INTERNATIONAL MARITIME ORGANIZATION

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SUB-COMMITTEE ON POLLUTION PREVENTION AND RESPONSE
7th session
Agenda item 22

PPR 7/22/Add.1
24 April 2020
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REPORT TO THE MARINE ENVIRONMENT PROTECTION COMMITTEE

Attached are annexes 1 to 22 to the report of the Sub-Commmittee on Pollution Prevention and Response on its seventh session (PPR 7/22).

LIST OF ANNEXES

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ANNEX 1

DRAFT REVISED MSC-MEPC.5/CIRC.7

GUIDANCE ON THE TIMING OF REPLACEMENT OF EXISTING CERTIFICATES BY REVISED CERTIFICATES AS A CONSEQUENCE OF THE ENTRY INTO FORCE OF AMENDMENTS TO CHAPTERS 17 AND 18 OF THE IBC CODE

1 The Marine Environment Protection Committee, at its [seventy-fifth session (dates to be inserted)] and the Maritime Safety Committee, at its [102nd session (dates to be inserted)] reviewed the matter of the replacement of an existing International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk ("certificate") by a revised certificate that is required to be issued as a consequence of amendments to chapters 17 and 18 of the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code).

2 Both Committees agreed to approve the following guidance, which for the matter described in paragraph 1 above can be used in place of the provisions of MSC-MEPC.5/Circ.6, with regard to the replacement of an existing certificate by a revised certificate that is issued before the entry into force of amendments to the IBC Code:

.1 the issuance of the revised certificate may be initiated from the date of adoption (the later of the adoption dates by MSC or MEPC, as the case may be) of the IBC Code amendments, rather than the date of entry into force of the amendments;

.2 the revised certificate should have the same expiry date as the existing certificate; and

.3 the revised certificate should be provided with a stamp/text on the front page stating that the revised certificate is effective, and supersedes the existing certificate, on the date of entry into force of the amendments to the IBC Code.

3 As an illustrative example of paragraph 2 above, the attached diagram explains two scenarios:

.1 Scenario 1 is an example of a renewal survey carried out between the adoption date and the entry-into-force date of the amendments to the IBC Code; and

.2 Scenario 2 is an example of an existing certificate that is valid beyond the entry-into-force date.

4 The Committees noted that the above arrangements should facilitate a smooth and practical implementation scheme for the worldwide fleet of chemical carriers that might require to have revised certificates immediately upon the entry into force of the amendments to the IBC Code.

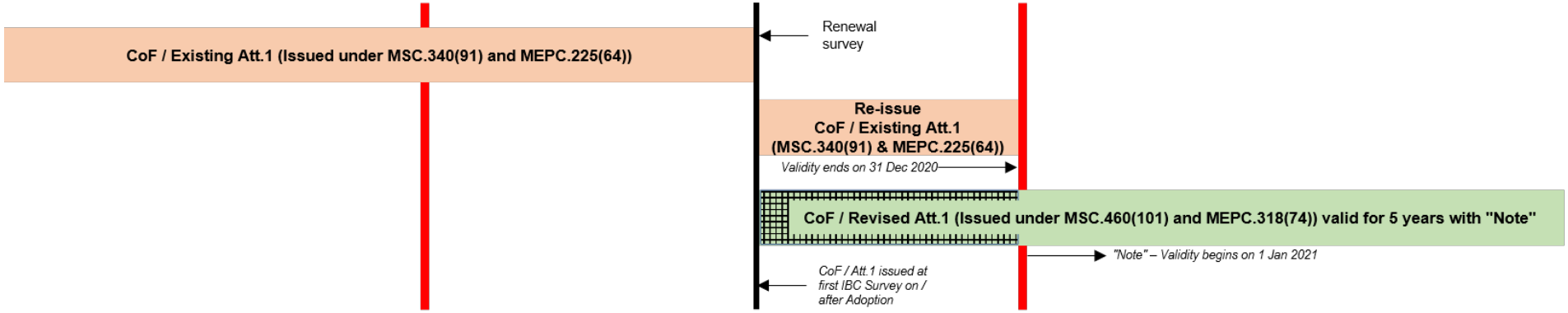
5 When a cargo is loaded prior to the entry-into-force date and unloaded after the entry-into-force date of the amendments to the IBC Code, the relevant provisions of the IBC Code at the time of loading should be applicable until the cargo has been unloaded.

6 Member Governments are invited to bring this circular to the attention of all parties concerned, in particular masters, shipowners and port State control officers.

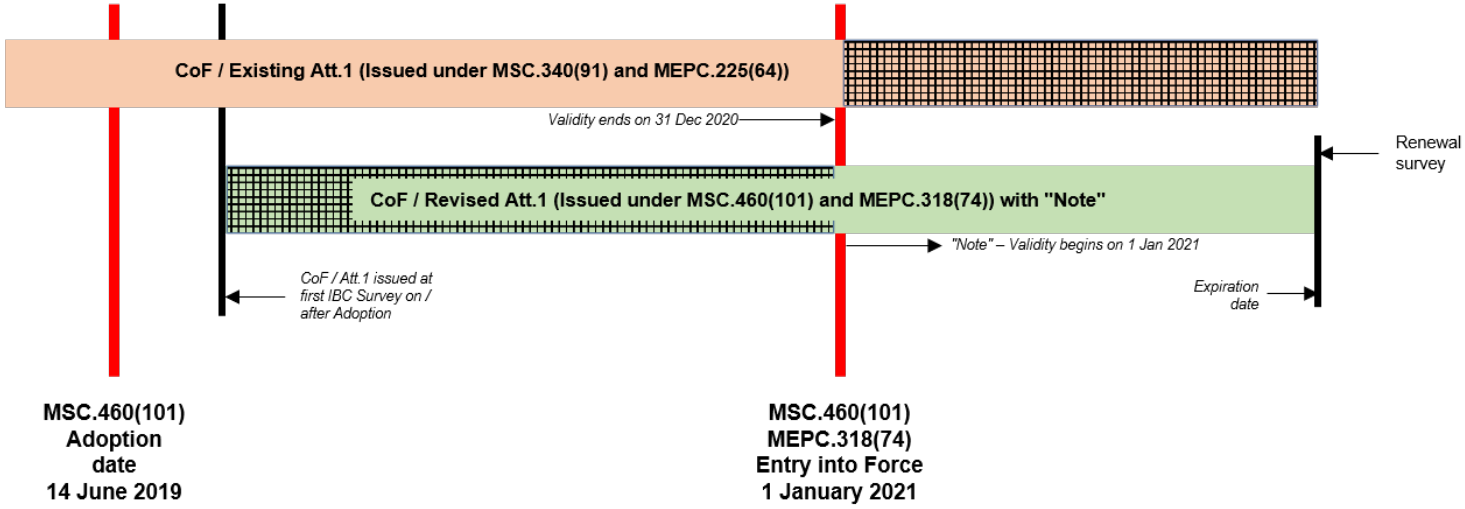
7 This circular revokes MSC-MEPC.5/Circ.7.

APPENDIX

Scenario 1 – IBC Certificate of Fitness expires between Adoption Date and Entry into Force Date of the IBC Code Amendments



Scenario 2 – IBC Certificate of Fitness expires after Entry into Force Date of the IBC Code Amendments



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ANNEX 2

DRAFT PPR.1 CIRCULAR

REVISED CARRIAGE REQUIREMENTS FOR METHYL ACRYLATE AND METHYL METHACRYLATE

1 The Marine Environment Protection Committee (MEPC), at its seventy-fourth session (13 to 17 May 2019), adopted amendments to the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (the IBC Code) by resolution MEPC.318(74). The Maritime Safety Committee (MSC), at its 101st session (5 to 14 June 2019), also adopted the amendments to the IBC Code by resolution MSC.460(101). The revised IBC Code adopted by these resolutions is hereafter referred to as the 2019 amendments to the IBC Code.

2 The Sub-Committee on Pollution Prevention and Response (PPR), at its seventh session (17 to 21 February 2020), noted that the carriage requirements for the products "Methyl acrylate" and "Methyl methacrylate" contained in the 2019 amendments to the IBC Code did not contain special requirements 16.6.1 and 16.6.2 in column "o" of chapter 17.

3 The Sub-Committee also noted that these products were liable to undergo polymerization under certain conditions and are therefore protected by additives in order to mitigate this tendency. Elevated temperatures can initiate or speed up the polymerization process, and such products should therefore not be exposed to excessive heat.

4 The Sub-Committee further noted that in the existing carriage requirements for these products ((resolutions MEPC.250(66) and MSC.369(93)), special requirements 16.6.1 and 16.6.2 are assigned in column "o" of chapter 17 of the IBC Code, requiring segregation from heated cargo tanks and that heating coils shall be blanked off or secured.

5 The Sub-Committee therefore agreed, in order to mitigate the exposure to excessive heat and the possible initiation of the polymerization process, that the revised carriage requirements for "Methyl acrylate" and "Methyl methacrylate" in the annex to this circular should in this exceptional case be used in lieu of the carriage requirements contained in the 2019 amendments to the IBC Code.

6 The Sub-Committee further agreed that the revised carriage requirements should be included in List 1 of MEPC.2/Circ.26 (to be issued on 1 December 2020), with validity for all countries and no expiry date, and that ships carrying "Methyl acrylate" and "Methyl methacrylate" should therefore have the products listed in the addendum to the Certificate of Fitness, and not among the list of products in the Certificate of Fitness.

7 Member Governments and international organizations are invited to bring this information to the attention of all parties concerned.

ANNEX

REVISED CARRIAGE REQUIREMENTS FOR METHYL ACRYLATE AND METHYL METHACRYLATE

Column		**Column**		**Column**	
a	Methyl acrylate	**g**	Cont	**j**	C
c	Y	**h**	No	**k**	FT
d	S/P	**i'**	T1	**l**	AC
e	3	**i''**	IIB	**m**	-deleted-
f	2G	**i'''**	No	**n**	No
				o	15.12, 15.17, 15.13, 15.19, **16.6.1, 16.6.2**

Column		**Column**		**Column**	
a	Methyl methacrylate	**g**	Cont	**j**	R
c	Y	**h**	No	**k**	F
d	S/P	**i'**	T2	**l**	AC
e	3	**i''**	IIA	**m**	-deleted-
f	2G	**i'''**	No	**n**	No
				o	15.13, 15.19.6, **16.6.1, 16.6.2**

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ANNEX 3

DRAFT PPR.1 CIRCULAR

RE-SUBMISSION OF PRODUCTS LISTED IN LISTS 2 AND 3 OF THE MEPC.2 CIRCULAR ON PROVISIONAL CATEGORIZATION OF LIQUID SUBSTANCES IN ACCORDANCE WITH MARPOL ANNEX II AND THE IBC CODE

1 The Marine Environment Protection Committee (MEPC), at its seventy-fourth session (13 to 17 May 2019), and the Maritime Safety Committee, (MSC) at its 101st session (5 to 14 June 2019), adopted amendments to the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (the IBC Code) by resolutions MEPC.318(74) and MSC.460(101) respectively.

2 MEPC 74 also adopted amendments to MARPOL Annex II by resolution MEPC.315(74), to strengthen, in specified sea areas, discharge requirements for cargo residues and tank washings containing persistent floating products with a high-viscosity and/or a high melting point following concerns about the environmental impact of permissible discharges.

3 In the amendments to the IBC Code, all products in chapter 17 and 18 of the IBC Code have been reassessed against the revised chapter 21 of the Code (Criteria for assigning carriage requirements for products subject to the IBC Code), the criteria for the new discharge requirements in MARPOL Annex II and the latest GESAMP Hazard Profiles for the products.

4 The Sub-Committee on Pollution Prevention and Response (PPR), at its seventh session (17 to 21 February 2020), agreed that the products contained in Lists 2 and 3 of the MEPC.2/Circular on *Provisional categorization of liquid substances in accordance with MARPOL Annex II and the IBC Code* should also be reassessed in the similar manner as the products contained in chapter 17 and 18 of the Code.

5 Therefore, PPR 7 also agreed to set an expiry date to all products in List 2 and 3 of the MEPC.2/Circular in order to have all products reassessed by 31 December 2025. Any product that has not been reassessed by the deadline will be deleted from the List and can no longer be shipped.

6 PPR 7 further agreed to invite Administration to request their manufacturers to review their products in order to assess whether any changes in the carriage requirements would be necessary, taking into account the revised chapter 21 to the IBC Code, the latest GESAMP Hazard Profile and the revised MARPOL Annex II requirements. Thereafter the manufacturer should inform their Administration of the composition of their products and whether updated carriage requirements need to be assigned to the products or not.

7 The Administration should thereafter inform the Organization as follows:

.1 products no longer shipped and can be deleted from the MEPC.2/Circular;

.2 for products assessed and where the carriage requirements would remain the same, a notification of the assessment would be sufficient; and

.3 for products assessed and where the carriage requirements would change, a submission with a PPR Product Data Reporting Form would be necessary.

8 Member States and international organizations are invited to bring this information to the attention of all parties concerned.

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ANNEX 4*

PROVISIONAL AGENDA FOR ESPH 26

Opening of the session

1 Adoption of the agenda

2 Decisions of other bodies

3 Evaluation of products

4 Evaluation of cleaning additives

5 Review of the MEPC.2/Circular – Provisional classification of liquid substances transported in bulk and other related matters

6 Review of products in lists 2, 3 and 4 of the MEPC.2/Circular

7 Revision of MEPC.1/Circ.590 – expanded guidance on what can be considered as a cleaning additive for the cleaning of NLS cargo residues

8 Consider the draft amendments to the goals, functional requirements and regulations for the carriage of dangerous goods in the draft IP Code (SDC 7/WP.3, paragraphs 18 to 20 and annex 3)

9 Consider the implications that the lack of toxic vapour detection equipment will have on the daily operation of chemical tankers

10 Proposed provisional agenda for ESPH 27

11 Report to the Sub-Committee

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* Available in English only.

ANNEX 5

DRAFT AMENDMENTS TO THE GUIDANCE ON BALLAST WATER SAMPLING AND ANALYSIS FOR TRIAL USE IN ACCORDANCE WITH THE BWM CONVENTION AND GUIDELINES (G2) (BWM.2/CIRC.42/REV.1) *

1 The following row is added in table 3 of annex 1 to BWM.2/Circ.42/Rev.1:

Indicator	General approach	Standard method	Notes	Level of confidence or detection limit and citation for validation studies
Total living bacteria including Enterococci, *Escherichia coli, Vibrio cholerae*	Second-generation ATP	No international standard for ballast water at present	Semi-quantitative results can be obtained	PPR 7/INF.4

2 The fourth row in table 3 of annex 1 to BWM.2/Circ.42/Rev.1 is replaced by the following:

Indicator	General approach	Standard method	Notes	Level of confidence or detection limit and citation for validation studies
Viable organisms ≥ 50 µm, ≥ 10 µm and < 50 µm	Photometry, nucleic acid, ATP, bulk fluorescein diacetate (FDA), chlorophyll a., ChemChrome V6	No international standard for ballast water analysis at this time.	Semi-quantitative results can be obtained. However, some of these organic compounds can survive for various lengths of time in aqueous solution outside the cell, potentially leading to false positives. Welschmeyer and Maurer (2012). The reference to organic compound survival does not refer to CV6; further information on CV6 can be found in documents MEPC 74/INF.17 and PPR 7/INF.5.	To be determined.

* Following the Committee's approval of the amendments to the circular as prepared by the Sub-Committee, the Secretariat will consolidate amendments and issue a revised circular.

3 The fifth row in table 4 of annex 1 to BWM.2/Circ.42/Rev.1 is amended as follows:

Indicator	**General approach**	**Standard method**	**IMO citation**	**Notes**	**Level of confidence or detection limit and citation for validation studies**
Viable organisms ≥50 µm and Viable organisms ≥10 µm and < 50 µm	Culture methods for recovery, regrowth and maturation.	No international standard for ballast water analysis at this time.	BLG 15/5/5, ~~and~~ BLG 15/5/6 and PPR 7/INF.10	~~Require specific knowledge to conduct them~~. Densities are expressed as the sum of cultivable autotrophs after a two-week incubation time and motile heterotrophs as determined by epifluorescence microscopy ~~Most Probable Numbers (the MPN method)~~. ~~Most species do not manage to grow using this method therefore cannot be used alone. 2-3 weeks incubation time needed.~~	~~To be determined.~~ Validation available in Cullen (2019)

4 The reference list in paragraph 4.6 of annex 1 to BWM.2/Circ.42/Rev.1 is amended by adding a reference as follows:

"4.6 References

Cullen JJ (2019). The best available science describing type-approval testing methods and protocols for ballast water management systems that render nonviable organisms in ballast water. http://doi.org/10.5281/zenodo.2656597"

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ANNEX 6

REPORT OF THE TECHNICAL GROUP ON AMENDMENTS TO THE AFS CONVENTION

General

1 The Technical Group on Amendments to the AFS Convention met from 17 to 19 February 2020 and was chaired by Dr. Sarah Bailey (Canada).

