actions and planned biennial outputs, in particular concerning table 2 of the HLAP on the high-level actions and related planned outputs.

18.28 Subsequently, the Committee approved the status of planned outputs for the 2014-2015 biennium, prepared by the Secretariat on the basis of the report on the status of planned outputs and proposals for the HLAP agreed by MEPC 65 (MEPC 65/22, annexes 45 and 46) and table 2 of the HLAP, taking into account the progress made at this session, as set out in annex 18.

Items to be included in the agendas of MEPC 67 and MEPC 68

18.29 The Committee, having considered the items to be included in the agendas for MEPC 67 and MEPC 68 (MEPC 65/WP.4) and taking into account the decisions made at this session (see sections 7, 8, 11, 13 and 16):

.1 deleted the agenda items on "Interpretations of, and amendments to, MARPOL and related instruments" and on "Implementation of the OPRC Convention and the OPRC-HNS Protocol and relevant Conference resolutions", as they are covered by corresponding items on the biennial agenda of the PPR Sub-Committee;

.2 deleted the agenda item on "Harmful anti-fouling systems for ships", due to the fact that no related output has been established on the HLAP for the 2014-2015 biennium;

.3 deleted the agenda item on "Role of the human element", in view of the terms of reference of the HTW Sub-Committee which include the promotion and implementation of the Organization's human element strategy; and

.4 approved the items to be included in the agendas of MEPC 67 and MEPC 68, as set out in annex 19.

Dates for MEPC 67 and MEPC 68

18.30 The Committee noted that MEPC 67 has been scheduled to take place from 13 to 17 October 2014 and that MEPC 68 has been tentatively scheduled to be held in May 2015.

Working/review/drafting groups at MEPC 67

18.31 The Committee, taking into account the decisions made under the respective agenda items, agreed that groups to be selected from the following should be established at MEPC 67:

.1 Working/Drafting Group on Recycling of Ships;

.2 Working Group on Air Pollution and Energy Efficiency;

.3 Working Group on Further Technical and Operational Measures for Enhancing the Energy Efficiency of International Shipping;

.4 Working Group on the Polar Code;

.5 Drafting Group on Amendments to Mandatory Instruments;

.6 Review Group on Ballast Water Treatment Technologies; and

.7 Review Group on Review of Nitrogen and Phosphorus Removal Standards[6],

The Chairman, taking into account the submissions received on the above subjects, would advise the Committee well in time for MEPC 67 on the final selection of such groups.

18.32 The Committee noted that the Ad Hoc Capacity-building Needs Analysis Group (ACAG) may also need to be established.

Correspondence groups

18.33 The Committee agreed to establish the following intersessional correspondence groups, which would report to MEPC 67 and MEPC 68, as appropriate:

.1 Correspondence Group on the Polar Code;

.2 Correspondence Group on Ship Recycling;

.3 Correspondence Group on the Use of Electronic Record Books under MARPOL;

[6] MEPC 64 (MEPC 64/23, paragraph 11.20) agreed that a review of the nitrogen and phosphorus removal standards in the *2012 Guidelines on the implementation of effluent standards and performance tests for sewage treatment plants* (resolution MEPC.227(64)) (output 7.1.2.12) should be undertaken at MEPC 67, in accordance with paragraph 4.4 of the guidelines.

.4 Correspondence Group on Further Technical and Operational Measures for Enhancing the Energy Efficiency of International Shipping; and

.5 Correspondence Group on the Review of Fuel Oil Availability as Required by Regulation 14.8 of MARPOL Annex VI.

18.34 The delegation of China, supported by the delegation of the Russian Federation, made a statement concerning the establishment of correspondence groups, as set out in annex 20.

Intersessional meetings

18.35 The Committee, taking into account the decisions made under the respective agenda items, approved the following intersessional meetings and invited the Council to endorse this decision:

.1 ESPH Working Group, to be held in September/October 2015; and

.2 Polar Code Working Group, to be held in the week before MEPC 67 in October 2014 and to report to MEPC 67.

19 APPLICATION OF THE COMMITTEES' GUIDELINES

19.1 The Committee noted the revised *Guidelines on the organization and method of work of the Facilitation Committee* (FAL.2/Circ.209), and considered, following a relevant request by FAL 38 (MEPC 66/12), whether the editorial improvements made by the FAL Committee should also be included in the Committees' Guidelines (MSC-MEPC.1/Circ.4/Rev.2).

19.2 The Committee also noted, in this connection, that MSC 92 had requested the Secretariat to prepare a document for consideration at MSC 93, setting out any proposed revision to the Committees' Guidelines as a consequence of the revision of the guidelines of the FAL Committee, as approved by FAL 38, so that the MSC may take a decision on the matter (MEPC 66/12/2, paragraph 2.13).

19.3 Consequently, the Committee agreed to await the consideration by MSC 93 of the relevant document prepared by the Secretariat (MSC 93/19) before taking a decision.

19.4 The Committee also took note that C 110, in noting the efficiency and austerity measures adopted by the Organization to date, urged the Committees to follow strictly both their Rules of Procedure and the Committees' Guidelines, as well as the guidelines on the application of the HLAP (MEPC 66/12/1, paragraph 2).

20 ANY OTHER BUSINESS

Workshop on biofouling and formation of a Biofouling Management Expert Group under IMarEST

20.1 The Committee noted document MEPC 66/INF.19 (IMarEST) regarding the Workshop on Biofouling Management for Sustainable Shipping organized by Australia/New Zealand/Pacific (ANZPAC) and the formation of the Biofouling Management Expert Group (BMEG) by IMarEST to assist and promote further discussions and international consultation on the development and implementation of practical, effective and globally consistent biofouling management measures for shipping.

Cooperation between the Basel Convention and IMO

20.2 The Committee also noted document MEPC 66/INF.26 (UNEP Secretariat of the Basel Convention) providing an overview of decision BC-11/17 on cooperation between the Basel Convention and IMO adopted by the eleventh meeting of the Conference of the Parties to the Basel Convention (28 April to 10 May 2013).

21 ACTION REQUESTED OF OTHER IMO ORGANS

21.1 The Council, at its 112th session, is invited to:

.1 note the adoption by the Committee of amendments to MARPOL Annexes I, II, III, IV, V and VI; the BCH Code; the IBC Code; and the NO_x Technical Code 2008 (paragraphs 6.51 to 6.70);

.2 endorse the action taken regarding HLAP outputs 5.2.3.6, 5.3.1.1, 7.2.2.1, 10.0.1.1 and 10.0.1.2, which the Committee had been asked to review (paragraphs 18.2 to 18.9);

.3 note the clarification provided concerning the procedure followed for the acceptance of new planned outputs 7.1.2.9 and 7.2.3.2 (paragraphs 18.10 to 18.16);

.4 note the report on the status of planned outputs for the 2014-2015 biennium (paragraph 18.28 and annex 18); and

.5 endorse the intersessional meetings approved for 2014 and 2015 (paragraph 18.35).

21.2 The Maritime Safety Committee, at its ninety-third session, is invited to:

.1 note the discussion on fuel oil quality and its possible impact on crew health, ship safety and environmental protection, and that the Committee agreed to develop possible control measures and invited relevant proposals for MEPC 67 (paragraphs 4.17 and 4.18);

.2 take into account the final text of the amendments to the BCH Code adopted by resolution MEPC.249(66) when adopting the corresponding amendments to the Code (paragraph 6.59 and annex 10);

.3 consider and decide on the final text of the footnote to new paragraphs 15.13.5.1 and 15.13.5.2 of the IBC Code when adopting the corresponding amendments to the Code (paragraph 6.61);

.4 note that the Committee further considered draft guidance for the use of electronic record books under MARPOL, taking into account the ongoing work of the FAL Committee on electronic access to certificates and documents, and re-established the relevant correspondence group (paragraphs 7.2 to 7.5);

.5 note the addition of a footnote to reflect consequential changes in pollution categories carried by certain types of ships listed in annex 3, section II (Collision avoidance, navigation, routeing measures), of resolution MEPC.101(48) (Identification of the Wadden Sea as a Particularly Sensitive Sea Area), resulting from the revision of MARPOL Annex II, following

consequential amendments to the existing Deep-Water Route and Traffic Separation Scheme from North Hinder to the German Bight via the Frisian Junction (COLREG.2/Circ.59) (paragraphs 9.1 and 9.2);

.6 note that the Committee approved the draft MSC-MEPC circular on *Guidelines for the reactivation of the Safety Management Certificate following an operational interruption of the SMS due to lay-up over a certain period* (STW 44/19, annex 1), subject to concurrent approval by MSC 93 (paragraph 11.3);

.7 note that the Committee approved the draft MSC-MEPC circular on *Guidance on safety when transferring persons at sea* (STW 44/19, annex 2), subject to concurrent approval by MSC 93 (paragraph 11.4);

.8 note that the Committee endorsed the decision of STW 44 not to develop amendments to the ISM Code concerning the transfer of ship maintenance and failure records, subject to concurrent endorsement by MSC 93 (paragraph 11.5);

.9 note that the Committee approved consequential amendments to MARPOL Annex III, developed by DSC 18 in relation to the latest set of draft amendments to the IMDG Code, and requested the Secretary-General to circulate them in accordance with MARPOL article 16, with a view to adoption at MEPC 67 (paragraph 11.8 and annex 14);

.10 note that the Committee approved the draft MSC-MEPC circular on *Products requiring oxygen-dependent inhibitors* (PPR 1/16, annex 5), subject to concurrent approval by MSC 93 (paragraph 11.16);

.11 note the decisions taken by the Committee with regard to the further development of the Polar Code and the associated MARPOL amendments to make the Code mandatory (paragraphs 11.19 to 11.53);

.12 note that the Committee considered FAL.5/Circ.39 on *Interim guidelines for use of printed versions of electronic certificates*, as requested by FAL 38, and, having noted that MSC 92 had instructed III 1 to consider the matter in detail and report to MSC, agreed to defer consideration of the issue to MEPC 67 (paragraph 12.3 and 12.4);

.13 note that the Committee approved MEPC.1/Circ.833 on *Guidelines for the reduction of underwater noise from commercial shipping to address adverse impacts on marine life* (paragraph 17.4);

.14 note that the Committee amended the title of output 7.2.2.1 to read "Safety and pollution hazards of chemicals and preparation of consequential amendments to the IBC Code, taking into account recommendations of GESAMP-EHS" (paragraph 18.6);

.15 note that the Committee, in considering outputs 5.3.1.1, 10.0.1.1 and 10.0.1.2, referred to the MEPC and MSC by C/ES.27 for consideration of scope, decided to defer any discussion on the three outputs until MEPC 67, awaiting the outcome of MSC 93 on the matter (paragraphs 18.7 and 18.8);

.16 note that the Committee, subject to the concurrent decision of MSC 93, approved the items on the biennial agendas of the CCC, HTW, NCSR, SDC and SSE Sub-Committees relating to environmental issues (paragraph 18.19 and annex 15);

.17 note that the Committee approved the revised biennial agenda of the PPR Sub-Committee and the provisional agenda for PPR 2 (paragraph 18.22 and annex 16);

.18 note that the Committee agreed to add the SSE Sub-Committee as an additional associated organ under output 7.1.2.13 (Code for the transport and handling of limited amounts of hazardous and noxious liquid substances in bulk on offshore support vessels) (paragraph 18.22.2);

.19 note that the Committee, subject to the concurrent decision of MSC 93, confirmed the biennial agenda of the III Sub-Committee and the provisional agenda for III 1 (paragraph 18.25 and annex 17);

.20 note that the Committee agreed, in the context of the revised guidelines of the FAL Committee, to await the further consideration by the MSC of the relevant document prepared by the Secretariat (MSC 93/19) before taking a decision (paragraph 19.3); and

.21 note that the Committee invited C 112 to endorse the holding of an intersessional Polar Code Working Group in the week before MEPC 67 in October 2014, which should report to MEPC 67 (paragraph 18.35.2).

21.3 The Technical Cooperation Committee, at its sixty-fourth session, is invited to:

.1 note that the Committee established, in accordance with resolution MEPC.229(65) on *Promotion of technical cooperation and transfer of technology relating to the improvement of energy efficiency of ships*, an Ad Hoc Expert Working Group on Facilitation of Transfer of Technology for Ships (AHEWG-TT) (paragraph 4.54 to 4.62); and

.2 note that the Committee noted, with appreciation, information provided on the Organization's TC activities related to the protection of the marine environment, implemented between 9 February and 27 December 2013 under the ITCP, as well as under the major projects financed through external sources, and invited Member Governments and international organizations to continue and, if possible, increase their support for IMO's TC activities (paragraphs 15.1 to 15.6).

21.4 The Facilitation Committee, at its thirty-ninth session, is invited to:

.1 note that the Committee further considered draft guidance for the use of electronic record books under MARPOL, taking into account the ongoing work of the FAL Committee on electronic access to certificates and documents, and re-established the relevant correspondence group (paragraphs 7.2 to 7.5);

.2 note that the Committee considered FAL.5/Circ.39 on *Interim guidelines for use of printed versions of electronic certificates*, as requested by FAL 38, and, having noted that MSC 92 had instructed III 1 to consider the matter in detail and report to MSC, agreed to defer consideration of the issue until MEPC 67 (paragraph 12.3 and 12.4); and

.3 note that the Committee agreed, in the context of the revised guidelines of the FAL Committee, to await the further consideration by the MSC of the relevant document prepared by the Secretariat (MSC 93/19) before taking a decision (paragraph 19.3).

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ANNEX 1

RESOLUTION MEPC.242(66)
Adopted on 4 April 2014

2014 GUIDELINES IN RESPECT OF THE INFORMATION TO BE SUBMITTED BYAN ADMINISTRATION TO THE ORGANIZATION COVERING THE CERTIFICATION OF AN APPROVED METHOD AS REQUIRED UNDER REGULATION 13.7.1 OF MARPOL ANNEX VI

THE MARINE ENVIRONMENT PROTECTION COMMITTEE,

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

RECALLING ALSO that, at its fifty-eighth session, the Committee adopted, by resolution MEPC.176(58), a revised MARPOL Annex VI (hereinafter referred to as "MARPOL Annex VI") which significantly strengthens the emission limits for nitrogen oxides (NO_x) in light of technological improvements and implementation experience,

NOTING that regulation 13.7.1 of MARPOL Annex VI requires notification to the Organization of an Approved Method certified by an Administration of a Party,

RECOGNIZING the need to develop guidelines to set forth the information to be submitted by an Administration to the Organization,

NOTING ALSO the 2014 Guidelines on the approved method process, adopted by resolution MEPC.243(66),

HAVING CONSIDERED, at its sixty-sixth session, the draft *2014 Guidelines in respect of the information to be submitted by an Administration to the Organization covering the certification of an Approved Method as required under regulation 13.7.1 of MARPOL Annex VI*, proposed by the Sub-Committee on Pollution Prevention and Response, at its first session,

1. ADOPTS the *2014 Guidelines in respect of the information to be submitted by an Administration to the Organization covering the certification of an Approved Method as required under regulation 13.7.1 of MARPOL Annex VI*, as set out in the annex to the present resolution;

2. INVITES Administrations to take the annexed Guidelines into account when notification of a new Approved Method is prepared;

3. REQUESTS the Parties to MARPOL Annex VI and other Member Governments to bring the annexed Guidelines to the attention of shipowners, ship operators, shipbuilders, marine diesel engine manufacturers and any other interested groups;

4. AGREES to keep these Guidelines under review in the light of experience gained with their application.

ANNEX

2014 GUIDELINES IN RESPECT OF THE INFORMATION TO BE SUBMITTED BY AN ADMINISTRATION TO THE ORGANIZATION COVERING THE CERTIFICATION OF AN APPROVED METHOD AS REQUIRED UNDER REGULATION 13.7.1 OF MARPOL ANNEX VI

1 PURPOSE

These Guidelines are intended to assist an Administration by providing an outline of the information to be submitted to the Organization for inclusion in the notification of certification of an Approved Method as required under regulation 13.7.1 of MARPOL Annex VI.

2 INFORMATION TO BE SUBMITTED TO THE ORGANIZATION

2.1 Contents of the information to be submitted

The notification to the Organization of the certification of an Approved Method should include, but is not limited to:

.1 the certification reference of the Approved Method together with details of the Approved Method;

.2 a copy of the Approved Method File, or where that is not possible, a sample of the File taking into account paragraph 2.2;

.3 criteria for identification of the engines to which an Approved Method applies as specified in paragraph 2.3; and

.4 Approved Method contact point.

2.2 A copy or sample of the Approved Method File

2.2.1 In accordance with paragraph 7.4 of the NO_X Technical Code 2008, the Approved Method File is an integral part of any Approved Method and should be authenticated by the application of the stamp of the certifying Administration. A copy of this Approved Method File should be included in the notification to the Organization.

2.2.2 However, in cases where, due to differences between individual engines at the time of manufacture, it is not possible to provide a copy of the Approved Method File as being representative of all engines to be covered by the specific Approved Method, a sample of the Approved Method File should instead be included in the notification to the Organization. This sample Approved Method File should contain sufficient detail that will make it possible to correlate with the actual Approved Method File to be supplied for individual engines.

2.2.3 In cases where a sample of the Approved Method File is included, the procedure for approval of individual Approved Method Files should be included in the notification. In all cases the authentication of the Approved Method File should be undertaken by the certifying Administration.

2.2.4 The Approved Method File should also include a description of the engine's onboard verification procedure, in accordance with paragraph 7.5 of the NO_X Technical Code 2008.

2.2.5 A list of the onboard record keeping requirements for the Approved Method should be included.

2.3 Criteria for the identification of an engine to which an Approved Method applies

2.3.1 Criteria for the identification of an engine to which a particular Approved Method applies should be included. This should also cover those cases where the current engine condition differs from the original engine condition at the time of manufacturing due to modifications either at the time of installation or subsequent modifications over its service life.

2.3.2 If the Approved Method developer knows the current condition of a particular engine, those parameters should be listed in the Approved Method File and the engine or engines to which it applies should be identified by engine make, type and serial number in the Approved Method File.

2.3.3 However, the developer of an Approved Method will usually not know the actual current engine condition. Consequently, the criteria which define an engine will relate to the original engine condition at the time of manufacturing. The criteria which define the applicability of a particular Approved Method should include the following items:

.1 manufacturer/licensee, engine type and model;

.2 application cycle(s) e.g. E2, E3, D2 or C1, as specified in chapter 3 of the NO_X Technical Code 2008 as appropriate;

.3 rated power (kW) and rated speed (rpm) as given on the nameplate or as modified by approved re-rating:

.1 the applicable power output/rated speed range is to be clearly shown whether these represent a "line" or a "box", the exception or inclusion on the boundary and any exceptions either inside or outside that boundary; and

.2 in addition, any potentially necessary calculation processes (for example between horsepower (metric/imperial) and kW) including the rounding method is to be clearly specified;

.4 NO_X critical components and how their identity should be established. Where there is a combination of components, it should be described how those are interrelated;

.5 NO_X critical settings or operating values and how those values should be established. Where there are combinations of settings, it should be described how these are interrelated. In addition, any potentially necessary calculation processes (for example to bring Pmax or Pcomp to the ISO specified condition), including the rounding method, is to be clearly specified; and

.6 any other specific points which relate to engines to which the Approved Method applies.

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ANNEX 2

RESOLUTION MEPC.243(66)
Adopted on 4 April 2014

2014 GUIDELINES ON THE APPROVED METHOD PROCESS

THE MARINE ENVIRONMENT PROTECTION COMMITTEE,

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

RECALLING ALSO that, at its fifty-eighth session, the Committee adopted, by resolution MEPC.176(58), a revised MARPOL Annex VI (hereinafter referred to as "MARPOL Annex VI") which significantly strengthens the emission limits for nitrogen oxides (NO_X) in light of technological improvements and implementation experience,

NOTING that regulation 13.7.1 of MARPOL Annex VI requires an Approved Method to be certified by an Administration of a Party,

RECOGNIZING the need to develop guidelines to set forth the process of approving an Approved Method,

NOTING ALSO the 2014 Guidelines in respect of the information to be submitted by an Administration to the Organization covering the certification of an approved method as required under regulation 13.7.1 of MARPOL Annex VI, adopted by resolution MEPC.242(66),

HAVING CONSIDERED, at its sixty-sixth session, the draft *2014 Guidelines on the Approved Method process*, proposed by the Sub-Committee on Pollution Prevention and Response, at its first session,

1. ADOPTS the *2014 Guidelines on the Approved Method process*, as set out in the annex to the present resolution;

2. INVITES Administrations to take the annexed Guidelines into account when an application for a new Approved Method is being considered;

3. REQUESTS the Parties to MARPOL Annex VI and other Member Governments to bring the annexed Guidelines to the attention of shipowners, ship operators, shipbuilders, marine diesel engine manufacturers, and any other interested groups; and

4. AGREES to keep these Guidelines under review in the light of experience gained with their application.

ANNEX

2014 GUIDELINES ON THE APPROVED METHOD PROCESS

1 PURPOSE

The purpose of these Guidelines is to assist Administrations, port State inspectors, shipowners and others to understand the Approved Method process and responsibilities. For clarity the Approved Method process is illustrated in figure 1. Further details are given in the following paragraphs.

2 IDENTIFICATION AS TO THE APPLICABILITY OF AN APPROVED METHOD

2.1 After notification of the certification of an Approved Method by an IMO circular, shipowners potentially affected by the Approved Method should investigate as to whether that Approved Method is applicable to engines under their control by checking against the criteria for identification of applicable engines included in the circular.

2.2 In those instances where items specified in paragraphs .1 to .3 of the appendix as listed in the notification do not apply, the Approved Method does not apply and no further action is required.

2.3 In those instances where an engine corresponds in full with the items specified in paragraphs .1 to .6 of the appendix as listed in the notification, as confirmed by the ship's Administration, the shipowner should arrange through the contact point given in the IMO circular for the installation of the Approved Method within the given time period as specified in regulation 13.7.2 of MARPOL Annex VI. In making that arrangement, the shipowner should provide such engine specific information as is necessary for the preparation of that engine's Approved Method File.

2.4 In those instances where it is considered that an Approved Method is not applicable since, although conforming with the items specified in paragraphs .1 to .3 of the appendix as listed in the notification, it does not conform to one or more points specified in paragraphs .4 to .6 of the appendix, due to installation or post manufacture modification, the shipowner should contact the relevant contact point as given in the IMO circular. In that communication, information should be given as to why it is considered that one or more of points specified in paragraphs .4 to .6 of the appendix do not apply. The contact point should assess that application for non-applicability of fitting the Approved Method against their knowledge of the Approved Method. The outcome of that review (agreement or disagreement) should be passed to the certifying Administration and ship's Administration for their review and confirmation of that finding.

.1 In the case of agreement as to non-applicability, the certifying Administration should duly document the non-applicability giving the Approved Method approval reference, details of the engine to which the non-applicability applies (make, model, serial number or other verifiable and unique identifiers) and details of the reason(s) for which the engine is found non-applicable together with any other relevant information. Any agreement on non-applicability should have the concurrence of the ship's Administration. The non-applicability documentation should be retained on board as evidence of non-applicability of a particular Approved Method. In this it must be noted that although non-applicability documentation has

been issued against a particular Approved Method, a subsequently certified Approved Method may apply.

.2 In those instances where those Administrations agree with the contact point that the shipowner's reason for claiming non-applicability is not valid, the shipowner will be advised and informed that fitting of the Approved Method is required within the given time period.

3 ALTERNATIVE TO THE INSTALLATION OF AN APPROVED METHOD

For an engine identified in above paragraph 2.3 or 2.4.2 as being applicable to an Approved Method, regulation 13.7.1.2 of MARPOL Annex VI allows that the engine may alternatively be certified to Tier I, II or III.* In such instances the issue of the EIAPP Certificate, approval of the associated Technical File and the initial and subsequent survey procedures should be in accordance with the given NO_X Technical Code 2008 procedures for engines installed on ships constructed on or after 1 January 2000. The IAPP Certificate of the ship on which that engine is installed should be duly updated within the time period given by regulation 13.7.2 of MARPOL Annex VI relevant to the Approved Method to which it is an alternative.

*__Note:__ Typically it may be expected that this option may be adopted in those cases where a series of ships spanned the introduction date of the NO_X certification requirement. In such cases those ships in the series which were constructed on or after 1 January 2000 will have NO_X certified engines, however, those ships in the series constructed before that date may have identical engines installed, except that they were not NO_X certified. In these instances it may be possible to back-certify those previously uncertified engines on the basis of being additional member engines of the engine groups/families to which the certified engines belong.

4 APPROVED METHOD NOT COMMERCIALLY AVAILABLE

4.1 In case where the Approved Method is not commercially available despite best efforts to obtain it within the time period given by regulation 13.7.2 of MARPOL Annex VI (noting that this does not cover instances when not convenient in relation to the ship's schedule to fit the Approved Method) then application should be made to the ship's Administration, giving details of the efforts made to have installed the Approved Method. The ship's Administration should review that information and, if in agreement that the Approved Method is not at that time commercially available, a statement to that effect should be duly provided to the shipowner. That statement should be retained on board and be available at surveys or inspections as required.

4.2 Thereafter the shipowner should, in accordance with regulation 13.7.2 of MARPOL Annex VI, reassess the commercial availability in a timely manner prior to the next annual survey, and if available, to have the Approved Method installed no later than that annual survey. If the Approved Method is still not available the process in paragraph 4.1 of these guidelines should be repeated. Thereafter, this process should be repeated for each annual survey until the Approved Method is commercially available and hence installed.

5 SURVEY CONFIRMING INSTALLATION OF THE APPROVED METHOD

5.1 Upon completion of the installation of the Approved Method, an initial (onboard confirmation) survey should be undertaken by the ship's Administration in accordance with the onboard verification procedure specified in the Approved Method File.

5.2 A chronological record should be maintained, covering the installation of the Approved Method and all changes, including like-for-like replacements, of components and adjustments/operating values as covered by the Approved Method. This record should accompany the Approved Method File as evidence of the initial installation.

6 SURVEYS CONFIRMING RETENTION OF THE APPROVED METHOD

6.1 The in-service surveys after the installation of the Approved Method should be carried out in accordance with the onboard verification procedure specified in the Approved Method File. The survey is to be conducted as part of a ship's survey in accordance with regulation 5 of MARPOL Annex VI.

6.2 The Approved Method record should be maintained and be available on board at the relevant surveys.

7 APPROVED METHOD PROCESS FLOWCHART

Figure 1 illustrates the overall Approved Method process.

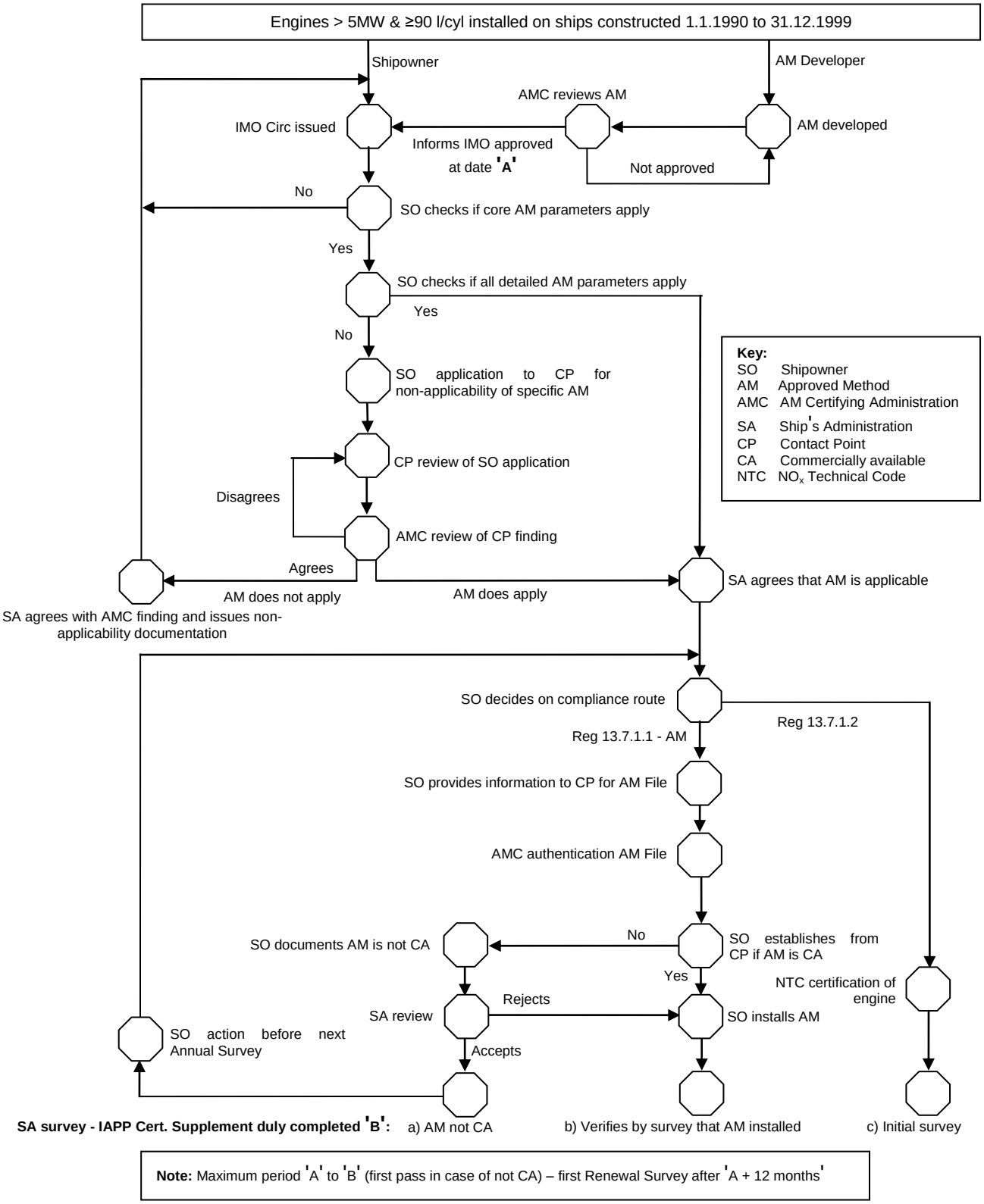

Figure 1 – Approved Method process flowchart

APPENDIX

EXTRACT FROM THE 2014 GUIDELINES IN RESPECT OF THE INFORMATION TO BE SUBMITTED BY AN ADMINISTRATION TO THE ORGANIZATION COVERING THE CERTIFICATION OF AN APPROVED METHOD AS REQUIRED UNDER REGULATION 13.7.1 OF MARPOL ANNEX VI

Criteria for the identification of an engine to which an Approved Method applies

The criteria, relating to original engine condition, which define the applicability of a particular Approved Method should include the following items:

.1 manufacturer/licensee, engine type and model;

.2 application cycle(s) e.g. E2, E3, D2 or C1, as specified in chapter 3 of the NO_X Technical Code 2008 as appropriate;

.3 rated power (kW) and rated speed (rpm) as given on the nameplate or as modified by approved re-rating:

.1 the applicable power output/rated speed range is to be clearly shown whether these represent a "line" or a "box", the exception or inclusion on the boundary and any exceptions either inside or outside that boundary; and

.2 in addition, any potentially necessary calculation processes (for example between horsepower (metric/imperial) and kW) including the rounding method is to be clearly specified;

.4 NO_X critical components and how their identity should be established. Where there is a combination of components, it should be described how those are interrelated;

.5 NO_X critical settings or operating values and how those values should be established. Where there are combinations of settings, it should be described how these are interrelated. In addition, any potentially necessary calculation processes (for example to bring Pmax or Pcomp to the ISO specified condition), including the rounding method, is to be clearly specified; and

.6 any other specific points which relate to engines to which the Approved Method applies.