2 The meeting was attended by delegations from the following Member Governments:

AUSTRALIA
BRAZIL
CANADA
CROATIA
DENMARK
FINLAND
FRANCE
GERMANY
GREECE
INDIA
INDONESIA
IRELAND
JAPAN
MARSHALL ISLANDS
MEXICO
NETHERLANDS
NEW ZEALAND
NIGERIA
NORWAY
PANAMA
PERU
POLAND
REPUBLIC OF KOREA
RUSSIAN FEDERATION
SAUDI ARABIA
SINGAPORE
SWEDEN
UNITED KINGDOM
UNITED STATES

by observers from the following intergovernmental organizations:

INTERNATIONAL COUNCIL FOR THE EXPLORATION OF THE SEA (ICES)
EUROPEAN COMMISSION (EC)

and observers from the following non-governmental organizations:

INTERNATIONAL CHAMBER OF SHIPPING (ICS)
BIMCO
INTERNATIONAL ASSOCIATION OF CLASSIFICATION SOCIETIES (IACS)
INTERNATIONAL ASSOCIATION OF INDEPENDENT TANKER OWNERS (INTERTANKO)
CRUISE LINES INTERNATIONAL ASSOCIATION (CLIA)
THE INSTITUTE OF MARINE ENGINEERING, SCIENCE AND TECHNOLOGY (IMarEST)
INTERNATIONAL SHIP MANAGERS' ASSOCIATION (INTERMANAGER)
THE ROYAL INSTITUTION OF NAVAL ARCHITECTS (RINA)
INTERNATIONAL TRANSPORT WORKERS' FEDERATION (ITF)
WORLD COATINGS COUNCIL
ACTIVE SHIPBUILDING EXPERTS' FEDERATION (ASEF)

Terms of reference

3 Taking into account comments and decisions made in plenary, the Technical Group was instructed to:

.1 finalize the draft amendment to Annex 1 to the AFS Convention, using annex 1 to annex 8 to document PPR 6/20/Add.1 as the basis;

.2 finalize the draft operative paragraph to be included in the draft resolution adopting the amendments to the AFS Convention with regard to issuance of the new International Anti-fouling System Certificate (IAFSC), using paragraph 12 of document PPR 7/6/2 as the basis;

.3 consider the need for any further amendment to Annex 4 to the AFS Convention and, if required, prepare it, using annex 2 to annex 8 to document PPR 6/20/Add.1 as the basis;

.4 review action items .13, .15 and .16 of the actions requested of the Committee by PPR 6 and, if required, amend them as appropriate, taking into account that MEPC 74 had deferred their consideration; and

.5 submit a written report to plenary by Thursday, 20 February 2020.

Finalization of the draft amendment to Annex 1 to the AFS Convention

4 The Group recalled that the Sub-Committee had instructed it to finalize the draft amendment to Annex 1 to the AFS Convention, using annex 1 to annex 8 to document PPR 6/20/Add.1 as the basis and taking into account documents PPR 7/6, PPR 7/6/1, PPR 7/6/2, PPR 7/6/3, PPR 7/6/4 and PPR 7/6/5.

5 In this regard, the Group noted that the Sub-Committee had instructed the Group to aim for compromise and include in the amendments any exemptions with a specified scope (e.g. related to specific ship types, sizes, etc.) that could be agreed as such in order to alleviate the concerns in the documents submitted under this agenda item. The Group therefore considered a compromise proposal developed by a group of delegations who met informally.

6 This review focused on the second row of the draft amendments, which had been the part that the Committee had been unable to agree on. In the ensuing discussion, some concerns were expressed with regard to the scope of the introduced controls, considering the precautionary approach of the Convention and the legal questions raised in document PPR 7/6/1; however the Group recognized that this proposal was the best compromise that could be reached and was deemed acceptable by all involved delegations.

7 The Group also had extensive discussions on the schedule of the controls, including a consideration of the interpretation of article 4(2) of the AFS Convention, which addresses timing constraints for the retention of existing anti-fouling systems following the entry into force of relevant controls, provided by the Secretariat in document PPR 7/6/1. This entailed the consideration of the format of the effective date for the controls on existing anti-fouling systems, specifically whether it should be a fixed date or a ship-specific date linked to the previous application of such systems.

8 In this regard, the Group agreed that a fixed date would be preferable, as it would be simpler and would entail less administrative burden, but recognized that this might not be possible due to the provisions of article 4(2). Noting that this was a matter of interpretation, the Group agreed that the Committee would be best placed to take the final decision and therefore kept both options in square brackets for consideration by MEPC 75.

9 The delegation of Japan noted that there would be cases where a ship had previously applied an anti-fouling system containing cybutryne but, after its service life, the concentration

of cybutryne in the system has become sufficiently low to a level that can be verified as complying with the requirement in Annex 1 to the Convention without removing the system or applying a sealer coat over the system. The Group agreed that this matter could be further considered in the future and, if necessary, addressed in an appropriate manner (e.g. through a unified interpretation).

10 The Secretariat explained the procedure for entry into force of any amendment to annexes to the AFS Convention in accordance with article 16 of the Convention. Recalling that the outcome of this item would be reported to MEPC 75 as an urgent matter, the Group noted that the earliest entry into force of such an amendment, if agreed at this session and subsequently approved by MEPC 75 and adopted by MEPC 76, would be on 23 April 2022, based on the dates for MEPC 76 (19 to 23 October 2020).

11 In light of the above, using the compromise proposal as a basis and taking into account comments and decisions made in plenary, the Group finalized the draft text for controls on cybutryne. The Group recommended that ships should not apply or re-apply anti-fouling systems containing cybutryne from 1 July 2022 and, with the exceptions and caveats outlined in the next two paragraphs, should remove or seal such anti-fouling systems either before 1 July 2027 or not later than 60 months following the last application of such an anti-fouling system prior to 1 July 2022, with the decision between these two options to be made by MEPC 75.

12 The Group reconfirmed that fixed and floating platforms, FSUs, and FPSOs constructed prior to 1 July 2022 and not dry-docked on or after that date would not need to comply with the requirement to remove or seal anti-fouling systems containing cybutryne as above. In addition, in line with the compromise reached with regard to the scope of the controls on existing anti-fouling systems containing cybutryne, the Group agreed that this exemption would also apply to ships not engaged in international voyages and ships of less than 400 gross tonnage engaged in international voyages if accepted by the coastal State(s).

13 Taking into account a scenario highlighted by the delegation of Japan, where an anti-fouling system containing cybutryne had been applied previously during the service life of the ship, the Group agreed that the controls on existing anti-fouling systems containing cybutryne would only apply to ships bearing an anti-fouling system that contains cybutryne in the external coating layer of their hulls or external parts or surfaces.

14 In conclusion, the Group finalized the draft amendment to Annex 1 (Controls on anti-fouling systems) to the AFS Convention to include controls on cybutryne and invited the Sub-Committee to agree to the text, set out in annex 1, with a view to its finalization and approval by MEPC 75.

Issuance of the new International Anti-fouling System Certificate

15 The Group recalled that the Sub-Committee had instructed it to finalize the draft operative paragraph to be included in the draft resolution adopting the amendments to the AFS Convention with regard to issuance of the new International Anti-fouling System Certificate (IAFSC), using paragraph 12 of document PPR 7/6/2 as the basis.

16 In this regard, the Group recognized that the issue at hand was that, in accordance with regulation 2(3) of Annex 4 to the AFS Convention, ships bearing an anti-fouling system containing cybutryne that was applied before the date of entry into force of the relevant controls would have to be issued with a new Certificate by the Administration not later than two years after entry into force of these controls.

17 In addition, the Group recognized that, due to the simultaneous amendment of the form of the Certificate, ships not bearing anti-fouling systems containing cybutryne would also

require new Certificates. In this regard, the Group noted the agreement of the Committees, reflected in paragraph 3.1 of the *Guidance on the timing of replacement of existing certificates by the certificates issued after the entry into force of amendments to certificates in IMO instruments* (MSC-MEPC.5/Circ.6), that in cases where the ship does not have to comply with new requirements, the certificate (and its supplement, if any) is not re-issued until its expiry. The Group further noted, however, that the IAFSC does not have an expiry date and remains valid as long as it is endorsed every time an anti-fouling coating is replaced.

18 In light of the above, the Group proceeded to the consideration of the proposed draft operative paragraph as well as the drafting of an additional such paragraph taking these points into account, with a view to providing a recommendation to the Sub-Committee.

19 In conclusion, the Group finalized the draft operative paragraphs with regard to issuance of the new IAFSC and invited the Sub-Committee to agree to the text, set out in annex 2, with a view to its inclusion in the draft resolution adopting the amendments to the AFS Convention.

Form of the International Anti-fouling System Certificate

20 The Group considered whether there was a need for any further amendment to the draft amended model form of the IAFSC, set out in annex 2 to annex 8 to document PPR 6/20/Add.1, due to the other developments under this agenda item at this session. In this regard, the Group recognized that the draft amendments to the form of the Certificate contained dates that had been affected by the finalization of the draft amendment to Annex 1 to the AFS Convention at this session. The Group therefore proceeded to finalize the draft amendment to the form of the Certificate taking this into account.

21 In the ensuing discussion, the Group considered whether and how the scenario previously highlighted by Japan (see paragraph 13) should be captured in the Certificate. The Group had extensive deliberations on this matter and considered various options entailing substantial amendments to the form of the Certificate. Recognizing that this might be outside the Group's terms of reference, and noting that the amendments could be further considered by the drafting group at MEPC 76 if necessary, the Group agreed that this matter required further attention with a view to finding a solution prior to the entry into force of the amendments. The Group also agreed that the form of the Certificate could be revisited in the future if additional controls were to be introduced into Annex 1 to the Convention.

22 In addition, the Group identified an editorial error in regulation 2(3) of Annex 4 to the Convention and agreed that it was an opportunity to correct it as part of the amendments to this Annex that includes also the form of the Certificate.

23 Following discussion, the Group finalized the draft amendments to Annex 4 to the AFS Convention, including the model form of the IAFSC, and invited the Sub-Committee to agree to the text, set out in annex 3, with a view to its approval by MEPC 75.

Review of action items deferred by MEPC 74

24 As instructed by the Sub-Committee, the Group reviewed action items .13, .15 and .16 of the actions requested of the Committee by PPR 6, consideration of which had been deferred by MEPC 74, with a view to amending them as appropriate, if required.

25 Following brief discussion, the Group agreed that these action items were not affected by the developments under this agenda item at this session, and therefore did not need to be amended. In light of this, the Group invited the Sub-Committee to include items .13, .15 and .16 of the actions originally requested of the Committee by PPR 6, set out in paragraph 2 of

document MEPC 74/10, in the action requested of MEPC 75 by this session. These action items were as follows:

.1 invite the Committee to encourage Member States to conduct baseline studies prior to the entry into force of controls on cybutryne, in order to allow the subsequent determination of the effectiveness of these controls;

.2 invite the Committee to request the governing bodies of the London Convention and Protocol, at their next meeting, to consider a revision of the *Revised guidance on best management practices for removal of anti-fouling coatings from ships, including TBT hull paints* (LC-LP.1/Circ.31/Rev.1), in light of the introduction of controls of cybutryne under the AFS Convention; and

.3 invite the Committee to note the need to consider an update to the list of items to be listed in the Inventory of Hazardous Materials under the Hong Kong Convention to include cybutryne when the respective controls enter into force.

Circulation of the Group's report

26 The Group recalled that, in accordance with article 6(5) of the AFS Convention, its report would have to be circulated to Parties, Members States and international organizations prior to its consideration by the Committee, and invited the Sub-Committee to do so.

Consequential revision of relevant guidelines

27 The Group recalled that this output also entailed the consequential revision of relevant guidelines, namely the *Guidelines for brief sampling of anti-fouling systems on ships* (resolution MEPC.104(49)), the *2010 Guidelines for survey and certification of anti-fouling systems on ships* (resolution MEPC.195(61)) and the *2011 Guidelines for inspection of anti-fouling systems on ships* (resolution MEPC.208(62)). In this regard, the Group recalled also that it had undertaken an initial consideration of this matter at PPR 6 and had identified some overarching issues requiring attention (PPR 6/WP.4, paragraphs 31 to 36).

28 In light of the progress achieved at this session with regard to the draft amendments to the AFS Convention, and noting that the output's target completion year was 2020, the Group invited the Sub-Committee to recommend to the Committee that the target completion year be extended to 2022 and the output renamed as "Revision of guidelines associated with the AFS Convention as a consequence of the introduction of controls on cybutryne".

29 In addition, the Group proposed to invite interested delegations to submit proposals to PPR 8 on amendments to the Guidelines for brief sampling, survey and certification, and inspection of anti-fouling systems on ships (resolutions MEPC.104(49), MEPC.195(61) and MEPC.208(62), respectively), due to the introduction of controls on cybutryne, taking into account the issues raised by the Group at PPR 6.

30 The delegation of the European Commission proposed the establishment of a correspondence group to progress the revision of the guidelines and provided draft terms of reference for such a group. While there was support in principle for the value of such a correspondence group, the Group agreed that the proposed terms of reference were too broad and that it would be better for such a group to be established following the submission of concrete proposals for amendments to the guidelines. Therefore, the Group proposed to invite interested delegations to submit proposals to PPR 8 on the establishment of a correspondence group on the revision of the guidelines associated with the AFS Convention.

Action requested of the Sub-Committee

31 The Sub-Committee is invited to approve the report in general and in particular to:

.1 agree to the draft amendment to Annex 1 (Controls on anti-fouling systems) to the AFS Convention to include controls on cybutryne, set out in annex 1, for consideration by MEPC 75, with a view to resolving the effective dates currently in square brackets and approval (paragraph 14);

.2 agree to the draft operative paragraphs with regard to issuance of the new International Anti-fouling System Certificate (IAFSC), set out in annex 2, with a view to their inclusion in the draft requisite resolution adopting the amendments to the AFS Convention (paragraph 19);

.3 agree to the draft amendments to Annex 4 (Surveys and certification requirements for anti-fouling systems) to the AFS Convention, including the model form of the International Anti-fouling System Certificate, set out in annex 3, for consideration by MEPC 75, with a view to approval (paragraph 23);

.4 invite the Committee to encourage Member States to conduct baseline studies prior to the entry into force of controls on cybutryne, in order to allow the subsequent determination of the effectiveness of these controls (paragraph 25.1);

.5 invite the Committee to request the governing bodies of the London Convention and Protocol, at their next meeting, to consider a revision of the *Revised guidance on best management practices for removal of anti-fouling coatings from ships, including TBT hull paints* (LC-LP.1/Circ.31/Rev.1), in light of the introduction of controls of cybutryne under the AFS Convention (paragraph 25.2);

.6 invite the Committee to note the need to consider an update to the list of items to be listed in the Inventory of Hazardous Materials under the Hong Kong Convention to include cybutryne when the respective controls enter into force (paragraph 25.3);

.7 circulate the report to the Parties, Members of the Organization, the United Nations and its Specialized Agencies, intergovernmental organizations having agreements with the Organization and non-governmental organizations in consultative status with the Organization, prior to its consideration by the Committee (paragraph 26);

.8 recommend to the Committee that the target completion year of the output "Amendment of Annex 1 to the AFS Convention to include controls on cybutryne, and consequential revision of relevant guidelines" be extended to 2022 and the output renamed as "Revision of guidelines associated with the AFS Convention as a consequence of the introduction of controls on cybutryne" (paragraph 28);

.9 invite proposals to PPR 8 on amendments to the *Guidelines for brief sampling, survey and certification, and inspection of anti-fouling systems on ships* (resolutions MEPC.104(49), MEPC.195(61) and MEPC.208(62), respectively), taking into account the issues raised in paragraphs 31 to 36 of document PPR 6/WP.4 (paragraph 29); and

.10 invite interested delegations to submit proposals to PPR 8 on the establishment of a correspondence group on the revision of the guidelines associated with the AFS Convention (paragraph 30).

ANNEX 1

DRAFT AMENDMENTS TO ANNEX 1 TO THE AFS CONVENTION (CONTROLS ON ANTI-FOULING SYSTEMS)

The following rows are added to the table in Annex 1 to the AFS Convention:

Anti-fouling system	Control measures	Application	Effective date
Cybutryne CAS No. 28159-98-0	Ships shall not apply or re-apply anti-fouling systems containing this substance	All ships	1 July 2022
Cybutryne CAS No. 28159-98-0	Ships bearing an anti-fouling system that contains this substance in the external coating layer of their hulls or external parts or surfaces on 1 July 2022, shall either: (1) remove the anti-fouling system; or (2) apply a coating that forms a barrier to this substance leaching from the underlying non-compliant anti-fouling system	All ships (except: (1) fixed and floating platforms, FSUs, and FPSOs that have been constructed prior to 1 July 2022 and that have not been in dry-dock on or after 1 July 2022; (2) ships not engaged in international voyages; and (3) ships of less than 400 gross tonnage engaged in international voyages, if accepted by the coastal State(s))	[1 July 2027] [At the next scheduled renewal of the anti-fouling system after 1 July 2022, but no later than 60 months following the last application to the ship of an anti-fouling system containing cybutryne]

ANNEX 2

DRAFT OPERATIVE PARAGRAPHS TO BE INCLUDED IN THE DRAFT RESOLUTION ADOPTING THE AMENDMENTS TO THE AFS CONVENTION

The following operative paragraphs are to be inserted in the draft resolution adopting the amendments to Annexes 1 and 4 to the AFS Convention:

> "INVITES Parties to remind ships that fly their flag and that are affected by the amendments to Annex 1 to the AFS Convention adopted through the present resolution, to make a timely request for a survey for the issuance of an International Anti-fouling System Certificate, in the amended model form adopted through this resolution, using the procedure outlined in paragraphs 4 and 5.3 of the annex to resolution MEPC.195(61) so that ships have a valid International Anti-fouling System Certificate on board no later than 24 months after the entry into force of the amendments to Annex 1 to the AFS Convention adopted through the present resolution.
>
> FURTHER INVITES Parties to issue new International Anti-fouling System Certificates, in the amended model form adopted through this resolution, at the next anti-fouling system application, in the case of ships that are not affected by the amendments to Annex 1 to the AFS Convention adopted through the present resolution."

ANNEX 3

DRAFT AMENDMENTS TO ANNEX 4 TO THE AFS CONVENTION (SURVEYS AND CERTIFICATION REQUIREMENTS FOR ANTI-FOULING SYSTEMS)

1 Regulation 2(3) is amended as follows:

"(3) For ships bearing an anti-fouling system controlled under Annex 1 that was applied before the date of entry into force of a control for such a system, the Administration shall issue a Certificate in accordance with paragraphs ~~(2)~~ (1) and ~~(3)~~ (2) of this regulation not later than two years after entry into force of that control. This paragraph shall not affect any requirement for ships to comply with Annex 1."

2 The section of the model form of the International Anti-fouling System Certificate (appendix 1) listing the compliance options for controlled anti-fouling systems on the ship is replaced by the following:

"An anti-fouling system controlled under Annex 1 containing:

	has not been applied during or after construction of this ship	**has been applied on this ship previously, but has been removed by**	**has been applied on this ship previously, but has been covered with a sealer coat applied by**	**was applied on this ship prior to**
organotin compounds which act as biocides	☐	…… *(insert name of the facility)* on …… *(date)* ☐	…… *(insert name of the facility)* on …… *(date)* ☐	No longer applicable
cybutryne	☐	…… *(insert name of the facility)* on …… *(date)* ☐	…… *(insert name of the facility)* on …… *(date)* ☐	1 July 2022, but must be removed or covered with a sealer coat prior to [1 July 2027] [……] ☐

"

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ANNEX 7

DRAFT OPERATIVE PARAGRAPHS TO BE INCLUDED IN THE REQUISITE DRAFT RESOLUTION ON ADOPTION OF AMENDMENTS TO THE AFS CONVENTION

The following operative paragraphs are recommended to be inserted in the draft resolution adopting the amendments to Annexes 1 and 4 to the AFS Convention:

> "INVITES Parties to remind ships that fly their flag and that are confirmed to be affected by the amendments to Annex 1 to the AFS Convention adopted through the present resolution, to make a timely request for a survey for the issuance of an International Anti-fouling System Certificate, in the amended model form adopted through this resolution, using the procedure outlined in paragraphs 4 and 5.3 of the annex to resolution MEPC.195(61) so that ships have a valid International Anti-fouling System Certificate on board no later than 24 months after the entry into force of the amendments to Annex 1 to the AFS Convention adopted through the present resolution.
>
> FURTHER INVITES Parties to issue new International Anti-fouling System Certificates, in the amended model form adopted through this resolution, at the next anti-fouling system application, in the case of ships that are confirmed not to be affected by the amendments to Annex 1 to the AFS Convention adopted through the present resolution."

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ANNEX 8

DRAFT MEPC CIRCULAR

GUIDELINES FOR ON BOARD SAMPLING OF FUEL OIL INTENDED TO BE USED OR CARRIED FOR USE ON BOARD A SHIP

1 The Marine Environment Protection Committee, at its [seventy-fifth session (dates to be inserted)], approved the *2020 Guidelines for on board sampling of fuel oil intended to be used or carried for use on board a ship*.

2 Member Governments are invited to bring the annexed Guidelines to the attention of Administrations, industry, relevant shipping organizations, shipping companies and other stakeholders concerned.

ANNEX

GUIDELINES FOR ON BOARD SAMPLING OF FUEL OIL INTENDED TO BE USED OR CARRIED FOR USE ON BOARD A SHIP

1 Preface

1.1 The objective of these Guidelines is to establish an agreed method for the sampling, from tanks, of liquid fuel oil intended to be used or carried for use on board a ship and thereby promoting the effective control and enforcement of the relevant provisions of MARPOL Annex VI.

1.2 Fuel oil sampling should be performed in a manner that ensures the safety of personnel and of the ship. Fuel oil sampling in accordance with these Guidelines should be undertaken expeditiously and should not cause undue delay to the ship.

2 Sampling procedures

2.1 General

2.1.1 Tank sampling involves obtaining a sample of fuel oil from the tank in question. The sample obtained is representative of the fuel oil at the location from where it was drawn. Fuel oil in a tank may be sampled by use of the ship's fuel oil transfer system or, in some instances, directly from the tank. Alternative sampling approaches may be used provided they deliver a fuel oil sample which is representative of the fuel oil at the location from where the sample was drawn.

2.1.2 The exact arrangements in each case should be agreed in advance with the ship's representative.

2.1.3 In all instances, attention should be given to avoiding sample contamination by extraneous or sedimented matter.

2.2 Sampling by use of the ship's fuel oil transfer system

2.2.1 When sampling by use of the ship's fuel oil transfer system it should preferably be set up to recirculate to the tank from which it is drawing. In instances where that is not possible, close attention should be given to not over-filling the receiving tank or mixing fuel oils from different consignments. It should be noted that for a viscous fuel oil to be in a pumpable condition it will typically need to be at a temperature corresponding to a viscosity of around 800-1,000 cSt.

2.2.2 Sampling should be undertaken downstream of the pump using a suitable sampling connection drawing from the flowing fuel oil. That sampling connection should fulfil all the following conditions:

.1 it should be easily and safely accessible;

.2 the sampling connection point should be in a position shielded from heated surfaces or electrical equipment, and any necessary shielding device or construction should be sturdy enough to ensure that any leaks, splashes or spray, under transfer pump discharge pressure, do not impinge onto such surfaces or equipment; and

.3 the sampling connection should be provided with suitable spill collection arrangements or drainage to the drain tank or other safe location.

2.2.3 Having established that the fuel oil transfer system is handling the fuel oil to be sampled, the sampling connection should be thoroughly flushed through and thereafter the required sample should be obtained.

2.3 Direct sampling from a tank

2.3.1 System tanks, such as settling or service tanks, should preferably be sampled using the *2019 Guidelines for on board sampling for the verification of the sulphur content of the fuel oil used on board ships*. To be noted that viscous fuel oils in such tanks will be at elevated temperatures and hence due caution would be necessary. Such tanks may be sampled directly only by means of tapping points mounted on the tank which should meet the requirements given above in 2.2.2.1 to 2.2.2.3. Sampling from a system tank should not be undertaken by means of removing an access plate or from the test drain connection.

2.3.2 Loaded cargo or other ship operational factors may preclude direct sampling from a tank.

2.3.3 Where direct tank sampling is to be undertaken, via – for example – a suitable access plate or tank hatch, it should be understood that the ship itself may not carry the necessary sampling equipment. In order to take a fuel oil sample direct from a tank, consideration should be given to the use of a specialist service provider having the appropriate sampling equipment, such as that given in ISO 3170:2004, and the expertise necessary to obtain the required sample in a safe and competent manner.

2.3.4 Since a sample obtained is representative of the fuel oil at the level or point from where it was drawn, it will therefore not always be necessary to take samples from more than one level or point in a tank.

2.3.5 Sampling may alternatively be undertaken from the sounding pipe of a tank by means of a suitable sampling arrangement.[*] When sampling from a sounding pipe, the design of that sounding pipe and the recent filling history of that tank should be considered to assess the relationship of the fuel oil in the sounding pipe to that in the associated tank.

3 Sample handling

3.1 The sample obtained should be collected into a suitable sample bottle. The sample bottle should be sealed by the inspector with a unique means of identification installed in the presence of the ship's representative. The ship should be given the option of retaining a duplicate sample. The label should include the following information:

.1 sampling point location where the sample was drawn;

[*] An example of a suitable arrangement for sampling from a tank's sounding pipe would be an external pumping device, either powered or manual, drawing fuel oil up through a hose lowered down the sounding pipe with a dedicated sampling head at the lower end. That sampling head should be of a diameter that allows free movement in the sounding pipe and of restricted length to avoid snagging in bends or change of section. Both ends of the sampling head should be conical to avoid snagging and scraping of the sounding pipe walls with a boring from the lower end to the hose connection – to avoid sample contamination the shape of the lower cone should be such that when pumping the sampling head will not tilt to draw directly from fuel oil adjacent to the pipe wall. The sampling head should be of sufficient weight for the hose to sink through the fuel oil to the required depth. In use the pumping rate should be sufficiently restricted that the flow into the sampling head is only from the bulk of the fuel oil being sampled – not also pulling-in pipe wall or sedimented matter.

.2 bunker delivery note details of the fuel oil sampled, as per information required by appendix V of MARPOL Annex VI;

.3 date and port of sampling;

.4 name and IMO number of the ship;

.5 details of seal identification; and

.6 signatures and names of the inspector and the ship's representative.

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ANNEX 9

DRAFT MEPC RESOLUTION

2020 GUIDELINES FOR EXHAUST GAS CLEANING SYSTEMS

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 which significantly strengthens the emission limits for sulphur oxides (SO_X),

NOTING that regulation 4 of MARPOL Annex VI allows the use of an alternative compliance method at least as effective in terms of emission reductions as that required by the Annex, including any of the standards set forth in regulation 14, taking into account guidelines developed by the Organization,

RECALLING that, at its fifty-ninth session, the Committee adopted, by resolution MEPC.184(59), the *2009 Guidelines for exhaust gas cleaning systems*,

RECALLING FURTHER that, at its sixty-eighth session, the Committee adopted, by resolution MEPC.259(68), the *2015 Guidelines for exhaust gas cleaning systems* (hereinafter referred to as "2015 EGCS Guidelines"),

RECOGNIZING the need to update the 2015 EGCS Guidelines*,*

HAVING CONSIDERED, at its seventy-fifth session, draft amendments to the 2015 EGCS Guidelines, prepared by the Sub-Committee on Pollution Prevention and Response, at its seventh session,

1. ADOPTS the *2020 Guidelines for exhaust gas cleaning systems* (hereinafter referred to as the "2020 EGCS Guidelines"), as set out in the annex to the present resolution;

2. INVITES Administrations to implement the 2020 EGCS Guidelines and apply them to the EGCCS installed on or after [date of adoption plus 6 months] when allowing the use of an exhaust gas cleaning system in accordance with regulation 4 of MARPOL Annex VI;

3. REQUESTS Parties to MARPOL Annex VI and other Member Governments to bring the 2020 EGCS Guidelines to the attention of shipowners, ship operators, shipbuilders, marine diesel engine manufacturers and any other interested groups;

4. INVITES Administrations to provide for discharge water data collection as described in appendix 3 of these Guidelines, and to also apply that appendix when sampling washwater from EGCS that have been approved in accordance with the earlier versions of the EGCS Guidelines;

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

6. SUPERSEDES the 2015 EGCS Guidelines adopted by resolution MEPC.259(68).

ANNEX

2020 GUIDELINES FOR EXHAUST GAS CLEANING SYSTEMS

1 INTRODUCTION

1.1 MARPOL Annex VI requires ships to use fuel oil with a sulphur content not exceeding that stipulated in regulations 14.1 or 14.4. Regulation 4 allows, with the approval of the Administration, the use of an alternative compliance method at least as effective in terms of emission reductions as that required by the Annex, including the standards set forth in regulation 14. The Administration of a Party should take into account any relevant Guidelines developed by the Organization pertaining to alternatives provided for in regulation 4.

1.2 These Guidelines have been developed to allow for the testing, survey, certification, and approval of Exhaust Gas Cleaning Systems (EGCSs) in accordance with regulation 4 of MARPOL Annex VI.

1.3 Equivalency with the relevant requirements of regulation 14 to MARPOL Annex VI should be demonstrated by using these Guidelines as a basis of compliance with the relevant Emission Ratio limit value as given in table 1. Where the design or operation of an EGCS requires controls in addition to those given in these Guidelines, in order to meet the requirements of regulation 4.4 of the above-mentioned Annex, they should be subject to special consideration by the Administration and should be advised to the Organization when submitting the notification required by regulation 4.2 of MARPOL Annex VI.

Table 1: Fuel oil sulphur limits in regulations 14.1 and 14.4 and corresponding Emission Ratio limit values

Fuel oil sulphur content (% m/m)	Emission Ratio SO_2(ppm)/CO_2(% v/v)
0.50	21.7
0.10	4.3

Note: The use of the above Emission Ratio limit values is only applicable when using petroleum derived distillate or residual fuel oils. See appendix 2 for the assumptions and rationale which form the basis of the Emission Ratio method.

1.4 These Guidelines are recommendatory in nature, however, Administrations are invited to base the implementation of the relevant requirements of regulation 4 of MARPOL Annex VI on them.

2 GENERAL

2.1 Purpose

2.1.1 The purpose of these Guidelines is to specify the criteria for the testing, survey, certification and verification of EGCSs under regulation 4 of MARPOL Annex VI to ensure that they provide in service, at any operating load point at which they are to operate, including during transient operation, effective equivalence to the requirements of regulations 14.1 or 14.4 of MARPOL Annex VI, as applicable.

2.1.2 These Guidelines describe two schemes for approval of an EGCS: Scheme A (system certification with in-service continuous operational parameter monitoring and periodic emission

checks) and Scheme B (continuous emission monitoring by means of an approved monitoring system together with periodic operational parameter checks):

.1 in Scheme A, the EGCS is subject to approval by the Administration and should be as given in section 4 subject to performance tests, sea trials or other similar physical tests that verify that the system in service will result in the intended performance; and

.2 in Scheme B, the exhaust gas monitoring system of the EGCS is subject to approval by the Administration and should be as given in section 5. Approved exhaust gas monitoring system should continuously indicate the Emission Ratio while the EGCS is in operation, allowing verification against the applicable limit.

2.1.3 Emission testing in relation to either Scheme A or Scheme B should be undertaken, as appropriate, as given in section 6.

2.1.4 Data recording, retention and the preparation of reports using that data in relation to either Scheme A or Scheme B should be, as appropriate, as given in section 7.

2.1.5 Details of the monitoring systems for exhaust emissions, operating parameters, inlet water, washwater and discharge water in relation to either Scheme A or Scheme B should be documented, as appropriate, as given in section 8.

2.1.6 For ships which are to use an EGCS in part or in total as an approved equivalent to the requirements of regulations 14.1 and/or 14.4 of MARPOL Annex VI, there should be an approved SO_X Emissions Compliance Plan (SECP) as given in section 9.

2.1.7 Discharge water monitoring which is equally applicable to Scheme A and Scheme B should be undertaken as given in section 10.

2.2 Application

2.2.1 These Guidelines apply to any EGCS as applied to fuel oil combustion unit(s), excluding shipboard incinerators, installed on board a ship.

2.2.2 For the purpose of these Guidelines, the term "EGCS" should be generally, but not exclusively, see 2.2.3, understood as "wet EGCS".

2.2.3 In the absence of specific guidelines for EGCSs which use technologies or operate in modes that are not defined in 2.3, these Guidelines may also be applied as appropriate.

2.2.4 These Guidelines apply to EGCS installed on ships on or after [date of adoption plus 6 months]. [1]

2.3 Abbreviations, definitions and required documents

2.3.1 Abbreviations as given in table 2 and definitions as given in table 3 are applied in these Guidelines.

[1] For EGCS installed on ships prior to [date of adoption plus 6 months], references should be made to resolution MEPC.259(68) on the *2015 Guidelines for exhaust gas cleaning systems* (hereinafter referred to as "2015 EGCS Guidelines").