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ANNEX 3

RESOLUTION MEPC.244(66)
Adopted on 4 April 2014

2014 STANDARD SPECIFICATION FOR SHIPBOARD INCINERATORS

THE MARINE ENVIRONMENT PROTECTION COMMITTEE,

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

RECALLING ALSO that, at its fortieth session, the Committee adopted, by resolution MEPC.76(40), the *Standard specification for shipboard incinerators*, in respect of regulation 16.6.1 and appendix IV to MARPOL Annex VI,

NOTING that, at its forty-fifth session, the Committee adopted, by resolution MEPC.93(45), *Amendments to the standard specification for shipboard incinerators*,

NOTING ALSO that, at its sixty-fourth session, the Committee decided that incinerators with a capacity greater than 1,500 kW and up to 4,000 kW can be type-approved under the existing standard specification for shipboard incinerators,

BEING AWARE of the need to update the definition section, as well as references to the SOLAS Convention and IEC standards in the *Standard specification for shipboard incinerators*,

HAVING CONSIDERED, at its sixty-sixth session, the 2014 Standard specification for shipboard incinerators,

1. ADOPTS the *2014 Standard specification for shipboard incinerators*, as set out in the annex to the present resolution;

2. INVITES Administrations to take the annexed Standard specification into account when certifying a shipboard incinerator;

3. INVITES Governments to note that, taking into account regulation 16.5.2 of MARPOL Annex VI, the standard specification for shipboard incinerators does not apply to the design, installation and operation of alternative designs of shipboard thermal waste treatment devices including those which use thermal processes to convert ship generated wastes to gas;

4. REQUESTS the Parties to MARPOL Annex VI and other Member Governments to bring the annexed standard specification to the attention of shipowners, ship operators, shipbuilders, manufacturers of shipboard incinerators and any other interested groups;

5. SUPERSEDES the *Standard specification for shipboard incinerators* adopted by resolution MEPC.76(40), as amended by resolution MEPC.93(45).

ANNEX

2014 STANDARD SPECIFICATION FOR SHIPBOARD INCINERATORS

Table of contents

1 SCOPE

1.1 The 2014 Standard specification for shipboard incinerators (the Specification) covers the design, manufacture, performance, operation and testing of incinerators intended to incinerate garbage and other shipboard wastes generated during the ship's normal service.

1.2 This Specification applies to those incinerator plants with capacities up to 4,000 kW per unit.

1.3 This Specification does not apply to systems on special incinerator ships, e.g. for burning industrial wastes such as chemicals, manufacturing residues, etc.

1.4 This Specification does not address the electrical supply to the unit, nor the foundation connections and stack connections.

1.5 This Specification provides emission requirements in annex 1, and fire protection requirements in annex 2. Provisions for incinerators integrated with heat recovery units and provisions for flue gas temperature are given in annex 3 and annex 4, respectively.

1.6 This Specification may involve hazardous materials, operations, and equipment. It does not purport to address all of the safety problems associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use, including possible port State limitations.

2 DEFINITIONS

For the purpose of the Specification, the following definitions apply:

2.1 *Ship* means a vessel of any type whatsoever operating in the marine environment and includes hydrofoil boats, air-cushioned vehicles, submersibles, floating craft and fixed or floating platforms.

2.2 *Shipboard incinerator* or *incinerator* means a shipboard facility designed for the primary purpose of incineration.

2.3 *Garbage* means all kinds of food wastes, domestic wastes and operational wastes, all plastics, cargo residues, incinerator ashes, cooking oil, fishing gear, and animal carcasses generated during the normal operation of the ship and liable to be disposed of continuously or periodically except those substances which are defined or listed in Annexes to MARPOL. Garbage does not include fresh fish and parts thereof generated as a result of fishing activities undertaken during the voyage, or as a result of aquaculture activities which involve the transport of fish including shellfish for placement in the aquaculture facility and the transport of harvested fish including shellfish from such facilities to shore for processing.

2.4 *Waste* means useless, unneeded or superfluous matter which is to be discarded.

2.5 *Food wastes* means any spoiled or unspoiled food substances and includes fruits, vegetables, dairy products, poultry, meat products and food scraps generated aboard ship.

2.6 *Plastic* means a solid material which contains as an essential ingredient one or more high molecular mass polymers and which is formed (shaped) during either manufacture of the polymer or the fabrication into a finished product by heat and/or pressure. Plastics have

material properties ranging from hard and brittle to soft and elastic. For the purposes of this specification, plastic means all garbage that consists of or includes plastic in any form, including synthetic ropes, synthetic fishing nets, plastic garbage bags and incinerator ashes from plastic products.

2.7 *Domestic wastes* means all types of wastes not covered by Annexes to MARPOL that are generated in the accommodation spaces on board the ship. Domestic wastes does not include grey water.

2.8 *Operational wastes* means all solid wastes (including slurries) not covered by Annexes to MARPOL that are collected on board during normal maintenance or operations of a ship, or used for cargo stowage and handling. Operational wastes also includes cleaning agents and additives contained in cargo hold and external wash water. Operational wastes does not include grey water, bilge water or other similar discharges essential to the operation of a ship, taking into account the guidelines developed by the Organization.

2.9 *Oil residue (sludge)* means the residual waste oil products generated during the normal operation of a ship such as those resulting from the purification of fuel or lubricating oil for main or auxiliary machinery, separated waste oil from oil filtering equipment, waste oil collected in drip trays, and waste hydraulic and lubricating oils.

2.10 *Oily rags* means rags which have been saturated with oil as controlled in Annex I to MARPOL. Contaminated rags are rags which have been saturated with a substance defined as a harmful substance in Annexes to MARPOL.

2.11 *Cargo residues* means the remnants of any cargo which are not covered by Annexes to MARPOL and which remain on the deck or in holds following loading or unloading, including loading and unloading excess or spillage, whether in wet or dry condition or entrained in wash water but does not include cargo dust remaining on the deck after sweeping or dust on the external surfaces of the ship.

2.12 *Fishing gear* means any physical device or part thereof or combination of items that may be placed on or in the water or on the sea-bed with the intended purpose of capturing or controlling for subsequent capture or harvesting, marine or fresh water organisms.

3 MATERIALS AND MANUFACTURE

3.1 The materials used in the individual parts of the incinerator are to be suitable for the intended application with respect to heat resistance, mechanical properties, oxidation, corrosion, etc. as in other auxiliary marine equipment.

3.2 Piping for fuel and oil residue (sludge) should be seamless steel of adequate strength and to the satisfaction of the Administration. Short lengths of steel, or annealed copper nickel, nickel copper, or copper pipe and tubing may be used at the burners. The use of non-metallic materials for fuel lines is prohibited. Valves and fittings may be threaded in sizes up to and including 60 mm O.D. (outside diameter), but threaded unions are not to be used on pressure lines in sizes 33 mm O.D. and over.

3.3 All rotating or moving mechanical and exposed electrical parts should be protected against accidental contact.

3.4 Incinerator walls are to be protected with insulated fire bricks/refractory and a cooling system. Outside surface temperature of the incinerator casing being touched during normal operations should not exceed 20°C above ambient temperature.

3.5 Refractory should be resistant to thermal shocks and resistant to normal ship's vibration. The refractory design temperature should be equal to the combustion chamber design temperature plus 20% (see paragraph 4.1).

3.6 Incinerating systems should be designed such that corrosion will be minimized on the inside of the systems.

3.7 In systems equipped for incinerating liquid wastes, safe ignition and maintenance of combustion should be ensured, e.g. by a supplementary burner using gas oil/diesel oil or equivalent.

3.8 The combustion chamber(s) should be designed for easy maintenance of all internal parts including the refractory and insulation.

3.9 The combustion process should take place under negative pressure which means that the pressure in the furnace under all circumstances should be lower than the ambient pressure in the room where the incinerator is installed. A flue gas fan may be fitted to secure negative pressure.

3.10 The incinerating furnace may be charged with solid waste either by hand or automatically. In every case, fire dangers should be avoided and charging should be possible without danger to the operating personnel.

.1 For instance, where charging is carried out by hand, a charging lock may be provided which ensures that the charging space is isolated from the fire box as long as the filling hatch is open.

.2 Where charging is not effected through a charging lock, an interlock should be installed to prevent the charging door from opening while the incinerator is in operation with burning of garbage in progress or while the furnace temperature is above 220°C.

3.11 Incinerators equipped with a feeding sluice or system should ensure that the material charged will move to the combustion chamber. Such system should be designed such that both operator and environment are protected from hazardous exposure.

3.12 Interlocks should be installed to prevent ash removal doors from opening while burning is in progress or while the furnace temperature is above 220°C.

3.13 The incinerator should be provided with a safe observation port of the combustion chamber in order to provide visual control of the burning process and waste accumulation in the combustion chamber. Neither heat, flame, nor particles should be able to pass through the observation port. An example of a safe observation port is high-temperature glass with a metal closure.

3.14 Electrical requirements[7]

3.14.1 Electrical installation requirements should apply to all electrical equipment, including controls, safety devices, cables, and burners and incinerators.

[7] International Electrotechnical Commission (IEC) Standards, particularly IEC Publication 60092 – Electrical Installations in Ships, are applicable for this equipment.

3.14.1.1 A disconnecting means capable of being locked in the open position should be installed at an accessible location at the incinerator so that the incinerator can be disconnected from all sources of potential. This disconnecting means should be an integral part of the incinerator or adjacent to it (see paragraph 5.1).

3.14.1.2 All uninsulated live metal parts should be guarded to avoid accidental contact.

3.14.1.3 The electrical equipment should be so arranged so that failure of this equipment will cause the fuel supply to be shut off.

3.14.1.4 All electrical contacts of every safety device installed in the control circuit should be electrically connected in series. However, special consideration should be given to arrangements when certain devices are wired in parallel.

3.14.1.5 All electrical components and devices should have a voltage rating commensurate with the supply voltage of the control system.

3.14.1.6 All electrical devices and electric equipment exposed to the weather should meet the requirements of international standards acceptable to the Organization.[8]

3.14.1.7 All electrical and mechanical control devices should be of a type tested and accepted by a nationally recognized testing agency, according to international standards.

3.14.1.8 The design of the control circuits should be such that limit and primary safety controls should directly open a circuit that functions to interrupt the supply of fuel to combustion units.

3.14.2 Overcurrent protection

3.14.2.1 Conductors for interconnecting wiring that is smaller than the supply conductors should be provided with overcurrent protection based on the size of the smallest interconnecting conductors external to any control box, in accordance with the requirements of international standards acceptable to the Organization.[9]

3.14.2.2 Overcurrent protection for interconnecting wiring should be located at the point where the smaller conductors connect to the larger conductors. However, overall overcurrent protection is acceptable if it is sized on the basis of the smallest conductors of the interconnecting wiring, or in accordance with the requirements of international standards acceptable to the Organization.[10]

3.14.2.3 Overcurrent protection devices should be accessible and their function should be identified.

3.14.3 Motors

3.14.3.1 All electric motors should have enclosures corresponding to the environment where they are located, at least IP 44, in accordance with the requirements of international standards acceptable to the Organization.[11]

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8 Refer to IEC Publication 60092-201, table V (1994-08 edition).

9 Refer to IEC Publication 60092-202 (1994-03 edition with amendment).

10 Refer to IEC Publication 60092-202 (1994-03 edition with amendment).

11 Refer to IEC Publication 60529 (2013-08 edition with amendment).

3.14.3.2 Motors should be provided with a corrosion-resistant nameplate specifying information in accordance with the requirements of international standards acceptable to the Organization.[12]

3.14.3.3 Motors should be provided with running protection by means of integral thermal protection, by overcurrent devices, or a combination of both in accordance with manufacturer's instruction that should meet the requirements of international standards acceptable to the Organization.[13]

3.14.3.4 Motors should be rated for continuous duty and should be designed for an ambient temperature of 45°C or higher.

3.14.3.5 All motors should be provided with terminal leads or terminal screws in terminal boxes integral with, or secured to, the motor frames.

3.14.4 Ignition system

3.14.4.1 When automatic electric ignition is provided, it should be accomplished by means of either a high-voltage electric spark, a high-energy electric spark, or a glow coil.

3.14.4.2 Ignition transformers should have an enclosure corresponding to the environment where they are located, at least IP 44 in accordance with the requirements of international standards acceptable to the Organization.[14]

3.14.4.3 Ignition cable should meet the requirements of international standards acceptable to the Organization.[15]

3.14.5 Wiring

All wiring for incinerators should be rated and selected in accordance with the requirements of international standards acceptable to the Organization.[16]

3.14.6 Bonding and grounding

3.14.6.1 Means should be provided for grounding the major metallic frame or assembly of the incinerators.

3.14.6.2 Non-current carrying enclosures, frames and similar parts of all electrical components and devices should be bonded to the main frame or assembly of the incinerator. Electrical components that are bonded by their installation do not require a separate bonding conductor.

3.14.6.3 When an insulated conductor is used to bond electrical components and devices, it should show a continuous green colour, with or without a yellow stripe.

12 Refer to IEC Publication 60092-301 (1980-01 edition with amendment).
13 Refer to IEC Publication 60092-202 (1994-03 edition with amendment).
14 Refer to IEC publication 60529 (2013-08 edition with amendment).
15 Refer to IEC Publication 60092-503 (2007-06 edition with amendment).
16 Refer to IEC Publication 60092-352 (2005-09 edition with amendment).

4 OPERATING REQUIREMENTS

4.1 The incinerator system should be designed and constructed for operation with the following conditions:

Maximum combustion chamber flue gas outlet temperature	1,200°C
Minimum combustion chamber flue gas outlet temperature	850°C
Preheat temperature of combustion chamber	650°C

4.2 For batch loaded incinerators, there are no preheating requirements. However, the incinerator should be designed that the temperature in the actual combustion space should reach 600°C within 5 minutes after start.

Prepurge, before ignition:	at least 4 air changes in the chamber(s) and stack, but not less than 15 s.
Time between restarts:	at least 4 air changes in the chamber(s) and stack, but not less than 15 s.
Postpurge, after shut-off fuel oil:	not less than 15 s after the closing of the fuel oil valve.
Incinerator discharge gases:	Minimum 6% O2 (measured in dry flue gas).

4.3 Outside surface of combustion chamber(s) should be shielded from contact such that people in normal work situations will not be exposed to extreme heat (20°C above ambient temperature) or direct contact of surface temperatures exceeding 60°C. Examples for alternatives to accomplish this are a double jacket with an air flow in between or an expanded metal jacket.

4.4 Incinerating systems are to be operated with underpressure (negative pressure) in the combustion chamber such that no gases or smoke can leak out to the surrounding areas.

4.5 The incinerator should have warning plates attached in a prominent location on the unit, warning against unauthorized opening of doors to combustion chamber(s) during operation and against overloading the incinerator with garbage.

4.6 The incinerator should have instruction plate(s) attached in a prominent location on the unit that clearly addresses the following:

4.6.1 Cleaning ashes and slag from the combustion chamber(s) and cleaning of combustion air openings before starting the incinerator (where applicable).

4.6.2 Operating procedures and instructions. These should include proper start-up procedures, normal shut-down procedures, emergency shut-down procedures, and procedures for loading garbage (where applicable).

4.7 To avoid building up of dioxins, the flue gas should be shock-cooled to a maximum 350°C within 2.5 m from the combustion chamber flue gas outlet.

5 OPERATING CONTROLS

5.1 The entire unit should be capable of being disconnected from all sources of electricity by means of one disconnect switch located near the incinerator (see paragraph 3.14.1.1).

5.2 There should be an emergency stop switch located outside the compartment which stops all power to the equipment. The emergency stop switch should also be able to stop all power to the fuel pumps. If the incinerator is equipped with a flue gas fan, the fan should be capable of being restarted independently of the other equipment on the incinerator.

5.3 The control equipment should be so designed that any failure of the following equipment will prevent continued operations and cause the fuel supply to be cut off.

5.3.1 Safety thermostat/draft failure

5.3.1.1 A flue gas temperature controller, with a sensor placed in the flue gas duct, should be provided that will shut down the burner if the flue gas temperature exceeds the temperature set by the manufacturer for the specific design.

5.3.1.2 A combustion temperature controller, with a sensor placed in the combustion chamber, should be provided that will shut down the burner if the combustion chamber temperature exceeds the maximum temperature.

5.3.1.3 A negative pressure switch should be provided to monitor the draft and the negative pressure in the combustion chamber. The purpose of this negative pressure switch is to ensure that there is sufficient draft/negative pressure in the incinerator during operations. The circuit to the program relay for the burner will be opened and an alarm activated before the negative pressure rises to atmospheric pressure.

5.3.2 ***Flame failure/fuel oil pressure***

5.3.2.1 The incinerator should have a flame safeguard control consisting of a flame sensing element and associated equipment for shut down of the unit in the event of ignition failure and flame failure during the firing cycle. The flame safeguard control should be so designed that the failure of any component will cause a safety shut down.

5.3.2.2 The flame safeguard control should be capable of closing the fuel valves in not more than 4 s after a flame failure.

5.3.2.3 The flame safeguard control should provide a trial-for-ignition period of not more than 10 s during which fuel may be supplied to establish flame. If flame is not established within 10 s, the fuel supply to the burners should be immediately shut off automatically.

5.3.2.4 Whenever the flame safeguard control has operated because of failure of ignition, flame failure, or failure of any component, only one automatic restart may be provided. If this is not successful then manual reset of the flame safeguard control should be required for restart.

5.3.2.5 Flame safeguard controls of the thermostatic type, such as stack switches and pyrostats operated by means of an open bimetallic helix, are prohibited.

5.3.2.6 If fuel oil pressure drops below that set by the manufacturer, a failure and lock out of the program relay should result. This also applies to an oil residue (sludge) burner (applies where pressure is important for the combustion process or a pump is not an integral part of the burner).

5.3.3 *Loss of power*

If there is a loss of power to the incinerator control/alarm panel (not remote alarm panel), the system should shut down.

5.4 Fuel supply

Two fuel control solenoid valves should be provided in series in the fuel supply line to each burner. On multiple burner units, a valve on the main fuel supply line and a valve at each burner will satisfy this requirement. The valves should be connected electrically in parallel so that both operate simultaneously.

5.5 Alarms

5.5.1 An outlet for an audible alarm should be provided for connection to a local alarm system or a central alarm system. When a failure occurs, a visible indicator should show what caused the failure (The indicator may cover more than one fault condition.).

5.5.2 The visible indicators should be designed so that, where failure is a safety related shutdown, manual reset is required.

5.6 After shutdown of the oil burner, provision should be made for the fire box to cool sufficiently (as an example, of how this may be accomplished, the exhaust fan or ejector could be designed to continue to operate. This would not apply in the case of an emergency manual trip).

6 OTHER REQUIREMENTS

6.1 Documentation

A complete instruction and maintenance manual with drawings, electric diagrams, spare parts list, etc. should be furnished with each incinerator.

6.2 Installation

All devices and components should, as fitted in the ship, be designed to operate when the ship is upright and when inclined at any angle of list up to and including 15° either way under static conditions and 22.5° under dynamic conditions (rolling) either way and simultaneously inclined dynamically (pitching) 7.5° by bow or stern.

6.3 Incinerator

6.3.1 Incinerators are to be fitted with an energy source with sufficient energy to ensure a safe ignition and complete combustion. The combustion is to take place at sufficient negative pressure in the combustion chamber(s) to ensure no gases or smoke leaking out to the surrounding areas (see paragraph 5.3.1.3).

6.3.2 A driptray is to be fitted under each burner and under any pumps, strainers, etc. that require occasional examination.

7 TESTS

7.1 Prototype tests

An operating test for the prototype of each design should be conducted, with a test report completed indicating results of all tests. The tests should be conducted to ensure that all of the control components have been properly installed and that all parts of the incinerator, including controls and safety devices, are in satisfactory operating condition. Tests should include those described in paragraph 7.3 below.

7.2 Factory tests

For each unit, if preassembled, an operating test should be conducted to ensure that all of the control components have been properly installed and that all parts of the incinerator, including controls and safety devices, are in satisfactory operating condition. Tests should include those described in paragraph 7.3 below.

7.3 Installation tests

An operating test after installation should be conducted to ensure that all of the control components have been properly installed and that all parts of the incinerator, including controls and safety devices, are in satisfactory operating condition. The requirements for prepurge and time between restarts referred to in paragraph 4.1 should be verified at the time of the installation test.

7.3.1 Flame safeguard. The operation of the flame safeguard system should be verified by causing flame and ignition failures. Operation of the audible alarm (where applicable) and visible indicator should be verified. The shutdown times should be verified.

7.3.2 Limit controls. Shutdown due to the operation of the limit controls should be verified.

7.3.2.1 Oil pressure limit control. The lowering of the fuel oil pressure below the value required for safe combustion should initiate a safety shutdown.

7.3.2.2 Other interlocks. Other interlocks provided should be tested for proper operation as specified by the unit manufacturer.

7.3.3 Combustion controls. The combustion controls should be stable and operate smoothly.

7.3.4 Programming controls. Programming controls should be verified as controlling and cycling the unit in the intended manner. Proper prepurge, ignition, postpurge, and modulation should be verified. A stopwatch should be used for verifying intervals of time.

7.3.5 Fuel supply controls. The satisfactory operation of the two fuel control solenoid valves for all conditions of operation and shutdown should be verified.

7.3.6. Low voltage test. A low voltage test should be conducted on the incinerator unit to satisfactorily demonstrate that the fuel supply to the burners will be automatically shut off before an incinerator malfunction results from the reduced voltage.

7.3.7 Switches. All switches should be tested to verify proper operation.

8 CERTIFICATION

Manufacturer's certification that an incinerator has been constructed in accordance with this standard should be provided (by letter, certificate, or in the instruction manual).

9 MARKING

Each incinerator should be permanently marked, indicating:

.1 manufacturer's name or trademark

.2 style, type, model or other manufacturer's designation for the incinerator.

.3 capacity – to be indicated by net designed heat release of the incinerator in heat units per timed period; for example, British Thermal Units per hour, megajoules per hour, kilocalories per hour.

10 QUALITY ASSURANCE

Incinerators should be designed, manufactured and tested in a manner that ensures they meet the requirements of this Specification.

* * *

ANNEX 1

EMISSION STANDARD FOR SHIPBOARD INCINERATORS WITH CAPACITIES OF UP TO 4,000 kW

Minimum information to be provided

1 An IMO type approval certificate should be required for each shipboard incinerator. In order to obtain such certificate, the incinerator should be designed and built to an IMO approved standard. Each model should go through a specified type approval test operation at the factory or an approved test facility, and under the responsibility of the Administration.

2 Type approval tests should include measuring of the following parameters:

Max capacity	:	kW or kcal/h kg/h of specified waste kg/h per burner
Pilot fuel consumption	:	kg/h per burner
O_2 average in combustion chamber/zone	:	%
CO average in flue gas	:	mg/MJ
Soot number average	:	Bacharach or ringelman Scale
Combustion chamber flue gas outlet temperature average	:	°C
Amount of unburned components in ashes	:	% by weight

3 **Duration of test operation**

For oil residue (sludge) burning	:	6-8 hours
For solid waste burning	:	6-8 hours

4 **Fuel/waste specification for type approval test (% by weight)**

Oil residue (sludge) consisting of:	75% oil residue (sludge) from heavy fuel oil 5% waste lubricating oil 20% emulsified water
Solid waste (class 2) consisting of:	50% Food Waste 50% rubbish Containing Approx. 30% paper, " 40% cardboard, " 10% rags, " 20% plastic The mixture will have up to 50% moisture and 7% incombustible solids.

Classes of waste

Reference: Waste classification from Incinerator Institute of America (information for type approval tests only).

Class 2 Refuse, consisting of approximately even mixture of rubbish and garbage by weight. This type waste is common to passenger ships occupancy, consisting of up to 50% moisture, 7% incombustible solids and has a heating value of about 10,000 kJ/kg as fired.

Calorific values	**kJ/Kg**	**kcal/kg**
Vegetable and putrescibles	5,700	1,360
Paper	14,300	3,415
Rag	15,500	3,700
Plastics	36,000	8,600
Oil sludge	36,000	8,600
Sewage sludge	3,000	716

Densities	**kg/m^3**
Paper (loose)	50
Refuse (75% wet)	720
Dry rubbish	110
Scrap wood	190
Wood sawdust	220

Density of loose general waste generated on board ship will be about 130 kg/m^3.

5 **Required emission standards to be verified by type approval test**

O_2 in combustion chamber	6 – 12%
CO in flue gas maximum average	200 mg/MJ
Soot number maximum average	BACHARACH 3 or RINGELMAN 1 (A higher soot number is acceptable only during very short periods such as starting up.)
Unburned components in ash residues	Max 10% by Weight
Combustion chamber flue gas outlet temperature range	850 – 1200 °C

Flue gas outlet temperature and O_2 content should be measured during the combustion period, and not during the preheating or cooling periods. For a batch loaded incinerator, it is acceptable to carry out the type approval test by means of a single batch.

A high temperature in the actual combustion chamber/zone is an absolute requirement in order to obtain a complete and smoke free incineration, including that of plastic and other synthetic materials while minimizing dioxins, VOC (Volatile Organic Compounds), and emissions.

6 Fuel related emission

6.1 Even with good incineration technology the emission from an incinerator will depend on the type of material being incinerated. If for instance a vessel has bunkered a fuel with high sulphur content, then oil residue (sludge) from separators which is burned in the incinerator will lead to emission of SO_X. But again, the SO_X emission from the incinerator would only amount to less than one per cent of the SO_X discharged with the exhaust from main and auxiliary engines.

6.2 Principal organic constituents (POC) cannot be measured on a continuous basis. Specifically, there are no instruments with provision for continuous time telemetry that measures POC, HCl, or waste destruction efficiency, to date. These measurements can only be made using grab sample approaches where the sample is returned to a laboratory for analysis. In the case of organic constituents (undestroyed wastes), the laboratory work requires considerable time to complete. Thus, continuous emission control can only be assured by secondary measurements.

6.3 Onboard operation/emission control

6.3.1 For a shipboard incinerator with IMO type approval, emission control/monitoring should be limited to the following:

.1 control/monitor O_2 content in combustion chamber (spot checks only; an O_2 content analyser is not required to be kept on board).

.2 control/monitor temperature in combustion chamber flue gas outlet.

6.3.2 By continuous (auto) control of the incineration process, ensure that the above-mentioned two parameters are kept within the prescribed limits. This mode of operation will ensure that particulates and ash residue contain only traces of organic constituents.

7 Passenger/cruise ships with incinerator installations having a total capacity of more than 1,500 kW

7.1 On board this type of vessel, the following conditions will probably exist:

.1 Generation of huge amounts of burnable waste with a high content of plastic and synthetic materials.

.2 Incinerating plant with a high capacity operating continuously over long periods.

.3 This type of vessel will often be operating in very sensitive coastal areas.

7.2 In view of the fuel related emission from a plant with such a high capacity, installation of a flue gas sea water scrubber should be considered. This installation can perform an efficient after-cleaning of the flue gases, thus minimizing the content of:

HCl
SO_X
particulate matter.

ANNEX 2

**FIRE PROTECTION REQUIREMENTS
FOR INCINERATORS AND WASTE STOWAGE SPACES**

For the purpose of construction, arrangement and insulation, incinerator spaces and waste stowage spaces should be treated as category A machinery spaces (SOLAS II-2/3.31) and service spaces (SOLAS II-2/3.45), respectively. To minimize the fire hazards these spaces represent, the following SOLAS requirements in chapter II-2 should be applied:

1 For passenger ships carrying more than 36 passengers:

.1 regulation 9.2.2.3.2.2(12) should apply to incinerator and combined incinerator/waste storage spaces, and the flue uptakes from such spaces; and

.2 regulation 9.2.2.3.2.2(13) should apply to waste storage spaces and garbage chutes connected thereto.

2 For all other ships including passenger ships carrying not more than 36 passengers:

.1 regulation 9.2.3.3.2.2(6) should apply to incinerator and combined incinerator/waste spaces, and the flue uptakes from such spaces; and

.2 regulation 9.2.3.3.2.2(9) should apply to waste storage spaces and garbage chutes connected thereto.

3 Incinerators and waste stowage spaces located on weather decks (SOLAS II-2/3.50) need not meet the above requirements but should be located:

.1 as far aft on the vessel as possible;

.2 not less than 3 m from entrances, air inlets and openings to accommodations, service spaces and control stations;

.3 not less than 5 m measured horizontally from the nearest hazardous area, or vent outlet from a hazardous area; and

.4 not less than 2 m should separate the incinerator and the waste material storage area, unless physically separated by a structural fire barrier;

4 A fixed fire detection and fire-extinguishing system should be installed in enclosed spaces containing incinerators, in combined incinerator/waste storage spaces, and in any waste storage space in accordance with the following table:

	Automatic sprinkler system	Fixed fire-extinguishing system	Fixed fire detection system
Combined incinerator and waste storage space	X		
Incinerator space		X	X
Waste storage space	X		

5 Where an incinerator or waste storage space is located on weather decks it should be accessible with two means of fire extinguishment; either fire hoses, semi-portable fire extinguishers, fire monitors or combination of any two of these extinguishing devices. A fixed fire-extinguishing system is acceptable as one means of extinguishment.

6 Flue uptake piping/ducting should be led independently to an appropriate terminus via a continuous funnel or trunk.

ANNEX 3

INCINERATORS INTEGRATED WITH HEAT RECOVERY UNITS

1 The flue gas system, for incinerators where the flue gas is led through a heat recovery device, should be designed so that the incinerator can continue operation with the economizer coils dry. This may be accomplished with bypass dampers if needed.

2 The incinerator unit should be equipped with a visual and an audible alarm in case of loss of feed-water.

3 The gas-side of the heat recovery device should have equipment for proper cleaning. Sufficient access should be provided for adequate inspection of external heating surfaces.

ANNEX 4

FLUE GAS TEMPERATURE

When deciding upon the type of incinerator, consideration should be given as to what the flue gas temperature will be. The flue gas temperature can be a determining factor in the selection of materials for fabricating the stack. Special high temperature material may be required for use in fabricating the stack when the flue gas temperatures exceed 430°C.

ANNEX 5

FORM OF IMO TYPE APPROVAL CERTIFICATE FOR SHIPBOARD INCINERATORS WITH CAPACITIES OF UP TO 4,000 KW

CERTIFICATE OF SHIPBOARD INCINERATOR

NAME OF ADMINISTRATION

BADGE
OR
CYPHER

This is to certify that the shipboard incinerator listed has been examined and tested in accordance with the *Standard for Shipboard Incinerators for disposing of ship-generated waste*, as amended by resolution MEPC.244(66), and as required by regulation 16.6.1 of MARPOL Annex VI.

Incinerator manufactured by .....
Style, type or model for the incinerator* .....

Max. capacity	.....	kW or kcal/h
	.....	kg/h of specified waste
	.....	kg/h per burner
O_2 Average In combustion chamber/zone	.....	%
CO Average in flue gas	.....	mg/MJ
Soot number average	.....	Bacharach or ringelman scale
Combustion chamber flue gas outlet temperature average	.....	°C
Amount of unburned components in ashes	.....	% by weight

A copy of this certificate should be carried on board a vessel fitted with this equipment at all times.

Signed .....
Official stamp Administration of .....
.....
Dated this ..... day of.....

* Delete as appropriate

***

ANNEX 4

DRAFT AMENDMENTS TO MARPOL ANNEX VI

(Amendments to regulations 2 and 13 and the Supplement to the IAPP Certificate)

Regulation 2 (Definitions)

1 Paragraphs 2.9 and 2.14 are amended to read as follows:

"2.9 *Fuel oil* means any fuel delivered to and intended for combustion purposes for propulsion or operation on board a ship, including gas, distillate and residual fuels."

2.14 *Marine diesel engine* means any reciprocating internal combustion engine operating on liquid or dual fuel, to which regulation 13 of this Annex applies, including booster/compound systems if applied. In addition, a gas fuelled engine installed on a ship constructed on or after [date] or a gas fuelled additional or non-identical replacement engine installed on or after that date is also considered as a marine diesel engine."

Regulation 13 (Nitrogen oxides (NO_X))

2 Paragraph 13.7.3 is amended to read as follows:

"7.3 With regard to a marine diesel engine with a power output of more than 5,000 kW and a per cylinder displacement at or above 90 litres installed on a ship constructed on or after 1 January 1990 but prior to 1 January 2000, the International Air Pollution Prevention Certificate shall, for a marine diesel engine to which paragraph 7.1 of this regulation applies, indicate that either an approved method has been applied pursuant to paragraph 7.1.1 of this regulation; or the engine has been certified pursuant to paragraph 7.1.2 of this regulation; or an approved method is not yet commercially available as described in paragraph 7.2 of this regulation or is not applicable."

Appendix I (Supplement to the IAPP Certificate)

3 Paragraph 2.2.1 of the Supplement to the International Air Pollution Prevention Certificate (IAPP Certificate) is amended to read as follows:

"2.2 Nitrogen oxides (NO_X) (regulation 13)

2.2.1 The following marine diesel engines installed on this ship are in accordance with the requirements of regulation 13 as indicated:

Applicable regulation of MARPOL Annex VI (NO_X Technical Code 2008) (AM = Approved Method)			Eng #1	Eng #2	Eng #3	Eng #4	Eng #5	Eng#6
1	Manufacturer and model							
2	Serial number							
3	Use (applicable application cycle(s) – NTC 3.2)							
4	Rated power (kW) (NTC 1.3.11)							
5	Rated speed (RPM) (NTC 1.3.12)							
6	Identical engine installed ≥ 1/1/2000 exempted by 13.1.1.2		☐	☐	☐	☐	☐	☐
7	Identical engine installation date (dd/mm/yyyy) as per 13.1.1.2							
8a	Major Conversion (dd/mm/yyyy)	13.2.1.1 & 13.2.2						
8b		13.2.1.2 & 13.2.3						
8c		13.2.1.3 & 13.2.3						
9a	Tier I	13.3	☐	☐	☐	☐	☐	☐
9b		13.2.2	☐	☐	☐	☐	☐	☐
9c		13.2.3.1	☐	☐	☐	☐	☐	☐
9d		13.2.3.2	☐	☐	☐	☐	☐	☐
9e		13.7.1.2	☐	☐	☐	☐	☐	☐
10a	Tier II	13.4	☐	☐	☐	☐	☐	☐
10b		13.2.2	☐	☐	☐	☐	☐	☐
10c		13.2.2 (Tier III not possible)	☐	☐	☐	☐	☐	☐
10d		13.2.3.2	☐	☐	☐	☐	☐	☐
10e		13.5.2 (Exemptions)	☐	☐	☐	☐	☐	☐
10f		13.7.1.2	☐	☐	☐	☐	☐	☐
11a	Tier III (ECA-NOx only)	13.5.1.1	☐	☐	☐	☐	☐	☐
11b		13.2.2	☐	☐	☐	☐	☐	☐
11c		13.2.3.2	☐	☐	☐	☐	☐	☐
11d		13.7.1.2	☐	☐	☐	☐	☐	☐
12	AM*	installed	☐	☐	☐	☐	☐	☐
13		not commercially available at this survey	☐	☐	☐	☐	☐	☐
14		not applicable	☐	☐	☐	☐	☐	☐

* Refer to the 2014 Guidelines on the approved method process (resolution MEPC.243(66))."

4 Paragraph 2.5 of the Supplement to the International Air Pollution Prevention Certificate (IAPP Certificate) is amended to read as follows:

"2.5 Shipboard incineration (regulation 16)

The ship has an incinerator:

.1 installed on or after 1 January 2000 that complies with:

.1 resolution MEPC.76(40) ☐

.2 resolution MEPC.244(66) ☐

.2 installed before 1 January 2000 that complies with:

.1 resolution MEPC.59(33) ☐

.2 resolution MEPC.76(40) ☐"

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ANNEX 5

RESOLUTION MEPC.245(66)

Adopted on 4 April 2014

2014 GUIDELINES ON THE METHOD OF CALCULATION OF THE ATTAINED ENERGY EFFICIENCY DESIGN INDEX (EEDI) FOR NEW SHIPS

THE MARINE ENVIRONMENT PROTECTION COMMITTEE,

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

RECALLING ALSO that, at its sixty-second session, the Committee adopted, by resolution MEPC.203(62), *Amendments to the annex of the Protocol of 1997 to amend the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto* (inclusion of regulations on energy efficiency for ships in MARPOL Annex VI),

NOTING that the amendments to MARPOL Annex VI adopted at its sixty-second session by resolution MEPC.203(62), including a new chapter 4 for regulations on energy efficiency for ships in Annex VI, entered into force on 1 January 2013,

NOTING ALSO that regulation 20 (Attained EEDI) of MARPOL Annex VI, as amended, requires that the Energy Efficiency Design Index shall be calculated taking into account the guidelines developed by the Organization,

NOTING FURTHER the *2012 Guidelines on the method of calculation of the attained Energy Efficiency Design Index (EEDI) for new ships*, adopted at its sixty-third session by resolution MEPC.212(63), and the amendments thereto, adopted at its sixty-fourth session by resolution MEPC.224(64),

RECOGNIZING that the amendments to MARPOL Annex VI require the adoption of relevant guidelines for the smooth and uniform implementation of the regulations and to provide sufficient lead time for industry to prepare,

HAVING CONSIDERED, at its sixty-sixth session, the *2014 Guidelines on the method of calculation of the attained Energy Efficiency Design Index (EEDI) for new ships*,

1. ADOPTS the *2014 Guidelines on the method of calculation of the attained Energy Efficiency Design Index (EEDI) for new ships*, as set out in the annex to the present resolution;

2. INVITES Administrations to take the annexed Guidelines into account when developing and enacting national laws which give force to and implement provisions set forth in regulation 20 of MARPOL Annex VI, as amended;

3. REQUESTS the Parties to MARPOL Annex VI and other Member Governments to bring the annexed Guidelines related to the Energy Efficiency Design Index (EEDI) to the attention of shipowners, ship operators, shipbuilders, ship designers and any other interested parties;

4. AGREES to keep these Guidelines under review in the light of experience gained with their implementation;

5. SUPERSEDES the *2012 Guidelines on the method of calculation of the attained Energy Efficiency Design Index (EEDI) for new ships* adopted by resolution MEPC.212(63), as amended by resolution MEPC.224(64).

ANNEX

2014 GUIDELINES ON THE METHOD OF CALCULATION OF THE ATTAINED ENERGY EFFICIENCY DESIGN INDEX (EEDI) FOR NEW SHIPS

CONTENTS

1 Definitions

1.1 MARPOL means the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocols of 1978 and 1997relating thereto, as amended.

1.2 For the purpose of these Guidelines, the definitions in chapter 4 of MARPOL Annex VI, as amended, apply.

2 Energy Efficiency Design Index (EEDI)

The attained new ship Energy Efficiency Design Index (EEDI) is a measure of ships' energy efficiency (g/t · nm) and calculated by the following formula:

$$\frac{\left(\prod_{j=1}^{n} f_j\right)\left(\sum_{i=1}^{nME} P_{ME(i)} \cdot C_{FME(i)} \cdot SFC_{ME(i)}\right) + \left(P_{AE} \cdot C_{FAE} \cdot SFC_{AE}\,*\right) + \left(\left(\prod_{j=1}^{n} f_j \cdot \sum_{i=1}^{nPTI} P_{PTI(i)} - \sum_{i=1}^{neff} f_{eff(i)} \cdot P_{AEeff(i)}\right) C_{FAE} \cdot SFC_{AE}\right) - \left(\sum_{i=1}^{neff} f_{eff(i)} \cdot P_{eff(i)} \cdot C_{FME} \cdot SFC_{ME}\,**\right)}{f_i \cdot f_c \cdot f_l \cdot Capacity \cdot f_w \cdot V_{ref}}$$

* If part of the Normal Maximum Sea Load is provided by shaft generators, SFC_{ME} and C_{FME} may – for that part of the power – be used instead of SFC_{AE} and C_{FAE}

** In case of $P_{PTI(i)}$>0, the average weighted value of (SFC_{ME} · C_{FME}) and (SFC_{AE} · C_{FAE}) to be used for calculation of P_{eff}

Note: This formula may not be applicable to a ship having diesel-electric propulsion, turbine propulsion or hybrid propulsion system, except for cruise passenger ships and LNG carriers.

Where:

.1 C_F is a non-dimensional conversion factor between fuel consumption measured in g and CO_2 emission also measured in g based on carbon content. The subscripts $_{ME(i)}$ and $_{AE(i)}$ refer to the main and auxiliary engine(s) respectively. C_F corresponds to the fuel used when determining *SFC* listed in the applicable test report included in a Technical File as defined in paragraph 1.3.15 of NO_X Technical Code ("test report included in a NO_X technical file" hereafter). The value of C_F is as follows:

Type of fuel	Reference	Carbon content	C_F (t-CO_2/t-Fuel)
1 Diesel/Gas Oil	ISO 8217 Grades DMX through DMB	0.8744	3.206
2 Light Fuel Oil (LFO)	ISO 8217 Grades RMA through RMD	0.8594	3.151
3 Heavy Fuel Oil (HFO)	ISO 8217 Grades RME through RMK	0.8493	3.114
4 Liquefied Petroleum Gas (LPG)	Propane	0.8182	3.000
	Butane	0.8264	3.030
5 Liquefied Natural Gas (LNG)		0.7500	2.750
6 Methanol		0.3750	1.375
7 Ethanol		0.5217	1.913

In case of a ship equipped with a dual-fuel main or auxiliary engine, the C_F-factor for gas fuel and the C_F-factor for fuel oil should apply and be multiplied with the specific fuel oil consumption of each fuel at the relevant EEDI load point.

Example:

$C_{F,Gas}$ = 2.750
$C_{F-Pilotfuel}$ = 3.114
$SFC_{ME\ Pilotfuel}$ = 6 g/kWh
$SFC_{ME\ Gas}$ = 160 g/kWh

EEDI = (P_{ME} x ($C_{F\ Pilotfuel}$ x $SFC_{ME\ Pilotfuel}$ + $C_{F\ Gas}$ x $SFC_{ME\ Gas}$)) + …
EEDI = (P_{ME} x (3.114 x 6 + *2.750 x 160*)) + …

Calculation examples are set out in appendix 4.

.2 V_{ref} is the ship speed, measured in nautical miles per hour (knot), on deep water in the condition corresponding to the *capacity* as defined in paragraphs 2.3.1 and 2.3.3 (in case of passenger ships and cruise passenger ships, this condition should be summer load draught as provided in paragraph 2.4) at the shaft power of the engine(s) as defined in paragraph 2.5 and assuming the weather is calm with no wind and no waves.

.3 *Capacity* is defined as follows:

.1 For bulk carriers, tankers, gas carriers, LNG carriers, ro-ro cargo ships (vehicle carriers), ro-ro cargo ships, ro-ro passenger ships, general cargo ships, refrigerated cargo carrier and combination carriers, deadweight should be used as *capacity*.

.2 For passenger ships and cruise passenger ships, gross tonnage in accordance with the International Convention of Tonnage Measurement of Ships 1969, annex I, regulation 3, should be used as *capacity*.

.3 For containerships, 70% of the deadweight (DWT) should be used as *capacity*. EEDI values for containerships are calculated as follows:

.1 attained EEDI is calculated in accordance with the EEDI formula using 70% deadweight for *capacity*.

.2 estimated index value in the Guidelines for calculation of the reference line is calculated using 70% deadweight as:

$$Estimated\ \ Index\ Value = 3.1144 \cdot \frac{190 \cdot \sum_{i=1}^{NME} P_{MEi} + 215 \cdot P_{AE}}{70\%\mathrm{DWT} \cdot V_{ref}}$$

.3 parameters a and c for containerships in table 2 of regulation 21 of MARPOL Annex VI are determined by plotting the estimated index value against 100% deadweight i.e. a = 174.22 and c=0.201 were determined.

.4 required EEDI for a new containership is calculated using 100% deadweight as:

Required EEDI = (1-X/100) · a · 100% deadweight $^{-c}$

Where X is the reduction factor (in percentage) in accordance with table 1 in regulation 21 of MARPOL Annex VI relating to the applicable phase and size of new containership.

.4 *Deadweight* means the difference in tonnes between the displacement of a ship in water of relative density of 1,025 kg/m^3 at the summer load draught and the lightweight of the ship. The summer load draught should be taken as the maximum summer draught as certified in the stability booklet approved by the Administration or an organization recognized by it.

.5 *P* is the power of the main and auxiliary engines, measured in kW. The subscripts $_{ME(i)}$ and $_{AE(i)}$ refer to the main and auxiliary engine(s), respectively. The summation on *i* is for all engines with the number of engines ($_{nME}$) (see diagram in appendix 1).

.1 $P_{ME(i)}$ is 75% of the rated installed power (MCR*) for each main engine (*i*).

For LNG carriers having diesel electric propulsion system, $P_{ME(i)}$ should be calculated by the following formula:

$$P_{ME(i)} = 0.83 \times \frac{MPP_{Motor(i)}}{\eta_{(i)}}$$

Where:

$MPP_{Motor(i)}$ is the rated output of motor specified in the certified document.

$\eta_{(i)}$ is to be taken as the product of electrical efficiency of generator, transformer, converter, and motor, taking into consideration the weighted average as necessary.

The electrical efficiency, $\eta_{(i)}$, should be taken as 91.3% for the purpose of calculating attained EEDI. Alternatively, if the value more than 91.3% is to be applied, the $\eta_{(i)}$ should be obtained by measurement and verified by method approved by the verifier.

* The value of MCR specified on the EIAPP certificate should be used for calculation. If the main engines are not required to have an EIAPP certificate, the MCR on the nameplate should be used.

For LNG carriers having steam turbine propulsion systems, $P_{ME(i)}$ is 83% of the rated installed power ($MCR_{SteamTurbine}$) for each steam turbine$_{(i)}$.

The influence of additional shaft power take off or shaft power take in is defined in the following paragraphs.

.2 **Shaft generator**

In case where shaft generator(s) are installed, $P_{PTO(i)}$ is 75% of the rated electrical output power of each shaft generator. In case that shaft generator(s) are installed to steam turbine, $P_{PTO(i)}$ is 83% of the rated electrical output power and the factor of 0.75 should be replaced to 0.83.

For calculation of the effect of shaft generators two options are available:

Option 1:

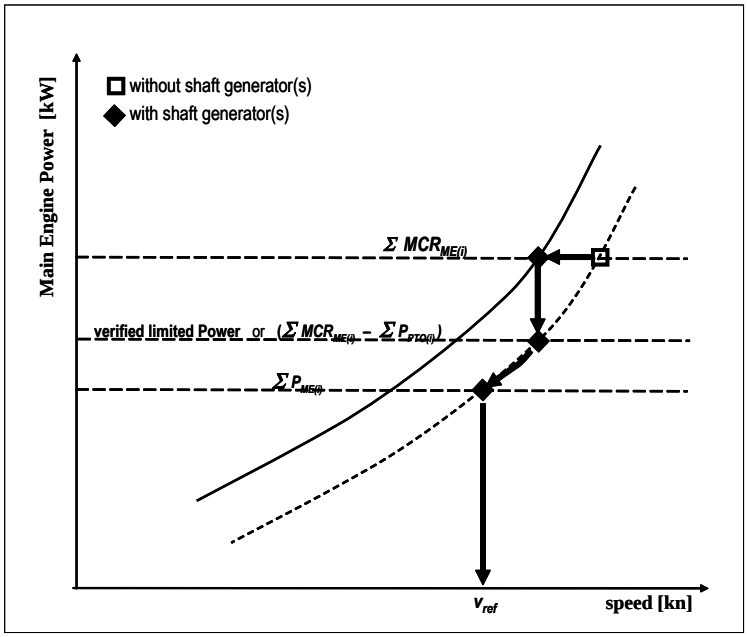
.1 The maximum allowable deduction for the calculation of $\Sigma P_{ME(i)}$ is to be no more than P_{AE} as defined in paragraph 2.5.6. For this case, $\Sigma P_{ME(i)}$ is calculated as:

$$\sum_{i=1}^{nME} P_{ME(i)} = 0.75 \times \left(\sum MCR_{ME(i)} - \sum P_{PTO(i)} \right) \quad with \;\; 0.75 \times \sum P_{PTO(i)} \leq P_{AE}$$

or

Option 2:

.2 Where an engine is installed with a higher rated power output than that which the propulsion system is limited to by verified technical means, then the value of $\Sigma P_{ME(i)}$ is 75% of that limited power for determining the reference speed, V_{ref} and for EEDI calculation. The following figure gives guidance for determination of $\Sigma P_{ME(i)}$:



.3 **Shaft motor**

In case where shaft motor(s) are installed, $P_{PTI(i)}$ is 75% of the rated power consumption of each shaft motor divided by the weighted average efficiency of the generator(s), as follows:

$$\sum P_{PTI(i)} = \frac{\sum \left(0.75 \cdot P_{SM,\max(i)}\right)}{\eta_{\overline{Gen}}}$$

Where:

$P_{SM,\max(i)}$ is the rated power consumption of each shaft motor

$\eta_{\overline{Gen}}$ is the weighted average efficiency of the generator(s)

In case that shaft motor(s) are installed to steam turbine, $P_{PTI(i)}$ is 83% of the rated power consumption and the factor of 0.75 should be replaced to 0.83.

The propulsion power at which V_{ref} is measured, is:

$$\sum P_{ME(i)} + \sum P_{PTI(i),Shaft}$$

Where:

$$\sum P_{PTI(i),Shaft} = \sum \left(0.75 \cdot P_{SM,\max(i)} \cdot \eta_{PTI(i)}\right)$$

$\eta_{PTI(i)}$ is the efficiency of each shaft motor installed

Where the total propulsion power as defined above is higher than 75% of the power the propulsion system is limited to by verified technical means, then 75% of the limited power is to be

used as the total propulsion power for determining the reference speed, V_{ref} and for EEDI calculation.

In case of combined PTI/PTO, the normal operational mode at sea will determine which of these to be used in the calculation.

Note: The shaft motor's chain efficiency may be taken into consideration to account for the energy losses in the equipment from the switchboard to the shaft motor, if the chain efficiency of the shaft motor is given in a verified document.

.4 $P_{eff(i)}$ is the output of the innovative mechanical energy efficient technology for propulsion at 75% main engine power.

Mechanical recovered waste energy directly coupled to shafts need not be measured, since the effect of the technology is directly reflected in the V_{ref}.

In case of a ship equipped with a number of engines, the C_F and *SFC* should be the power weighted average of all the main engines.

In case of a ship equipped with dual-fuel engine(s), the C_F and *SFC* should be calculated in accordance with paragraphs 2.1 and 2.7.

.5 $P_{AEeff\ (i)}$ is the auxiliary power reduction due to innovative electrical energy efficient technology measured at $P_{ME(i)}$.

.6 P_{AE} is the required auxiliary engine power to supply normal maximum sea load including necessary power for propulsion machinery/systems and accommodation, e.g. main engine pumps, navigational systems and equipment and living on board, but excluding the power not for propulsion machinery/systems, e.g. thrusters, cargo pumps, cargo gear, ballast pumps, maintaining cargo, e.g. reefers and cargo hold fans, in the condition where the ship engaged in voyage at the speed (V_{ref}) under the condition as mentioned in paragraph 2.2.

.1 For ships with a total propulsion power ($\sum MCR_{ME(i)} + \frac{\sum P_{PTI(i)}}{0.75}$) of 10,000 kW or above, P_{AE} is defined as:

$$P_{AE\ (\Sigma MCR_{ME(i)} \geq 10{,}000kW)} = \left(0.025 \times \left(\sum_{i=1}^{nME} MCR_{ME(i)} + \frac{\sum_{i=1}^{nPTI} P_{PTI(i)}}{0.75} \right) \right) + 250$$

.2 For ships with a total propulsion power ($\sum MCR_{ME(i)} + \frac{\sum P_{PTI(i)}}{0.75}$) below 10,000 kW, P_{AE} is defined as:

$$P_{AE\ (\Sigma MCR_{ME(i)} < 10,000kW)} = \left(0.05 \times \left(\sum_{i=1}^{nME} MCR_{ME(i)} + \frac{\sum_{i=1}^{nPTI} P_{PTI(i)}}{0.75} \right) \right)$$

.3 For LNG carriers with a reliquiefaction system or compressor(s), designed to be used in normal operation and essential to maintain the LNG cargo tank pressure below the maximum allowable relief valve setting of a cargo tank in normal operation, the following terms should be added to above P_{AE} formula in accordance with 1, 2 or 3 as below:

.1 For ships having re-liquefaction system:

$$+ CargoTankCapacity_{LNG} \times BOR \times COP_{reliquefy} \times R_{reliquefy}$$

Where:

$CargoTankCapacity_{LNG}$ is the LNG Cargo Tank Capacity in m^3.

BOR is the design rate of boil-off gas of entire ship per day, which is specified in the specification of the building contract.

$COP_{reliquefy}$ is the coefficient of design power performance for reliquefying boil-off gas per unit volume, as follows.

$$COP_{reliquefy} = \frac{425\,(kg/m^3) \times 511\,(kJ/kg)}{24\,(h) \times 3600\,(\sec) \times COP_{cooling}}$$

$COP_{cooling}$ is the coefficient of design performance of reliquefaction and 0.166 should be used. Another value calculated by the manufacturer and verified by the Administration or an organization recognized by the Administration may be used.

$R_{reliquefy}$ is the ratio of boil-off gas (BOG) to be re-liquefied to entire BOG, calculated as follows.

$$R_{reliquefy} = \frac{BOG_{reliquefy}}{BOG_{total}}$$

.2 For LNG carriers with direct diesel driven propulsion system or diesel electric propulsion system, having compressor(s) which are used for supplying high-pressured gas derived from boil-off gas to the installed engines (typically intended for 2-stroke dual fuel engines):

$$+ COP_{comp} \times \sum_{i=1}^{nME} SFC_{ME(i),gasmode} \times \frac{P_{ME(i)}}{1000}$$

Where:

COP_{comp} is the design power performance of compressor and 0.33 (kWh/kg) should be used. Another value calculated by the manufacturer and verified by the Administration or an organization recognized by the Administration may be used.

.3 For LNG carriers with direct diesel driven propulsion system or diesel electric propulsion system, having compressor(s) which are used for supplying low-pressured gas derived from boil-off gas to the installed engines (typically intended for 4-stroke dual fuel engines):

$$+0.02\times\sum_{i=1}^{nME}P_{ME(i)}$$ [1]

For LNG carriers having diesel electric propulsion system, $MPP_{Motor(i)}$ should be used instead $MCR_{ME(i)}$ for P_{AE} calculation.

For LNG carriers having steam turbine propulsion system and of which electric power is primarily supplied by turbine generator closely integrated into the steam and feed water systems, P_{AE} may be treated as 0(zero) instead of taking into account electric load in calculating $SFC_{SteamTurbine}$.

.4 For ship where the P_{AE} value calculated by paragraphs 2.5.6.1 to 2.5.6.3 is significantly different from the total power used at normal seagoing, e.g. in cases of passenger ships (see NOTE under the formula of EEDI), the P_{AE} value should be estimated by the consumed electric power (excluding propulsion) in conditions when the ship is engaged in a voyage at reference speed (V_{ref}) as given in the electric power table[2], divided by the average efficiency of the generator(s) weighted by power (see appendix 2).

.6 V_{ref}, *Capacity* and *P* should be consistent with each other. As for ships having diesel electric or steam turbine propulsion systems, V_{ref} is the relevant speed at 83% of MPP_{Motor} or $MCR_{SteamTubine}$ respectively.

.7 *SFC* is the certified specific fuel consumption, measured in g/kWh, of the engines or steam turbines.

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[1] With regard to the factor of 0.02, it is assumed that the additional energy needed to compress BOG for supplying to a 4-stroke dual fuel engine is approximately equal to 2% of P_{ME}, compared to the energy needed to compress BOG for supplying to a steam turbine.

[2] The electric power table should be examined and validated by the verifier. Where ambient conditions affect any electrical load in the power table, such as that for heating ventilation and air conditioning systems, the contractual ambient conditions leading to the maximum design electrical load of the installed system for the ship in general should apply.

.1 The subscripts $_{ME(i)}$ and $_{AE(i)}$ refer to the main and auxiliary engine(s), respectively. For engines certified to the E2 or E3 test cycles of the NO_X Technical Code 2008, the engine Specific Fuel Consumption ($SFC_{ME(i)}$) is that recorded in the test report included in a NO_X technical file for the engine(s) at 75% of MCR power of its torque rating. For engines certified to the D2 or C1 test cycles of the NO_X Technical Code 2008, the engine Specific Fuel Consumption ($SFC_{AE(i)}$) is that recorded on the test report included in a NO_X technical file at the engine(s) 50% of MCR power or torque rating. If gas fuel is used as primary fuel in accordance with paragraph 4.2.3 of the *Guidelines on survey and certification of the energy efficiency design index (EEDI)*, *SFC* in gas mode should be used. In case that installed engine(s) have no approved NO_X Technical File tested in gas mode, the *SFC* of gas mode should be submitted by the manufacturer and confirmed by the verifier.

The *SFC* should be corrected to the value corresponding to the ISO standard reference conditions using the standard lower calorific value of the fuel oil (42,700kJ/kg), referring to ISO 15550:2002 and ISO 3046-1:2002.

For ships where the P_{AE} value calculated by paragraphs 2.5.6.1 to 2.5.6.3 is significantly different from the total power used at normal seagoing, e.g. conventional passenger ships, the Specific Fuel Consumption (SFC_{AE}) of the auxiliary generators is that recorded in the test report included in a NO_X technical file for the engine(s) at 75% of MCR power of its torque rating.

SFC_{AE} is the power-weighted average among $SFC_{AE(i)}$ of the respective engines *i*.

For those engines which do not have a test report included in a NO_X technical file because its power is below 130 kW, the *SFC* specified by the manufacturer and endorsed by a competent authority should be used.

At the design stage, in case of unavailability of test report in the NO_X file, the *SFC* specified by the manufacturer and endorsed by a competent authority should be used.

For LNG driven engines of which *SFC* is measured in kJ/kWh should be corrected to the *SFC* value of g/kWh using the standard lower calorific value of the LNG (48,000 kJ/kg), referring to the 2006 IPCC Guidelines.

.2 The $SFC_{SteamTurbine}$ should be calculated by manufacturer and verified by the Administration or an organization recognized by the Administration as follows:

$$SFC_{SteamTurbine} = \frac{FuelConsumption}{\sum_{i=1}^{nME} P_{ME(i)}}$$

Where:

.1 *Fuel consumption* is fuel consumption of boiler per hour (g/h). For ships of which electric power is primarily supplied by Turbine Generator closely integrated into the steam and feed water systems, not only P_{ME} but also *electric loads* corresponding to paragraph 2.5.6 should be taken into account.

.2 The *SFC* should be corrected to the value of LNG using the standard lower calorific value of the LNG (48,000 kJ/kg) at SNAME Condition (condition standard; air temperature 24°C , inlet temperature of fan 38°C, sea water temperature 24°C).

.3 In this correction, the difference of the boiler efficiency based on lower calorific value between test fuel and LNG should be taken into account.

.8 f_j is a correction factor to account for ship specific design elements:

.1 The power correction factor, f_j, for ice-classed ships should be taken as the greater value of f_{j0} and $f_{j,min}$ as tabulated in table 1 but not greater than $f_{j,max}$ = 1.0.

For further information on approximate correspondence between ice classes, see HELCOM Recommendation 25/7[3].

Table 1: Correction factor for power f_j for ice-classed ships

Ship type	f_{j0}	$f_{j,min}$ depending on the ice class			
		IA Super	IA	IB	IC
Tanker	$\frac{0.308 L_{PP}^{1.920}}{\sum_{i=1}^{nME} P_{ME(i)}}$	$0.15 L_{PP}^{0.30}$	$0.27 L_{PP}^{0.21}$	$0.45 L_{PP}^{0.13}$	$0.70 L_{PP}^{0.06}$
Bulk carrier	$\frac{0.639 L_{PP}^{1.754}}{\sum_{i=1}^{nME} P_{ME(i)}}$	$0.47 L_{PP}^{0.09}$	$0.58 L_{PP}^{0.07}$	$0.73 L_{PP}^{0.04}$	$0.87 L_{PP}^{0.02}$
General cargo ship	$\frac{0.0227 \cdot L_{PP}^{2.483}}{\sum_{i=1}^{nME} P_{ME(i)}}$	$0.31 L_{PP}^{0.16}$	$0.43 L_{PP}^{0.12}$	$0.56 L_{PP}^{0.09}$	$0.67 L_{PP}^{0.07}$
Refrigerated cargo ships	$\frac{0.639 L_{PP}^{1.754}}{\sum_{i=1}^{nME} P_{ME(i)}}$	$0.47 L_{PP}^{0.09}$	$0.58 L_{PP}^{0.07}$	$0.73 L_{PP}^{0.04}$	$0.87 L_{PP}^{0.02}$

.2 The factor f_j, for shuttle tankers with propulsion redundancy should be f_j = 0.77. This correction factors applies to shuttle tankers with propulsion redundancy between 80,000 and 160,000 dwt. Shuttle tankers with propulsion redundancy are tankers used for loading of crude oil from offshore installations equipped with dual-engine and

[3] HELCOM Recommendation 25/7 may be found at http://www.helcom.fi.

twin-propellers need to meet the requirements for dynamic positioning and redundancy propulsion class notation.