Table 2: Abbreviations

CL	Closed Loop
CO_2	Carbon dioxide
EGC	Exhaust gas cleaning
EGCS	Exhaust gas cleaning system
ETM-A	EGCS – Technical Manual for Scheme A
ETM-B	EGCS – Technical Manual for Scheme B
MCR	Maximum Continuous Rating
SECP	SO_X Emissions Compliance Plan
SECC	SO_X Emissions Compliance Certificate
SO_2	Sulphur dioxide
SO_X	Sulphur oxides
OL	Open Loop
OMM	Onboard Monitoring Manual
PAH	Polycyclic Aromatic Hydrocarbons
PAH_{phe}	Polycyclic Aromatic Hydrocarbons as phenanthrene equivalents (see table 3)
UTC	Universal Time Coordinated

Table 3: Definitions

12-hour period	A period of 12 consecutive hours determined on a rolling basis with new 12-hour periods beginning past each hour of EGCS operation.
Bleed-off water	An amount of aqueous solution removed from the washwater of an EGCS operating in closed-loop mode to keep its required operating properties and efficiency.
Certified Value	The Emission Ratio specified by the manufacturer that the EGCS is certified as meeting when operating on a continuous basis on the manufacturers specified maximum fuel sulphur content and within the specified operational parameters. Applicable to Scheme A only.
Closed loop mode	EGCS operating mode in which the washwater is passed several times, through the EGC unit. In order for the washwater to keep its required operating properties and efficiency its pH usually has to be adjusted, e.g. by adding chemicals such as NaOH. In addition, a small amount of washwater is bled, periodically or continuously, from the system. This bleed-off water, unless meeting

	discharge water criteria, needs to be treated to meet discharge water criteria, or is regarded as EGCS residue.
Continuous monitoring	Process and technology used for evaluation of EGCS compliance through representative measurement, at a specified frequency, for selected parameters.
Discharge water	Any water from an EGCS to be discharged overboard.
EGC unit	Device within which exhaust gas and cleaning medium are mixed. An EGC unit may have a single or multiple fuel oil combustion unit(s) connected to it.
EGCS Electronic Data Recording, or Electronic Logging System	Automatic record of the EGCS in service operating parameters. The record of parameters does not involve any user input.
EGCS Record Book (or Electronic Record Book)	A user-input record of the EGCS, component adjustments, corrective and planned maintenance and service records as appropriate. It can have an electronic format.
EGCS residue	Material removed from the washwater or the bleed-off water by a treatment system or discharge water that does not meet the discharge criterion, or other residue material removed from the EGCS.
Emission Ratio	SO_2 expressed in ppm / CO_2 expressed in % v/v.
Exhaust Gas Cleaning System (EGCS)	A system that includes one or more EGC units and which is based on technology that uses a wet cleaning medium for the reduction of SO_X from an exhaust gas stream from installed fuel oil combustion unit(s), operating in either open loop or closed loop mode. A hybrid EGCS can operate in both open loop mode and closed loop mode. Several EGC units may utilize a common uptake system with a single exhaust gas monitoring system. Several EGC units may utilize a common washwater, water supply, treatment and/or overboard system and discharge water monitoring equipment.
Extractive sampling system	System which extracts a sample flow from the exhaust gas stream and transfers it by heated lines to the measurement instrument.
Fuel oil combustion unit	Any engine, boiler, gas turbine, or other fuel oil fired equipment, excluding shipboard incinerators.
Inlet water	Water entering the ship as a cleaning medium for an EGC unit.
In situ	Sampling directly within an exhaust gas stream.
Load range	Interval ranging from minimum practicable to maximum rated power of diesel engine or maximum steaming rate of the boiler.

Open loop mode	EGCS operating mode in which the washwater, typically seawater, is passed through the EGC unit only once before it is being discharged overboard as discharge water.
Phenanthrene equivalent	It corresponds to the signal produced by a PAH monitor with 254±10 nm excitation wavelength and 360±50 nm detection wavelength calibrated against a known set of phenanthrene concentrations within the expected measurement range when exposed to EGCS discharge water containing a range of different PAH species.
Washwater	Cleaning medium brought into contact with the exhaust gas stream for the reduction of SO_X.
Wet EGCS	EGCS using liquid cleaning medium.

2.3.2 Relevant documents for EGCS approved in accordance with Scheme A and Scheme B are listed in table 4.

Table 4: Relevant documents for Scheme A and Scheme B

Document	Scheme A	Scheme B
SECP	X	X
SECC	X	
ETM Scheme A	X	
ETM Scheme B		X
OMM	X	X
EGCS Record Book or Electronic Record Book	X	X

3 SAFETY NOTE

3.1 Due attention is to be given to the safety implications related to the handling and proximity of exhaust gases, the measurement equipment and the storage and use of pressurized containers of pure and calibration gases. Sampling positions and permanent access platforms should be such that this monitoring may be performed safely. For positioning the EGCS discharge water outlet, due consideration should be given to the locations of the existing seawater inlets. In all operating conditions the design of the EGCS should take into consideration the necessary balance between low pH water discharge and the anti-corrosive resistance of the surfaces in contact with that discharge stream. To avoid premature failure of sea chests, discharge pipework and hull penetration finishes due care should be taken in the preparation of surfaces and the correct selection and application of protective coatings to withstand the corrosive effects of low pH discharge water.

3.2 In cases where exhaust gas duct bypass lines are arranged on board, appropriate measures should be taken to prevent leakage of exhaust gases from the damper to bypass lines.

4 SCHEME A – EGCS APPROVAL, SURVEY AND CERTIFICATION USING PARAMETER AND EMISSION CHECKS

4.1 Approval of EGCSs

4.1.1 General

Options under Scheme A of these Guidelines provide for:

.1 individual EGCS approval;

.2 serially manufactured systems; and

.3 production range approval.

4.1.2 Individual EGCS approval

4.1.2.1 An EGCS should be certified as capable of meeting the Emission Ratio value, the Certified Value, specified by the manufacturer (e.g. the Emission Ratio value the system is capable of achieving on a continuous basis) with fuel oils of the manufacturer's specified maximum % m/m sulphur content and for the range of operating parameters, as listed in 4.2.2.1.2, for which they are to be approved. The Certified Value should at least be suitable for ship operations under requirements given by MARPOL Annex VI regulations 14.1 and/or 14.4.

4.1.2.2 Where testing is not to be undertaken with fuel oils of the manufacturer's specified maximum % m/m sulphur content, the use of two test fuels with a lower % m/m sulphur content is allowed. The two fuels selected should have a difference in % m/m sulphur content sufficient to demonstrate the operational behaviour of the EGCS and to demonstrate that the Certified Value can be met if the EGCS were to be operated with a fuel of the manufacturer's specified maximum % m/m sulphur content. In such cases a minimum of two tests, in accordance with subsection 4.3 as appropriate, should be performed. These tests need not be sequential and could be undertaken on two different, but identical, EGCSs.

4.1.2.3 The maximum and, if applicable, minimum exhaust gas mass flow rate of the system should be stated. The effect of variation of the other parameters defined in 4.2.2.1.2 should be justified by the equipment manufacturer. The effect of variations in these factors should be assessed by testing or otherwise as appropriate. No variation in these factors, or combination of variations in these factors, should be such that the emission value of the EGCS would be in excess of the Certified Value.

4.1.2.4 Data obtained in accordance with this section should be submitted to the Administration for approval together with the ETM-A.

4.1.3 Serially manufactured systems

4.1.3.1 In the case of nominally similar EGCSs of the same mass flow ratings as that certified under 4.1.2, and to avoid the testing of each EGCS, the Administration, based on a submission of the equipment manufacturer, should take the necessary measures to verify that adequate arrangements have been made to ensure effective control of the conformity of production arrangement. The certification of each EGCS under this arrangement should be subject to such surveys that the Administration should consider necessary as to assure that each EGCS has an Emission Ratio value of not more than the Certified Value when operated in accordance with the parameters defined in 4.2.2.1.2.

4.1.4 Product range approval

4.1.4.1 In the case of an EGCS of the same design, but of different maximum exhaust gas mass flow capacities, the Administration may accept, in lieu of tests on an EGCS of all capacities in accordance with 4.1.2, tests of EGCSs of three different capacities provided that the three tests are performed at intervals including the highest, lowest and one intermediate capacity rating within the range.

4.1.4.2 Where there are significant differences in the design of EGCSs of different capacities, this procedure should not be applied unless it can be shown, to the satisfaction of the Administration, that in practice those differences do not materially alter the performance between the various EGCS types.

4.1.4.3 For EGCSs of different capacities, the sensitivity to variations in the type of combustion machinery to which they are fitted should be detailed together with sensitivity to the variations in the parameters listed in 4.2.2.1.2. This should be on the basis of testing, or other data as appropriate.

4.1.4.4 The effect of changes of EGCS capacity on washwater and discharge water characteristics should be detailed.

4.1.4.5 All supporting data obtained in accordance with this section, together with the ETM-A for each system, should be submitted to the Administration for approval.

4.2 Survey and certification

4.2.1 Procedures for the certification of an EGCS

4.2.1.1 In order to meet the criterion of subsection 4.1 either prior to, or after installation on board, each EGCS should be certified as meeting the Certified Value specified by the manufacturer (e.g. the Emission Ratio the system is capable of achieving on a continuous basis) under the operating conditions and restrictions as given by the EGCS Technical Manual (ETM-A) as approved by the Administration.

4.2.1.2 Determination of the Certified Value should take into account the provisions of these Guidelines.

4.2.1.3 Each EGCS meeting the criterion of 4.2.1.1 should be issued an SECC by the Administration. The form of the SECC is given in appendix 1.

4.2.1.4 Application for an SECC should be made by the EGCS manufacturer, shipowner or other party.

4.2.1.5 Any subsequent EGCS of the same design and rating as that certified under 4.2.1.1 may be issued with an SECC by the Administration without the need for testing taking into account 4.2.1.1 subject to 4.1.3 of these Guidelines.

4.2.1.6 EGCS of the same design, but with ratings different from that certified under 4.2.1.1 may be accepted by the Administration subject to 4.1.4 of these Guidelines.

4.2.1.7 EGCSs which treat only part of the exhaust gas flow of the uptake in which they are fitted should be subject to special consideration by the Administration to ensure that under all defined operating conditions that the overall Emission Ratio value of the exhaust gas downstream of the system is no more than the Certified Value.

4.2.2 EGCS Technical Manual "Scheme A" (ETM-A)

4.2.2.1 Each EGCS should be supplied with an ETM-A provided by the manufacturer. This ETM-A should, as a minimum, contain the following information:

.1 the identification of the system (manufacturer, model/type, serial number and other details as necessary) including a description of the system and any required ancillary systems. In case a system contains more than one EGC unit, each EGC unit should be identified;

.2 the operating limits, or range of operating values, for which the unit is certified. These should, as a minimum, include:

.1 the maximum and, if applicable, minimum mass flow rate of exhaust gas;

.2 the maximum and, if applicable, minimum exhaust gas mass flow rate capacity of the EGC unit;

.3 the maximum fuel oil sulphur content the EGCS is certified for;

.4 the Certified Value;

.5 the power, type and other relevant parameters of the fuel oil combustion unit for which the EGCS is to be connected to. For boilers, the maximum air/fuel ratio at 100% load should also be given, for diesel engines whether the engine is of 2 or 4-stroke cycle;

.6 the maximum and minimum washwater flow rate, inlet pressures and minimum inlet water alkalinity (ISO 9963-1-2:1994);

.7 the exhaust gas inlet temperature ranges and maximum and minimum exhaust gas outlet temperature with the EGCS in operation;

.8 the maximum exhaust gas differential pressure across the EGC unit and the maximum exhaust gas inlet pressure;

.9 the salinity levels or fresh water elements necessary to provide adequate neutralizing agents; and

.10 other factors concerning the design and operation of the EGCS relevant to achieving a maximum Emission Ratio value no higher than the Certified Value;

.3 any requirements or restrictions applicable to the EGCS or associated equipment necessary to enable the system to achieve a maximum Emission Ratio value no higher than the Certified Value;

.4 maintenance, service or adjustment requirements in order that the EGCS can continue to achieve a maximum Emission Ratio value no higher than the Certified Value. The maintenance, servicing and adjustments should be recorded in the EGCS Record Book;

.5 corrective actions to be applied if the following occurs or is expected to occur: operating conditions are outside approved ranges or limits; the discharge water quality criteria are not met; or exceedances of the Certified Value;

.6 a verification procedure to be used during surveys to ensure that the system's performance is maintained and that the system is used as required (see subsection 4.4);

.7 washwater and discharge water characteristics across the operating load range;

.8 design requirements for the treatment and monitoring of washwater and control of discharge water, including, for example, bleed-off water from closed-loop EGCS operation or discharge water temporarily stored within the EGCS; and

.9 detail the procedure to produce reports regarding operation in a non-compliant condition, or in a condition where the ongoing compliance would be temporary indicated in accordance with 8.2.8.

4.2.2.2 The ETM-A should be approved by the Administration.

4.2.2.3 The ETM-A should be retained on board the ship onto which the EGCS is installed and should be available for surveys as required.

4.2.2.4 Amendments to the ETM-A which reflect EGCS changes that affect performance with respect to emissions to air and/or water should be approved by the Administration. Where additions, deletions or amendments to the ETM-A are separate to the ETM-A as initially approved, they should be retained with the ETM-A and should be considered as part of it.

4.2.3 In-service surveys

4.2.3.1 The EGCS should be subject to survey on installation and at initial, annual/intermediate and renewals surveys by the Administration.

4.2.3.2 In accordance with regulation 10 of MARPOL Annex VI, the EGCS may also be subject to inspection by port State control.

4.2.3.3 Prior to use, each EGCS should be issued with an SECC by the Administration.

4.2.3.4 Following the installation survey given in 4.2.3.1, sections 2.3 and 2.6 of the Supplement to the ship's International Air Pollution Prevention Certificate should be duly completed.

4.3 Emission limits

4.3.1 Each EGCS should be capable of reducing emissions to equal to or less than the Certified Value at any load point, including fuel oil combustion unit idling, when operated in accordance with 4.2.2.1.2.

4.3.2 In order to demonstrate performance, emission measurements should be undertaken, with the agreement of the Administration, at a minimum of four load points. One load point should be at 95% to 100% of the maximum exhaust gas mass flow rate for which the unit is to be certified. One load point should be within ± 5% of the minimum exhaust gas mass flow rate

for which the unit is to be certified. The other two load points should be equally spaced between the maximum and minimum exhaust gas mass flow rates. Where there are discontinuities in the operation of the system, the number of load points should be increased, with the agreement of the Administration, so that it is demonstrated that the required performance over the stated exhaust gas mass flow rate range is retained. Additional intermediate load points should be tested if there is evidence of an emission peak below the maximum exhaust gas mass flow rate and above, if applicable, the minimum exhaust gas flow rate. These additional tests should be sufficient number as to establish the emission peak value.

4.4 Onboard verification procedures for demonstrating compliance

4.4.1 For each EGCS, the ETM-A should contain a verification procedure for use during surveys as required. This procedure should not require specialized equipment or an in-depth knowledge of the system. Where particular devices are required, they should be provided and maintained as part of the system. The EGCS should be designed in such a way as to facilitate inspection as required. The basis of the verification procedure is that if all relevant components and operating values or settings are within the approved ranges, then the performance of the EGCS can be assumed to meet the requirements without the need for actual continuous exhaust emission monitoring.

4.4.2 Included in the verification procedure should be all components and operating values or settings which may affect the operation of the EGCS and its ability to meet the Certified Value.

4.4.3 The verification procedure should be provided by the EGCS manufacturer and approved by the Administration.

4.4.4 The verification procedure should cover both a documentation check and a physical check of the EGCS.

4.4.5 The surveyor should verify that each EGCS is installed in accordance with the ETM-A and has an SECC as required.

4.4.6 At the discretion of the Administration, the surveyor should have the option of checking one or all of the identified components, operating values or settings. Where there is more than one EGC unit within the EGCS, the Administration may, at its discretion, abbreviate or reduce the extent of the survey on board; however, the entire survey should be completed for at least one of each type of EGC unit on board provided that it is expected that the other EGC units perform in the same manner.

4.4.7 The EGCS should include means to automatically record when the system is in use. These means should automatically record, at least at the frequency specified in 5.4.2, as a minimum, washwater pressure and flow rate at the EGC unit's inlet connection, exhaust gas pressure before and pressure drop across each EGC unit, fuel oil combustion unit load, and exhaust gas temperature before and after the EGC unit against the respective operating limits, or range of operating values. The data recording system should comply with the requirements of sections 7 and 8. In the case of a system consuming chemicals at a known rate as documented in ETM-A, recordings of such consumption in the EGCS Record Book also serves this purpose.

4.4.8 Under Scheme A, if a continuous exhaust gas monitoring system is not fitted, a daily spot check of the Emission Ratio for a duration of not less than 5 minutes at a minimum recording frequency of 0.1 Hz at normal working condition for each outlet to the atmosphere should be undertaken to verify compliance in conjunction with the continuous monitoring of the parameters stipulated in 4.4.7. The exhaust gas readings should be allowed to stabilize before

commencing recording. Readings from the calibration procedure should be automatically recorded or noted in a calibration protocol. Emission values, which are used to determine the Emission Ratio, obtained after stabilization should be recorded. If a continuous exhaust gas monitoring system is fitted, only daily spot checks of the parameters listed in paragraph 4.4.7 would be needed to verify proper operation of the EGC unit.

4.4.9 An EGCS Record Book should be maintained on board the ship recording maintenance and service of the system including like-for-like replacement. This EGCS Record Book should be available during surveys as required and may be read in conjunction with engine-room logbooks and other data, as necessary, to confirm the correct operation of the EGCS. The form of this record should be provided by the EGCS manufacturer and approved by the Administration. Alternatively, this information may be recorded in the ship's planned maintenance record system as approved by the Administration. Alternatively, this information may be recorded to an Electronic Record Book as approved by the Administration. The EGCS Record Book entries should be maintained on board the ship for a minimum period of 3 years after the last entry has been made.

5 SCHEME B – EGCS APPROVAL, SURVEY AND CERTIFICATION USING CONTINUOUS MONITORING OF EMISSION RATIO

5.1 General

5.1.1 Scheme B provides for the approval of the means of continuous Emission Ratio monitoring, supported by daily parameter checks, which will subsequently be used at surveys, and otherwise as required, to demonstrate compliance with the objectives as given in the SECP.