.3 For ro-ro cargo and ro-ro passenger ships f_{jRoRo} is calculated as follows:

$$f_{jRoRo} = \frac{1}{F_{n_L}^{\alpha} \cdot \left(\frac{L_{pp}}{B_s}\right)^{\beta} \cdot \left(\frac{B_s}{d_s}\right)^{\gamma} \cdot \left(\frac{L_{pp}}{\nabla^{1/3}}\right)^{\delta}} \quad ; \quad \text{If } f_{jRoRo} > 1 \text{ then } f_j = 1$$

where the Froude number, F_{n_L}, is defined as:

$$F_{n_L} = \frac{0.5144 \cdot V_{ref}}{\sqrt{L_{pp} \cdot g}}$$

and the exponents α, β, γ and δ are defined as follows:

Ship type	Exponent:			
	α	β	γ	δ
Ro-ro cargo ship	2.00	0.50	0.75	1.00
Ro-ro passenger ship	2.50	0.75	0.75	1.00

.4 The factor f_j for general cargo ships is calculated as follows:

$$f_j = \frac{0.174}{Fn_{\nabla}{}^{2.3} \cdot C_b{}^{0.3}} \quad ; \quad \text{If } f_j > 1 \text{ then } f_j = 1$$

Where

$$Fn_{\nabla} = \frac{0.5144 \cdot V_{ref}}{\sqrt{g \cdot \nabla^{\frac{1}{3}}}} \quad ; \quad \text{If } Fn_{\nabla} > 0.6 \text{ then } Fn_{\nabla} = 0.6$$

and

$$C_b = \frac{\nabla}{L_{pp} \cdot B_s \cdot d_s}$$

.5 For other ship types, f_j should be taken as 1.0.

.9 f_w is a non-dimensional coefficient indicating the decrease of speed in representative sea conditions of wave height, wave frequency and wind speed (e.g. Beaufort Scale 6), and is determined as follows:

.1 for the attained EEDI calculated under regulations 20 and 21 of MARPOL Annex VI, f_w is 1.00;

.2 when f_w is calculated according to the subparagraph .2.1 or .2.2 below, the value for attained EEDI calculated by the formula in

paragraph 2 using the obtained f_w should be referred to as "*attained EEDI$_{weather}$*";

.1 f_w can be determined by conducting the ship specific simulation on its performance at representative sea conditions. The simulation methodology should be based on the Guidelines developed by the Organization[4] and the method and outcome for an individual ship should be verified by the Administration or an organization recognized by the Administration; and

.2 in cases where a simulation is not conducted, f_w should be taken from the "Standard f_w " table/curve. A "Standard f_w " table/curve is provided in the Guidelines[4] for each ship type defined in regulation 2 of MARPOL Annex VI, and expressed as a function of capacity (e.g. deadweight). The "Standard f_w " table/curve is based on data of actual speed reduction of as many existing ships as possible under the representative sea condition.

f_w and *attained EEDI$_{weather}$*, if calculated, with the representative sea conditions under which those values are determined, should be indicated in the EEDI Technical File to distinguish it from the attained EEDI calculated under regulations 20 and 21 of MARPOL Annex VI.

.10 $f_{eff(i)}$ is the availability factor of each innovative energy efficiency technology. $f_{eff(i)}$ for waste energy recovery system should be one (1.0)[5].

.11 f_i is the capacity factor for any technical/regulatory limitation on capacity, and should be assumed to be one (1.0) if no necessity of the factor is granted

.1 The capacity correction factor, f_i, for ice-classed ships should be taken as the lesser value of f_{i0} and $f_{i,max}$ as tabulated in Table 2, but not less than $f_{i,min}$ = 1.0. For further information on approximate correspondence between ice classes, see HELCOM Recommendation 25/7[6].

Table 2: Capacity correction factor f_i for ice-classed ships

Ship type	f_{i0}	$f_{i,max}$ depending on the ice class			
		IA Super	IA	IB	IC
Tanker	$\frac{0.00138 \cdot L_{PP}^{3.331}}{capacity}$	$2.10 L_{PP}^{-0.11}$	$1.71 L_{PP}^{-0.08}$	$1.47 L_{PP}^{-0.06}$	$1.27 L_{PP}^{-0.04}$
Bulk carrier	$\frac{0.00403 \cdot L_{PP}^{3.123}}{capacity}$	$2.10 L_{PP}^{-0.11}$	$1.80 L_{PP}^{-0.09}$	$1.54 L_{PP}^{-0.07}$	$1.31 L_{PP}^{-0.05}$

4 Refer to *Interim Guidelines for the calculation of the coefficient f_w for decrease in ship speed in a representative sea condition for trial use*, approved by the Organization and circulated by MEPC.1/Circ.796.

5 EEDI calculation should be based on the normal seagoing condition outside Emission Control Area designated under regulation 13.6 of MARPOL ANNEX VI.

6 HELCOM Recommendation 25/7 may be found at http://www.helcom.fi.

Ship type	f_{i0}	$f_{i,max}$ depending on the ice class			
		IA Super	IA	IB	IC
General cargo ship	$\frac{0.0377 \cdot L_{PP}^{2.625}}{capacity}$	$2.18 L_{PP}^{-0.11}$	$1.77 L_{PP}^{-0.08}$	$1.51 L_{PP}^{-0.06}$	$1.28 L_{PP}^{-0.04}$
Containership	$\frac{0.1033 \cdot L_{PP}^{2.329}}{capacity}$	$2.10 L_{PP}^{-0.11}$	$1.71 L_{PP}^{-0.08}$	$1.47 L_{PP}^{-0.06}$	$1.27 L_{PP}^{-0.04}$
Gas carrier	$\frac{0.0474 \cdot L_{PP}^{2.590}}{capacity}$	1.25	$2.10 L_{PP}^{-0.12}$	$1.60 L_{PP}^{-0.08}$	$1.25 L_{PP}^{-0.04}$

Note: Containership capacity is defined as 70% of the *DWT*.

.2 $f_{i\,VSE}$[7] for ship specific voluntary structural enhancement is expressed by the following formula:

$$f_{iVSE} = \frac{DWT_{referencedesign}}{DWT_{enhanceddesign}}$$

where:

$$DWT_{referencedesign} = \Delta_{ship} - lightweight_{referencedesign}$$

$$DWT_{enhanceddesign} = \Delta_{ship} - lightweight_{enhanceddesign}$$

For this calculation the same displacement (Δ) for reference and enhanced design should be taken.

DWT before enhancements ($DWT_{reference\ design}$) is the deadweight prior to application of the structural enhancements. DWT after enhancements ($DWT_{enhanced\ design}$) is the deadweight following the application of voluntary structural enhancement. A change of material (e.g. from aluminum alloy to steel) between reference design and enhanced design should not be allowed for the $f_{i\ VSE}$ calculation. A change in grade of the same material (e.g. in steel type, grades, properties and condition) should also not be allowed.

In each case, two sets of structural plans of the ship should be submitted to the verifier for assessment. One set for the ship without voluntary structural enhancement; the other set for the same ship with voluntary structural enhancement (alternatively, one set of structural plans of the reference design with annotations of voluntary structural enhancement should also be acceptable). Both sets of structural plans should comply with the applicable regulations for the ship type and intended trade.

.3 for bulk carriers and oil tankers, built in accordance with the Common Structural Rules (CSR) of the classification societies and assigned the class notation CSR, the following capacity correction factor f_{iCSR} should apply:

[7] Structural and/or additional class notations such as, but not limited to, "strengthened for discharge with grabs" and "strengthened bottom for loading/unloading aground", which result in a loss of deadweight of the ship, are also seen as examples of "voluntary structural enhancements".

$f_{iCSR} = 1 + (0.08 \cdot LWT_{CSR} / DWT_{CSR})$

Where DWT_{CSR} is the deadweight determined by paragraph 2.4 and LWT_{CSR} is the light weight of the ship.

.4 for other ship types, f_i should be taken as one (1.0).

.12 f_c is the cubic capacity correction factor and should be assumed to be one (1.0) if no necessity of the factor is granted.

.1 for chemical tankers, as defined in regulation 1.16.1 of MARPOL Annex II, the following cubic capacity correction factor f_c should apply:

$f_c = R^{-0.7} - 0.014$, where R is less than 0.98
or
$f_c = 1.000$, where R is 0.98 and above;

where: R is the capacity ratio of the deadweight of the ship (tonnes) as determined by paragraph 2.4 divided by the total cubic capacity of the cargo tanks of the ship (m^3).

.2 for gas carriers having direct diesel driven propulsion system constructed or adapted and used for the carriage in bulk of liquefied natural gas, the following cubic capacity correction factor f_{cLNG} should apply:

$f_{cLNG} = R^{-0.56}$

where: R is the capacity ratio of the deadweight of the ship (tonnes) as determined by paragraph 2.4 divided by the total cubic capacity of the cargo tanks of the ship (m^3).

Note: This factor is applicable to LNG carriers defined as gas carriers in regulation 2.26 of MARPOL Annex VI and should not be applied to LNG carriers defined in regulation 2.38 of MARPOL Annex VI.

.3 For ro-ro passenger ships having a DWT/GT-ratio of less than 0.25, the following cubic capacity correction factor, f_{cRoPax}, should apply:

$$f_{cRoPax} = \left(\frac{(DWT/GT)}{0.25} \right)^{-0.8}$$

Where DWT is the Capacity and GT is the gross tonnage in accordance with the International Convention of Tonnage Measurement of Ships 1969, annex I, regulation 3.

.13 *Length between perpendiculars*, L_{pp}, means 96% of the total length on a waterline at 85% of the least moulded depth measured from the top of the keel, or the length from the foreside of the stem to the axis of the rudder stock on that waterline, if that were greater. In ships designed with a rake

of keel the waterline on which this length is measured should be parallel to the designed waterline. L_{pp} should be measured in metres.

.14 f_l is the factor for general cargo ships equipped with cranes and other cargo-related gear to compensate in a loss of deadweight of the ship.

$f_l = f_{cranes} \cdot f_{sideloader} \cdot f_{roro}$

f_{cranes}	= 1	If no cranes are present.
$f_{sideloader}$	= 1	If no side loaders are present.
f_{roro}	= 1	If no ro-ro ramp is present.

Definition of f_{cranes}:

$$f_{cranes} = 1 + \frac{\sum_{n=1}^{n} \left(0.0519 \cdot SWL_n \cdot \mathrm{Re}\,ach_n + 32.11\right)}{Capacity}$$

where:

SWL	=	Safe Working Load, as specified by crane manufacturer in metric tonnes
Reach	=	Reach at which the Safe Working Load can be applied in metres
N	=	Number of cranes

For other cargo gear such as side loaders and ro-ro ramps, the factor should be defined as follows:

$$f_{sideloader} = \frac{Capacity_{No\ sideloaders}}{Capacity_{sideloaders}}$$

$$f_{RoRo} = \frac{Capacity_{No\ RoRo}}{Capacity_{RoRo}}$$

The weight of the side loaders and ro-ro ramps should be based on a direct calculation, in analogy to the calculations as made for factor f_{ivse}.

.15 Summer load line draught, d_s, is the vertical distance, in metres, from the moulded baseline at mid-length to the waterline corresponding to the summer freeboard draught to be assigned to the ship.

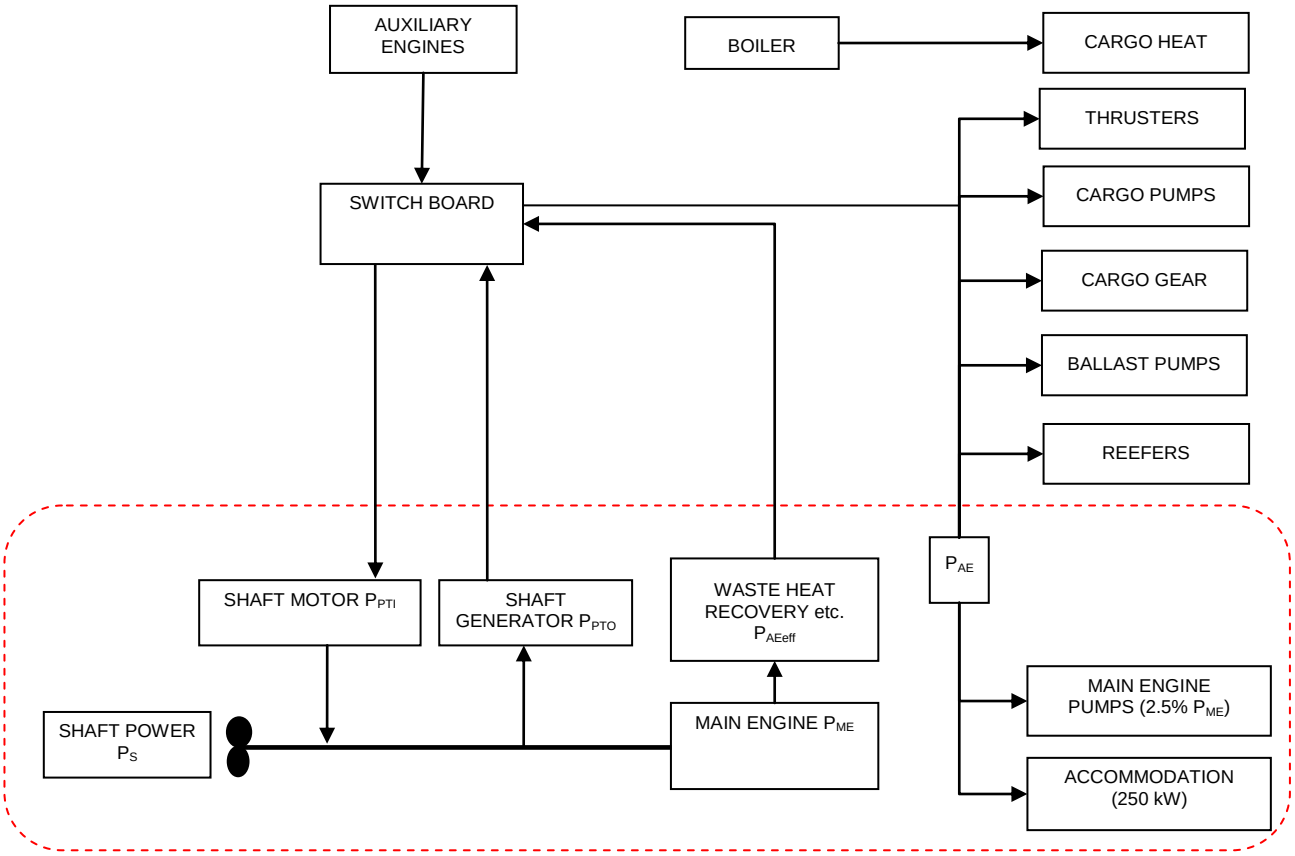
.16 Breadth, B_s, is the greatest moulded breadth of the ship, in metres, at or below the load line draught, d_s.

.17 Volumetric displacement, ∇, in cubic metres (m^3), is the volume of the moulded displacement of the ship, excluding appendages, in a ship with a metal shell, and is the volume of displacement to the outer surface of the hull in a ship with a shell of any other material, both taken at the summer load line draught, d_s, as stated in the approved stability booklet/loading manual.

.18 g is the gravitational acceleration, $9.81 m/s^2$.

APPENDIX 1

A GENERIC AND SIMPLIFIED MARINE POWER PLANT



Note 1: Mechanical recovered waste energy directly coupled to shafts need not be measured, since the effect of the technology is directly reflected in the V_{ref} .

Note 2: In case of combined PTI/PTO, the normal operational mode at sea will determine which of these to be used in the calculation.

APPENDIX 2

GUIDELINES FOR THE DEVELOPMENT OF ELECTRIC POWER TABLES FOR EEDI (EPT-EEDI)

1 Introduction

This appendix contains a guideline for the document "Electric power table for EEDI" which is similar to the actual shipyards' load balance document, utilizing well defined criteria, providing standard format, clear loads definition and grouping, standard load factors, etc. A number of new definitions (in particular the "groups") are introduced, giving an apparent greater complexity to the calculation process. However, this intermediate step to the final calculation of P_{AE} stimulates all the parties to a deep investigation through the global figure of the auxiliary load, allowing comparisons between different ships and technologies and eventually identifying potential efficiencies improvements.

2 Auxiliary load power definition

P_{AE} is to be calculated as indicated in paragraph 2.5.6 of the Guidelines, together with the following additional three conditions:

.1 non-emergency situations (e.g. "no fire", "no flood", "no blackout", "no partial blackout");

.2 evaluation time frame of 24 hours (to account loads with intermittent use); and

.3 ship fully loaded with passengers and/or cargo and crew.

3 Definition of the data to be included in the electric power table for EEDI

The electric power table for EEDI calculation should contain the following data elements, as appropriate:

.1 Load's group;
.2 Load's description;
.3 Load's identification tag;
.4 Load's electric circuit Identification;
.5 Load's mechanical rated power "*Pm*" [*kW*];
.6 Load's electric motor rated output power [*kW*];
.7 Load's electric motor efficiency "*e*" [*/*];
.8 Load's Rated electric power "*Pr*" [*kW*];
.9 Service factor of load "*kl*" [*/*];
.10 Service factor of duty "*kd*" [*/*];
.11 Service factor of time "*kt*" [*/*];
.12 Service total factor of use "*ku*" [*/*], where *ku=kl·kd·kt;*
.13 Load's necessary power "*Pload*" [*kW*], where *Pload=Pr·ku;*
.14 Notes;
.15 Group's necessary power [*kW*]; and
.16 Auxiliaries load's power P_{AE} [*kW*].

4 Data to be included in the electric power table for EEDI

Load groups

4.1 The loads are divided into defined groups, allowing a proper breakdown of the auxiliaries. This eases the verification process and makes it possible to identify those areas where load reductions might be possible. The groups are listed below:

.1 A – Hull, deck, navigation and safety services;
.2 B – Propulsion service auxiliaries;
.3 C – Auxiliary engine and main engine services;
.4 D – Ship's general services;
.5 E – Ventilation for engine-rooms and auxiliaries room;
.6 F – Air conditioning services;
.7 G – Galleys, refrigeration and laundries services;
.8 H – Accommodation services;
.9 I – Lighting and socket services;
.10 L – Entertainment services;
.11 N – Cargo loads; and
.12 M – Miscellaneous.

All the ship's loads should be delineated in the document, excluding only *PAeff*, the shaft motors and shaft motors chain (while the propulsion services auxiliaries are partially included below in paragraph 4.1.2 B). Some loads (i.e. thrusters, cargo pumps, cargo gear, ballast pumps, maintaining cargo, reefers and cargo hold fans) still are included in the group for sake of transparency, however their service factor is zero in order to comply with rows 4 and 5 of paragraph 2.5.6 of the Guidelines, therefore making it easier to verify that all the loads have been considered in the document and there are no loads left out of the measurement.

4.1.1 A – Hull, deck, navigation and safety services

.1 loads included in the hull services typically are: ICCP systems, mooring equipment, various doors, ballasting systems, bilge systems, stabilizing equipment, etc. Ballasting systems are indicated with service factor equal to zero to comply with row 5 of paragraph 2.5.6 of the Guidelines;

.2 loads included in the deck services typically are: deck and balcony washing systems, rescue systems, cranes, etc.;

.3 loads included in the navigation services typically are: navigation systems, navigation's external and internal communication systems, steering systems, etc.; and

.4 loads included in the safety services typically are: active and passive fire systems, emergency shutdown systems, public address systems, etc.

4.1.2 B – Propulsion service auxiliaries

This group typically includes: propulsion secondary cooling systems such as LT cooling pumps dedicated to shaft motors, LT cooling pumps dedicated to propulsion converters, propulsion UPSs, etc. Propulsion service loads do not include shaft motors (*PTI(i)*) and the auxiliaries which are part of them (shaft motor own cooling fans and pump, etc.) and the

shaft motor chain losses and auxiliaries which are part of them (i.e. shaft motor converters including relevant auxiliaries such as converter own cooling fans and pumps, shaft motor transformers including relevant auxiliaries losses such as propulsion transformer own cooling fans and pumps, shaft motor harmonic filter including relevant auxiliaries losses, shaft motor excitation system including the relevant auxiliaries consumed power, etc.). Propulsion service auxiliaries include manoeuvring propulsion equipment such as manoeuvring thrusters and their auxiliaries whose service factor is to be set to zero.

4.1.3 C – Auxiliary engine and main engine services

This group includes: cooling systems, i.e. pumps and fans for cooling circuits dedicated to alternators or propulsion shaft engines (seawater, technical water dedicated pumps, etc.), lubricating and fuel systems feeding, transfer, treatment and storage, ventilation system for combustion air supply, etc.

4.1.4 D – Ship's general services

This group includes loads which provide general services which can be shared between shaft motor, auxiliary engines and main engine and accommodation support systems. Loads typically included in this group are: cooling systems, i.e. pumping seawater, technical water main circuits, compressed air systems, fresh water generators, automation systems, etc.

4.1.5 E – Ventilation for engine-rooms and auxiliaries room

This group includes all fans providing ventilation for engine-rooms and auxiliary rooms that typically are: engine-rooms cooling supply-exhaust fans, auxiliary rooms supply and exhaust fans. All the fans serving accommodation areas or supplying combustion air are not included in this group. This group does not include cargo hold fans and garage supply and exhaust fans.

4.1.6 F – Air conditioning services

All loads that make up the air conditioning service that typically are: air conditioning chillers, air conditioning cooling and heating fluids transfer and treatment, air conditioning's air handling units ventilation, air conditioning re-heating systems with associated pumping, etc. The air conditioning chillers service factor of load, service factor of time and service factor of duty are to be set as 1 (*kl=1, kt*=1 and *kd*=1) in order to avoid the detailed validation of the heat load dissipation document (i.e. the chiller's electric motor rated power is to be used). However, *kd* is to represent the use of spare chillers (e.g. four chillers are installed and one out four is spare then *kd=0* for the spare chiller and *kd*=1 for the remaining three chillers), but only when the number of spare chillers is clearly demonstrated via the heat load dissipation document.

4.1.7 G – Galleys, refrigeration and laundries services

All loads related to the galleys, pantries refrigeration and laundry services that typically are: galleys various machines, cooking appliances, galleys' cleaning machines, galleys auxiliaries, refrigerated room systems including refrigeration compressors with auxiliaries, air coolers, etc.

4.1.8 H – Accommodation services

All loads related to the accommodation services of passengers and crew that typically are: crew and passengers' transportation systems, i.e. lifts, escalators, etc. environmental services, i.e. black and grey water collecting, transfer, treatment, storage, discharge, waste systems including collecting, transfer, treatment, storage, etc. accommodation fluids transfers, i.e. sanitary hot and cold water pumping, etc., treatment units, pools systems, saunas, gym equipment, etc.

4.1.9 I – Lighting and socket services

All loads related to the lighting, entertainment and socket services. As the quantity of lighting circuits and sockets within the ship may be significantly high, it is not practically feasible to list all the lighting circuits and points in the EPT for EEDI. Therefore circuits should be grouped into subgroups aimed to identify possible improvements of efficient use of power. The subgroups are:

.1 Lighting for 1) cabins, 2) corridors, 3) technical rooms/stairs, 4) public spaces/stairs, 5) engine-rooms and auxiliaries' room, 6) external areas, 7) garages and 8) cargo spaces. All should be divided by main vertical zones; and

.2 Power sockets for 1) cabins, 2) corridors, 3) technical rooms/stairs, 4) public spaces/stairs, 5) engine-rooms and auxiliaries' room, 6) garages and 7) cargo spaces. All should be divided by main vertical zones.

The calculation criteria for complex groups (e.g. cabin lighting and power sockets) subgroups are to be included via an explanatory note, indicating the load composition (e.g. lights of typical cabins, TV, hair dryer, fridge, etc., typical cabins).

4.1.10 L – Entertainment services

This group includes all loads related to entertainment services, typically: public spaces audio and video equipment, theatre stage equipment, IT systems for offices, video games, etc.

4.1.11 N – Cargo loads

This group will contain all cargo loads such as cargo pumps, cargo gear, maintaining cargo, cargo reefers loads, cargo hold fans and garage fans for sake of transparency. However, the service factor of this group is to be set to zero.

4.1.12 M – Miscellaneous

This group will contain all loads which have not been associated to the above-mentioned groups but still are contributing to the overall load calculation of the normal maximum sea load.

Loads description

4.2 This identifies the loads (for example "seawater pump").

Loads identification tag

4.3 This tag identifies the loads according to the shipyard's standards tagging system. For example, the "PTI1 fresh water pump" identification tag is "SYYIA/C" for an example ship and shipyard. This data provides a unique identifier for each load.

Loads electric circuit Identification

4.4 This is the tag of the electric circuit supplying the load. Such information allows the data validation process.

Loads mechanical rated power "***Pm***"

4.5 This data is to be indicated in the document only when th electric load is made by an electric motor driving a mechanical load (for example a fan, a pump, etc.). This is the rated power of the mechanical device driven by an electric motor.

Loads electric motor rated output power [kW]

4.6 The output power of the electric motor as per maker's name plate or technical specification. This data does not take part of the calculation but is useful to highlight potential over rating of the combination motor-mechanical load.

Loads electric motor efficiency "***e***" **[*/*]**

4.7 This data is to be entered in the document only when the electric load is made by an electric motor driving a mechanical load.

Loads rated electric power "***Pr***" ***[kW]***

4.8 Typically the maximum electric power absorbed at the load electric terminals at which the load has been designed for its service, as indicated on the maker's name plate and/or maker's technical specification. When the electric load is made by an electric motor driving a mechanical load the load's rated electric power is: *Pr=Pm/e [kW].*

Service factor of load "***kl***" ***[/]***

4.9 Provides the reduction from the loads rated electric power to loads necessary electric power that is to be made when the load absorb less power than its rated power. For example, in case of electric motor driving a mechanical load, a fan could be designed with some power margin, leading to the fact that the fan rated mechanical power exceeds the power requested by the duct system it serves. Another example is when a pump rated power exceed the power needed for pumping in its delivery fluid circuit. Another example in case of electric self-regulating semi-conductors electric heating system is oversized and the rated power exceeds the power absorbed, according a factor *kl.*

Service factor of duty "***kd***" **[*/*]**

4.10 Factor of duty is to be used when a function is provided by more than one load. As all loads are to be included in the EPT for EEDI, this factor provides a correct summation of the loads. For example when two pumps serve the same circuit and they run in duty/stand-by their *Kd* factor will be ½ and ½. When three compressors serves the same circuit and one runs in duty and two in stand-by, then *kd* is 1/3, 1/3 and 1/3.

Service factor of time "***kt***" **[*/*]**

4.11 A factor of time based on the shipyard's evaluation about the load duty along 24 hours of ship's navigation as defined at paragraph 3. For example the Entertainment loads operate at their power for a limited period of time, 4 hours out 24 hours; as a consequence *kt=4/24.*

For example, the seawater cooling pumps operate at their power all the time during the navigation at *Vref*. As a consequence *kt=1*.

Service total factor of use "***ku***" **[*/*]**

4.12 The total factor of use that takes into consideration all the service factors: *ku=kl·kd·kt.*

Loads necessary power "***Pload***" ***[kW]***

4.13 The individual user contribution to the auxiliary load power is *Pload=Pr·ku.*

Notes

4.14 A note, as free text, could be included in the document to provide explanations to the verifier.

Groups necessary power **[*kW*]**

4.15 The summation of the "Loads necessary power" from group A to N. This is an intermediate step which is not strictly necessary for the calculation of *PAE*. However, it is useful to allow a quantitative analysis of the *PAE*, providing a standard breakdown for analysis and potential improvements of energy saving.

Auxiliaries load's power PAE **[*kW*]**

4.16 Auxiliaries load's power *PAE* is the summation of the "Load's necessary power" of all the loads divided by the average efficiency of the generator(s) weighted by power.

PAE=ΣPload(i)/(average efficiency of the generator(s) weighted by power)

Layout and organization of the data indicated in the electric power table for EEDI

5 The document "Electric power table for EEDI" is to include general information (i.e. ship's name, project name, document references, etc.) and a table with:

.1 one row containing column titles;

.2 one Column for table row ID;

.3 one Column for the groups identification ("A", "B", etc.) as indicated in paragraphs 4.1.1 to 4.1.12 of this guideline;

.4 one Column for the group descriptions as indicated in paragraphs 4.1.1 to 4.1.12 of this guideline;

.5 one column each for items in paragraphs 4.2 to 4.14 of this guideline (e.g. "load tag", etc.);

.6 one row dedicated to each individual load;

.7 the summation results (i.e. summation of powers) including data from paragraphs 4.15 to 4.16 of this guideline; and

.8 explanatory notes.

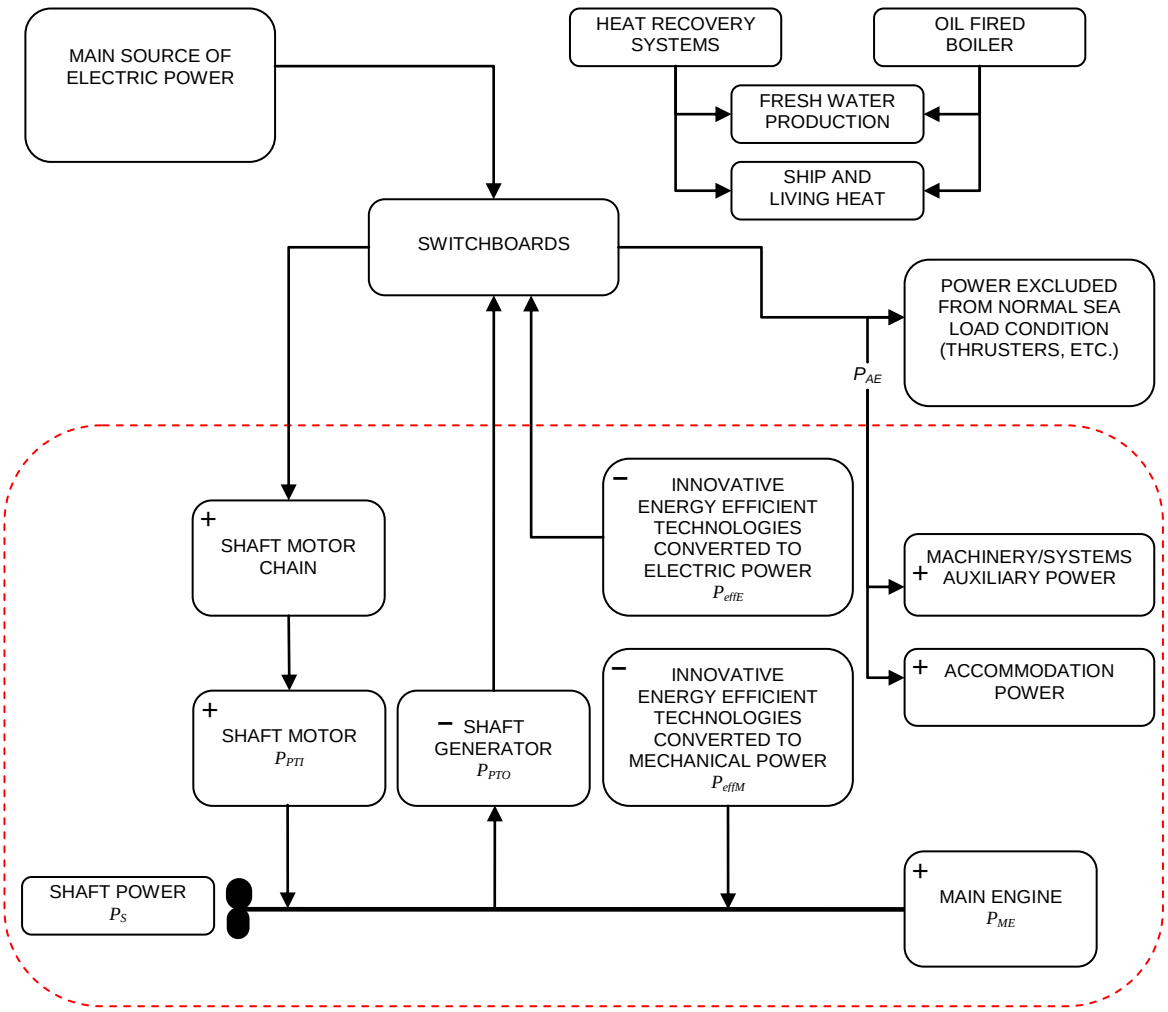
An example of an electric power table for EEDI for a cruise postal ship which transports passengers and has a car garage and reefer holds for fish trade transportation is indicated below. The data indicated and the type of ship is for reference only.

ELECTRIC POWER TABLE FOR EEDI			HULL "EXAMPLE"	PROJECT "EXAMPLE"										(NMSL=Normal Maximun Sea Load)
id	Load group	Load description	Load identification tag	Load electric circuit Identification	Load mechanical rated power *"Pm" [kW]*	Load electric motor rated output power *[kW]*	Load electric motor efficiency *"e" [/]*	Load Rated electric power *"Pr" [kW]*	service factor of load *"kl" [/]*	service factor of duty *"kd" [/]*	service factor of time *"kt" [/]*	service total factor of use *"ku" [/]*	Load necessary power *"Pload" [kW]*	Note
1	A	Hull cathodic protection Fwd	xxx	yyy	n.a.	n.a.	n.a.	5.2	1	1	1*	1	5.2	*in use 24hours/day
2	A	Hull cathodic protection mid	xxx	yyy	n.a.	n.a.	n.a.	7.0	1	1	1*	1	7	*in use 24hours/day
3	A	Hull cathodic protection aft	xxx	yyy	n.a.	n.a.	n.a.	4.8	1	1	1*	1	4.8	*in use 24hours/day
4	A	Ballast pump 3	xxx	yyy	30	36	0.92	32.6	0.9	0.5	1	0*	0	*not in use at **NMSL** see para 2.5.6 of Circ.681
5	A	Fwd Stb mooring winch motor n.1	xxx	yyy	90	150	0.92	97.8	0.8	1	0*	0*	0	*not in use at **NMSL** see para 2.5.6 of Circ.681
6	A	WTDs system main control panel	xxx	yyy	n.a.	n.a.	n.a.	0.5	1	1	1*	1	0.5	*in use 24hours/day
7	A	WTD 1, deck D frame 150	xxx	yyy	1.2	3	0.91	1.3	0.7	1	0.104*	0.0728	0.096	*180 secs to open/close x 100 opening a day
8	A	WTD 5, deck D frame 210	xxx	yyy	1.2	3	0.91	1.3	0.7	1	0.156*	0.1092	0.14	*180 secs to open/close x 150 opening a day
9	A	Stabilisers control unit	xxx	yyy	n.a.	n.a.	n.a.	0.7	1	1	1*	1	0.7	*in use 24hours/day
10	A	Stabilisers Hydraulic pack power pump 1	xxx	yyy	80	90	0.9	88.9	0.9	1	0*	0	0	*NMSL=> calm sea,=> stabiliser not in use
11	A	S-band Radar 1 controller	xxx	yyy	n.a.	n.a.	n.a.	0.4	1	1	1*	1	0.4	*in use 24hours/day
12	A	S-band Radar 1 motor	xxx	yyy	0.8	1	0.92	0.9	1	1	1*	1	0.9	*in use 24hours/day
13	A	Fire detection system bridge main unit	xxx	yyy	n.a.	n.a.	n.a.	1.5	1	1	1*	1	1.5	*in use 24hours/day
14	A	Fire detection system ECR unit	xxx	yyy	n.a.	n.a.	n.a.	0.9	1	1	1*	1	0.9	*in use 24hours/day
15	A	High pressure water fog contol unit	xxx	yyy	n.a.	n.a.	n.a.	1.2	1	1	1*	1	1.2	*in use 24hours/day
16	A	High pressure water fog engines rooms pump 1a	xxx	yyy	25	30	0.93	26.9	0.9	0.5	0*	0	0	*NMSL=> not emergency =>Load not in use
17	A	High pressure water fog engines rooms pump 1b	xxx	yyy	25	30	0.93	26.9	0.9	0.5	0*	0	0	* not emergency situations
18	B	PTi port fresh water pump 1	xxx	yyy	30	36	0.92	32.6	0.9	0.5*	1	0.45	14.7	* pump1,2 one is duty and one is stand-by
19	B	PTi port fresh water pump 2	xxx	yyy	30	36	0.92	32.6	0.9	0.5*	1	0.45	14.7	* pump1,2 one is duty and one is stand-by
20	B	Thrusters control system	xxx	yyy	n.a.	n.a.	n.a.	0.5	1	1	1*	1	0.5	in use 24hours/day (even if thruster motor isn't)
21	B	Bow thruster 1	xxx	yyy	3000	3000	0.96	3125.0	1	1	0*	0	0	*NMSL=>thrusters motor are not in use
22	B	PEM port cooling fan 1	xxx	yyy	20	25	0.93	21.5	0.9	1	n.a.	n.a	n.a.*	*this load is included in the propulsion chain data
23	C	HT circulation pump 1 DG 3	xxx	yyy	8	10	0.92	8.7	0.9	0.5*	1	0.45	3.9	* pump1,2 one is duty and one is stand-by
24	C	HT circulation pump 2 DG 3	xxx	yyy	8	10	0.92	8.7	0.9	0.5*	1	0.45	3.9	* pump1,2 one is duty and one is stand-by
25	C	DG3 combustion air fan	xxx	yyy	28	35	0.92	30.4	0.9	1	1*	0.9	27.4	*in use 24hours/day
26	C	DG3 exhaust gas boiler circulationg pump	xxx	yyy	6	8	0.93	6.5	0.8	1	1*	0.8	5.2	*in use 24hours/day
27	C	Alternator 3 external cooling fan	xxx	yyy	3	5	0.93	3.2	0.8	1	1*	0.8	2.75	*in use 24hours/day
28	C	fuel feed fwd booster pump a	xxx	yyy	7	9	0.92	7.6	0.9	0.5*	1	0.45	3.4	* pump1,2 one is duty and one is stand-by
29	C	fuel feed fwd booster pump b	xxx	yyy	7	9	0.92	7.6	0.9	0.5*	1	0.45	3.4	* pump1,2 one is duty and one is stand-by
30	D	Fwd main LT cooling pump 1	xxx	yyy	120	150	0.95	126.3	0.9	0.5*	1	0.45	56.8	* pump1,2 one is duty and one is stand-by
31	D	Fwd main LT cooling pump 2	xxx	yyy	120	150	0.95	126.3	0.9	0.5*	1	0.45	56.8	* pump1,2 one is duty and one is stand-by
32	E	FWD engine room supply fan 1	xxx	yyy	87.8	110	0.93	94.4	0.95	1	1*	0.95	89.7	*in use 24hours/day
33	E	FWD engine room exhaust fan 1	xxx	yyy	75	86	0.93	80.6	0.96	1	1*	0.96	77.4	*in use 24hours/day
34	E	purifier room supply fan 1	xxx	yyy	60	70	0.93	64.5	0.96	0.5	1*	0.48	31.0	*in use 24hours/day
35	E	purifier room supply fan 2	xxx	yyy	60	70	0.93	64.5	0.96	0.5	1*	0.48	31.0	*in use 24hours/day
36	F	HVAC chiller a	xxx	yyy	1450	1600	0.95	1526.3	1	2/3*	1	0.66	1007.4	*1 Chiller is spare; see heat load dissipation doc.
37	F	HVAC chiller b	xxx	yyy	1450	1600	0.95	1526.3	1	2/3*	1	0.66	1007.4	*1 Chiller is spare; see heat load dissipation doc.
38	F	HVAC chiller C	xxx	yyy	1450	1600	0.95	1526.3	1	2/3*	1	0.66	1007.4	*1 Chiller is spare; see heat load dissipation doc.
39	F	A.H.U. Ac station 5.4 supply fan	xxx	yyy	50	60	0.93	53.8	0.9	1	1*	0.9	48.4	*in use 24hours/day
40	F	A.H.U. Ac station 5.4 exhaust fan	xxx	yyy	45	55	0.93	48.4	0.9	1	1*	0.9	43.5	*in use 24hours/day
41	F	Chilled water pump a	xxx	yyy	80	90	0.93	86.0	0.88	0.5*	1	0.44	37.8	* pump1,2 one is duty and one is stand-by
42	F	Chilled water pump b	xxx	yyy	80	90	0.93	86.0	0.88	0.5*	1	0.44	37.8	* pump1,2 one is duty and one is stand-by
43	G	Italian's espresso coffee machine	xxx	yyy	n.a.	n.a.	n.a.	7.0	0.9	1	0.2*	0.18	1.3	*in use 4.8hours/day
44	G	deep freezer machine	xxx	yyy	n.a.	n.a.	n.a.	20.0	0.8	1	0.16*	0.128	3.2	*in use 4hours/day
45	G	washing machine 1	xxx	yyy	n.a.	n.a.	n.a.	8.0	0.8	1	0.33*	0.264	3.2	*in use 8hours/day
46	H	lift pax mid 4	xxx	yyy	30	40	0.93	32.3	0.5	1	0.175*	0.0875	0.9	*in use 4hours/day
47	H	vaccum collecting system 4 pump a	xxx	yyy	10	13	0.92	10.9	0.9	1	1*	0.9	8.7	*in use 24hours/day
48	H	sewage treatmet system 1 pump 1	xxx	yyy	15	17	0.93	16.1	0.9	1	1*	0.9	8.7	*in use 24hours/day
49	H	Gym running machine	xxx	yyy	n.a.	n.a.	n.a.	2.5	1	1	0.3*	0.3	0.8	*in use 7.2hours/day
50	I	Cabin's lighting MVZ3	n.a.	n.a.	n.a.	n.a.	n.a.	80*	1	1	1	1	80.0	* see explainatory note
51	I	corridors ligthing MVZ3	n.a.	n.a.	n.a.	n.a.	n.a.	10*	1	1	1	1	10.0	* see explainatory note
52	I	Cabin's sockets MVZ3	n.a.	n.a.	n.a.	n.a.	n.a.	5*	1	1	1	1	5.0	* see explainatory note
53	L	Main Theatre audio booster amplifier	xxx	yyy	n.a.	n.a.	n.a.	15.0	1	1	0.3*	0.3	4.5	*in use 7.2hours/day
54	L	Video wall atrium	xxx	yyy	n.a.	n.a.	n.a.	2.0	1	1	0.3*	0.3	0.6	*in use 7.2hours/day
55	M	Car Garage supply fan1	xxx	yyy	28	35	0.92	30.4	0.9	1	1*	0*	0	*not in use at **NMSL** see para 2.5.6 of Circ.681
56	M	Fish transportation refeer hold n.2	xxx	yyy	25	30	0.93	26.9	0.9	0.5	0*	0*	0	*not in use at **NMSL** see para 2.5.6 of Circ.681
57	N	Sliding glass roof	xxx	yyy	30	40	0.93	32.3	0.9	1	0.3*	0.27	0.2	*in use 7.2hours/day
											ΣPload(i)=		**3764**	

***PAE* =3764/(weighted average efficiency of generator(s)) [kW]** Group's necessary power (group A=22.9kW, B=29.8kW,C=49.9kW, D=113.7kW, E=229kW , F=3189kW, G=7.6kW, H=19kW, I=95kW, L=5.1kW, M=0kW, N=0.22kW)

APPENDIX 3

A GENERIC AND SIMPLIFIED MARINE POWER PLANT FOR A CRUISE PASSENGER SHIPS HAVING NON-CONVENTIONAL PROPULSION



Note: Symbols for plus (+) and minus (−) indicate CO_2 contribution to EEDI formula.

APPENDIX 4

EEDI CALCULATION EXAMPLES FOR USE OF DUAL FUEL ENGINES

Standard main engine (HFO), standard auxiliary engines (HFO), no shaft generator:

MCR_{ME}	= 15,000 kW	
Capacity	= 25,000 DWT	
$C_{F\,ME}$	= 3.114	
$C_{F\,AE}$	= 3.114	
SFC_{ME}	= 190 g/kWh	
SFC_{AE}	= 215 g/kWh	
v_{ref}	= 18 kn	
P_{ME}	= 0.75 x MCR_{ME} = 0.75 x 15,000 kW	= 11,250 kW
P_{AE}	= (0.025 x MCR_{ME}) + 250 kW	= 625 kW

EEDI = [(P_{ME} x $C_{F\,ME}$ x SFC_{ME}) + (P_{AE} x $C_{F,AE}$ x SFC_{AE})] / (v_{ref} x *Capacity*)
EEDI = [(11,250 x 3.114 x 190) + (625 x 3.114 x 215)] / (18 x 25,000)
EEDI = 15.721 gCO_2/tnm

Dual-fuel main engine and auxiliary engine (LNG, pilot fuel MDO; no shaft generator), LNG condition for tank capacity and/or operating time is fulfilled:

MCR_{ME}	= 15,000 kW	
Capacity	= 25,000 DWT	
$C_{F,Gas}$	= 2.750	
$C_{F\,Pilotfuel}$	= 3.206	
$SFC_{ME\,Pilotfuel}$	= 6 g/kWh	
$SFC_{ME\,Gas}$	= 160 g/kWh	
$SFC_{AE\,Pilotfuel}$	= 7 g/kWh	
$SFC_{AE\,Gas}$	= 180 g/kWh	
v_{ref}	= 18 kn	
P_{ME}	= 0.75 x MCR_{ME} = 0.75 x 15,000 kW	= 11,250 kW
P_{AE}	= (0.025 x MCR_{ME}) + 250 kW	= 625 kW

EEDI = [(P_{ME} x ($C_{F\,Pilotfuel}$ x $SFC_{ME\,Pilotfuel}$ + $C_{F\,Gas}$ x $SFC_{ME\,Gas}$)) + (P_{AE} x ($C_{F\,Pilotfuel}$ x $SFC_{AE\,Pilotfuel}$ + $C_{F\,Gas}$ x $SFC_{AE\,Gas}$))] / (v_{ref} x *Capacity*)

EEDI = [(11,250 x (3.206 x 6 + 2.750 x 160)) + (625 x (3.206 x 7 + 2.750 x 180))] / (18 x 25,000)

EEDI = 12.200 gCO_2/tnm

Dual-fuel main engine, standard auxiliary engines (HFO), no shaft generator, LNG condition for tank capacity and/or operating time for main engine is fulfilled:

MCR_{ME}	= 15,000 kW	
Capacity	= 25,000 DWT	
$C_{F\ Gas}$	= 2.750	
$C_{F\ Pilotfuel}$	= 3.114	
$C_{F\ AE}$	= 3.114	
$SFC_{ME\ Pilotfuel}$	= 6 g/kWh	
$SFC_{ME\ Gas}$	= 160 g/kWh	
SFC_{AE}	= 215 g/kWh	
v_{ref}	= 18 kn	
P_{ME}	= 0.75 x MCR_{ME} = 0.75 x 15,000 kW	= 11,250 kW
P_{AE}	= (0.025 x MCR_{ME}) + 250 kW	= 625 kW

EEDI = [(P_{ME} x ($C_{F\ Pilotfuel}$ x $SFC_{ME\ Pilotfuel}$ + $C_{F\ Gas}$ x $SFC_{ME\ Gas}$)) + (P_{AE} x $C_{F,\ AE}$ x SFC_{AE})] / (v_{ref} x *Capacity*)

EEDI = [(11,250 x (3.114 x 6 + 2.750 x 160)) + (625 x 3.114 x 215)] / (18 x 25,000)

EEDI = 12.397 gCO_2/tnm

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ANNEX 6

AMENDMENTS TO THE UNIFIED INTERPRETATIONS TO REGULATION 2.24 OF MARPOL ANNEX VI (MEPC.1/CIRC.795)

Regulation 2
Definitions

After paragraph 1 under the heading "Interpretation", a note is added as follows:

"Note: Notwithstanding paragraph 1, assuming no alteration to the ship structure, both decrease of assigned freeboard and temporary increase of assigned freeboard due to the limitation of deadweight or draft at calling port should not be construed as a major conversion. However, an increase of assigned freeboard, except a temporary increase, should be construed as a major conversion."

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ANNEX 7

RESOLUTION MEPC.246(66)
Adopted on 4 April 2014

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

(Amendments to MARPOL Annexes I, II, III, IV and V to make the use of the III Code mandatory)

THE MARINE ENVIRONMENT PROTECTION COMMITTEE,

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

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

RECALLING that the Assembly, at its twenty-eighth regular session, adopted, by resolution A.1070(28), the *IMO Instruments Implementation Code (III Code*),

HAVING CONSIDERED proposed amendments to MARPOL Annexes I, II, III, IV and V to make the use of the III Code mandatory,

1. ADOPTS, in accordance with article 16(2)(d) of the 1973 Convention, amendments to Annexes I, II, III, IV and V of MARPOL, the text of which is set out in the annex to the present resolution;

2. DETERMINES that, pursuant to regulation 44 of Annex I, regulation 19 of Annex II, regulation 10 of Annex III, regulation 15 of Annex IV and regulation 11 of Annex V, whenever the word "should" is used in the III Code (annex to resolution A.1070(28)), it is to be read as being "shall", except for paragraphs 29, 30, 31 and 32;

3. DETERMINES, in accordance with article 16(2)(f)(iii) of the 1973 Convention, that the amendments shall be deemed to have been accepted on 1 July 2015 unless, prior to that date, not less than one third of the Parties or Parties, the combined merchant fleets of which constitute not less than 50% of the gross tonnage of the world's merchant fleet, have communicated to the Organization their objection to the amendments;

4. INVITES the Parties to note that, in accordance with article 16(2)(g)(ii) of the 1973 Convention, the said amendments shall enter into force on 1 January 2016 upon their acceptance in accordance with paragraph 2 above;

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

6. REQUESTS FURTHER the Secretary-General to transmit to the Members of the Organization which are not Parties to MARPOL, copies of the present resolution and its annex.

ANNEX

AMENDMENTS TO MARPOL ANNEXES I, II, III, IV AND V

Amendments to MARPOL Annex I

1 The following is added at the end of regulation 1:

"44 *Audit* means a systematic, independent and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which audit criteria are fulfilled.

45 *Audit Scheme* means the IMO Member State Audit Scheme established by the Organization and taking into account the guidelines developed by the Organization*.

46 *Code for Implementation* means the IMO Instruments Implementation Code (III Code) adopted by the Organization by resolution A.1070(28).

47 *Audit Standard* means the Code for Implementation.

* Refer to the *Framework and Procedures for the IMO Member State Audit Scheme*, adopted by the Organization by resolution A.1067(28)."

2 A new chapter 10 is added to read as follows:

"**Chapter 10 – Verification of compliance with the provisions of this Convention**

Regulation 44
Application

Parties shall use the provisions of the Code for Implementation in the execution of their obligations and responsibilities contained in this Annex.

Regulation 45
Verification of compliance

1 Every Party shall be subject to periodic audits by the Organization in accordance with the audit standard to verify compliance with and implementation of this Annex.

2 The Secretary-General of the Organization shall have responsibility for administering the Audit Scheme, based on the guidelines developed by the Organization*.

3 Every Party shall have responsibility for facilitating the conduct of the audit and implementation of a programme of actions to address the findings, based on the guidelines developed by the Organization*.

4 Audit of all Parties shall be:

.1 based on an overall schedule developed by the Secretary-General of the Organization, taking into account the guidelines developed by the Organization*; and

.2 conducted at periodic intervals, taking into account the guidelines developed by the Organization*.

* Refer to the *Framework and Procedures for the IMO Member State Audit Scheme*, adopted by the Organization by resolution A.1067(28)."

Amendments to MARPOL Annex II

3 The following is added at the end of regulation 1:

"18 *Audit* means a systematic, independent and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which audit criteria are fulfilled.

19 *Audit Scheme* means the IMO Member State Audit Scheme established by the Organization and taking into account the guidelines developed by the Organization*.

20 *Code for Implementation* means the IMO Instruments Implementation Code (III Code) adopted by the Organization by resolution A.1070(28).

21 *Audit Standard* means the Code for Implementation.

* Refer to the *Framework and Procedures for the IMO Member State Audit Scheme*, adopted by the Organization by resolution A.1067(28)."

4 A new chapter 9 is added to read as follows:

"**Chapter 9 – Verification of compliance with the provisions of this Convention**

Regulation 19
Application

Parties shall use the provisions of the Code for Implementation in the execution of their obligations and responsibilities contained in this Annex.

Regulation 20
Verification of compliance

1 Every Party shall be subject to periodic audits by the Organization in accordance with the audit standard to verify compliance with and implementation of this Annex.

2 The Secretary-General of the Organization shall have responsibility for administering the Audit Scheme, based on the guidelines developed by the Organization*.

3 Every Party shall have responsibility for facilitating the conduct of the audit and implementation of a programme of actions to address the findings, based on the guidelines adopted by the Organization*.

4 Audit of all Parties shall be:

.1 based on an overall schedule developed by the Secretary-General of the Organization, taking into account the guidelines developed by the Organization*; and

.2 conducted at periodic intervals, taking into account the guidelines developed by the Organization*.

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* Refer to the *Framework and Procedures for the IMO Member State Audit Scheme*, adopted by the Organization by resolution A.1067(28)."

Amendments to MARPOL Annex III

5 A new heading is added before regulation 1 to read as follows:

"*Chapter 1 – General*"

6 A new regulation 1 is added to read as follows:

"**Regulation 1**
Definitions

For the purposes of this annex:

1 *Harmful substances* are those substances which are identified as marine pollutants in the International Maritime Dangerous Goods Code (IMDG Code) or which meet the criteria in the appendix of this annex.

2 *Packaged form* is defined as the forms of containment specified for harmful substances in the IMDG Code.

3 *Audit* means a systematic, independent and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which audit criteria are fulfilled.

4 *Audit Scheme* means the IMO Member State Audit Scheme established by the Organization and taking into account the guidelines developed by the Organization*.

5 *Code for Implementation means* the IMO Instruments Implementation Code (III Code) adopted by the Organization by resolution A.1070(28).

6 *Audit Standard* means the Code for Implementation.

* Refer to the *Framework and Procedures for the IMO Member State Audit Scheme*, adopted by the Organization by resolution A.1067(28)."

7 The subsequent regulations are renumbered accordingly.

8 In regulation 2, Application, subparagraphs 1.1 and 1.2 are deleted.

9 A new chapter 2 is added to read as follows:

"**Chapter 2 – Verification of compliance with the provisions of this annex**

Regulation 10
Application

Parties shall use the provisions of the Code for Implementation in the execution of their obligations and responsibilities contained in this Annex.

Regulation 11
Verification of compliance

1 Every Party shall be subject to periodic audits by the Organization in accordance with the audit standard to verify compliance with and implementation of this Annex.

2 The Secretary-General of the Organization shall have responsibility for administering the Audit Scheme, based on the guidelines developed by the Organization*.

3 Every Party shall have responsibility for facilitating the conduct of the audit and implementation of a programme of actions to address the findings, based on the guidelines developed by the Organization*.

4 Audit of all Parties shall be:

.1 based on an overall schedule developed by the Secretary General of the Organization, taking into account the guidelines developed by the Organization*; and

.2 conducted at periodic intervals, taking into account the guidelines developed by the Organization*.

* Refer to the *Framework and Procedures for the IMO Member State Audit Scheme*, adopted by the Organization by resolution A.1067(28)."

Amendments to MARPOL Annex IV

10 The following is added at the end of regulation 1:

"12 *Audit* means a systematic, independent and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which audit criteria are fulfilled.

13 *Audit Scheme* means the IMO Member State Audit Scheme established by the Organization and taking into account the guidelines developed by the Organization*.

14 *Code for Implementation* means the IMO Instruments Implementation Code (III Code) adopted by the Organization by resolution A.1070(28).

15 *Audit Standard* means the Code for Implementation.

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* Refer to the *Framework and Procedures for the IMO Member State Audit Scheme*, adopted by the Organization by resolution A.1067(28)."

11 A new chapter 6 is added to read as follows:

"**Chapter 6 – Verification of compliance with the provisions of this annex**

Regulation 15
Application

Parties shall use the provisions of the Code for Implementation in the execution of their obligations and responsibilities contained in this Annex.

Regulation 16
Verification of compliance

1 Every Party shall be subject to periodic audits by the Organization in accordance with the audit standard to verify compliance with and implementation of this annex.

2 The Secretary-General of the Organization shall have responsibility for administering the Audit Scheme, based on the guidelines developed by the Organization*.

3 Every Party shall have responsibility for facilitating the conduct of the audit and implementation of a programme of actions to address the findings, based on the guidelines developed by the Organization*.

4 Audit of all Parties shall be:

.1 based on an overall schedule developed by the Secretary-General of the Organization, taking into account the guidelines developed by the Organization*; and

.2 conducted at periodic intervals, taking into account the guidelines developed by the Organization*.

* Refer to the *Framework and Procedures for the IMO Member State Audit Scheme*, adopted by the Organization by resolution A.1067(28)."

Amendments to MARPOL Annex V

12 A new heading is added before regulation 1 to read as follows:

"*Chapter 1 – General*"

13 The following is added at the end of regulation 1:

"15 *Audit* means a systematic, independent and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which audit criteria are fulfilled.

16 *Audit Scheme* means the IMO Member State Audit Scheme established by the Organization and taking into account the guidelines developed by the Organization*.

17 *Code for Implementation means* the IMO Instruments Implementation Code (III Code) adopted by the Organization by resolution A.1070(28).

18 *Audit Standard* means the Code for Implementation.

* Refer to the *Framework and Procedures for the IMO Member State Audit Scheme*, adopted by the Organization by resolution A.1067.(28)."

14 A new chapter 2 is added, to read as follows:

"**Chapter 2 – Verification of compliance with the provisions of this annex**

Regulation 11
Application

Parties shall use the provisions of the Code for Implementation in the execution of their obligations and responsibilities contained in this Annex.

Regulation 12
Verification of compliance

1 Every Party shall be subject to periodic audits by the Organization in accordance with the audit standard to verify compliance with and implementation of this Annex.

2 The Secretary-General of the Organization shall have responsibility for administering the Audit Scheme, based on the guidelines developed by the Organization*.

3 Every Party shall have responsibility for facilitating the conduct of the audit and implementation of a programme of actions to address the findings, based on the guidelines developed by the Organization*.

4 Audit of all Parties shall be:

.1 based on an overall schedule developed by the Secretary-General of the Organization, taking into account the guidelines developed by the Organization*; and

.2 conducted at periodic intervals, taking into account the guidelines developed by the Organization*.

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* Refer to the *Framework and Procedures for the IMO Member State Audit Scheme*, adopted by the Organization by resolution A.1067(28)."

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ANNEX 8

RESOLUTION MEPC.247(66)
Adopted on 4 April 2014

AMENDMENTS TO THE ANNEX OF THE PROTOCOL OF 1997 TO AMEND THE INTERNATIONAL CONVENTION FOR THE PREVENTION OF POLLUTION FROM SHIPS, 1973, AS MODIFIED BY THE PROTOCOL OF 1978 RELATING THERETO

(To make the use of the III Code mandatory)

THE MARINE ENVIRONMENT PROTECTION COMMITTEE,

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

NOTING article 16 of the International Convention for the Prevention of Pollution from Ships, 1973 (hereinafter referred to as the "1973 Convention"), article VI of the Protocol of 1978 relating to the International Convention for the Prevention of Pollution from Ships, 1973 (hereinafter referred to as the "1978 Protocol") and article 4 of the Protocol of 1997 to amend the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (hereinafter referred to as the "1997 Protocol"), which together specify the amendment procedure of the 1997 Protocol and confer upon the appropriate body of the Organization the function of considering and adopting amendments to the 1973 Convention, as modified by the 1978 and 1997 Protocols,

NOTING ALSO that, by the 1997 Protocol, Annex VI entitled Regulations for the Prevention of Air Pollution from Ships was added to the 1973 Convention (hereinafter referred to as "Annex VI"),

RECALLING that the Assembly, at its twenty-eighth regular session, adopted, by resolution A.1070(28), the *IMO Instruments Implementation Code (III Code)*,

HAVING CONSIDERED proposed amendments to MARPOL Annexes VI to make the use of the III Code mandatory,

1. ADOPTS, in accordance with article 16(2)(d) of the 1973 Convention, amendments to Annex VI, the text of which is set out in the annex to the present resolution;

2. DETERMINES that, pursuant to new regulation 24 of Annex VI, whenever the word "should" is used in the III Code (annex to resolution A.1070(28)), it is to be read as being "shall", except for paragraphs 29, 30, 31 and 32;

3. DETERMINES, in accordance with article 16(2)(f)(iii) of the 1973 Convention, that the amendments shall be deemed to have been accepted on 1 July 2015, unless prior to that date, not less than one third of the Parties or Parties, the combined merchant fleets of which constitute not less than 50% of the gross tonnage of the world's merchant fleet, have communicated to the Organization their objection to the amendments;

4. INVITES the Parties to note that, in accordance with article 16(2)(g)(ii) of the 1973 Convention, the said amendments shall enter into force on 1 January 2016 upon their acceptance in accordance with paragraph 2 above;

5. REQUESTS the Secretary-General, in conformity with article 16(2)(e) of the 1973 Convention, to transmit to all Parties to the 1973 Convention, as modified by the 1978 and 1997 Protocols, certified copies of the present resolution and the text of the amendments contained in the annex;

6. REQUESTS FURTHER the Secretary-General to transmit to the Members of the Organization which are not Parties to the 1973 Convention, as modified by the 1978 and 1997 Protocols, copies of the present resolution and its annex.

ANNEX

AMENDMENTS TO MARPOL ANNEX VI

1 The following is added at the end of regulation 2:

"For the purposes of this annex:

44 *Audit* means a systematic, independent and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which audit criteria are fulfilled.

45 *Audit Scheme* means the IMO Member State Audit Scheme established by the Organization and taking into account the guidelines developed by the Organization*.

46 *Code for Implementation* means the IMO Instruments Implementation Code (III Code) adopted by the Organization by resolution A.1070(28).

47 *Audit Standard* means the Code for Implementation.

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* Refer to the *Framework and Procedures for the IMO Member State Audit Scheme*, adopted by the Organization by resolution A.1067(28)."

2 A new chapter 5 is added to read as follows:

"**Chapter 5 – Verification of compliance with the provisions of this annex**

Regulation 24
Application

Parties shall use the provisions of the Code for Implementation in the execution of their obligations and responsibilities contained in this Annex.

Regulation 25
Verification of compliance

(1) Every Party shall be subject to periodic audits by the Organization in accordance with the audit standard to verify compliance with and implementation of this Annex.

(2) The Secretary-General of the Organization shall have responsibility for administering the Audit Scheme, based on the guidelines developed by the Organization*.

(3) Every Party shall have responsibility for facilitating the conduct of the audit and implementation of a programme of actions to address the findings, based on the guidelines developed by the Organization*.

(4) Audit of all Parties shall be:

.1 based on an overall schedule developed by the Secretary-General of the Organization, taking into account the guidelines developed by the Organization*; and

.2 conducted at periodic intervals, taking into account the guidelines developed by the Organization*.