5.2 Approval

5.2.1 The ETM-B, as defined in these Guidelines, should be approved by the Administration.

5.3 Survey and certification

5.3.1 The EGCS's exhaust gas monitoring system should be subject to survey on installation and at initial, annual/intermediate and renewals surveys by the Administration in order to demonstrate that it functions as given in the OMM. The scope of the installation or initial survey should include EGCS operation, as required, in order to demonstrate the functionality of the exhaust gas monitoring system.

5.3.2 Following the installation survey given in 5.3.1 and approval of documents as listed in 2.3.2, sections 2.3 and 2.6 of the Supplement to the ship's International Air Pollution Prevention Certificate should be duly completed.

5.4 Exhaust gas monitoring

5.4.1 The exhaust gas composition of the Emission Ratio should be measured at an appropriate position after the EGC unit and that measurement should be as given in section 6 as applicable. A suitable position could be downstream of the EGC unit, but before any possible mixing of outside ambient air or other additional air or gases with the exhaust gas.

5.4.2 SO_2(ppm) and CO_2(%) and, to not less than one decimal place, Emission Ratio should be continuously monitored and recorded against the applicable Emission Ratio limit onto a data recording and processing device at a rate which should not be less than 0.0035 Hz

whenever the EGCS is in operation. This monitoring may be suspended for service and maintenance periods of gas analyser and associated equipment as required by the OMM. Zero and span check calibration and instrument drift data should, as given in the OMM, be either recorded by the data recording system or manually entered in the EGCS Record Book as appropriate to the means used.

5.4.3 If more than one analyser is to be used to determine the Emission Ratio, these should have similar sampling and measurement times and the data outputs aligned to ensure that the Emission Ratio is fully representative of the exhaust gas composition.

5.5 Onboard verification procedures for demonstrating compliance with emission limits

5.5.1 The data recording system should be as given in sections 7 and 8. Data and the associated reports should be available to the Administration as necessary to demonstrate compliance as required and, in accordance with regulation 10 of MARPOL Annex VI, may also be subject to inspection by port State control.

5.5.2 Daily spot checks of the parameters listed in 4.4.7 are needed to verify proper operation of the EGCS and should be recorded in the EGCS Record Book or in the engine-room logger system.

5.6 EGCS Technical Manual "Scheme B" (ETM-B)

5.6.1 Each EGCS should be supplied with an ETM-B provided by the manufacturer. This ETM-B should, as a minimum, contain the following information:

.1 the identification of the system (manufacturer, model/type, serial number and other details as necessary) including a description of the system and any required ancillary systems. If a system consists of more than one EGC unit, each EGC unit should be identified;

.2 the operating limits, or range of operating values, for which the system is designed. These should, as a minimum, include:

.1 the maximum and, if applicable, minimum mass flow rate of exhaust gas;

.2 the advised maximum fuel sulphur content for the operational conditions the EGCS is designed for (Note: higher sulphur content fuel oils may be used provided the relevant Emission Ratio value is not exceeded);

.3 the power, type and other relevant parameters of the fuel oil combustion unit for which the EGCS is to be connected to. For boilers, the maximum air/fuel ratio at 100% load should also be given for diesel engines whether the engine is of 2 or 4-stroke cycle;

.4 the maximum and minimum washwater flow rate, inlet pressures and minimum inlet water alkalinity (ISO 9963-1-2:1994);

.5 the exhaust gas inlet temperature ranges and maximum and minimum exhaust gas outlet temperature with the EGCS in operation;

.6 the maximum exhaust gas differential pressure across the EGC unit and the maximum exhaust gas inlet pressure;

.7 the salinity levels or fresh water elements necessary to provide adequate neutralizing agents; and

.8 other parameters as necessary concerning the operation of the EGCS;

.3 any requirements or restrictions applicable to the EGCS or associated equipment;

.4 corrective actions to be applied if the following occurs or is expected to occur: operating conditions are outside approved ranges or limits; the discharge water quality criteria are not met; or exceedances of the maximum allowable Emission Ratio;

.5 washwater and discharge water characteristics across the operating load range;

.6 design requirements for the treatment and monitoring of washwater and control of discharge water, including for example bleed-off water from closed-loop EGCS operation or discharge water temporarily stored within the EGCS; and

.7 detail the procedure to produce reports regarding operation in a non-compliant condition, or in a condition where the ongoing compliance would be temporary indicated in accordance with 8.2.8.

5.6.2 The ETM-B should be retained on board the ship onto which the EGCS is fitted. The ETM-B should be available for surveys as required.

5.6.3 Amendments to the ETM-B which reflect EGCS changes that affect performance with respect to emissions to air and/or water should be approved by the Administration. Where additions, deletions or amendments to the ETM-B are separate from the ETM-B as initially approved, they should be retained with the ETM-B and should be considered as part of it.

5.7 Onboard procedures for demonstrating compliance

5.7.1 An EGCS Record Book should be maintained on board the ship recording maintenance and servicing of the emission monitoring and ancillary components as given in the OMM including like-for-like replacements. The form of this record book should be approved by the Administration. This EGCS Record Book should be available at surveys as required and may be read in conjunction with engine-room logbooks and other data as necessary to confirm the correct operation of the EGCS. Alternatively, this information may be recorded in the ship's planned maintenance record system as approved by the Administration. Alternatively, this information may be recorded to an Electronic Record Book as approved by the Administration. The EGCS Record Book entries should be maintained on board the ship for a minimum period of 3 years after the last entry has been made.

6 EMISSION TESTING

6.1 Emission testing should follow the requirements of the NO_X Technical Code 2008 except as provided for in these Guidelines.

6.2 CO_2 should be measured using an analyser operating on non-dispersive infrared (NDIR) principle and with additional equipment such as dryers as necessary. SO_2 should be measured using analysers operating on non-dispersive infrared (NDIR) or non-dispersive ultra-violet (NDUV) principles and with additional equipment such as dryers as necessary. Other systems or analyser principles may be accepted, subject to the approval of the Administration, provided they yield equivalent or better results to those of the equipment referenced above. For acceptance of other CO_2 systems or analyser principles, the reference method should be in accordance with the requirements of appendix III of the NO_X Technical Code 2008.

6.3 The analysing equipment should be installed, operated, maintained, serviced and calibrated in accordance with the requirements as given in the OMM, at a frequency which ensures that the requirements of 1.7 to 1.10 of appendix III of the NO_X Technical Code 2008 are met at all times the equipment is in operation.

6.4 An exhaust gas sample for SO_2 should be obtained from a representative sampling point downstream of the EGC unit.

6.5 SO_2 and CO_2 should be monitored using either in situ or extractive sampling systems.

6.6 Extractive exhaust gas samples for SO_2 determination should be maintained at a sufficient temperature to avoid condensation of water in the sampling system and hence loss of SO_2.

6.7 If an extractive exhaust gas sample for determination needs to be dried prior to analysis it should be done in a manner that does not result in loss of SO_2 in the sample as analysed.

6.8 The SO_2 and CO_2 values should be compared on the basis of the same residual water content (e.g. dry or with the same wetness fraction).

6.9 In justified cases where the CO_2 concentration is reduced by the EGC unit, the CO_2 concentration can be measured at the EGC unit inlet, provided that the correctness of such a methodology can be clearly demonstrated. In such cases the SO_2 and CO_2 values should be compared on a dry basis. If measured on a wet basis the water content in the exhaust gas stream at those points should also be determined in order to correct the readings to dry basis values. For calculation of the CO_2 value on a dry basis, the dry/wet correction factor may be calculated in accordance with paragraph 5.12.3.2.2 of the NO_X Technical Code 2008.

6.10 Extractive sample systems should be verified to be free of ingress leakage in accordance with the analysing equipment manufacturers' recommendations at intervals as defined in the OMM. It should be verified that the system is free of ingress on initial start-up and as given in the OMM with the findings from those checks recorded in the EGCS Record Book.

6.11 The span gases for the SO_2 and CO_2 analyser should be a mixture of SO_2 and/or CO_2 and nitrogen at a concentration of more than 80% of the full scale of the measuring range used. The span gas for the CO_2 should conform to the requirements of section 2 of appendix IV of the NO_x Technical Code 2008. Other equivalent arrangements, as detailed in the OMM, may be accepted by the Administration.

7 DATA RECORDING AND PROCESSING DEVICE

7.1 The recording and processing device should be of robust, tamper-proof design with read-only capability.

7.2 The recording and processing device should record, whenever the EGCS is in operation, the data described in 4.4.7, 5.4.2, and 10.3 as applicable, including overboard discharges from any associated tanks within the system, against UTC and ship's position as given by a Global Navigational Satellite System (GNSS) and whether the ship was inside or outside an Emission Control Area as given by regulation 14.3 at that time. The device should also be capable of:

.1 (Scheme B only) being automatically set, or pre-set, with the Emission Ratio limit value as appropriate to the sea area, in relation to regulation 14.3, where the ship is operating;

.2 being automatically set, or pre-set, with the applicable overboard pH limit value;

.3 being automatically set with the applicable PAH limit value;

.4 recording the aggregated time in excess of 15 minutes over any rolling 12-hour period that the differential PAH value is above the set limit value by more than 100%;

.5 being pre-set with the applicable turbidity limit value;

.6 recording the aggregated time in excess of 15 minutes over any rolling 12-hour period that the rolling average differential turbidity value is above the set limit value by more than 20%; and

.7 recording pre set and set limit values.

7.3 The recording and processing device should be capable of preparing reports over specified time periods.

7.4 Data should be retained for a period of not less than 18 months from the date of recording. If the device is changed over that period, it should be ensured that the required data is retained on board and available as required for inspection.

7.5 The device should be capable of downloading a copy of the recorded data and reports in a readily useable format clearly indicating periods of non-compliance. Such copy of the data and reports should be available to the Administration or port State control as requested.

8 ONBOARD MONITORING MANUAL (OMM)

8.1 An OMM should be prepared to cover each EGCS installed in conjunction with fuel oil combustion unit, which should be identified, for which compliance is to be demonstrated.

8.2 The OMM should, as a minimum, include:

.1 for extractive exhaust gas sampling systems, the position from which the gas sample is drawn together with details, arrangement and operating ranges of the analysers and all necessary ancillary components or requirements

including, but not limited to, sample probe assembly, sample transfer line and sample treatment unit;

.2 for in situ exhaust gas analysers, the location and arrangement of the analyser in the exhaust duct, operating ranges and all necessary ancillary components or requirements;

.3 for inlet water and discharge water monitoring, the positions from which the water samples are drawn, the location and arrangement of the analysers together with details of any necessary ancillary services such as sample transfer lines and sample treatment units;

.4 the analysers to be used for monitoring of exhaust gas, inlet water, discharge water, their service, maintenance, and calibration requirements. Templates covering the minimum information, which should be included, are provided in appendix 5;

.5 the zero and span check procedures of the exhaust gas analysers and calibration of washwater, discharge water and inlet water analysers together with reference materials to be used and the required frequency of those checks;

.6 the operating parameter instruments to be used described in 4.4.7 or 5.5.2;

.7 the installation, operation, adjustment, maintenance, servicing and calibration requirements and procedures of the analysers, associated ancillary equipment and operating parameter measurement instruments;

.8 the means by which ongoing compliance would be temporarily indicated in the case of the failure of a single monitoring device;

.9 the data recording system and how it is to be operated, data retained and the types of reports which it can produce;

.10 guidance as to data or other indications which may signify a malfunction of either an analyser, an item of ancillary equipment or an operating parameter sensor together with the fault-finding and corrective actions which should be taken;

.11 other information or data relevant to the correct functioning or use of the monitoring system or its use in demonstrating compliance; and

.12 where the information described in .1 to .11 above is referring to detailed descriptions of procedures, reference can be made to additional documents (e.g. manufacturer's documentation) which should be considered part of the OMM.

8.3 The OMM should specify how the EGCS, operating parameter measurement instruments and the exhaust gas and discharge water monitoring systems are to be surveyed in order to verify that:

.1 the EGCS conforms to the ETM-A or ETM-B as applicable;

.2 the operating parameter instruments installed and used on board are as approved per the OMM;

.3 the exhaust gas and discharge water monitoring systems used on board are as approved per the OMM;

.4 inspection, maintenance, servicing, calibration and adjustments have been undertaken as required and those actions recorded in the EGCS Record Book as required; and

.5 the operating parameter instruments and the exhaust gas and the discharge water monitoring systems are correctly functioning.

8.4 Under scheme B, where operation of the EGCS is required in order to demonstrate the functionality of the monitoring system during installation or initial surveys, the OMM should describe the operational condition(s) which demonstrate the operational behaviour of the monitoring system and which should be used when surveying in accordance with paragraph 5.3.1. The description of operational condition(s) may include:

.1 the connected fuel oil combustion unit load point(s); and

.2 the minimum operating time at a given load point.

9 SHIP COMPLIANCE

9.1 SO_X Emissions Compliance Plan (SECP)

9.1.1 For a ship which is to use an EGCS, in part or in total, as an approved equivalent means to the requirements given by regulation 14.1 or 14.4 of MARPOL Annex VI there should be an SECP for the ship, approved by the Administration.

9.1.2 The SECP should list each fuel oil combustion unit which may use fuel oil supplied in accordance with the requirements of regulations 14.1 and/or 14.4 of MARPOL Annex VI.

9.1.3 The SECP should list each fuel oil combustion unit which may use Scheme A and/or B of these Guidelines together with identification of the EGCS to which it is connected and whether this control may be applied continuously or only inside or only outside the Emission Control Areas given by regulation 14.3 of MARPOL Annex VI.

9.1.4 The SECP should advise that records should be kept of actions initiated to meet the requirement of these Guidelines in case of breakdown of the EGCS or associated equipment, and that the relevant flag and port State's Administration should be notified, in accordance with MEPC.1/Circ.883/Rev.1.

9.2 Demonstration of compliance

9.2.1 Scheme A

9.2.1.1 The SECP should refer to, not reproduce, the ETM-A, EGCS Record Book or Engine-Room logger system and OMM as specified under Scheme A.

9.2.1.2 For all fuel oil combustion unit listed under 9.1.3, details should be provided demonstrating that the rating and restrictions for the EGCS as approved, under 4.2.2.1.2, are complied with.

9.2.1.3 Required parameters should be monitored and recorded as described in 4.4.7 when the EGCS is in operation in order to demonstrate compliance.

9.2.2 Scheme B

9.2.2.1 The SECP should refer to, not reproduce, the ETM-B, EGCS Record Book or Engine-Room logger system and OMM as specified under Scheme B.

10 DISCHARGE WATER

10.1 Discharge water quality criteria[2]

10.1.1 EGCS discharge water should comply with the following criteria prior to being discharged into the sea:

10.1.2 pH criteria

10.1.2.1 The discharge water pH should comply with one of the following requirements which should be recorded in the ETM-A or ETM-B as applicable:

.1 The discharge water should have a pH no lower than 6.5 measured at the ship's overboard discharge with the exception that during manoeuvring and transit, a maximum difference of 2 pH units is allowed between the inlet water and overboard discharge values.

.2 The pH discharge limit, at the overboard monitoring position, is the value that will ensure a pH no lower than 6.5 at a distance of 4 m from the overboard discharge point with the ship stationary, and which is to be recorded as the overboard pH discharge limit in the ETM-A or ETM-B. The overboard pH discharge limit can be determined either by means of direct measurement, or by using a calculation-based methodology (computational fluid dynamics or other equally scientifically established empirical formulae) as agreed by the Administration, and in accordance with the following conditions to be recorded in the ETM-A or ETM-B:

.1 all EGC units connected to the same outlets are operating at their full loads (or highest practicable load) and with fuel oil of the maximum sulphur content for which the units are to be certified (Scheme A) or used with (Scheme B);

.2 if a test fuel with lower sulphur content, and/or test load lower than maximum, sufficient for demonstrating the behaviour of the discharge water plume is used, the plume's mixing ratio must be established based on the titration curve of seawater. The mixing ratio would be used to demonstrate the behaviour of the discharge water plume and that the overboard pH discharge limit has been met if the EGCS is operated at the highest fuel sulphur content and load for which the EGCS is certified (Scheme A) or used with (Scheme B);

[2] The discharge water quality criteria should be reviewed in the future as more data become available, including relevant research and development results, on the content of discharge water and its effects, taking into consideration any advice given by GESAMP. A guidance for voluntary Discharge Water data collection is included in appendix 3.

.3 where the discharge water flow rate is varied in accordance with the EGCS gas flow rate, the implications of this for the part load performance should also be evaluated to ensure that the overboard pH discharge limit is met under any load;

.4 reference should be made to a sea-water alkalinity of 2.2 mmol/L and pH 8.2[3]; an amended titration curve should be applied where the testing conditions differ from the reference seawater, as agreed by the Administration (example titration curve for reference seawater conditions is presented in appendix 4); and

.5 if a calculation-based methodology is to be used, details should be submitted to allow its verification such as but not limited to supporting scientific formulae, discharge point specification, discharge water flow rates, designated pH values at both the discharge and 4 m location, titration and dilution data.

10.1.3 PAHs (Polycyclic Aromatic Hydrocarbons)

10.1.3.1 The discharge water PAH should meet the criteria below. The appropriate limit should be specified in the ETM-A or ETM-B.

10.1.3.2 The maximum continuous PAH concentration in the discharge water should not be greater than 50 µg/L PAH_{phe} (phenanthrene equivalent) above the inlet water PAH concentration. For the purposes of this criterion, the PAH concentration in the discharge water should be measured downstream of the water treatment equipment including any reactant dosing unit, if used, but upstream of any dilution for control of pH, if used, prior to discharge.