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* Refer to the *Framework and Procedures for the IMO Member State Audit Scheme*, adopted by the Organization by resolution A.1067(28).''

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ANNEX 9

RESOLUTION MEPC.248(66)
Adopted on 4 April 2014

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

Amendments to MARPOL Annex I
(Mandatory carriage requirements for a stability instrument)

THE MARINE ENVIRONMENT PROTECTION COMMITTEE,

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

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

HAVING CONSIDERED proposed amendments to Annex I of MARPOL, developed by the Sub-Committee on Stability and Load Lines and on Fishing Vessels Safety, at its fifty-fifth session,

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

2. DETERMINES, in accordance with article 16(2)(f)(iii) of the 1973 Convention, that the amendments shall be deemed to have been accepted on 1 July 2015 unless, prior to that date, not less than one third of the Parties or Parties, the combined merchant fleets of which constitute not less than 50% of the gross tonnage of the world's merchant fleet, have communicated to the Organization their objection to the amendments;

3. INVITES the Parties to note that, in accordance with article 16(2)(g)(ii) of the 1973 Convention, the said amendments shall enter into force on 1 January 2016 upon their acceptance in accordance with paragraph 2 above;

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

5. REQUESTS FURTHER the Secretary-General to transmit to the Members of the Organization which are not Parties to MARPOL, copies of the present resolution and its annex.

ANNEX

AMENDMENTS TO MARPOL ANNEX I

Chapter 1 – General

Regulation 3 – Exemptions and waivers

1 A new paragraph 6 is inserted, as follows:

"6 The Administration may waive the requirements of regulation 28(6) for the following oil tankers if loaded in accordance with the conditions approved by the Administration taking into account the guidelines developed by the Organization*:

.1 oil tankers which are on a dedicated service, with a limited number of permutations of loading such that all anticipated conditions have been approved in the stability information provided to the master in accordance with regulation 28(5);

.2 oil tankers where stability verification is made remotely by a means approved by the Administration;

.3 oil tankers which are loaded within an approved range of loading conditions; or

.4 oil tankers constructed before 1 January 2016 provided with approved limiting KG/GM curves covering all applicable intact and damage stability requirements.

* Refer to operational guidance provided in part 2 of the *Guidelines for verification of damage stability requirements for tankers* (MSC.1/Circ.1461)."

Chapter 4 – Requirements for the cargo area of oil tankers

Regulation 28 – Subdivision and damage stability

2 The existing paragraph 6 is renumbered as paragraph 7.

3 A new paragraph 6 is inserted, as follows:

"6 All oil tankers shall be fitted with a stability instrument, capable of verifying compliance with intact and damage stability requirements approved by the Administration having regard to the performance standards recommended by the Organization*:

.1 oil tankers constructed before 1 January 2016 shall comply with this regulation at the first scheduled renewal survey of the ship after 1 January 2016 but not later than 1 January 2021;

.2 notwithstanding the requirements of subparagraph .1 a stability instrument fitted on an oil tanker constructed before 1 January 2016 need not be replaced provided it is capable of verifying compliance with intact and damage stability, to the satisfaction of the Administration; and

.3 for the purposes of control under regulation 11, the Administration shall issue a document of approval for the stability instrument.

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* Refer to part B, chapter 4, of the International Code on Intact Stability, 2008 (2008 IS Code), as amended; the *Guidelines for the Approval of Stability Instruments* (MSC.1/Circ.1229), annex, section 4, as amended; and the technical standards defined in part 1 of the *Guidelines for verification of damage stability requirements for tankers* (MSC.1/Circ.1461)."

Appendix II – Form of IOPP Certificate and Supplements, Form B

4 The following new paragraphs 5.7.5 and 5.7.6 are inserted:

"5.7.5 The ship is provided with an Approved Stability Instrument in accordance with regulation 28(6)..... ☐

5.7.6 The requirements of regulation 28(6) are waived in respect of the ship in accordance with regulation 3.6. Stability is verified by the following means:

.1 loading only to approved conditions defined in the stability information provided to the master in accordance with regulation 28(5)..... ☐

.2 verification is made remotely by a means approved by the Administration:..... ☐

.3 loading within an approved range of loading conditions defined in the stability information provided to the master in accordance with regulation 28(5)..... ☐

.4 loading in accordance with approved limiting KG/GM curves covering all applicable intact and damage stability requirements defined in the stability information provided to the master in accordance with regulation 28(5) ..... ☐"

***

ANNEX 10

RESOLUTION MEPC.249(66)
Adopted on 4 April 2014

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

(Cargo containment and Form of Certificate of Fitness)

THE MARINE ENVIRONMENT PROTECTION COMMITTEE,

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

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

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

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

HAVING CONSIDERED proposed amendments to the BCH Code, developed by the Sub-Committee on Stability and Load Lines and on Fishing Vessels Safety, at its fifty-fifth session,

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

2. DETERMINES, in accordance with article 16(2)(f)(iii) of the 1973 Convention, that the amendments to the BCH Code shall be deemed to have been accepted on 1 July 2015 unless, prior to that date, not less than one third of the Parties or Parties, the combined merchant fleets of which constitute not less than 50% of the gross tonnage of the world's merchant fleet, have communicated to the Organization their objection to the amendments;

3. INVITES the Parties to note that, in accordance with article 16(2)(g)(ii) of the 1973 Convention, the amendments to the BCH Code shall enter into force on 1 January 2016 upon their acceptance in accordance with paragraph 2 above;

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

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

6. REQUESTS FURTHER the Secretary-General to transmit copies of the present resolution and its annex to the Members of the Organization which are not Parties to MARPOL.

ANNEX

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

Chapter II – Cargo containment

Part A – Physical protection (Siting of cargo tanks; ship stability)

1 Existing subparagraph 2.2.1 is replaced by the following:

"2.2.1 General: Ships subject to this Code may be assigned the minimum freeboard permitted by the International Convention on Load Lines, 1966. The additional requirements in paragraph 2.2.4, taking into account any empty or partially filled tank as well as the specific gravities of cargoes to be carried, however, should govern the allowed operating draught for any actual condition of loading.

2.2.1.1 All ships engaged in the transport of chemicals in bulk should be supplied with loading and stability manuals for the information and guidance of the master. These manuals should contain details concerning the loaded conditions of full and empty or partially empty tanks, the position of these tanks in the ship, the specific gravities of the various parcels of cargoes carried, and any ballast arrangements in critical conditions of loading. Provisions for evaluating other conditions of loading should be contained in the manuals.

2.2.1.2 All ships subject to the Code, shall be fitted with a stability instrument, capable of verifying compliance with intact and damage stability requirements approved by the Administration, at the first scheduled renewal survey of the ship after 1 January 2016, but not later than 1 January 2021, having regard to the performance standards recommended by the Organization[*]:

.1 notwithstanding the above, a stability instrument fitted on a ship before 1 January 2016 need not be replaced provided it is capable of verifying compliance with intact and damage stability, to the satisfaction of the Administration; and

.2 for the purposes of control under regulation 16 of MARPOL Annex II, the Administration shall issue a document of approval for the stability instrument.

[*] Refer to part B, chapter 4, of the International Code on Intact Stability, 2008 (2008 IS Code), as amended; the *Guidelines for the Approval of Stability Instruments* (MSC.1/Circ.1229), annex, section 4, as amended; and the technical standards defined in part 1 of the *Guidelines for verification of damage stability requirements for tankers* (MSC.1/Circ.1461).

2.2.1.3 The Administration may waive the requirements of paragraph 2.2.1.2 for the following ships provided the procedures employed for intact and damage stability verification maintain the same degree of safety as being loaded in accordance with the approved conditions[**]. Any such waiver shall be duly noted on the Certificate of Fitness referred to in paragraph 1.6.3:

.1 ships which are on a dedicated service, with a limited number of permutations of loading such that all anticipated conditions have been approved in the stability information provided to the master in accordance with the requirements of paragraph 2.2.1.1;

.2 ships where stability verification is made remotely by a means approved by the Administration;

.3 ships which are loaded within an approved range of loading conditions; or

.4 ships provided with approved limiting KG/GM curves covering all applicable intact and damage stability requirements.

** Refer to operational guidance provided in part 2 of the *Guidelines for verification of damage stability requirements for tankers* (MSC.1/Circ.1461).

Certificate of Fitness

2 Paragraph 6 is replaced with the following:

"6 That the ship must be loaded:

.1*** only in accordance with loading conditions verified compliant with intact and damage stability requirements using the approved stability instrument fitted in accordance with paragraph 2.2.1.2 of the Code;

.2*** where a waiver permitted by paragraph 2.2.1.3 of the Code is granted and the approved stability instrument required by paragraph 2.2.1.2 of the Code is not fitted, loading shall be made in accordance with the following approved methods:

(i) in accordance with the loading conditions provided in the approved loading manual, stamped and dated ..... and signed by a responsible officer of the Administration, or of an organization recognized by the Administration; or

(ii) in accordance with loading conditions verified remotely using an approved means ……..……; or

(iii) in accordance with a loading condition which lies within an approved range of conditions defined in the approved loading manual referred to in (i) above; or

(iv) in accordance with a loading condition verified using approved critical KG/GM data defined in the approved loading manual referred to in (i) above;

.3*** in accordance with the loading limitations appended to this Certificate.

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

*** Delete as appropriate."

***

ANNEX 11

RESOLUTION MEPC.250(66)
Adopted on 4 April 2014

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

(General, Ship survival capability and location of cargo tanks, Cargo tank venting and gas-freeing arrangements, Environmental control, Fire protection and fire extinction, Special requirements, Summary of minimum requirements, and Form of Certificate of Fitness)

THE MARINE ENVIRONMENT PROTECTION COMMITTEE,

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

RECALLING ALSO resolution MEPC.19(22) by which the Committee adopted the *International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code)*,

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

CONSIDERING that it is highly desirable for the provisions of the IBC Code, which are mandatory under both MARPOL and the 1974 SOLAS Convention, to remain identical,

HAVING CONSIDERED proposed amendments to the IBC Code,

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

2. DETERMINES, in accordance with article 16(2)(f)(iii) of the 1973 Convention, that the amendments to the IBC Code shall be deemed to have been accepted on 1 July 2015 unless, prior to that date, not less than one third of the Parties or Parties, the combined merchant fleets of which constitute not less than 50% of the gross tonnage of the world's merchant fleet, have communicated to the Organization their objection to the amendments;

3. INVITES the Parties to note that, in accordance with article 16(2)(g)(ii) of the 1973 Convention, the amendments to the IBC Code shall enter into force on 1 January 2016 upon their acceptance in accordance with paragraph 2 above;

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

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

ANNEX

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

Chapter 1 – General

1 New paragraphs 1.3.37 and 1.3.38 are added as follows:

"1.3.37 *Purging* means the introduction of inert gas into a tank which is already in an inert condition with the object of further reducing the oxygen content; and/or reducing the existing hydrocarbon or other flammable vapours content to a level below which combustion cannot be supported if air is subsequently introduced into the tank.

1.3.38 *Gas-freeing* means the process where a portable or fixed ventilation system is used to introduce fresh air into a tank in order to reduce the concentration of hazardous gases or vapours to a level safe for tank entry."

Chapter 2 – Ship survival capability and location of cargo tanks

2.2 – Freeboard and intact stability

2 The title of section 2.2 is amended to read:

"Freeboard and stability"

3 A new subparagraph 2.2.6 is added as follows:

"2.2.6 All ships, subject to the Code, shall be fitted with a stability instrument, capable of verifying compliance with intact and damage stability requirements, approved by the Administration having regard to the performance standards recommended by the Organization[*]:

.1 ships constructed before 1 January 2016 shall comply with this requirement at the first scheduled renewal survey of the ship after 1 January 2016 but not later than 1 January 2021;

.2 notwithstanding the requirements of 2.2.6.1, a stability instrument fitted on a ship constructed before 1 January 2016 need not be replaced provided it is capable of verifying compliance with intact and damage stability, to the satisfaction of the Administration; and

.3 for the purposes of control under regulation 16 of MARPOL Annex II, the Administration shall issue a document of approval for the stability instrument.

[*] Refer to part B, chapter 4, of the International Code on Intact Stability, 2008 (2008 IS Code), as amended; the *Guidelines for the Approval of Stability Instruments* (MSC.1/Circ.1229), annex, section 4, as amended; and the technical standards defined in part 1 of the *Guidelines for verification of damage stability requirements for tankers* (MSC.1/Circ.1461)."

4 A new subparagraph 2.2.7 is added as follows:

"2.2.7 The Administration may waive the requirements of paragraph 2.2.6 for the following ships provided the procedures employed for intact and damage stability verification maintain the same degree of safety, as being loaded in accordance with the approved conditions*. Any such waiver shall be duly noted on the International Certificate of Fitness referred to in paragraph 1.5.4:

.1 ships which are on a dedicated service, with a limited number of permutations of loading such that all anticipated conditions have been approved in the stability information provided to the master in accordance with the requirements of paragraph 2.2.5;

.2 ships where stability verification is made remotely by a means approved by the Administration;

.3 ships which are loaded within an approved range of loading conditions; or

.4 ships constructed before 1 January 2016 provided with approved limiting KG/GM curves covering all applicable intact and damage stability requirements.

* Refer to operational guidance provided in part 2 of the *Guidelines for verification of damage stability requirements for tankers* (MSC.1/Circ.1461)."

Chapter 8 – Cargo tank venting and gas-freeing arrangements

5 In paragraph 8.1.5, the references to "SOLAS regulations II-2/4.5.3 and 4.5.6" are replaced by references to "SOLAS regulations II-2/4.5.3, 4.5.6 and 16.3.2".

6 A new paragraph 8.5 is inserted as follows:

"8.5 Cargo tank purging

When the application of inert gas is required by 11.1.1, before gas-freeing, the cargo tanks shall be purged with inert gas through outlet pipes with cross-sectional area such that an exit velocity of at least 20 m/s can be maintained when any three tanks are being simultaneously supplied with inert gas. The outlets shall extend not less than 2 m above the deck level. Purging shall continue until the concentration of hydrocarbon or other flammable vapours in the cargo tanks has been reduced to less than 2% by volume."

7 The existing paragraph 8.5 and subparagraphs 8.5.1, 8.5.2 and 8.5.3 are renumbered as paragraph 8.6 and subparagraphs 8.6.1, 8.6.2 and 8.6.3, respectively.

Chapter 9 – Environmental control

8 The chapeau of paragraph 9.1.3 is replaced by the following:

"9.1.3 Where inerting or padding of cargo tanks is required by this Code in column "h" of chapter 17:"

Chapter 11 – Fire protection and fire extinction*

9 Subparagraph 11.1.1.1 is replaced by the following:

"11.1.1.1 Regulations 10.8 and 10.9 shall not apply;"

Chapter 15 – Special requirements

10 Paragraph 15.13.5 is replaced by the following:

"15.13.5 When a product containing an oxygen-dependent inhibitor is to be carried:

.1 in a ship for which inerting is required under SOLAS regulation II-2/4.5.5, as amended, the application of inert gas shall not take place before loading or during the voyage, but shall be applied before commencement of unloading*;

.2 in a ship to which SOLAS regulation II-2/4.5.5, as amended, does not apply, the product may be carried without inertion (in tanks of a size not greater than 3,000 m^3). If inertion is to be applied on such a ship, then the application of inert gas shall not take place before loading or during the voyage, but shall be applied before commencement of unloading*.

* Refer to the MSC-MEPC circular on Products requiring oxygen dependent inhibitors."

Chapter 17 – Summary of minimum requirements

11 The explanatory notes for "Tank environment control (column h)" are replaced by the following:

"Tank environmental control (*column h*)	Inert:	inerting (9.1.2.1)
	Pad:	liquid or gas padding (9.1.2.2)
	Dry:	drying (9.1.2.3)
	Vent:	natural or forced ventilation (9.1.2.4)
	No:	no special requirements under this Code (inerting may be required under SOLAS)"

Certificate of Fitness

12 Paragraph 6 is replaced with the following:

"6 That the ship must be loaded:

.1* only in accordance with loading conditions verified compliant with intact and damage stability requirements using the approved stability instrument fitted in accordance with paragraph 2.2.6 of the Code;

.2* where a waiver permitted by paragraph 2.2.7 of the Code is granted and the approved stability instrument required by paragraph 2.2.6 of the Code is not fitted, loading shall be made in accordance with the following approved methods:

(i) in accordance with the loading conditions provided in the approved loading manual, stamped and dated ..... and signed by a responsible officer of the Administration, or of an organization recognized by the Administration; or

(ii) in accordance with loading conditions verified remotely using an approved means ……; or

(iii) in accordance with a loading condition which lies within an approved range of conditions defined in the approved loading manual referred to in (i) above; or

(iv) in accordance with a loading condition verified using approved critical KG/GM data defined in the approved loading manual referred to in (i) above;

.3* in accordance with the loading limitations appended to this Certificate.

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

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* Delete as appropriate."

***

ANNEX 12

RESOLUTION MEPC.251(66)
Adopted on 4 April 2014

AMENDMENTS TO THE ANNEX OF THE PROTOCOL OF 1997 TO AMEND THE INTERNATIONAL CONVENTION FOR THE PREVENTION OF POLLUTION FROM SHIPS, 1973, AS MODIFIED BY THE PROTOCOL OF 1978 RELATING THERETO

Amendments to MARPOL Annex VI and the NO_X Technical Code 2008

(Amendments to regulations 2, 13, 19, 20 and 21 and the Supplement to the IAPP Certificate under MARPOL Annex VI and certification of dual-fuel engines under the NO_X Technical Code 2008)

THE MARINE ENVIRONMENT PROTECTION COMMITTEE,

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

NOTING article 16 of the International Convention for the Prevention of Pollution from Ships, 1973 (hereinafter referred to as the "1973 Convention"), article VI of the Protocol of 1978 relating to the International Convention for the Prevention of Pollution from Ships, 1973 (hereinafter referred to as the "1978 Protocol") and article 4 of the Protocol of 1997 to amend the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (hereinafter referred to as the "1997 Protocol"), which together specify the amendment procedure of the 1997 Protocol and confer upon the appropriate body of the Organization the function of considering and adopting amendments to the 1973 Convention, as modified by the 1978 and 1997 Protocols,

NOTING that, by the 1997 Protocol, Annex VI entitled Regulations for the Prevention of Air Pollution from Ships was added to the 1973 Convention (hereinafter referred to as "Annex VI"),

NOTING FURTHER regulation 13 of MARPOL Annex VI which makes the Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines (NO_X Technical Code 2008) mandatory under that Annex,

NOTING ALSO that both the revised Annex VI, adopted by resolution MEPC.176(58) and the NO_X Technical Code 2008, adopted by resolution MEPC.177(58) entered into force on 1 July 2010,

HAVING CONSIDERED draft amendments to the revised Annex VI and the NO_X Technical Code 2008,

1. ADOPTS, in accordance with article 16(2)(d) of the 1973 Convention, the amendments to Annex VI and the NO_X Technical Code 2008, the text of which is set out in the annex to the present resolution;

2. DETERMINES, in accordance with article 16(2)(f)(iii) of the 1973 Convention, that the amendments shall be deemed to have been accepted on 1 March 2015, unless prior to that date, not less than one third of the Parties or Parties the combined merchant fleets of which constitute not less than 50% of the gross tonnage of the world's merchant fleet, have communicated to the Organization their objection to the amendments;

3. INVITES the Parties to note that, in accordance with article 16(2)(g)(ii) of the 1973 Convention, the said amendments shall enter into force on 1 September 2015 upon their acceptance in accordance with paragraph 2 above;

4. REQUESTS the Secretary-General, in conformity with article 16(2)(e) of the 1973 Convention, to transmit to all Parties to the 1973 Convention, as modified by the 1978 and 1997 Protocols, certified copies of the present resolution and the text of the amendments contained in the annex;

5. REQUESTS FURTHER the Secretary-General to transmit to the Members of the Organization which are not Parties to the 1973 Convention, as modified by the 1978 and 1997 Protocols, copies of the present resolution and its annex.

ANNEX

AMENDMENTS TO MARPOL ANNEX VI AND THE NO_x TECHNICAL CODE 2008

AMENDMENTS TO MARPOL ANNEX VI

Chapter 1 – General

Regulation 2 – Definitions

1 Paragraph 26 is amended to read as follows:

"26 *Gas carrier* in relation to chapter 4 of this Annex means a cargo ship, other than an LNG carrier as defined in paragraph 38 of this regulation, constructed or adapted and used for the carriage in bulk of any liquefied gas."

2 New paragraphs 38 to 43 are added after existing paragraph 37 as follows:

"38 *LNG carrier* in relation to chapter 4 of this Annex means a cargo ship constructed or adapted and used for the carriage in bulk of liquefied natural gas (LNG).

39 *Cruise passenger ship* in relation to chapter 4 of this Annex means a passenger ship not having a cargo deck, designed exclusively for commercial transportation of passengers in overnight accommodations on a sea voyage.

40 *Conventional propulsion* in relation to chapter 4 of this Annex means a method of propulsion where a main reciprocating internal combustion engine(s) is the prime mover and coupled to a propulsion shaft either directly or through a gear box.

41 *Non-conventional propulsion* in relation to chapter 4 of this Annex means a method of propulsion, other than conventional propulsion, including diesel-electric propulsion, turbine propulsion, and hybrid propulsion systems.

42 *Cargo ship having ice-breaking capability* in relation to chapter 4 of this Annex means a cargo ship which is designed to break level ice independently with a speed of at least 2 knots when the level ice thickness is 1.0 m or more having ice bending strength of at least 500 kPa.

43 A ship *delivered on or after* 1 September 2019 means a ship:

.1 for which the building contract is placed on or after 1 September 2015; or

.2 in the absence of a building contract, the keel of which is laid, or which is at a similar stage of construction, on or after 1 March 2016; or

.3 the delivery of which is on or after 1 September 2019."

Chapter 2 – Survey, certification and means of control

Regulation 5 – Surveys

3 In the first sentence of paragraph 4.2, the words "a ship" are replaced with the words "a new ship".

Chapter 3 – Requirements for control of emissions from ships

Regulation 13 – Nitrogen oxides (NO_x)

4 Paragraph 2.2 is amended to read as follows:

"2.2 For a major conversion involving the replacement of a marine diesel engine with a non-identical marine diesel engine, or the installation of an additional marine diesel engine, the standards in this regulation at the time of the replacement or addition of the engine shall apply. In the case of replacement engines only, if it is not possible for such a replacement engine to meet the standards set forth in paragraph 5.1.1 of this regulation (Tier III, as applicable), then that replacement engine shall meet the standards set forth in paragraph 4 of this regulation (Tier II), taking into account guidelines developed by the Organization*.

* Refer to the *2013 Guidelines as required by regulation 13.2.2 of MARPOL Annex VI in respect of non-identical replacement engines not required to meet the Tier III limit*, adopted by the MEPC by resolution MEPC.230(65)."

5 Paragraphs 5.1 and 5.2 are amended to read as follows:

"Tier III

5.1 Subject to regulation 3 of this Annex, in an emission control area designated for Tier III NO_X control under paragraph 6 of this regulation, the operation of a marine diesel engine that is installed on a ship:

.1 is prohibited except when the emission of nitrogen oxides (calculated as the total weighted emission of NO_X) from the engine is within the following limits, where n = rated engine speed (crankshaft revolutions per minute):

.1 3.4 g/kWh when n is less than 130 rpm;

.2 $9 \cdot n^{(-0.2)}$ g/kWh when n is 130 or more but less than 2,000 rpm;

.3 2.0 g/kWh when n is 2,000 rpm or more;

when:

.2 that ship is constructed on or after 1 January 2016 and is operating in the North American Emission Control Area or the United States Caribbean Sea Emission Control Area;

when:

.3 that ship is operating in an emission control area designated for Tier III NO_X control under paragraph 6 of this regulation, other than an emission control area described in paragraph 5.1.2 of this regulation, and is constructed on or after the date of adoption of such an emission control area, or a later date as may be specified in the amendment designating the NO_X Tier III emission control area, whichever is later.

5.2 The standards set forth in paragraph 5.1.1 of this regulation shall not apply to:

.1 a marine diesel engine installed on a ship with a length (*L*), as defined in regulation 1.19 of Annex I to the present Convention, of less than 24 metres when it has been specifically designed, and is used solely, for recreational purposes; or

.2 a marine diesel engine installed on a ship with a combined nameplate diesel engine propulsion power of less than 750 kW if it is demonstrated, to the satisfaction of the Administration, that the ship cannot comply with the standards set forth in paragraph 5.1.1 of this regulation because of design or construction limitations of the ship; or

.3 a marine diesel engine installed on a ship constructed prior to 1 January 2021 of less than 500 gross tonnage, with a length *(L)*, as defined in regulation 1.19 of Annex I to the present convention, of 24 m or over when it has been specifically designed, and is used solely, for recreational purposes."

6 Paragraph 10 is deleted.

Chapter 4 – Regulations for energy efficiency of ships

Regulation 19 – Application

7 A new subparagraph 2.2 is added as follows:

".2 ships not propelled by mechanical means, and platforms including FPSOs and FSUs and drilling rigs, regardless of their propulsion."

8 Paragraph 3 is amended to read as follows:

"3 Regulations 20 and 21 of this Annex shall not apply to ships which have non-conventional propulsion, except that regulations 20 and 21 shall apply to cruise passenger ships having non-conventional propulsion and LNG carriers having conventional or non-conventional propulsion, delivered on or after 1 September 2019, as defined in paragraph 43 of regulation 2. Regulations 20 and 21 shall not apply to cargo ships having ice-breaking capability."

Regulation 20 – Attained Energy Efficiency Design Index (attained EEDI)

9 Paragraph 1 is replaced with the following:

"1 The attained EEDI shall be calculated for:

.1 each new ship;

.2 each new ship which has undergone a major conversion; and

.3 each new or existing ship which has undergone a major conversion, that is so extensive that the ship is regarded by the Administration as a newly-constructed ship, which falls into one or more of the categories in regulations 2.25 to 2.35, 2.38 and 2.39 of this Annex. The attained EEDI shall be specific to each ship and shall indicate the estimated performance of the ship in terms of energy efficiency, and be accompanied by the EEDI technical file that contains the information necessary for the calculation of the attained EEDI and that shows the process of calculation. The attained EEDI shall be verified, based on the EEDI technical file, either by the Administration or by any organization duly authorized by it*.

* Refer to *Code for Recognized Organizations (RO Code)*, adopted by the MEPC by resolution MEPC.237(65), as may be amended."

Regulation 21 – Required EEDI

10 Paragraph 1 is replaced with the following:

"1 For each:

.1 new ship;

.2 new ship which has undergone a major conversion; and

.3 new or existing ship which has undergone a major conversion that is so extensive that the ship is regarded by the Administration as a newly-constructed ship, which falls into one of the categories in regulations 2.25 to 2.31, 2.33 to 2.35, 2.38 and 2.39 and to which this chapter is applicable, the attained EEDI shall be as follows:

Attained EEDI ≤ Required EEDI = (1-X/100) x reference line value

where X is the reduction factor specified in table 1 for the required EEDI compared to the EEDI reference line."

11 New rows are added to table 1 in regulation 2 for ro-ro cargo ships (vehicle carrier), LNG carrier, cruise passenger ship having non-conventional propulsion, ro-ro cargo ships and ro-ro passenger ships, and marks ** and *** and their explanations are added, as follows:

"

Ship Type	Size	Phase 0 1 Jan 2013 – 31 Dec 2014	Phase 1 1 Jan 2015 – 31 Dec 2019	Phase 2 1 Jan 2020 – 31 Dec 2024	Phase 3 1 Jan 2025 and onwards
LNG carrier***	10,000 DWT and above	n/a	10**	20	30
Ro-ro cargo ship (vehicle carrier)***	10,000 DWT and above	n/a	5**	15	30
Ro-ro cargo ship***	2,000 DWT and above	n/a	5**	20	30
	1,000 – 2,000 DWT	n/a	0-5***	0-20*	0-30*
Ro-ro passenger ship***	1000 DWT and above	n/a	5**	20	30
	250 – 1,000 DWT	n/a	0-5***	0-20*	0-30*
Cruise passenger ship*** having non-conventional propulsion	85,000 GT and above	n/a	5**	20	30
	25,000 – 85,000 GT	n/a	0-5***	0-20*	0-30*

* Reduction factor to be linearly interpolated between the two values dependent upon ship size. The lower value of the reduction factor is to be applied to the smaller ship size.

** Phase 1 commences for those ships on 1 September 2015.

*** Reduction factor applies to those ships delivered on or after 1 September 2019, as defined in paragraph 43 of regulation 2.

Note: n/a means that no required EEDI applies."

12 New rows are added to table 2 in paragraph 3 for ro-ro cargo ship (vehicle carrier), LNG carrier, cruise passenger ship having non-conventional propulsion, ro-ro cargo ships and ro-ro passenger ships as follows:

"

Ship type defined in regulation 2	a	b	c
2.33 Ro-ro cargo ship (vehicle carrier)	$(DWT/GT)^{-0.7}$ · 780.36 where DWT/GT<0.3 1812.63 where DWT/GT≥0.3	DWT of the ship	0.471
2.34 Ro-ro cargo ship	1405.15	DWT of the ship	0.498
2.35 Ro-ro passenger ship	752.16	DWT of the ship	0.381
2.38 LNG carrier	2253.7	DWT of the ship	0.474
2.39 Cruise passenger ship having non-conventional propulsion	170.84	GT of the ship	0.214

"

Appendix I – Form of International Air Pollution Prevention (IAPP) Certificate (regulation 8)

13 The footnote in the Supplement to International Air Pollution Prevention Certificate (IAPP Certificate) is amended to read as follows:

"* Completed only in respect of ships constructed on or after 1 January 2016 that are specially designed, and used solely, for recreational purposes and to which, in accordance with regulation 13.5.2.1 and regulation 13.5.2.3, the NO_x emission limit as given by regulation 13.5.1.1 will not apply."

AMENDMENTS TO THE NO_X TECHNICAL CODE 2008

Abbreviations, subscripts and symbols

14 Table 4 is replaced by the following:

"**Table 4 – Symbols for fuel composition**

Symbol	Definition	Unit
w_{ALF}*	H content of fuel	% m/m
w_{BET}*	C content of fuel	% m/m
w_{GAM}	S content of fuel	% m/m
w_{DEL}*	N content of fuel	% m/m
w_{EPS}*	O content of fuel	% m/m
α	Molar ratio (H/C)	1

* Subscripts "$_G$" denotes gas-fuel fraction.
"$_L$" denotes liquid-fuel fraction."

Chapter 1 – General

15 Paragraph 1.3.10 is replaced by the following:

"1.3.10 *Marine diesel engine* means any reciprocating internal combustion engine operating on liquid or dual fuel, to which regulation 13 applies, including booster/compound systems, if applied.

Where an engine is intended to be operated normally in the gas mode, i.e. with the gas fuel as the main fuel and with liquid fuel as the pilot or balance fuel, the requirements of regulation 13 have to be met only for this operation mode. Operation on pure liquid fuel resulting from restricted gas supply in cases of failures shall be exempted for the voyage to the next appropriate port for the repair of the failure."