10.1.3.3 The 50 µg/L limit described above is normalized for a discharge flow rate, before any dilution for pH control, of 45 t/MWh where the MW refers to the aggregated MCR of all those fuel oil combustion units whose EGCS discharge water PAH is being monitored at that point. In cases where sensors are installed in a separate measurement cell, the PAH limit applies to the flow in the main discharge pipe, from which the water is bypassed. This limit would have to be adjusted upward for lower washwater flow rates (t/h) per MW, and vice-versa, according to the table below.

[3] These values could be revised within 2 years for new installations following the adoption of these amended Guidelines upon further inputs on the physical state of the seas resulting from the use of exhaust gas cleaning systems.

Table 5: Criteria for discharge water PAH concentration

Specific Discharge Water flow rate (before dilution for pH control) (t/MWh)	Discharge concentration limit (µg/L PAH_{phe} equivalents)	Measurement technology
0-1	2250	Ultraviolet light*
2.5	900	– " –*
5	450	Fluorescence[4]
11.25	200	– " –
22.5	100	– " –
45	50	– " –
90	25	– " –

*Alternative measurement technologies may be used with the agreement of the Administration.

10.1.3.4 For an aggregated 15-minute period in any rolling 12-hour period, the continuous PAH_{phe} concentration limit may exceed the limit described above by up to 100%. This would allow for an abnormal start-up of the EGC unit.

10.1.4 Turbidity/Suspended Particle Matter

10.1.4.1 The discharge water treatment system should be designed to minimize suspended particulate matter, including heavy metals and ash. The turbidity of the discharge water, following treatment equipment, including any reactant dosing, but upstream of any other dilution unit, if used, should meet the criteria below. The limit should be recorded in the ETM-A or ETM-B.

10.1.4.2 The maximum continuous turbidity in the discharge water should not be greater than 25 FNU (formazin nephlometric units) or 25 NTU (nephlometric turbidity units) or equivalent units, above the inlet water turbidity. However, during periods of high inlet turbidity, the precision of the measurement device and the time lapse between inlet measurement and outlet measurement are such that the use of a difference limit is unreliable. Therefore all turbidity difference readings should be a rolling average over a maximum 15-minute period to a maximum of 25 FNU or NTU.

10.1.4.3 For an aggregated 15-minute period in any rolling 12-hour period, the continuous turbidity discharge limit may be exceeded by 20%.

10.1.5 Nitrates

10.1.5.1 The discharge water treatment system should prevent the discharge of nitrates beyond that associated with a 12% removal of NO_X from the exhaust, or beyond 60 mg/l normalized for discharge water flow rate of 45 t/MWh whichever is the greater, where the MW refers to the MCR or 80% of the power rating of the fuel oil combustion unit.

10.1.5.2 Within the first three months of operation after installation/initial survey and three months prior to each renewal survey a sample of the discharge water from each EGCS should be drawn and analysed for nitrate content and results should be made available to the

[4] For any Flow Rate > 2.5 t/MWh Fluorescence technology should be used.

Administration. However, the Administration may require an additional sample to be drawn and analysed at its discretion. The nitrate discharge data and analysis certificate is to be retained on board the ship as part of the EGCS Record Book and to be available for inspection as required by port State control or other parties. Criteria in respect of sampling, storage, handling and analysis should be detailed in the ETM-A or ETM-B as applicable. To assure comparable nitrate discharge rate assessment, the sampling procedures should take into account 10.1.5.1, which specifies the need for discharge water flow normalization. Nitrates discharge data is to be presented as the difference between concentrations in the inlet water and in the discharge water. The test method for nitrate should be ISO 13395:1996, ISO 10304-1:2007, US EPA 353.2 or other internationally accepted equivalent test standard (suitable for seawater).

10.1.5.3 Data on discharge water nitrate concentrations gathered from EGCS of similar design could be used as an alternative to the sampling, analysis and quantification requirements of 10.1.5.2 with the agreement of the Administration based on an engineering analysis which demonstrates the design similarities in respect of nitrate concentrations in the discharge water.

10.1.6 Washwater and discharge water additives and other substances

10.1.6.1 Additional assessment of the discharge water may be required for those EGCS technologies which make use of chemicals, additives, preparations or create relevant chemicals in situ. The assessment may take into account relevant guidelines, such as the *Procedure for approval of ballast water management systems that make use of active substances (G9)* (resolution MEPC.169(57)), to determine if additional discharge water quality criteria are appropriate. If the only chemical used is sodium hydroxide (NaOH, CAS: 001310-73-2) and the discharge water pH does not exceed 8.0, no additional assessment is needed.

10.1.7 Discharge water from Temporary Storage

10.1.7.1 Any discharge water originating from the EGCS and discharged overboard following temporary storage within any tank designed for that purpose and featured in the ETM-A or ETM-B should be monitored/recorded in accordance with 10.2.1, and meet, independent of any flow rate, the following discharge water criteria:

pH	See paragraph 10.1.2
PAH	Maximum of 50 µg/L PAH_{phe} (phenanthrene equivalence) before any dilution for control of pH
Turbidity	Not greater than 25 FNU (formazin nephlometric units) or 25 NTU (nephlometric turbidity units) or equivalent units, before any dilution for pH control

10.1.7.2 When demonstration of compliance with the provisions contained within this section is not possible, the water intended for discharge should be considered EGCS residue.

10.2 Discharge water monitoring

10.2.1 When the EGCS is operated in ports, harbours, or estuaries, or during any discharges from temporary storage, the discharge water monitoring and recording should be continuous. The values monitored and recorded should include pH, PAH, turbidity and temperature. In other areas the continuous monitoring and recording equipment should also be in operation, whenever the EGCS is in operation, except for short periods of maintenance, and cleaning of the monitoring equipment as defined in the OMM. Whenever there are overboard discharges

of discharge water from temporary onboard storage, no maintenance or cleaning of the monitoring equipment should take place. Those EGCS, which apply degassing of the sampled discharge water for the purpose of turbidity monitoring, should assure that particles do not settle during degassing, as this would underestimate the real turbidity value.

10.2.2 The permissible deviations of the discharge water monitoring equipment should not exceed the following:

pH	0.2 pH units
PAH	5% of nominal standard test concentration used. That nominal concentration value should be not less than 80% of the scale range used
Turbidity	2 FNU or NTU

Calibration intervals should be such that the above performance requirements are met. Calibration and calibration checks should be done according to manufacturer's specification.

10.2.3 The pH electrode and pH meter should have a resolution of 0.1 pH units and temperature compensation. The electrode performance and accuracy should at least comply with the requirements defined in BS 2586 or ASTM D1293-18 and the meter should meet or exceed IEC 60746-2:2003 or other internationally accepted equivalent standards. pH electrodes or pH meters which comply with another accepted standard or technical specification, which is in force, are deemed to be the equivalent of the equipment, provided these standards or technical specifications conform to standards BS 2586 or ASTM D1293-18 or IEC 60746-2:2003, and ensure at least a like-for-like level of requirements.

10.2.4 The PAH monitoring equipment should be capable to monitor PAH in water in a range to at least twice the discharge concentration limit given in the table above. The equipment should be demonstrated to operate correctly and not deviate more than 5% in discharge water with turbidity within the working range of the application.

10.2.5 For those applications discharging at lower flow rates and higher PAH concentrations, ultraviolet light monitoring technology or equivalent, should be used due to its reliable operating range.

10.2.6 The turbidity monitoring equipment should meet requirements defined in ISO 7027. ISO 7027 requires the measurement of turbidity by attenuation at 180° given as FAU, when 40 FNU are exceeded.

10.3 Approval of the discharge water monitoring systems

10.3.1 The discharge water monitoring system should be approved by the Administration.

10.4 Water monitoring data recording

10.4.1 The data recording system should comply with the requirements of sections 7 and 8 and should continuously record pH, PAH and Turbidity in accordance with 10.2.1 at a frequency of not less than 0.0111 Hz.

10.4.2 Zero and span check calibration and instrument drift data should, as given in the OMM, be either recorded by the data recording system or manually entered in the EGCS Record Book as appropriate to the means used.

10.5 EGCS Residues

10.5.1 Residues generated by the EGCS should be delivered ashore to adequate reception facilities. Such residues should not be discharged to the sea or incinerated on board.

10.5.2 Each ship fitted with an EGCS should record the storage and disposal of EGCS residues in the EGCS Record Book, including the date, time and location of such storage and disposal.

10.6 Maintenance and servicing records

10.6.1 The EGCS Record Book as required by either 4.4.9 or 5.7.1 should also be used to record maintenance and servicing of the washwater and discharge water monitoring systems and ancillary components as given in the OMM including like-for-like replacement.

10.7 Design guidance for water sampling points/valves

10.7.1 Each sampling point should be installed at a location that is representative of the main washwater or discharge water stream and accessible to personnel. The sampling extraction point should be open in the direction of the water flow.

APPENDIX 1

FORM OF SO_X EMISSION COMPLIANCE CERTIFICATE

Badge or Cipher

NAME OF ADMINISTRATION

SO_X EMISSION COMPLIANCE CERTIFICATE

CERTIFICATE OF APPROVAL FOR EXHAUST GAS CLEANING SYSTEMS

Issued under the provisions of the Protocol of 1997, as amended, to amend the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 related thereto under the authority of the Government of:

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

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

This is to certify that the exhaust gas cleaning system (EGCS) listed below has been surveyed in accordance with the specifications contained under Scheme A in the *20XX Guidelines for exhaust gas cleaning systems* adopted by resolution MEPC.YYY(ZZ).

This Certificate is valid only for the EGCS referred to below:

System manufacturer	**Model/ type**	**Serial number**	**This EGCS is certified as providing following equivalency:**		**EGCS – Technical Manual for Scheme A (ETM-A) approval reference**
			Fuel oil sulphur limit values:	**Maximum sulphur content of fuel oils to be used:**	
			0.10%	**_____% / n/a***	
			0.50 %	**_____%**	

* delete as applicable

A copy of this Certificate should be carried on board the ship fitted with this EGCS at all times.

This Certificate is valid for the life of the EGCS, subject to surveys in accordance with subsection 4.2 of the guidelines and regulation 5 of MARPOL Annex VI, installed in ships under the authority of this Government.

Issued at .....
(place of issue of certificate)

Date dd/mm/yyyy

....
(date of issue) (*signature of duly authorized official issuing the certificate)*

(Seal or Stamp of the authority, as appropriate)

APPENDIX 2

EMISSION RATIO

1 This appendix is included to explain the background to the use of the Emission Ratio, defined in 2.3 of these Guidelines, as the criterion for the demonstration of equivalency with the fuel oil sulphur limits given in regulation 14 of MARPOL Annex VI. In addition, the basis of the Emission Ratio limit values as given in 1.3 of these Guidelines is also explained.

2 The carbon content of any fuel oil used for power generation by combustion exits that system essentially in the form of carbon dioxide (CO_2). While certain amounts of the inflow carbon may form deposits within that system, be incorporated into any direct contact lubricant or exit in the exhaust gas as carbon monoxide or gaseous or particulate hydrocarbons, overall these quantities are not significant in comparison to the flow of CO_2. This applies equally to all combustion systems; internal combustion engines, boilers and gas turbines.

3 Similarly, the sulphur content of a fuel oil used for combustion will exit that system essentially as sulphur dioxide (SO_2) in the hot exhaust gas stream. Again, although a certain amount may be retained as sulphur compounds within the system or as other sulphur compounds in the exhaust gas stream, these are not significant in comparison to the flow of SO_2.

4 Hence, although the CO_2 concentration in the exhaust gas will vary in accordance with the excess air ratio applied, the ratio of CO_2 to SO_2 concentrations will be fixed by the carbon/sulphur ratio of the fuel oil used. In those instances, where an exhaust gas cleaning system (EGCS) covered by these Guidelines is fitted, the effect will be to reduce the SO_2, but not the CO_2 content of the exhaust gas. Consequently, the SO_2/CO_2 ratio after the system will reflect the effectiveness of that system in removing SO_2 from the exhaust gas.[1] The post EGCS SO_2/CO_2 ratio, the Emission Ratio, will largely correspond to that which would otherwise have been obtained if a lower sulphur fuel oil had been used but without the EGCS.

5 The principal elements present in petroleum-derived liquid fuel oils are carbon, hydrogen and sulphur and in some instances also nitrogen and oxygen. The actual proportions differ in each case. In order to derive the Emission Ratios corresponding to different fuel oil sulphur limit values, the fuel oil compositions given in 6.4.11.1.2 (table 9) of the NO_x Technical Code 2008 are taken as the starting points in table 1 below. The given compositions for both distillate and residual fuel oils omit sulphur content, but these are simply the difference between the summation of the given values and 100% and hence are 0.20% for the distillate example and 2.60% for the residual. In order to estimate the carbon and hydrogen proportions of fuel oils with other sulphur content values the carbon/hydrogen ratio and the "nitrogen+oxygen" content are assumed to be unchanged for the respective fuel oils. In table 1 the carbon contents are calculated for fuel oil having a sulphur content for both the distillate and the residual fuel oil of 1.50% as has been used in earlier versions of these Guidelines.

6 From the derived carbon contents and selected sulphur content value the molar ratio of fuel sulphur to fuel carbon is obtained in table 2 and from those the corresponding ratios of SO_2 and CO_2. One of the particular features of petroleum-derived liquid fuel oils is that despite the wide range of physical properties, such as viscosity and density, between distillates and residuals there is only a very limited range in terms of carbon composition. Hence it is a reasonable proposition to use a single SO_2/CO_2 ratio in order to represent all such fuel oils; in this instance 65 has been taken to correspond to the Emission Ratio which would be obtained if using a fuel oil of 1.50% sulphur content.[2] The value of 1.50% sulphur content was used as the basis of these calculations as that was the original limit value for Emission Control Areas as given by the MARPOL Annex VI text as adopted in 1997 and which has been subsequently amended.

7 From the Emission Ratio corresponding to 1.50% sulphur the Emission Ratios corresponding to the various sulphur limits now given in regulation 14 of MARPOL Annex VI are obtained, table 3.

Table 1: Fuel oil carbon content values

Distillate fuel oil – petroleum-derived

Carbon	Given	% m/m	86.2	
	Calculated	% m/m		85.08
Hydrogen	Given	% m/m	13.6	
	Calculated	% m/m		13.42
Sulphur		% m/m	0.2	1.50
Nitrogen + Oxygen		% m/m	0	0
Carbon / Hydrogen ratio			6.338	6.338

Residual fuel oil – petroleum-derived

Carbon	Given	% m/m	86.1	
	Calculated	% m/m		87.08
Hydrogen	Given	% m/m	10.9	
	Calculated	% m/m		11.02
Sulphur		% m/m	2.60	1.50
Nitrogen + Oxygen		% m/m	0.40	0.40
Carbon / Hydrogen ratio			7.899	7.899

Table 2: Emission Ratio values for 1.50% sulphur fuel oil

			Distillate	Residual
Fuel	Carbon	% m/m	85.08	87.08
	Sulphur	% m/m	1.50	1.50
	Carbon	mol/kg	70.90	72.57
	Sulphur	mol/kg	0.469	0.469
	S/C ratio	mol/mol	0.00661	0.00646
Exhaust gas Emission Ratio		SO_2 ppm / CO_2 %	66.12	64.60
			65	

Table 3: Emission Ratios corresponding to fuel oil sulphur content[2]

Fuel oil sulphur content % m/m	Emission Ratio
1.50	65
0.50	21.7
0.10	4.3

Note 1. Should treatment systems be developed that also reduce the CO_2 content, the core principle still applies except that in order to assess effectiveness in terms of SO_2 reduction the CO_2 value used would be that prior to that reduction i.e. CO_2 being measured at a point upstream of that treatment device.

Note 2. The given Emission Ratios only apply where a petroleum-derived liquid fuel oil is being used. For other fuel oils specific Emission Ratio values would need to be determined, and approved by the Administration, based on the particular composition of the fuel oil in question.

APPENDIX 3

DISCHARGE WATER DATA COLLECTION

1 Introduction

1.1 The discharge water quality criteria are intended to act as initial guidance for implementing EGCS designs. The criteria should be reviewed in the future as more data become available on the contents of the discharge and its effects, taking into account any advice given by GESAMP.

1.2 Administrations should therefore invite the collection of relevant data. To this end, shipowners in conjunction with the EGCS manufacturer are invited to sample and analyse samples of EGCSs, taking into account section 2 and section 3 of this appendix, as appropriate.

1.3 The sampling could be conducted during approval testing or shortly after commissioning and at about 12-monthly intervals.

2 Recommended procedure for sampling

2.1 In order to evaluate the contents of the discharge water and its effects, it is recommended that samples be analysed for the parameters listed under paragraph 2.4.1 of this appendix.

2.1 Preparation

2.1.1 This section describes preparations recommended prior to any sampling.

2.1.2 The EGCS should be equipped with sampling points for sampling of the following water streams:

.1 inlet water (for background);

.2 water after the EGC unit after treatment (if applicable) but before any kind of dilution; and

.3 discharge water after treatment and dilution.