Chapter 5 – Procedures for NO_x emission measurements on a test bed

16 Existing paragraph 5.3.4 is deleted and new paragraphs 5.3.4, 5.3.5 and 5.3.6 are added after existing paragraph 5.3.3 as follows:

"5.3.4 The selection of gas fuel for testing for dual fuel depends on the aim of tests. In case where an appropriate standard gas fuel is not available, other gas fuels shall be used with the approval of the Administration. A gas fuel sample shall be collected during the test of the parent engine. The gas fuel shall be analysed to give fuel composition and fuel specification.

5.3.5 Gas fuel temperature shall be measured and recorded together with the measurement point position.

5.3.6 Gas mode operation of dual fuel engines using liquid fuel as pilot or balance fuel shall be tested using maximum liquid-to-gas fuel ratio, such maximum ratio means for the different test cycle modes the maximum liquid-to-gas setting certified. The liquid fraction of the fuel shall comply with 5.3.1, 5.3.2 and 5.3.3."

17 A new sentence is added at the end of existing paragraph 5.12.3.3, as follows:

"In case of the use of dual fuel, the calculation shall be in accordance with paragraphs 5.12.3.1 to 5.12.3.3. However, q_{mf}, w_{ALF}, w_{BET}, w_{DEL}, w_{EPS}, f_{fw} values shall be calculated in accordance with the following table:

Factors in the formula (6) (7) (8)		**Formula for factors**
q_{mf}	=	$q_{mf\_G} + q_{mf\_L}$
w_{ALF}	=	$\frac{q_{mf\_G} \times w_{ALF\_G} + q_{mf\_L} \times w_{ALF\_L}}{q_{mf\_G} + q_{mf\_L}}$
w_{BET}	=	$\frac{q_{mf\_G} \times w_{BET\_G} + q_{mf\_L} \times w_{BET\_L}}{q_{mf\_G} + q_{mf\_L}}$
w_{DEL}	=	$\frac{q_{mf\_G} \times w_{DEL\_G} + q_{mf\_L} \times w_{DEL\_L}}{q_{mf\_G} + q_{mf\_L}}$
w_{EPS}	=	$\frac{q_{mf\_G} \times w_{EPS\_G} + q_{mf\_L} \times w_{EPS\_L}}{q_{mf\_G} + q_{mf\_L}}$

"

18 In paragraph 5.12.5.1, table 5 is replaced by the following:

"**Table 5 – Coefficient u_{gas} and fuel-specific parameters for raw exhaust gas**

Gas		NO_X	CO	HC	CO_2	O_2
ρ_{gas} kg/m^3		2.053	1.250	*	1.9636	1.4277
	ρ_e †	Coefficient u_{gas} ‡				
Liquid fuel**	1.2943	0.001586	0.000966	0.000479	0.001517	0.001103
Rapeseed Methyl Ester	1.2950	0.001585	0.000965	0.000536	0.001516	0.001102
Methanol	1.2610	0.001628	0.000991	0.001133	0.001557	0.001132
Ethanol	1.2757	0.001609	0.000980	0.000805	0.001539	0.001119
Natural gas	1.2661	0.001621	0.000987	0.000558	0.001551	0.001128
Propane	1.2805	0.001603	0.000976	0.000512	0.001533	0.001115
Butane	1.2832	0.001600	0.000974	0.000505	0.001530	0.001113

* Depending on fuel.
** Petroleum derived.
† ρ_e is the nominal density of the exhaust gas.
‡ At λ = 2, wet air, 273 K, 101.3 kPa.

Values for *u* given in table 5 are based on ideal gas properties.
In multiple fuel type operation, the u_{gas} value used shall be determined from the values applicable to those fuels in the table set out above proportioned in accordance with the fuel ratio used."

Chapter 6 – Procedures for demonstrating compliance with NOx emission limits on board

19 Paragraph 6.3.1.4 is replaced by the following:

"6.3.1.4 In practical cases, it is often impossible to measure the fuel oil consumption once an engine has been installed on board a ship. To simplify the procedure on board, the results of the measurement of the fuel oil consumption from an engine's pre-certification test-bed testing may be accepted. In such cases, especially concerning residual fuel oil operation (RM-grade fuel oil according to ISO 8217:2005) and dual fuel operation, an estimation with a corresponding estimated error shall be made. Since the fuel oil flow rate used in the calculation (q_{mf}) must relate to the fuel oil composition determined in respect of the fuel sample drawn during the test, the measurement of q_{mf} from the test-bed testing shall be corrected for any difference in net calorific values between the test bed and test fuel oils and gases. The consequences of such an error on the final emissions shall be calculated and reported with the results of the emission measurement."

20 In paragraph 6.3.2.1, table 6 is replaced by the following:

"**Table 6 – Engine parameters to be measured and recorded**

Symbol	Term	Unit
H_a	Absolute humidity (mass of engine intake air water content related to mass of dry air)	g/kg
$n_{d,i}$	Engine speed (at the i^{th} mode during the cycle)	min^{-1}
$n_{turb,i}$	Turbocharger speed (if applicable) (at the i^{th} mode during the cycle)	min^{-1}
P_b	Total barometric pressure (in ISO 3046-1:1995: $p_x = P_X$ = site ambient total pressure)	kPa
$P_{C,i}$	Charge air pressure after the charge air cooler (at the i^{th} mode during the cycle)	kPa
P_i	Brake power (at the i^{th} mode during the cycle)	kW
$q_{mf,i}$	Fuel oil (in case of dual fuel engine, it would be fuel oil and gas) (at the i^{th} mode during the cycle)	kg/h
s_i	Fuel rack position (of each cylinder, if applicable) (at the i^{th} mode during the cycle)	
T_a	Intake air temperature at air inlet (in ISO 3046-1:1995: T_x = TTx = site ambient thermodynamic air temperature)	K
$T_{SC,i}$	Charge air temperature after the charge air cooler (if applicable) (at the i^{th} mode during the cycle)	K
T_{caclin}	Charge air cooler, coolant inlet temperature	°C
$T_{caclout}$	Charge air cooler, coolant outlet temperature	°C
$T_{Exh,i}$	Exhaust gas temperature at the sampling point (at the i^{th} mode during the cycle)	°C
T_{Fuel_L}	Fuel oil temperature before the engine	°C
T_{Sea}	Seawater temperature	°C
T_{Fuel_G}*	Gas fuel temperature before the engine	°C

* Only for dual-fuel engine."

21 A new paragraph 6.3.4.3 is added after existing paragraph 6.3.4.2 as follows:

"6.3.4.3 In case of a dual fuel engine, the gas fuel used shall be the gas fuel available on board."

22 Paragraph 6.3.11.2 is replaced by the following:

"6.3.11.2 The NO_X emission of an engine may vary depending on the ignition quality of the fuel oil and the fuel-bound nitrogen. If there is insufficient information available on the influence of the ignition quality on the NO_X formation during the combustion process and the fuel-bound nitrogen conversion rate also depends on the engine efficiency, an allowance of 10% may be granted for an on board test run carried out on an RM-grade fuel oil (ISO 8217:2005), except that there will be no allowance for the pre-certification test on board. The fuel oil and gas fuel used shall be analysed for its composition of carbon, hydrogen, nitrogen, sulphur and, to the extent given in (ISO 8217:2005) and (ISO 8178-5:2008), any additional components necessary for a specification of the fuel oil and gas fuel."

23 In paragraph 6.4.11.1, table 9 is replaced by the following:

"**Table 9 – Default fuel oil parameters**

	Carbon	Hydrogen	Nitrogen	Oxygen
	w_{BET}	w_{ALF}	w_{DEL}	w_{EPS}
Distillate fuel oil (ISO 8217:2005, DM grade)	86.2%	13.6%	0.0%	0.0%
Residual fuel oil (ISO 8217:2005, RM grade)	86.1%	10.9%	0.4%	0.0%
Natural gas	75.0%	25.0%	0.0%	0.0%

For other fuel oils, default value as approved by the Administration."

Appendix VI – Calculation of exhaust gas mass flow (carbon balance method)

24 A new paragraph 2.5 is added after existing paragraph 2.4 as follows:

"2.5 q_{mf}, w_{ALF}, w_{BET}, w_{DEL}, w_{EPS}, f_{fd} parameters, in formula (1), in case of gas mode operation of dual-fuel engine, shall be calculated as follows:

Factors in formula (1)		Formula of factors
q_{mf}	=	$q_{mf\_G}+q_{mf\_L}$
w_{ALF}	=	$\frac{q_{mf\_G} \times w_{ALF\_G} + q_{mf\_L} \times w_{ALF\_L}}{q_{mf\_G} + q_{mf\_L}}$
w_{BET}	=	$\frac{q_{mf\_G} \times w_{BET\_G} + q_{mf\_L} \times w_{BET\_L}}{q_{mf\_G} + q_{mf\_L}}$
w_{DEL}	=	$\frac{q_{mf\_G} \times w_{DEL\_G} + q_{mf\_L} \times w_{DEL\_L}}{q_{mf\_G} + q_{mf\_L}}$
w_{EPS}	=	$\frac{q_{mf\_G} \times w_{EPS\_G} + q_{mf\_L} \times w_{EPS\_L}}{q_{mf\_G} + q_{mf\_L}}$

"

***

ANNEX 13

DRAFT AMENDMENTS TO MARPOL ANNEX I

(Amendments to regulation 43)

Regulation 43 – Special requirements for the use or carriage of oils in the Antarctic area

In the chapeau of paragraph 43.1, after the words "the carriage in bulk as cargo", the words ", use as ballast," are inserted.

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ANNEX 14

DRAFT AMENDMENTS TO MARPOL ANNEX III

(Amendments to the appendix on criteria for the identification of harmful substances in packaged form)

APPENDIX TO ANNEX III

Criteria for the identification of harmful substances in packaged form

The first sentence of the appendix to Annex III of MARPOL is replaced with the following:

"For the purpose of this Annex, substances other than radioactive material* identified by any one of the following criteria are harmful substances**.

* Refer to class 7 of the IMDG Code.

** The criteria is based on those developed by the United Nations Globally Harmonized system of Classification and Labelling of Chemicals (GHS), as amended. For definitions of acronyms or terms used in this appendix, refer to the relevant paragraphs of the IMDG Code."

***

ANNEX 15

ITEMS IN THE BIENNIAL AGENDAS OF THE CCC, HTW, NCSR, SDC AND SSE SUB-COMMITTEES RELATING TO ENVIRONMENTAL ISSUES

SUB-COMMITTEE ON CARRIAGE OF CARGOES AND CONTAINERS (CCC)								
Planned output number	**Description**	**Target completion year**	**Parent organ(s)**	**Coordinating organ(s)**	**Associated organ(s)**	**Status of output for Year 1**	**Status of output for Year 2**	**References**
1.1.2.3	Unified interpretation to provisions of IMO safety, security, and environment related Conventions	Continuous	MSC / MEPC		III / PPR / CCC / SDC / SSE / NCSR	In progress		
5.2.3.3	Amendments to the IMSBC Code and supplements	Continuous	MSC / MEPC		CCC			
12.1.2.1	Analysis of casualty and PSC data to identify trends and develop knowledge and risk-based recommendations	Annual	MSC / MEPC	III	HTW / PPR / SDC / SSE / NCSR	In progress		
12.3.1.1	Consideration of reports of incidents involving dangerous goods or marine pollutants in packaged form on board ships or in port areas	Annual	MSC / MEPC	CCC	III			

SUB-COMMITTEE ON HUMAN ELEMENT, TRAINING AND WATCHKEEPING (HTW)								
Planned output number	**Description**	**Target completion year**	**Parent organ(s)**	**Coordinating organ(s)**	**Associated organ(s)**	**Status of output for Year 1**	**Status of output for Year 2**	**References**
5.2.1.15	Mandatory Code for ships operating in polar waters	2015	MSC / MEPC		HTW / PPR / SDC / SSE/ NCSR	In progress		
12.1.2.1	Analysis of casualty and PSC data to identify trends and develop knowledge and risk-based recommendations	Annual	MSC / MEPC	III	HTW / PPR / SDC / SSE / NCSR	In progress		

SUB-COMMITTEE ON NAVIGATION, COMMUNICATIONS AND SEARCH AND RESCUE (NCSR)								
Planned output number	**Description**	**Target completion year**	**Parent organ(s)**	**Coordinating organ(s)**	**Associated organ(s)**	**Status of output for Year 1**	**Status of output for Year 2**	**References**
1.1.2.3	Unified interpretation to provisions of IMO safety, security and environment related Conventions	Continuous	MSC / MEPC		III / PPR / CCC / SDC / SSE / NCSR	In progress		
5.2.1.15	Mandatory Code for ships operating in polar waters	2015	MSC / MEPC		HTW / PPR / SSE / NCSR	In progress		
7.1.2.2	Designated Special Areas and PSSAs and their associated protective measures	Continuous	MEPC		NCSR			
12.1.2.1	Analysis of casualty and PSC data to identify trends and develop knowledge and risk-based recommendations	Annual	MSC / MEPC	III	HTW / PPR / SDC / SSE / NCSR	In progress		

SUB-COMMITTEE ON SHIP DESIGN AND CONSTRUCTION (SDC)								
Planned output number	**Description**	**Target completion year**	**Parent organ(s)**	**Coordinating organ(s)**	**Associated organ(s)**	**Status of output for Year 1**	**Status of output for Year 2**	**References**
1.1.2.3	Unified interpretation to provisions of IMO safety, security, and environment related Conventions	Continuous	MSC / MEPC		III / PPR / CCC / SDC / SSE / NCSR	In progress		
5.2.1.15	Mandatory Code for ships operating in polar waters	2015	MSC / MEPC		HTW / PPR / SDC / SSE / NCSR	In progress		
7.1.2.8	Guidance on the safe operation and performance standards of oil pollution combating equipment	2014	MEPC	PPR	SDC	In progress		
7.1.2.13	Code for the transport and handling of limited amounts of hazardous and noxious liquid substances in bulk on offshore support vessels	2015	MSC / MEPC	PPR	SDC / SSE	In progress		MEPC 66/21, paragraph 18.22
Note: MEPC 66 agreed to the proposal of PPR 1 to add the SSE Sub-Committee as an associated organ to this output.								
12.1.2.1	Analysis of casualty and PSC data to identify trends and develop knowledge and risk-based recommendations	2015	MSC / MEPC	III	HTW / PPR / SDC / SSE / NCSR	In progress		

SUB-COMMITTEE ON SHIP SYSTEMS AND EQUIPMENT (SSE)								
Planned output number	**Description**	**Target completion year**	**Parent organ(s)**	**Coordinating organ(s)**	**Associated organ(s)**	**Status of output for Year 1**	**Status of output for Year 2**	**References**
1.1.2.3	Unified interpretation to provisions of IMO safety, security, and environment related Conventions	Continuous	MSC / MEPC		III / PPR / CCC / SDC / SSE / NCSR	In progress		
5.2.1.15	Mandatory Code for ships operating in polar waters	2015	MSC / MEPC		HTW / PPR / SDC / SSE / NCSR	In progress		
7.1.2.13	Code for the transport and handling of limited amounts of hazardous and noxious liquid substances in bulk on offshore support vessels	2015	MSC / MEPC	PPR	SDC / SSE	In progress		MEPC 66/21, paragraph 18.22
	Note: MEPC 66 agreed to the proposal of PPR 1 to add the SSE Sub-Committee as an associated organ to this output.							
12.1.2.1	Analysis of casualty and PSC data to identify trends and develop knowledge and risk-based recommendations	Annual	MSC / MEPC	III	HTW / PPR / SDC / SSE / NCSR	In progress		

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ANNEX 16

BIENNIAL AGENDA OF THE PPR SUB-COMMITTEE AND PROVISIONAL AGENDA FOR PPR 2

SUB-COMMITTEE ON POLLUTION PREVENTION AND RESPONSE (PPR)								
Planned output number	**Description**	**Target completion year**	**Parent organ(s)**	**Coordinating organ(s)**	**Associated organ(s)**	**Status of output for Year 1**	**Status of output for Year 2**	**References**
1.1.2.3	Unified interpretation to provisions of IMO safety, security, and environment related Conventions	Continuous	MSC / MEPC		III / PPR / CCC / SDC / SSE / NCSR	Continuous		
2.0.1.2	Guidelines for port State control under the 2004 BWM Convention, including guidance on ballast water sampling and analysis	2015	MEPC	PPR	III	In progress		
5.2.1.15	Mandatory Code for ships operating in polar waters	2015	MSC / MEPC	SDC	HTW / PPR / SDC / SSE / NCSR	N/A		No request received from SDC
5.2.1.16	Non-mandatory instrument on regulations for non- convention ships	2015	MSC	III	HTW / PPR / SDC / SSE / NCSR	N/A		No request received from III
7.1.2.5	Production of a manual entitled "Ballast Water Management – how to do it"	2015	MEPC		PPR	In progress		

SUB-COMMITTEE ON POLLUTION PREVENTION AND RESPONSE (PPR)								
Planned output number	**Description**	**Target completion year**	**Parent organ(s)**	**Coordinating organ(s)**	**Associated organ(s)**	**Status of output for Year 1**	**Status of output for Year 2**	**References**
7.1.2.6	Guidance for international offers of assistance in response to a marine oil pollution incident	2015	MEPC		PPR	Postponed		
7.1.2.8	Guidance on the safe operation and performance standards of oil pollution combating equipment	2014	MEPC	PPR	SDC	Completed		
7.1.2.9	Revised section II of the Manual on Oil Pollution-Contingency planning	2015	MEPC		PPR	In progress		
7.1.2.10	Guide on Oil Spill Response in Ice and Snow Conditions	2015	MEPC		PPR	Postponed		
7.1.2.11	Updated IMO Dispersant Guidelines	2015	MEPC		PPR	Postponed		
7.1.2.13	Code for the transport and handling of limited amounts of hazardous and noxious liquid substances in bulk on offshore support vessels	2015	MSC / MEPC	PPR	SDC / SSE	In progress		MEPC 66/21, paragraph 18.22
Note: MEPC 66 agreed to the proposal of PPR 1 to add the SSE Sub-Committee as associated organ to this output.								

SUB-COMMITTEE ON POLLUTION PREVENTION AND RESPONSE (PPR)								
Planned output number	**Description**	**Target completion year**	**Parent organ(s)**	**Coordinating organ(s)**	**Associated organ(s)**	**Status of output for Year 1**	**Status of output for Year 2**	**References**
7.2.2.1	Safety and pollution hazards of chemicals and preparation of consequential amendments to the IBC Code, taking into account recommendations of GESAMP-EHS	Continuous	MEPC		PPR	Continuous		MEPC 66/21, paragraph 18.6
	Note: MEPC 66 amended the title of this output as it relates specifically to Chapter 17 and 18 of the IBC Code and not to consequential amendments to MARPOL Annex II.							
7.2.3.2	Updated OPRC Model training courses	2015	MEPC		PPR	In progress		
7.3.1.1	Guidelines related to MARPOL Annex VI and the NO_X Technical Code in accordance with Action Plan endorsed by MEPC 64	2015	MEPC		PPR	In progress		
7.3.2.2	Keep under review IMO measures and contributions to international climate mitigation initiatives and agreements (including CO_2 sequestration and ocean fertilization as well as consideration of the impact on the Arctic of emissions of Black Carbon from international shipping)	2015	MEPC		PPR	postponed		

SUB-COMMITTEE ON POLLUTION PREVENTION AND RESPONSE (PPR)								
Planned output number	**Description**	**Target completion year**	**Parent organ(s)**	**Coordinating organ(s)**	**Associated organ(s)**	**Status of output for Year 1**	**Status of output for Year 2**	**References**
12.1.2.1	Analysis of casualty and PSC data to identify trends and develop knowledge and risk-based recommendations	Annual	MSC / MEPC	III	HTW / PPR / SDC / SSE / NCSR	Completed		
13.0.3.1	Improved and new technologies approved for ballast water management systems and reduction of atmospheric pollution	Annual	MEPC		PPR	Completed		

PROVISIONAL AGENDA FOR PPR 2*

Opening of the session and election of Chairman and Vice-Chairman for 2015

1 Adoption of the agenda

2 Decisions of other IMO bodies

3 Safety and pollution hazards of chemicals and preparation of consequential amendments to the IBC Code, taking into account recommendations of GESAMP-EHS (7.2.2.1)**

4 Code for the transport and handling of limited amounts of hazardous and noxious liquid substances in bulk on offshore support vessels (7.1.2.13)

5 Guidelines for port State control under the 2004 BWM Convention, including guidance on ballast water sampling and analysis (2.0.1.2)

6 Production of a manual entitled "Ballast Water Management – how to do it" (7.1.2.5)

7 Improved and new technologies approved for ballast water management systems and reduction of atmospheric pollution (13.0.3.1)

8 Consideration of the impact on the Arctic of emissions of Black Carbon from international shipping (7.3.2.2)

9 Guidelines related to MARPOL Annex VI and the NO_X Technical Code in accordance with Action Plan endorsed by MEPC 64 (7.3.1.1)

10 Guidance for international offers of assistance in response to a marine oil pollution incident (7.1.2.6)

11 Revised section II of the Manual on Oil Pollution-Contingency planning (7.1.2.9)**

12 Guide on Oil Spill Response in Ice and Snow Conditions (7.1.2.10)

13 Updated IMO Dispersant Guidelines (7.1.2.11)

14 Updated OPRC Model training courses (7.2.3.2)**

15 Unified interpretation to provisions of IMO environment related Conventions (1.1.2.3)

16 Biennial agenda and provisional agenda for PPR 3

17 Election of Chairman and Vice-Chairman for 2016

18 Any other business

19 Report to the Marine Environment Protection Committee

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* Agenda items are aligned with output titles in the HLAP (resolution A.1061(28)), including the associated output number.

** Output amended by MEPC 66 (MEPC 66/21, paragraph 18.6).

ANNEX 17

BIENNIAL AGENDA OF THE III SUB-COMMITTEE AND PROVISIONAL AGENDA FOR III 1

SUB-COMMITTEE ON IMPLEMENTATION OF IMO INSTRUMENTS (III)								
Planned output number	**Description**	**Target completion year**	**Parent organ(s)**	**Coordinating organ(s)**	**Associated organ(s)**	**Status of output for Year 1**	**Status of output for Year 2**	**References**
1.1.2.3	Unified interpretation to provisions of IMO safety, security, and environment related Conventions	Continuous	MSC / MEPC		III / PPR / CCC / SDC / SSE / NCSR			
2.0.1.2	Guidelines for port State control under the 2004 BWM Convention, including guidance on ballast water sampling and analysis	2015	MEPC	PPR	III			
2.0.2.1	Analysis of consolidated audit summary reports	2015	Assembly	Council	MSC / MEPC / LEG / III			
5.1.2.2	Measures to protect the safety of persons rescued at sea	2014	MSC / FAL	NCSR	III			
5.2.1.3	Review of general cargo ship safety	2014	MSC		III / HTW / SDC / NCSR			
5.2.1.16	Non mandatory instrument on regulations for non-convention ships	2015	MSC	III	HTW / PPR / SDC / SSE / NCSR			
5.2.1.17	Updated Survey Guidelines under the Harmonized System of Survey and Certification (HSSC)	Annual	MSC / MEPC		III			

Planned output number	Description	Target completion year	Parent organ(s)	Coordinating organ(s)	Associated organ(s)	Status of output for Year 1	Status of output for Year 2	References
5.2.1.29	Non exhaustive list of obligations under instruments relevant to the IMO Instruments Implementation Code (III Code)	Annual	MSC		III			
5.3.1.1	Harmonization of PSC activities	Continuous	MSC / MEPC		III			
Notes:	Output to be referred to parent for consideration of scope. MEPC 66 decided to defer discussion to MEPC 67, taking into account the outcome of MSC 93 (MEPC 66/21, paragraph 18.8)							
7.1.3.1	Consideration and analysis of reports on alleged inadequacy of port reception facilities	Annual	MEPC		III			
Notes:	MEPC 66 did not agree to the proposed amalgamation as output 2.0.1.2 was deleted from the HLAP by Council (MEPC 66/21, paragraph 18.25)							
8.0.3.1	Requirements for access to, or electronic versions of, certificates and documents, including record books required to be carried on ships	2015	FAL	MSC / MEPC / LEG	III			
12.1.2.1	Analysis of casualty and PSC data to identify trends and develop knowledge and risk-based recommendations	Annual	MSC / MEPC	III	HTW / PPR / SDC / SSE / NCSR			
12.3.1.1	Consideration of reports of incidents involving dangerous goods or marine pollutants in packaged form on board ships or in port areas	Annual	MSC / MEPC	CCC	III			

PROVISIONAL AGENDA FOR III 1

Opening of the session and election of Chairman and Vice-Chairman for 2014

1 Adoption of the agenda

2 Decisions of other IMO bodies

3 Responsibilities of Governments and measures to encourage flag State compliance

4 Mandatory reports under MARPOL

5 Casualty analysis and statistics

6 Harmonization of port State control activities

7 PSC Guidelines on seafarers' hours of rest and PSC guidelines in relation to the Maritime Labour Convention, 2006

8 Development of guidelines on port State control under the 2004 BWM Convention

9 Comprehensive analysis of difficulties encountered in the implementation of IMO instruments

10 Review and update of the Survey Guidelines under the Harmonized System of Survey and Certification (HSSC) and the non-exhaustive list of obligations under instruments relevant to the IMO Instruments Implementation Code (III Code)

11 Consideration of IACS Unified Interpretations

12 Measures to protect the safety of persons rescued at sea

13 Illegal, unregulated and unreported (IUU) fishing and related matters

14 Review of general cargo ship safety

15 Biennial agenda and provisional agenda for III 2

16 Election of Chairman and Vice-Chairman for 2015

17 Any other business

18 Report to the Committees

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ANNEX 18

REPORT ON THE STATUS OF PLANNED OUTPUTS FOR THE 2014-2015 BIENNIUM

MARINE ENVIRONMENT PROTECTION COMMITTEE (MEPC)								
Planned output number	**Description**	**Target completion year**	**Parent organ(s)**	**Coordinating organ(s)**	**Associated organ(s)**	**Status of output for Year 1**	**Status of output for Year 2**	**References**
1.1.1.1	Cooperate with the United Nations on matters of mutual interest, as well as provide relevant input/guidance	Annual	Assembly	Council	MSC / MEPC / FAL / LEG / TCC / III			
Notes:	Output added to the Sub-Committee's biennial agenda in order to cover the work under the agenda items on IUU fishing-related matters and PSC Guidelines in relation to MLC 2006.							
1.1.2.1	Cooperate with other international bodies on matters of mutual interest, as well as provide relevant input/guidance	Annual	Assembly	Council	MSC / MEPC / FAL / LEG / TCC			
1.1.2.3	Unified interpretation of provisions of IMO safety, security, and environment related Conventions	Continuous	MSC / MEPC		III / PPR / CCC / SDC / SSE / NCSR	Ongoing		MSC 78/26, paragraph 22.12
2.0.1.2	Guidelines for port State control under the 2004 BWM Convention, including guidance on ballast water sampling and analysis	2015	MEPC	PPR	III			
Notes:	This output will not be split into two outputs as proposed by PPR 1 (MEPC 66/21, paragraph 18.22).							
2.0.1.3	Revised specification for shipboard incinerators (resolution MEPC.76(40))	2014	MEPC			Completed		Resolution MEPC.244(66)

2.0.2.1	Analysis of consolidated audit summary reports	2015	Assembly	Council	MSC / MEPC / LEG / III			
2.0.2.3	Amendments making the IMO Instruments Implementation Code (III Code) and auditing mandatory	2015	MSC / MEPC			In progress		Resolutions: MEPC.246(66) and MEPC.247(66)
3.4.1.1	Input on identifying emerging needs of developing countries, in particular SIDS and LDCs to be included in the ITCP	Continuous	TCC		MSC / MEPC / FAL / LEG			
4.0.1.3	Endorsed proposals for unplanned outputs for the 2014-2015 biennium as accepted by the Committees	Annual	Council		MSC / MEPC / FAL / LEG / TCC			
4.0.2.1	Endorsed proposals for the development, maintenance and enhancement of information systems and related guidance (GISIS, websites, etc.)	Continuous	Council		MSC / MEPC / FAL / LEG / TCC / III			
Notes:	Output added to the Sub-Committee's biennial agenda in order to cover the work on GISIS, in particular, the module on requirements; this will also be reflected in the biennial status report of MEPC 66 for 2014 - 2015 as it was not included in table 2 of Resolution A.1061(28).							
4.0.5.1	Revised Guidelines on the Application of the Strategic Plan and the High-level Action Plan of the Organization ("GAP") and guidelines on organization and method of work of the committees, as appropriate	2015	Assembly	Council	MSC / MEPC / FAL / LEG / TCC			
5.2.1.15	Mandatory Code for ships operating in polar waters	2015	MSC / MEPC	SDC	PPR / SSE / NCSR / HTW	In progress		MSC 86/26, paragraph 23.32
5.2.1.17	Updated Survey Guidelines under the Harmonized System of Survey and Certification (HSSC)	Annual	MSC / MEPC		III			

5.2.3.3	Amendments to the IMSBC Code and supplements	Continuous	MSC / MEPC		CCC			
5.2.3.6	[Output deleted by MEPC 66]	Continuous	MEPC					MEPC 66/21, paragraph 18.4
Notes:	MEPC 66 decided to delete the output called "Amendments to MARPOL Annex I and associated circulars".							
5.3.1.1	Harmonization of port State control (PSC) activities	Continuous	MSC / MEPC		III			MEPC 66/21, paragraph 18.8
Notes:	Output to be referred to parent for consideration of scope; MEPC 66 deferred discussion to MEPC 67 to take into account the outcome of MSC 93.							
7.1.2.1	Revised Guidelines for the Inventory of Hazardous Materials	2014	MEPC			In progress		
7.1.2.5	Production of a manual entitled "Ballast Water Management – how to do it"	2015	MEPC		PPR	In progress		
7.1.2.6	Guidance for international offers of assistance in response to a marine oil pollution incident	2014	MEPC		PPR	Postponed		
7.1.2.7	Manual on chemical pollution to address legal and administrative aspects of HNS incidents	2015	MEPC			Completed		MEPC 66/21, paragraph 8.6
7.1.2.8	Guidance on the safe operation and performance standards of oil pollution combating equipment	2014	MEPC	PPR	SDC	Postponed		
7.1.2.9	Revised section II of the Manual on Oil Pollution-Contingency planning	2015	MEPC		PPR	Postponed		
Notes:	Output to be referred to parent for consideration of procedure; MEPC 66 reviewed the information clarifying the acceptance process (MEC 66/21, paragraph 18.16).							
7.1.2.10	Guide on Oil Spill Response in Ice and Snow Conditions	2014	MEPC		PPR	Postponed		
7.1.2.11	Updated IMO Dispersant Guidelines	2014	MEPC		PPR	Postponed		

7.1.2.12	Review of nitrogen and phosphorous removal standards in the 2012 Guidelines on the implementation of effluent standards and performance tests for sewage treatment plants	2014	MEPC			Postponed		
7.2.2.1	Safety and pollution hazards of chemicals and preparation of consequential amendments to the IBC Code, taking into account recommendations of GESAMP-EHS	Continuous	MEPC		PPR	Ongoing		MEPC 66/21, paragraph 18.6
Notes:	MEPC 66 removed the words "MARPOL Annex II and" from the description of the output.							
7.2.3.1	Increased activities within the ITCP regarding the OPRC Convention and the OPRC HNS Protocol	Annual	TCC		MEPC			
7.2.3.2	Updated OPRC Model training courses	2015	MEPC		PPR	In progress		
Notes:	Output to be referred to parent for consideration of procedure.							
7.3.1.1	Guidelines related to MARPOL Annex VI and the NOx Technical Code in accordance with Action Plan endorsed by MEPC 64	2015	MEPC		PPR	In progress		
7.3.2.1	Further development of mechanisms needed to achieve the limitation or reduction of CO_2 emissions from international shipping	Annual	MEPC					

7.3.2.2	Keep under review IMO measures and contributions to international climate mitigation initiatives and agreements (including CO_2 sequestration and ocean fertilization as well as consideration of the impact on the Arctic of emissions of Black Carbon from international shipping)	2014	MEPC		PPR	Postponed		
8.0.3.1	Requirements for access to, or electronic versions of, certificates and documents, including record books required to be carried on ships	2015	FAL	MSC / LEG / MEPC	III	In progress		
10.0.1.2	Goal-based ship construction standards for all types of ships, including safety, security and protection of the marine environment	2015	MSC / MEPC					MEPC 66/21, paragraph 18.8
Notes: Output to be referred to parent for consideration of scope.								
12.3.1.1	Consideration of reports of incidents involving dangerous goods or marine pollutants in packaged form on board ships or in port areas	Annual	MSC / MEPC	CCC	III			
13.0.3.1	Improved and new technologies approved for ballast water management systems and reduction of atmospheric pollution	Annual	MEPC		PPR	Completed		

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ANNEX 19

ITEMS TO BE INCLUDED IN THE AGENDAS OF MEPC 67 AND MEPC 68

No.	Item	MEPC 67 October 2014	MEPC 68 May 2015
1	Harmful aquatic organisms in ballast water	[RG][1] X	X
2	Recycling of ships	[WG/DG][1] X	X
3	Air pollution and energy efficiency	[WG][1,2] X	X
4	Further technical and operational measures for enhancing the energy efficiency of international shipping	[WG][1] X	X
5	Reduction of GHG emissions from ships	X	X
6	Consideration and adoption of amendments to mandatory instruments[3]	[DG][1] X	X
7	Review of nitrogen and phosphorous removal standards in the 2012 Guidelines on the implementation of effluent standards and performance tests for sewage treatment plants[4]	[RG][1] X	
8	Mandatory Code for ships operating in polar waters	[WG][1] X	X
9	Identification and protection of Special Areas and PSSAs	X	X
10	Inadequacy of reception facilities	X	X
11	Reports of sub-committees	X	X

[1] The Chairman, taking into account the submissions received on the respective subjects, will advise the Committee well in time before MEPC 67 on the final selection of such groups (see paragraph 18.32).

[2] Two groups are proposed: (1) Working Group on Air Pollution and Energy Efficiency; and (2) Ad hoc Expert Working Group on Facilitation of Transfer of Technology for Ships, to meet intersessionally the week before MEPC 67 and to report to MEPC 67.

[3] Output 5.2.3.6 (Amendments to MARPOL Annex I and associated circulars) referred to in the annex of document MEPC 66/18 is contained in this agenda item.

[4] See output 7.1.2.12 and MEPC 64/23, paragraph 11.20.

No.	Item	MEPC 67 October 2014	MEPC 68 May 2015
12	Work of other bodies	X	X
13	Promotion of implementation and enforcement of MARPOL and related instruments	X	X
14	Technical Cooperation Sub-programme for the Protection of the Marine Environment	X	X
15	Work programme of the Committee and subsidiary bodies	X	X
16	Application of the Committees' Guidelines	X	X
17	Election of the Chairman and Vice-Chairman	X	X
18	Any other business	X	X

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ANNEX 20

STATEMENTS BY DELEGATIONS AND OBSERVERS*

ITEM 1

Statement by the delegation of Malaysia

"This delegation wishes to say few words of appreciation with regards to the search and rescue operations of Malaysia Airlines aircraft, flight MH 370.

Mr Chairman,

On behalf of the Government of Malaysia and its people, this delegation wishes to express our deepest condolence message to the families and friends of the 227 passengers and 12 crew members of the ill-fated flight MH 370. We are painfully saddened with this unfortunate incident and our thoughts and prayers are with the families. The nation is grieving and is in pains, struggling to come to terms with what had happened to the plane.

The search for the plane has taken us halfway around the world but we are keeping our hopes high that this multi-nations recovery operation from the base kindly provided by Australia, we will find the plane soon. We are profoundly grateful for the efforts and sacrifices by those people involved in the recovery operation and we recognized the dangers and perils they face in undertaking this mission. Malaysia can never thank them enough.

The Government of Malaysia wishes to express its gratitude to the 26 nations and international partners that assisted us in the search for the aircraft. This delegation likes to take this opportunity to express our deepest appreciation to Australia; Brunei; Cambodia; China; France; India; Indonesia; Japan; Kazakhstan; Republic of Korea; Kyrgyzstan; Laos; Maldives; Myanmar; Nepal; Pakistan; Singapore; Thailand; Turkmenistan; New Zealand; UAE; United Kingdom; United States and Viet Nam, for their assistance during the search and rescue operation.

It is not easy to coordinate a search involving some 26 nations and we are grateful with the strong co-operation that existed amongst us, enabling us to coordinate the search for the plane. This is indeed a multinational operation of very large scale. Malaysia is determined to find the plane and will continue to play our role in coordinating the search. We owed it to the families of the passengers and crew.

To assist us understand what actually happened, an international group was established comprising of agencies like Air Accidents Investigation Branch of the United Kingdom, Aircraft Accident Investigation Department of China, the National Transportation Safety Board (ATSB); the Federal Aviation Administration (FAA), the Civil Aviation Administration of China, Inmarsat, Boeing and Rolls Royce. We are grateful for their assistance and with their expertise, we trust they will be able to unravel the mystery shrouding flight MH 370 and shed light to what happened to the aircraft."

* Statements have been included in this annex in the order in which they were given, sorted by agenda item, and in the language of submission (including translation into any other language if such translation was provided). Statements are available in all the official languages on audio file at: http://docs.imo.org/Meetings/Media.aspx

Statement by the delegation of Australia

"Australia shares the global reaction of sorrow at the loss and suffering which has occurred as a result of the disappearance of Malaysia Airlines flight MH 370. Our thoughts are with the victims and families during this difficult time. Please be assured that Australia continues to do all it can in the recovery and investigation operation.

The multinational search effort is a powerful example of international cooperation at a time of adversity, with Australia, China, Japan, Malaysia, New Zealand, the Republic of Korea and the United States assisting in the search efforts for debris from MH 370 in the Southern Indian Ocean. These men and women have been conducting these searches over a very large area in challenging conditions, far from the Western Australian Coast and in variable weather. A number of commercial vessels have also been involved in the search.

Aircraft in the search area have continued to report sightings of objects similar to those reported previously. Nothing has yet been verified as being from MH 370.

On Sunday (30 March), Australia's Prime Minister, Mr. Tony Abbott, announced a new Joint Agency Coordination Centre (the JACC) that will be based in Perth to coordinate the Australian Government's support for the search for MH 370. The JACC will ensure that the search being coordinated by the Australian Maritime Safety Authority (AMSA) and Australian Transport Safety Bureau (ATSB) is reinforced by strong liaison with all the relevant stakeholders, including the families of the passengers.

It will also provide a single contact point for families to gain up-to-date information and travel assistance including visa services, accommodation advice, interpreter services and counselling. The Australian Government has already announced that visa fees will be waived for affected families.

Our search to recover debris will continue while hope remains."

Statement by the delegation of China

"3月8日凌晨，马来西亚航空公司载有239名乘客和机组人员的MH370客机失去联系，事件发生至今已经是第24天，机上载有154名中国乘客。对此，中国政府高度关注，中国人民十分牵挂。迄今为止，中国共使用了21颗卫星、10余艘舰艇和数十架次飞机进行搜救，并累计协调了62艘过往商船参与，搜寻面积达15万1000多平方公里。我们的目的就是全力搜救，只要有一线希望就决不放弃。中国政府赞赏INMARSAT公司、澳大利亚以及马来西亚代表团提及的其他相关国家和国际组织在此期间给予的支持和协助，希望各有关方能够继续加大协调与配合力度，及时准确地提供所有相关信息，共同尽早找到失联航班。"

Statement by the delegation of Spain

"España no puede estar de acuerdo con la decisión del Presidente de este Comité de conducir la reunión en idioma inglés, teniendo en cuenta que el único idioma oficial de Panamá es el español.

España y el Embajador de España en el Reino Unido consideran preocupante esta decisión y los motivos que pueden haber motivado la misma, y tiene un impacto directo en la relevante labor de promoción del idioma español llevada a cabo por nuestro Gobierno y en el fomento de su uso como lengua vehicular.

Los criterios que se aplican para decidir y elegir los cargos de Presidente y Vicepresidente en los distintos órganos de la OMI son numerosos y, entre ellos, debe destacarse el idioma oficial de la Organización que se utilizará para conducir la reunión del órgano de que se trate.

La Dependencia Común de Inspección, en sus informes ha hecho especial hincapié a la cuestión de los idiomas en las Naciones Unidas y al uso que debe hacerse de los mismos.

La Dependencia Común de Inspección destaca la necesidad de un trato ecuánime de los idiomas de trabajo y oficiales por las secretarías de las NNUU.

Asimismo, se subraya que se deben adoptar las medidas efectivas que eliminen el desequilibrio en el uso de los idiomas de trabajo. La responsabilidad y compromiso de las secretarías de las NNUU pasa por alentar, promover y utilizar los idiomas oficiales de los países en reuniones oficiales.

A su vez, la Dependencia Común de Inspección destaca las responsabilidades de los EEMM en materia de multilingüismo y dotación de los recursos necesarios para hacer posible su aplicación efectiva. Entre tales responsabilidades está el uso en las reuniones oficiales del idioma del Estado, si éste es uno de los idiomas oficiales de las NNUU, sin dar preferencia al inglés por encima de los demás idiomas oficiales.

> "103. La interpretación no es un lujo, sino una necesidad para que la labor de las organizaciones del sistema de las Naciones Unidas se desarrolle con eficacia, …"

De ahí la importancia de que un Estado utilice su idioma oficial para el tratamiento ecuánime de los idiomas y el acceso equitativo a la información."

Statement by the delegation of France

"La France remercie la Présidence et voudrait faire savoir qu'elle partage les vues exprimées à l' instant par la délégation de l'Espagne, sur les langues de travail. La délégation française considère an autre que l'argument utilisé par le Président est spécieuse, puisqu'il a déclaré que "compte-tenu du passage à des aspects techniques", il allait "passer à l'anglais".

Cela sous-entend que les autres langues de travail ne pourraient pas rendre compte des connaissances techniques.

En réalité, il ne sert à rien d'évoquer les transferts de technologie si l'on n'utilise pas d'abord le transfert par les langues des connaissances techniques.

Commençons par la diffusion des connaissances par la langue."

ITEM 2

Statement by the observer from ICS

"ICS and the other authors of MEPC 66/2/11 started this meeting with a proposal designed to address very significant industry concerns with the implementation of the Ballast Water Convention. This was done in order to gain recognition not only of the problems but also with the intention of facilitating the most expedient pathway to entry into force.

The concern that should be in the mind of every delegate here is the current lack of confidence inside the industry that expensive treatment equipment will not only do the job of ballast water treatment but do it to a level that will not be judged non-compliant by port State control, working to a set of standards at variance with those for type approval.

It is a matter of considerable disappointment that the industry proposal did not win sufficient support to be taken forward. We appreciate the efforts made by the Review Group Chairman but the outcome of the Group's work has not taken on board the concerns raised in the paper, which were fully supported by many NGO's and a number of major flag States during the plenary debate. We now simply have a proposal for an open ended 'fact finding' study, essentially to assess if the concerns raised by industry are valid. The time required for this study will be significant with conclusions most likely not being drawn until long after the entry into force of the convention; a time during which timely safeguards for owners, operators and seafarers will simply not be available. There is a role for the study - and we appreciate that - but it is not enough to build industry confidence. Instead it has become apparent that the application of rigorous compliance demands seems to be the objective of some member States; demands that have overtaken the real and laudable environmental objectives of the Convention itself.

In a quest for compliance some operators have already fitted treatment equipment – this is a laudable attempt to assist the objectives of the Convention but discussion this week on grandfathering these praiseworthy attempts was terminated without helpful conclusion. This appears to indicate that such early movers, far from being encouraged, will in fact be open to penalty for their attempts at compliance. This is a further blow to flagging industry confidence in the establishment of a workable Convention.

There is now a dangerous possibility that the Convention could limp into force without any attempt to address industry concerns. This may result in shipowners being forced to fit flag State type-approved equipment that are subsequently found not fit for purpose and that will require replacement. This is simply an unsustainable approach to environmental protection.

ICS will make further submissions to MEPC 67 in a genuine attempt to continue to provide advice and potential remedies to break the current impasse and to facilitate full and effective implementation.

Unfortunately, Mr Chairman, until the Committee can accept and recognise that there is a real problem and provide its firm intention to satisfactorily address the industry concerns, ICS finds itself unable to actively encourage additional IMO Member States to ratify the BWM Convention."

Statement by the observer from BIMCO

"Let me start by thanking the review group for their hard work.

Earlier this week the industry presented a paper – and a plea – to your Committee, to act to ensure that the Ballast Water Convention can be implemented in a robust manner.

We see now that our plea has not been heard. We see that some of the industry concerns have been buried in a study that, on the face of it, seems to accommodate our plea, but in reality is unlikely to produce any tangible results prior to implementation of the Convention unless specific actions are taken by this Committee.

It is time to realize that this organization need to take action to restore its regulatory authority in setting meaningful standards for testing and approval of ballast water treatment systems.

- It is a fact that systems fit for worldwide use is not, and will not be made available to the industry according to the present IMO guidelines.

- It is a fact that our industry is a truly global industry and that our ships are requiring, and our shipowners are acquiring systems that must be fit for worldwide use.

It is important to understand that industry is not – and I repeat NOT – trying to avoid its responsibilities under the Convention. On the contrary, we are already in an implementation phase that will lead to compliance.

Earlier this week the industry suggested a way forward, robust, compliant and suitable for our global industry. In view of the outcome today, we urge your Committee to recognize the realities of the present situation and to move swiftly ahead on the decided plan.

We sincerely hope the message is clearly understood, we support the implementation of the ballast water convention when the necessary enhancements have been made, we support the protection of the environment and, not least, we support this Organization."

Statement by the observer from WSC

"On Monday we stressed the considerable uncertainty and lack of confidence in the growing number of IMO type-approved BWM type-approved systems.

During the week some have stated that we must have evidence that systems are failing the D-2 standard in the Treaty. As many are aware, the Environmental Technology Verification (ETV) Protocol is arguably the most refined protocol for testing systems ability to meet the IMO D-2 standard. To date, three systems – all IMO type approved – have been tested. All three of the systems have failed and 2 of the 3 systems tested have failed dramatically.

These systems are being installed on hundreds of vessels today. We believe that every month we wait to further strengthen the type-approval process will only result in the installation of more and more systems that may prove incapable of meeting the IMO D-2 discharge standard. This result is not only untenable for shipowners who cannot identify what systems may work and those that do not, it is a situation that is highly undesirable for the environment and for the objectives of the Ballast Water Treaty. The objective of the Treaty is not to simply install treatment equipment, the objective and purpose of the treaty is to install equipment that actually meets the required discharge standard.

How we are now proceeding ensures that more and more systems will be installed and many may prove incapable of meeting the IMO standard. The scale and magnitude of the problem will grow, leaving shipowners and this Committee with a very difficult problem.

Mr. Chairman, we should not pretend the problem does not exist. The problem exists and we will be well served if we develop the resolve to take the actions we collectively deem appropriate to strengthen the process for testing BW systems. This objective is reasonable. In our judgment, waiting for completion of the proposed study, will only result in in the installation of more systems, many of which may fail to meet the treaty standard.

Our members are spending millions on these systems. If you are investing millions as a shipowner, you want the systems to in fact meet the standards they are type-approved to meet. We respectfully suggest that the Committee should consider at MEPC 67 how it can address this serious problem in an expeditious manner."

ITEM 4

Statement by the observer from IPIECA

"IPIECA welcomes the submission by the United Kingdom and the Netherlands concerning the IMO fuel availability study and recognizes the desire to provide clarity to the shipping and refining industries about the effective implementation date of the global marine fuel sulphur cap of 0.50% as soon as possible.

IPIECA is however concerned about some statements in document MEPC 66/4/18 which suggest that there are already indications that sufficient fuel will be available to go ahead with the 2020 implementation date. These statements appear to be based on "market signals" that are not further referenced. IPIECA would like to remind the delegates that the question of 2020 fuel availability is a complex issue that will need to evaluate not only the projected 2020 marine fuel demand, but also the demand for other petroleum products and the overall refining industry supply capability.

As IPIECA has mentioned in earlier interventions, the step change in the fuel market that will be triggered by the implementation of the 0.50% sulphur requirement is unprecedented in our industry. IPIECA therefore cannot associate itself with the suggestion in document MEPC 66/4/18 about the expected availability.

The document also refers to the expected price gap between 3.50% and 0.50% sulphur fuel. IPIECA can only comment that prices for fuels are determined by supply and demand on the international markets. As a petroleum industry association focusing on environmental and social issues, IPIECA is not in a position to comment on specific future market price developments.

IPIECA also welcomes the comments on documents MEPC 66/4/8 and MEPC 66/4/18 provided in document MEPC 66/4/24 by the United States, BIMCO, INTERTANKO and CLIA, which raises several important issues that will need to be addressed, and proposes a concrete way forward. IPIECA would however like to express some reservation concerning the proposal in paragraph 9 to consider a preliminary survey of major refining companies to obtain information about their plans to provide compliant fuel. In that context IPIECA would like to draw the Committee's attention to document MEPC 59/4/42 commenting amongst others on the limitations on exchange of information with respect to future plans imposed on our industry through Competition law in different geographies and on the need to therefore base any studies on fuel availability on publicly available information."

ITEM 5

Statement by the delegation of China

"At the outset, China would like to thank the Steering Committee for their work. We recognize the importance of the Update Study and wish to contribute to the process. It is no doubt that fundamental rules of fairness, balance, transparency and inclusiveness should always be abided by the Steering committee during the rendering process, in particular in evaluation of tender proposals and award of contract. However, these rules were not followed by some members of the Steering Committee and its report failed to indicate some key information. China would like to take this opportunity to elaborate its following observations:

- Fairness was not fully respected. The Expert Workshop of the Update Study expressly encouraged the participation of the developing countries (MEPC 65/6/2, paragraph 56). However, some members refused to acknowledge this conclusion and a tenderer from developing countries was treated unfairly. We learned this tenderer is renowned for its long experience on climate change and reduction of GHG emissions from international shipping and cooperate closely with many other international research institutes. We note, however, he received abnormal low technical assessment scores with 2 being zero. Furthermore, even though this tenderer got the highest value for money score for one task, but instead of being awarded to the contract, he was excluded from the Update Study because some members claimed that this tenderer was not qualified with the excuse of lower technical assessment scores.

- Balance was not carefully kept. It is widely recognized that the coordinator of the Steering Committee was expected to be a 'content neutral' party who should not take sides or express or advocate a point of view. Where there is a divergence, the coordinator should identify a potential way forward, which is subject to the consent of the group. China is concerned about the forceful expression of 'the coordinator's thought' which might weaken the fairness and balance of the decision-making process of the Steering Committee.

- Transparency was not clearly indicated. We noted the evaluation details, including technical assessment scores and value for money tables, should be provided in the report of the Steering Committee with a view to enhance the transparency and accuracy. Nevertheless, with unknown reasons some members refused to include these details regardless of continuous requests from members of the developing countries.

- Inclusiveness was not continuously cherished. The TOR for the Updated Study emphasized "The Steering Committee should, as far as possible, make decisions by consensus". But it is noted that many important issues, including evaluation criteria, evaluation results and report of the Steering Committee, were decided by majority, without trying to reach consensus as far as possible.

In this regard, this delegation concluded that the decision-making process of the Steering Committee lacked necessary fairness, balance, transparency and inclusiveness, which would undermine the legitimacy of the Update Study. Therefore China reserves its position with regard to the tender assessment results and possibly to the future findings of the Update Study."

Statement by the delegation of the United Kingdom

"The United Kingdom is grateful to the Steering Committee for the progress which it has made and for this detailed and balanced report. The United Kingdom appreciates the work of the members of the Steering Committee and of the Secretariat which has provided support to them.

The United Kingdom is grateful to the Vice-Coordinator of the Steering Committee, Mr Ntuli of South Africa, and, above all, the United Kingdom wishes to thank the Co-ordinator of the Steering Committee, Dr Leigh Mazany of Canada.

The United Kingdom does not agree with the criticism of the conduct of the Steering Committee. The Steering Committee has been conducted with absolute propriety and even handedness and the United Kingdom fully supports both the conduct of the Steering Committee and the outcome of its deliberations."

ITEM 6

Statement by the delegation of Palau

"Palau would like to support the document MEPC 66/6/6 and its Corrigendum 1 proposed by Canada, Denmark, Germany, Japan and the United States.

Palau is of the view that protection of air pollution from ships is quite important. In this regard, we are concerned that the delay of effective date of NO_X Tier III has an adverse effect on human health and environment. In other words, delaying the effective date of the Tier III standard for five years will expose many people and ecosystems located in already designated NOx ECAs to additional risks for health and environmental degradation.

Besides on this, we have more serious concerns on this matter. If the draft amendments provided by the document 66/6/3 were adopted, it would mean retards from taking important measures for environment protection in the maritime field, and furthermore invite drawbacks on competence of the IMO, which should play a pivotal role for establishing global standards essential for smooth international maritime transport.

Therefore, Palau is of the opinion that the effective date of the NO_X Tier III limits should be retained as January 2016."

Statement by the delegation of Niue

"The Government of Niue is pleased to be participating at the sixty-sixth session of the Marine Environment Protection Committee being held this week. We are very pleased with the actions that the IMO and all participants are taking here to address climate change issues.

The Government of Niue's opinion, with respect to the effective date of the NO_X Tier III limits, is that this should be retained for implementation on January 2016.

The protection of air pollution from ships is significant, particularly due to the real impacts of climate change seen on the news this morning, and that we are actually living now.

Low lying and vulnerable islands are not only facing food security risk and extreme weather anomalies but their actual survival as a sovereign nation as rising sea levels flood Pacific island countries such as Kiribati and Tuvalu.

We in the Pacific, rely more than ever on bigger, more developed countries and international organisations such as the IMO to do all that is possible to reduce emissions which contribute to climate change.

Niue is very concerned at a suggestion to delay the effective dates for the NO_X Tier III limits, as this will have an adverse effect on human health and the environment worldwide. Some of us do want quicker action and the reality is, is that it does take time. However, given the technical and scientific facts available to us, time is a luxury we may not have.

The Government of Niue supports the document MEPC 66/6/6 and is Corrigendum 1, submitted by Canada, Denmark, Germany, Japan and the United States."

Statement by the delegation of Benin

"Mon Pays, le BENIN a ratifié et met en application la Convention MARPOL et toutes ses six (6) Annexés.

Par conséquent, le BENIN est toujours resté favorable à toutes les mesures efficaces prises diligemment dans le cadre de l'application de cette convention.

C'est pourquoi, par ma voix, la délégation du BENIN à la 66eme session du Comité de la Protection du Milieu Marin qui se tient actuellement, appuie fortement la proposition conjointe du Japon, du Canada, du Danemark, de l'Allemagne et des États Unis d'Amérique, relative à la réduction des émissions de NOx à partir du 1er janvier 2016 et contenue dans le document MEPC 66/6/6 and Corr.1.

Nous demandons que notre soutien soit consigné dans le rapport de cette session du MEPC. Je vous remercie."

Statement by the delegation of Ireland

"Ireland is not convinced that these amendments, as set out in J paper 8, are either appropriate or well developed. There has been very little time for this delegation and other delegations to this MEPC to study the full implications of the effects of these significant amendments to regulation 13 of MARPOL Annex VI. It is our position that adoption of these amendments should be postponed to MEPC 67 to allow sufficient time for all parties (and prospective parties) to MARPOL Annex VI to study these amendments fully and come back with a fully informed position.

Ireland would also like to point out that the ships referred to in paragraph 5.2.3 are large ships which are likely to be trading internationally and many may be engaged in commercial trade. Ireland believes that the limitation suggested in this amendment to define this group of ships, namely "used solely for recreational purposes" is inappropriate and should be replaced by the standard IMO text for non-commercial vessels used in Chapter I of SOLAS as follows: SOLAS Ch I Part A, Regulation 3(a)(v): Pleasure yachts not engaged in trade."

Declaration by the delegation of Greece

"The Hellenic Republic considers that the III Code contains a set of minimum requirements on which States can elaborate and improve as appropriate for the enhancement of maritime safety and the protection of the environment.

In particular, as regards the III Code, the Hellenic Republic wishes to make clear that nothing in the said Code shall be construed to restrict or limit in any way the fulfilment of its obligation under the law of the European Union in relation to:

- The definition of "statutory certificates" and "class certificates";
- The scope of the obligations and criteria laid down for the recognized organizations;
- The duties of the European Commission as regards the recognition, assessment;

and, where appropriate, the imposition of correctives measures or sanctions on recognized organizations.

In the case of an IMO audit, Greece will state that only compliance with those provisions of the relevant international conventions which the Hellenic Republic has accepted, including in the terms of this declaration, shall be verified."

Statement by the delegation of Japan

"This statement is made on behalf of the following members: the Bahamas, Japan, the Marshall Islands, Singapore, Panama and the United States.

We are concerned with the ambiguous declaration of the III Code just made by the delegation of Greece to which a number of member states have associated it to. In particular, it is unclear whether in making reference to EU law those member states, intend to uphold their obligations and responsibilities under the III Code. Of particular concern is whether or not they intend to go beyond the provision of the implementation of the III Code and the RO Code with respect to recognition and certification of RO's for the survey and certification of ships outside of their jurisdiction on non EU-flagged ships.

The application of any extra provisions would contravene the harmonised implementation of IMO instruments and the III Code. Member States that seek to address issues not already covered by the III Code, or any IMO instrument, should bring these issues to the Organisation for consideration. The full and effective implementation of the III Code and RO Code would otherwise be jeopardised.

Furthermore, we state, in no uncertain terms, that ROs are performing their functions under the sole authority of laws, rules and regulations set down by the government of the Member State in order to ensure effective jurisdiction and control of ships flying its flag. In this regard, for any RO to operate with other requirements not set out by the government on whose behalf it operates would be an infringement of sovereignty of that government.

We all support the full implementation of the III Code and the RO Code as it will enhance maritime safety and protection of marine environment, and particularly note that many of the member states now associated with the declaration of Greece had a strong hand in promoting the development of the III Code with the understanding of its benefit. In this regard, we all look forward to a clarification on the declaration from the delegation of Greece and other Member States associated with it."

Statement by the delegation of the United States

"The United States welcomes the establishment of a mandatory system of auditing. Adoption of a mandatory IMO Member State Audit Scheme has been a goal for which we have all strived for a long time. This system, particularly where a contracting government develops a program of actions in response to audit findings, will enhance the effective and efficient implementation of applicable IMO instruments. The assistance of the Secretary-General in the administration of this new audit scheme will also be helpful, though of course questions of interpretation and compliance are for States parties to the agreements to determine and not the Organization or an auditor.

The United States wishes to reiterate its understanding that the audit standards reflected in the III Code are intended as benchmarks that are to be used when conducting audits of governments' implementation of the relevant mandatory IMO instruments; the audit standards themselves do not, however, give rise to legal obligations. Similarly, the role of the auditors is to assess the consistency of a government's implementation efforts with the audit standards and not to make conclusions about a Party's implementation of obligations in an underlying instrument.

We continue to have concern that converting the word "should" to "shall" whenever the word appears in the III Code could have the unintended effect of creating additional legal obligations beyond the obligations contained in the underlying IMO instrument, in this case, MARPOL. For this reason we object to paragraph 2 in each of the adopting resolutions regarding the term "should" in the Code. When using the Code as a benchmark the audit should treat the relevant portions of the Code using the term "should" as though they were mandatory for purposes of the audit, but the United States does not consider that the provisions contained in the III Code itself give rise to legally binding obligations, and we would object to any contrary reading of the Code, the MARPOL amendments, or the adopting resolutions. Compliance with the obligations set forth in MARPOL and each Annex is, of course, legally required by each Party to that Annex, and adequate domestic measures are necessary to implement and enforce MARPOL obligations.

We understand the amendment text being adopted to be consistent with our views in this regard."

Statement by the observer from CSC

"We have just approved a proposal that would likely provide for delay of Tier III ships for future NECAs, beyond 2021, the date that was originally rejected on Monday by a majority in this room.

CSC believes that today's decision is overly hasty and that all of its potential consequences have not been well thought through.

Today's agreement addresses a new issue, raised for the first time only this Monday. It does NOT deal with the issue of whether Tier III NO_X standards are technically achievable, which was the issue raised at the last MEPC and addressed in the papers submitted to this MEPC. And this is not an inconsequential amendment; it fundamentally changes the Tier III regulation from an engine requirement to an operational requirement.

We need to remember that our efforts here are supposed to be in the service of protecting the environment, as well as the health of millions of people living in areas impacted by shipping pollution. This is a critical issue, and it must be addressed.

While the impact on industry must of course be taken into account, that must not be the sole focus; rather, the focus must be on reducing the very real and significant environmental and human health benefits that will eventually result from the Tier III NO_X requirements, and to implement these requirements as soon as possible. In this context, contributions from civil society observers can be valuable and should be encouraged.

We can envision only one situation in which this new agreement may prove better for the environment than the earlier proposal in MEPC 66/6/10 calling for a fixed 5 year delay in the effective date for Tier III in new NECAs - a proposal that was rejected on Monday -

That is, if:

1. regional states affected by NO_x pollution muster the political will to submit NECA designations to IMO in the next year or so; and

2. IMO Member States act in good faith and approve those submissions without undue delay.

So, now that this new agreement has been made, we would urge affected countries to submit NECA designations as soon as possible, and for this Committee to approve them expeditiously."

Statement by the delegation of Canada

"Canada has listened carefully to the discussion that took place on document MEPC66/11/7 and notes the decision of the Committee in this regard. It is our understanding that the decision of this Committee not to include a savings clause in the MARPOL amendments was based both on the presence of Article 9(2) of MARPOL, and the view of this Committee that all IMO instruments are to be interpreted in a manner that would not prejudice or impair States' rights and obligations under international law as reflected in UNCLOS.

As the purpose of Canada's proposal was to enhance clarity and transparency in this regard, Canada can go along with the decision of this Committee on this issue. Canada would like the basis upon which this decision was made to be clearly reflected in the final report of this meeting, and we ask that this statement be appended to the meeting report as an annex."

ITEM 18

Statement by the delegation of China

"本代表团的理解是，根据委员会工作导则第5.29条，只有在特殊情况且有充分理由情况下，才可以建立三个以上通信组。正是考虑到相关事项的重要性，且我们刚刚进行完机构改革，中国才显示了最大的灵活性，没有反对成立五个通信组，但中国仍然对此十分关切。希望这种情况不能作为一种先例将来继续出现。"