2.1.3 Preparation for sampling, handling and transport

2.1.3.1 Sampling equipment

The sampling equipment and pre-prepared sample containers should be made ready prior to sampling. The equipment can be ordered from the laboratory performing the analysis. The equipment should be ordered well before the sampling takes place, taking into consideration the itinerary of the ship.

Below table lists the recommended physical properties of the sampling bottles needed. It takes ISO 5667-3 and the appropriate analytical standard into account, but other equivalent standards can also be used. The table furthermore informs how the samples should be stored when drawn and when they latest need to reach the laboratory for analysis (be aware that laboratories might not perform work during weekends). The "maximum time to analysis" is from

drawing to actual analysis and therefore special arrangements may be to be made with the laboratory to ensure that the given period, taking into account transit time etc., is not exceeded.

Parameter	**Bottle material**	**Volume**	**Method specifying sampling bottle requirements**	**Preservative**	**Storage temperature**	**Maximum time until analysis**
NO_2^-/NO_3^-	PE	250 mL	ISO 10304-1	No preservative	Frozen (≤ -18°C)	8 days
Total Metals	PE	500 mL	ISO 17294-2	HNO_3 Acid,	Cooled (4°C) / dark	1 month
Dissolved Metals	PE	500 mL	ISO 17294-2	No preservative	Cooled (4°C) / dark	1 month
PAHs	Amber-glass with PTFE seal	2 L (OL), 1 L (CL)	DIN EN 16691 or EPA 8270	No preservative	Cooled (4°C) / dark	7 days
Hydrocarbon oil index (GC-FID analysis)	Glass	1L	ISO 9377-2	Mineral acid pH<2	Cooled (4°C) / dark	4 days

It is practical to label sampling bottles before sampling. Identify each bottle such that it can be tracked back to sampling point, sampling parameter, EGCS operation mode and EGCS load.

2.1.3.2 Preparation for storage and holding of samples

To ensure proper storage and holding, crew need to appoint an appropriate space on board for samples and ice packs, preferably in an enclosed container in a cool space without direct sunlight.

2.1.3.3 Preparation for transport

In the situation samples need to be transported with ice packs, those should be deep-frozen at least 48 h prior to sampling.

It is recommended to arrange shipping of the samples in advance with the port agent of the destination port.

2.1.3.4 Preparation of personnel conducting the sampling

To ensure the health and safety of the personnel, it is recommended to wear the following equipment:

2.1.3.4.1 Protective eyeglasses/goggles, ear protection, gloves, protective clothing and safety shoes

2.1.3.5 Personnel qualifications and responsibilities.

It is important that the personnel taking the samples are well trained. They should be aware of:

.1 how the system is working and where the sampling points are located; and

.2 how to dispose of the flushing water collected during flushing.

The personnel should be competent in drawing samples and should know the location of the sampling points and how to safely dispose of the collected flushing water.

2.1.3.6 Information prior to sampling

It is recommended to complete the templates under 3.1 prior to sampling.

2.2 Collection

2.2.1 Sample time schedule

It is recommended to prepare a sampling time plan in advance in agreement with crew, considering when the samples latest need to be analysed at laboratory. The sampling plan should contain information that can identify which bottle contain which water (OL/CL, inlet/outlet etc.) and at which hour the sample was drawn. In this manner, continuous recorded EGCS control parameters can be retrieved at a later stage. Sampling should be undertaken with the EGCS operating above 50% of maximum exhaust gas flow (4.2.2.1.2.1 / 5.6.1.2.1).

2.2.2 Filling of the sampling bottle

To prevent contamination during sampling, the following practices are recommended:

.1 use sampling bottles prepared by laboratory;

.2 the water flow and thus the engine load(s) should be steady before and during sampling;

.3 the sampling valve should be flushed with a minimum of 10 litres of sampling water before taking out samples and is should not be closed or touched after flushing and before the sampling is done;

.4 if more than one bottle is filled, the sampling valve should not be closed in between;

.5 the use of any hydrocarbon-based cleaning agents at the sampling point should be avoided; and

.6 fill the sampling bottles to the brim and close firmly to avoid air in the bottles.

2.2.3 Information while sampling

It is recommended to complete the template under 3.2 while sampling.

2.3 Transportation

Sampling equipment to be used during transportation should meet provisions under 2.1.3.1 above.

2.3.1 Transportation container

For transportation an insulated and leak proof container should be used. The transportation container should be provided by the laboratory. It should be able to receive a sufficient quantity of ice packs.

2.3.2 Shipping to the laboratory

Shipping of the samples to the laboratory should take place as fast as possible. Labelling of the transportation container should be in accordance with local requirements for shipping and handling of water samples.

Immediately before handing over the samples to the port agent, the ice packs should be put into the box.

2.3.3 Chain of custody

A formal chain of custody process is required, with records.

Usually it is not necessary to include a customs declaration as these are water samples of zero commercial value.

2.3.4 Information from the laboratory

Take into consideration information, if any, provided by laboratory.

2.4 Sample preparation and analysis

Analysis should be undertaken by ISO 17025 accredited laboratories using EPA, ISO or equivalent test procedures. Methods used in the laboratories need to be within the scope of ISO 17025 accreditation of the laboratory.

2.4.1 To ensure comparability of laboratory results, the following methods are recommended:

Parameter	Recommended method for sample analysis	Recommended method for sample preparation
Polycyclic Aromatic Hydrocarbons (PAH): 16 EPA PAHs: Acenaphthene Acenaphthylene Anthracene Benzo-a-anthracene Benzo-a-pyrene Benzo-b-fluoranthene Benzo-g,h,i-perylene Benzo-k-fluoranthene Chrysene Dibenzo-a,h-anthracene Fluoranthene Fluorene Indeno-1,2,3-pyrene Naphthalene Phenanthrene Pyrene Sum of 16 PAHs	EN 16691:2015 or ISO 28540:2011 (recognizing EN 16691 as ISO is currently under consideration) or EPA 8270	* * EPA 3510; of EPA 3511; or EPA 3520.
Oil detailed GC FID analysis Determination of Hydrocarbons Oil Index	ISO 9377-2:2000	*
Nitrate and nitrite (NO_3-/NO_2-)	ISO 10304-1:2007 or ISO 15923-1:2013 or ISO 13395:1996 or EPA 353.2	* * * *
Total Metals: - Cd - Cu - Ni - Pb - Zn - As - Cr - V - Se	ISO 17294-2:2016 or EPA 200.8 or EPA 200.9	ISO 15587-1:2002 * *

Dissolved Metals: - Cd - Cu - Ni - Pb - Zn - As - Cr - V - Se	ISO 17294-2:2016 or EPA 200.8 or EPA 200.9	ISO 17294-2:2016 and filtration on 0.45 µm + HNO_3 EPA 200.8 and filtration on 0.45 µm + HNO_3 EPA 200.9 and filtration on 0.45 µm + HNO_3
Discharge water pH should be determined by instant onboard measurements	Record pH immediately on board	Record pH immediately on board

* Preparation method is included in the analytical method.

3 Recommended template for submitting sampling data

When submitting sampling data to the Administration, the data should include information according to paragraphs 1 and 2 as well as the results from the analyses as described under paragraph 5.

When submitting sampling data to the Administration, the following template is recommended.

3.1 Data Template Part 1 **Information prior to sampling**		
Parameter	Value	Unit
3.1.1 Ship information		
Ship's name		
IMO number		
Ship build date		dd.mm.yyyy
3.1.2 Combustion unit(s) details Engine questions should be answered for every fuel-burning facility connected to the EGCS		
Number of combustion units connected to EGCS		
Combustion unit(s) manufacturer(s)		
Type of combustion unit(s) (ME, AE, 2/4-stroke, boiler)		
EGCS capacity in MW		

3.1.3 EGCS general		
Name of manufacturer		
Name of system		
Number of streams	single/multiple	
System operation mode	open/closed/hybrid	
Type of washwater treatment		
EGCS retrofit or new building		
Installation date		
ETM scheme A or B approval		
Additional notes:		

Information in conjunction with sampling for each operation mode (OL and/or CL)		
Parameter	Value	Unit
3.2.1 Ship information during sampling		
Cruise speed		knots
Start of sampling date and time		UTC
Stop of sampling date and time		UTC
Ship's position start of sampling		GPS
Ship's position end of sampling		GPS
Weather conditions (during sampling)		calm/rough
3.2.2 EGCS operation		
Approx. EGCS load		%
System operation mode	open/closed	
Type of washwater treatment, if any		
Added chemicals for treatment		Name
Dosage rate of added chemicals for treatment during sampling		l/m³
Average washwater flow rate to EGCS during sampling period		m³/h
Average dilution water flow rate during sampling period, if given or relevant		m³/h
3.2.3 Combustion unit(s) operation		
Approx. total combustion unit(s) load to EGCS		MW
Total fuel consumption		t/h
Fuel sulphur content (according BDN)		
Fuel viscosity if available		
Additional notes:		

3.2.4 Online monitoring readings during sampling, for each sampling point			
Monitoring unit	pH	PAH_{phe} µg/L/ppb	Turbidity FNU/NTU
Inlet (if available), average during sampling period			
Discharge point, average during sampling period (outlet)		NA	NA
Before dilution, average during sampling period	NA		

3.2.5 Results to be reported by the laboratory				
Question	Answer		Comments	
Satisfactory temperature at arrival	Yes/No			
Sampling bottles and transportation container prepared by laboratory	Yes/No			
Methods within the scope of ISO 17025 accreditation of the laboratory	Yes/No			
Date and time samples arrived at laboratory				
Date and time of analyses				
Parameter	Bottle ID	Preparation method	Analytical method	Result + unit
Polycyclic Aromatic Hydrocarbons (PAH): 16 EPA PAHs: Acenaphthene Acenaphthylene Anthracene Benzo-a-anthracene Benzo-a-pyrene Benzo-b-fluoranthene Benzo-g,h,i-perylene Benzo-k-fluoranthene Chrysene Dibenzo-a,h-anthracene Fluoranthene Fluorene Indeno-1,2,3-c,d-pyrene Naphthalene Phenanthrene Pyrene				
Hydrocarbon Oil Index GC-FID analysis				
Nitrate and nitrite (NO_3^-/NO_2^-)				

Total Metals: - Cd - Cu - Ni - Pb - Zn - As - Cr - V - Se				
Dissolved Metals: - Cd - Cu - Ni - Pb - Zn - As - Cr - V - Se				

3.2.6 List of bottle IDs or chain of custody (COC)

Sampling point	Parameter PAH	Parameter Metals	Parameter X
Inlet	Bottle #1 + time stamp	Bottle #2 + time stamp	Etc.
discharge point	Bottle # + time stamp	Bottle # + time stamp	Etc.
Etc.	Etc.	Etc.	Etc.

APPENDIX 4

STANDARD SEAWATER TITRATION CURVE

1 The following is a description of the chemical equilibrium model and the resulting titration curve shown in the graph below (figure 1 for pure seawater). The equilibrium model may include the effect of adding an additional alkali to the seawater (e.g. NaOH).

2 The titration curve in figure 1 is prepared by using a chemical equilibrium model for seawater. The model includes inorganic carbon, boric acid, sulphate, fluoride and dissolved SO_2 equilibria; the equilibrium constants are functions of salinity (ionic strength) and temperature. The apparent pKa values for the equilibrium reactions are found in general oceanography literature, e.g. *An introduction to the chemistry of the sea, Michael E.Q. Pilson, Cambridge University Press (2013),* and in the publication *The Solubility of SO_2 and the dissociation of H_2SO_3 in NaCl solutions*, F. Millero, P. Hershey, G. Johnson and J. Zhang., Journal of Atmospheric Chemistry, 8 (1989). pH is given on the NBS scale.

3 Basis for the computed curve:

.1 Released CO_2 retained in solution, i.e. no forced stripping of CO_2;

.2 10% of dissolved S(IV) oxidized to S(VI) inside EGCS;

.3 Seawater alkalinity 2.2 mmol/L;

.4 Seawater salinity 35 psu;

.5 Seawater pH 8.2; and

.6 Seawater temperature 32°C.

4 Fit equation. The fit equation for pure seawater is provided based on an empirical equation fit to the EM curve. The equation is:

$$pH = 3.84 - 0.2308 \cdot SO_2 + \frac{1.403}{\left(0.0403 + exp\left(2.966 \cdot (SO_2 - 0.189)\right)\right)} + \frac{9.947}{\left(4.605 + exp\left(4.554 \cdot (SO_2 - 1.588)\right)\right)}$$

where the variable SO_2 is defined as SO_2 absorbed in mmol/kg seawater.

The "fit equation" is used for the determination of the dilution factor.

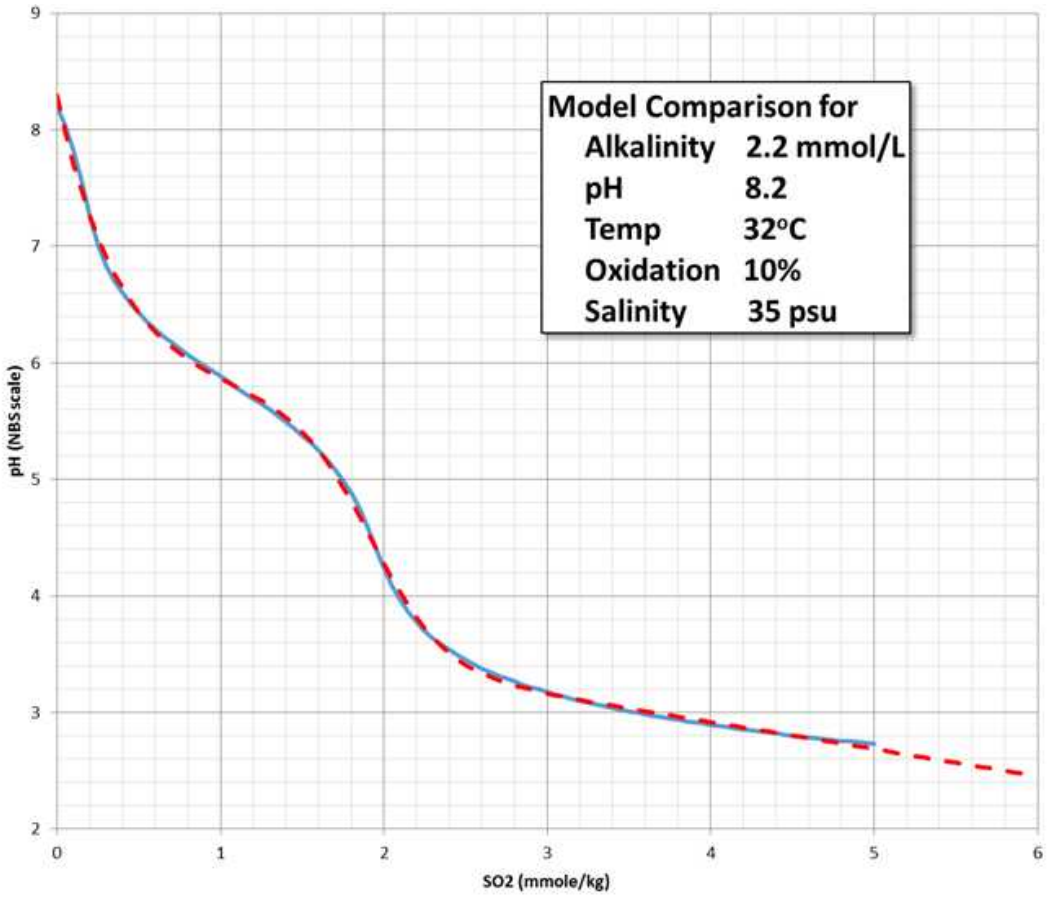

Figure 1 – pure seawater titration curve

APPENDIX 5

ANALYSER INFORMATION TEMPLATES

Under subsection 8.2 of these Guidelines certain information, as a minimum, should be included in the OMM in order to facilitate surveys and inspections.

Paragraph 8.2.4 requires that information should be given in respect of the exhaust gas and discharge water analysers used in the respective monitoring systems. In order to provide a common approach to the layout and detail which should be included, the following templates are provided and which may be used in the OMM. These templates represent the minimum information which should be given. Additional information may be required by the Administration.

The use of these templates is voluntary however a standardized layout will assist all users of the OMM.

Exhaust gas

SO_2 / CO_2 measurement Where common so indicate		
Analyser	SO_2	CO_2
Analyser manufacturer		
Model reference		
On board identification reference		
Arrangement	In situ/extractive	In situ/extractive
Probe location		
Probe description	(i.e. probe length, single/multiple hole/heated filter/heated pump)	(i.e. probe length, single/ multiple hole/heated filter/ heated pump)
Maximum measurement range	ppm	%
Used measurement range(s)	ppm	%
Zero gas specification		
Span gas specification		
Details of: service, maintenance, calibration schedules	Task/interval	Task/interval
Additional information		
Extractive systems only:		
Application	Single or multiple exhaust ducts (if multiple – state which ducts covered and sampling sequence, residence and purge times)	Single or multiple exhaust ducts (if multiple – state which ducts covered and sampling sequence, residence and purge times)

Sample line heated (if yes – maintained temperature °C)	Yes/No	Yes/No
Sample line details	Length, inner diameter	Length, inner diameter
Cooler/dryer: Manufacturer Model reference		
Additional information		

Water monitoring

pH/PAH/Turbidity * * delete as applicable	
Application	Sea water inlet/discharge water *
Analyser manufacturer	
Model reference	
On board identification reference	
Arrangement	In situ/bypass *
Position of sensor	
Maximum measurement range/units	
Used measurement range(s)/units	
Calibration fluid(s) – specification/ concentration/units	
Details of: service, maintenance, calibration schedules	Task/interval
Additional information	

***

ANNEX 10

DRAFT REVISED MEPC CIRCULAR

GUIDANCE ON INDICATION OF ONGOING COMPLIANCE IN THE CASE OF THE FAILURE OF A SINGLE MONITORING INSTRUMENT, AND RECOMMENDED ACTIONS TO TAKE IF THE EXHAUST GAS CLEANING SYSTEM (EGCS) FAILS TO MEET THE PROVISIONS OF THE EGCS GUIDELINES

1 The Marine Environment Protection Committee, at its seventy-fourth session (13 to 17 May 2019), approved the *Guidance on indication of ongoing compliance in the case of the failure of a single monitoring instrument, and recommended actions to take if the Exhaust Gas Cleaning System (EGCS) fails to meet the provisions of the 2015 EGCS Guidelines (resolution MEPC.259(68))* (MEPC.1/Circ.883).

2 The Marine Environment Protection Committee, at its seventy-fifth session (dates to be inserted), adopted, by resolution MEPC.[…](75) the *2020 Guidelines for exhaust gas cleaning systems*.

3 Recognizing the need to extend the scope of MEPC.1/Circ.883 to also include the EGCS installed in accordance with resolution MEPC.[…](75), MEPC 75 approved the revised Guidance set out in the annex.

4 Member Governments are invited to bring the annexed revised Guidance to the attention of Administrations, port State control authorities, industry, relevant shipping organizations, shipping companies and other stakeholders concerned.

5 This circular revokes MEPC.1/Circ.883.

ANNEX

GUIDANCE ON INDICATION OF ONGOING COMPLIANCE IN THE CASE OF THE FAILURE OF A SINGLE MONITORING INSTRUMENT, AND RECOMMENDED ACTIONS TO TAKE IF THE EGCS FAILS TO MEET THE PROVISIONS OF THE EGCS GUIDELINES[1]

System malfunction

1 An Exhaust Gas Cleaning System (EGCS) malfunction is any condition that leads to an emission exceedance, with the exception of the short-term temporary emission exceedance cases described in sections 7 and 8, or an interim indication of ongoing compliance in the case of sensor failure described in sections 9 to 11.

2 As soon as possible after evidence of a malfunction (e.g. alarm is triggered), the ship should take action to identify and remedy the malfunction.

3 The ship operator should follow the process to identify and remedy the malfunction in the Exhaust Gas Cleaning System – Technical Manual that is approved at the time the EGCS is certified or in other documentation provided by the EGCS manufacturer.

4 The trouble-shooting process specified by the EGCS manufacturer should describe how to determine, within a reasonable amount of time, if the system itself is not working properly and whether the system fault must be addressed through adjustment and/or repair. The procedure would describe events that can trigger a monitoring alarm or other evidence of a scrubber malfunction (e.g. pump flow rates) and the troubleshooting process to identify and remedy the malfunction. The process should include at a minimum the following:

.1 a checklist for the operator to use to identify a malfunction; and

.2 a list of remedial actions that can be taken to resolve the malfunction after it is identified.

5 An EGCS malfunction event should be included in the EGCS Record Book including the date and time the malfunction began and, if relevant, how it was resolved, the actions taken to resolve it and any necessary follow-up actions.

6 A system malfunction that cannot be rectified is regarded as an accidental breakdown. The ship should then change over to compliant fuel oil if the EGCS cannot be put back into a compliant condition within one hour. If the ship does not have compliant fuel oil or sufficient amount of compliant fuel oil on board, a proposed course of action, in order to bunker compliant fuel oil or carry out repair works, should be communicated to relevant authorities including the ship's administration, for their agreement.

Short-term exceedances

7 A short-term temporary emission exceedance is an exceedance of the applicable Emissions Ratio that may occur due to the EGCS dynamic response when there is a sudden change in the exhaust gas flow rate to the EGCS. There may be a short period during which the measured emission values might indicate that the applicable Emissions Ratio limit has been exceeded. This is a common behaviour of monitoring equipment and EGCS dynamic response (due to a sudden change in exhaust gas flow rate). A time lapse between when the sensor takes its reading and when the unit responds may trigger an alarm from the continuous

[1] Resolutions MEPC.184(59), MEPC.259(68) and MEPC.[…](75)

emission monitoring device even though the EGCS has not malfunctioned. Thus, transitory periods and isolated spikes in the recorded output do not necessarily mean exceedance of emissions and should therefore not be considered as a breach of the requirements.

8 The typical operating conditions that may result in a short-term temporary emission exceedance should be specified by the EGCS manufacturer in the EGCS Technical Manual that is approved at the time the EGCS is certified.

Interim indication of ongoing compliance in the case of sensor failure

9 When running on a fuel oil with a constant sulphur content and at constant washwater engine load ratio, all parameters monitored according to the EGCS Guidelines[2] (i.e. Emission Ratio, washwater pH, etc.) will be in a certain interrelation, all depending on each other. If one of the parameters changes, some other(s) will necessarily also have to change.

10 This interrelation also serves as an indicator of instrumentation malfunction; i.e. if a single sensor signal starts to deviate or even does not display, the effect on the other parameters may indicate whether the change in signal is caused by sensor failure or whether the performance of the EGCS itself has changed. If the other parameters are continuing at the normal levels, it is an indication that there is only an instrumentation malfunction rather than non-compliance with regard to the levels allowed in the exhaust gas and the discharge water.

11 If a malfunction occurs in the instrumentation for the monitoring of Emission Ratio or discharge water (pH, PAH, Turbidity), the ship should keep records of interim indication for demonstrating compliance. The documentation and actions should include (but are not limited to):

.1 the manual or automatic recording of the data at the time of malfunction may be used to confirm that all other relevant data as recorded for the performance of the EGCS are showing values in line with values prior to the malfunction;

.2 the ship operator should record the sulphur content of the various grades of fuel oil used in the affected fuel oil combustion units from the time when the malfunction started;

.3 the ship operator should log the malfunctioning of the monitoring equipment and (for Scheme A) record all parameters that might be suitable to indicate compliant operation. This record could serve as an alternative documentation demonstrating compliance until the malfunction is rectified; and

.4 the monitoring equipment that has suffered a malfunction should be repaired or replaced as soon as practicable.

Notifications to relevant Authorities

12 Any EGCS malfunction that lasts more than 1 hour or repetitive malfunctions should be reported to the flag and port State's Administration along with an explanation of the steps the ship operator is taking to address the failure. At their discretion, the flag and port State's Administration could take such information and other relevant circumstances into account to determine the appropriate action to take in the case of an EGCS malfunction, including not taking action.

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;[2] Resolutions MEPC.184(59), MEPC.259(68), and MEPC.[…](75)

ANNEX 11

DRAFT SCOPE OF WORK FOR EVALUATION AND HARMONIZATION OF RULES AND GUIDANCE ON THE DISCHARGE OF DISCHARGE WATER FROM EGCS INTO THE AQUATIC ENVIRONMENT, INCLUDING CONDITIONS AND AREAS

Scope of work

Part 1: A Risk assessment

- Develop a framework (guidelines) setting out factors that should be taken into consideration, to enhance harmonization when assessing the risks and possible harmful effects of EGCS discharge water.

- Develop a risk assessment guideline for the evaluation of possible harmful effects of the discharge water from EGCS, taking into account existing methods and mathematical models.

  Factors to be considered for inclusion in the risk assessment framework to be further developed.

Part 1-B: Impact assessment

- Following the risk assessment guideline, the development of an impact assessment guideline should be considered.

Part 2: Delivery of EGCS residues

- Develop guidance regarding the delivery of EGCS residues to port reception facilities regarding volumes and composition of residues.

Part 3: Regulatory matters

- Assess the state of technology for EGCS discharge water treatment and control.

- Identify, and develop as appropriate, possible regulatory measures and instruments.

- Develop a data base containing local/regional restrictions/conditions on the discharge water from EGCS.

Part 4: Database of substances

- Establish a database of substances identified in EGCS discharge water, covering physico-chemical data, ecotoxicological data and toxicological data, leading to relevant endpoints for risk assessment purposes.

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ANNEX 12

DRAFT AMENDMENTS TO MARPOL ANNEX I

(Prohibition on the use and carriage for use as fuel of heavy fuel oil by ships in Arctic waters)

(New text shown as underlined and text to be deleted a ~~strikethrough~~)

1 The title of chapter 9 is amended as follows:

"Chapter 9 – Special requirements for the use or carriage of oils in ~~the Antarctic area~~ polar waters"

2 A new regulation 43A is added after existing regulation 43 as follows:

"**Regulation 43**
Special requirements for the use or carriage of oils in the Antarctic area

1 With the exception of vessels engaged in securing the safety of ships or in a search and rescue operation, the carriage in bulk as cargo, use as ballast, or carriage and use as fuel of the following:

.1 crude oils having a density at 15°C higher than 900 kg/m^3;

.2 oils, other than crude oils, having a density at 15°C higher than 900 kg/m^3 or a kinematic viscosity at 50°C higher than 180 mm^2/s; or

.3 bitumen, tar and their emulsions,

shall be prohibited in the Antarctic area, as defined in Annex I, regulation 1.11.7.

2 When prior operations have included the carriage or use of oils listed in paragraphs 1.1 to 1.3 of this regulation, the cleaning or flushing of tanks or pipelines is not required.

Regulation 43A
Special requirements for the use and carriage of oils as fuel in Arctic waters

1 With the exception of ships engaged in securing the safety of ships or in search and rescue operations, and ships dedicated to oil spill preparedness and response, the use and carriage of oils identified in paragraph 1.2 of regulation 43 as fuel by ships shall be prohibited in Arctic waters, as defined in regulation 46.2 of this Annex, on and after 1 July 2024.

2 Notwithstanding the provisions of paragraph 1 of this regulation, for ships to which regulation 12A of this Annex or regulation 1.2.1 of chapter 1 of Part II-A of the Polar Code apply, the use and carriage of oils identified in paragraph 1.2 of regulation 43 as fuel by ships shall be prohibited in Arctic waters, on and after 1 July 2029.

3 When prior operations have included the use and carriage of oils listed in paragraph 1.2 of regulation 43 as fuel, the cleaning or flushing of tanks or pipelines is not required.

4 Notwithstanding the provisions of paragraphs 1 and 2 of this regulation, the Administration of a Party to the present Convention, the coastline of which borders on Arctic waters, may temporarily waive the requirements of paragraph 1 of this regulation for ships flying the flag of the Party while operating in waters subject to the sovereignty or jurisdiction of that Party, taking into account the guidelines to be developed by the Organization. No waivers issued under this paragraph shall apply on and after 1 July 2029.

5 The Administration of a Party to the present Convention which allows application of paragraph 4 of this regulation shall communicate to the Organization for circulation to the Parties particulars thereof, for their information and appropriate action, if any."

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ANNEX 13

DRAFT MEPC CIRCULAR

2020 GUIDELINES FOR SYSTEMS FOR HANDLING OILY WASTES IN MACHINERY SPACES OF SHIPS INCORPORATING GUIDANCE NOTES FOR AN INTEGRATED BILGE WATER TREATMENT SYSTEM (IBTS)

1 MARPOL Annex I contains certain regulations and unified interpretations related to equipment for the storage, handling and disposal of oily residues (sludge) and engine-room oily bilge water.

2 In order to facilitate the work of Administrations on systems for handling oily wastes in machinery spaces of ships, the Marine Environment Protection Committee (the Committee) has continuously reviewed available technologies for the fulfilment of the Convention requirements.

3 The Committee, at its thirtieth session (November 1990), considered and approved the *Guidelines for systems for handling oily wastes in machinery spaces of ships* (MEPC/Circ.235).

4 The Committee, at its fifty-fourth session (March 2006), approved the *Revised Guidelines for systems for handling oily wastes in machinery spaces of ships incorporating guidance notes for an integrated bilge water treatment system (IBTS)* (MEPC.1/Circ.511), including the concept of IBTS which incorporates the means to reduce the amount of oily bilge water and process the oily bilge water and oil residue (sludge) in a holistic manner.

5 The Committee, at its fifty-eighth session (October 2008), having recognized a need to amend the Guidelines (MEPC.1/Circ.511) following the entry into force of MARPOL Annex VI which includes provisions for shipboard incineration of sludge oil generated during the normal operation of a ship, considered and approved the *2008 Revised Guidelines for systems for handling oily wastes in machinery spaces of ships incorporating guidance notes for an integrated bilge water treatment system (IBTS)* (MEPC.1/Circ.642) (2008 Revised Guidelines).

6 The Committee, at its fifty-ninth session (July 2009), approved an amendment to the 2008 Revised Guidelines (MEPC.1/Circ.676), which was consequential to the amendment to regulation 12.2.2 of MARPOL Annex I that the Committee adopted at the same session and entered into force on 1 January 2011.

7 The Committee, at its sixty-second session (July 2011), approved further amendments to the 2008 Revised Guidelines (MEPC.1/Circ.760), including a format of Statement of Fact on Installation of an IBTS.

8 The Committee, at its seventy-sixth session (dates to be inserted), approved the *2020 Guidelines for systems for handling oily wastes in machinery spaces of ships incorporating guidance notes for an integrated bilge water treatment system (IBTS)* (2020 IBTS Guidelines), as set out in annex, which amalgamate the three IBTS related circulars (MEPC.1/Circ.642, MEPC.1/Circ.676 and MEPC.1/Circ.760), and provide, inter alia, further clarifications and guidance for record-keeping.

9 Member Governments are invited to apply the 2020 IBTS Guidelines and to bring them to the attention of interested parties, including recognized organizations.

10 This circular revokes MEPC.1/Circ.642, MEPC.1/Circ.676 and MEPC.1/Circ.760.

ANNEX

2020 GUIDELINES FOR SYSTEMS FOR HANDLING OILY WASTES IN MACHINERY SPACES OF SHIPS INCORPORATING GUIDANCE NOTES FOR AN INTEGRATED BILGE WATER TREATMENT SYSTEM (IBTS)

1 Introduction

1.1 Certain regulations of MARPOL Annex I and their associated unified interpretations relate to equipment for the storage, handling and disposal of oily residues (sludge) and oily bilge water.

1.2 In the continuous review by the Marine Environment Protection Committee (the Committee) of appropriate technology for fulfilment of MARPOL Annex I requirements, substantial information has been collected which is valuable in the design, approval and surveying of installations in engine-rooms for systems handling oily bilge water, and oily residues (sludge), but this does not form part of the regulations or the related interpretations.

1.3 The Committee decided that this information is, nevertheless, of substantial value to Administrations, shipowners and shipbuilders and, accordingly, decided that dissemination of the information should be in the format of an MEPC circular.

1.4 The information contained in these Guidelines should be regarded as guidance in achieving an efficient and effective system for the handling of oily bilge water and oily residues (sludge) for new buildings and, where applicable and reasonable, for ships which are in service. The information should be considered in conjunction with specific conditions and circumstances, shipowners' and shipbuilders' practices, classification society rules, Administration requirements, etc., applicable to specific ships.

1.5 The relevant unified interpretations to MARPOL Annex I should further be considered in achieving an efficient and effective system for the handling of oily water bilge and oil residue (sludge).

2 Definitions for the purpose of the Guidelines

2.1 Oily wastes mean oil residues (sludge) and oily bilge water.

2.2 Oil residue (sludge) means the residual waste oil products such as those resulting from the purification of fuel or lubricating oil from main or auxiliary machinery or separated waste oil from bilge water separators, oil filtering equipment or oil collected in drip trays, and waste hydraulic and lubricating oils.

2.3 Oil residue (sludge) tanks are the tanks that hold oil residue (sludge) directly from which oil residue (sludge) may be disposed through the standard discharge connection or any other approved means of disposal.

2.4 Oily bilge water holding tanks are tanks collecting oily bilge water prior to its discharge, transfer or disposal.

2.5 Regulations referred to in these Guidelines are those contained in MARPOL Annex I adopted by resolution MEPC.117(52), as amended.

2.6 Oil residue (sludge) incineration systems are systems providing incineration of oil residue (sludge) generated on board seagoing ships. Oil residue (sludge) incineration systems could be:

.1 main and auxiliary steam boilers with appropriate oil residue (sludge) processing systems;

.2 heaters of thermal fluid systems with appropriate oil residue (sludge) processing systems;

.3 incinerators with appropriate oil residue (sludge) processing systems designed for sludge incineration; or

.4 inert gas systems with appropriate oil residue (sludge) processing systems.

Oil residue (sludge) incineration systems shall conform to regulation 16 of MARPOL Annex VI.

2.7 Oil residue (sludge) drain tanks are:

.1 tanks intended to receive separated sludge from purifiers and other oil residue (sludge) drains;

.2 tanks without any means for disposal of sludge as listed in items 3.2 and 4 in the Supplement to the IOPP Certificate, and drains; and

.3 tanks with suction connection for a sludge collecting pump only capable of discharging to the oil residue (sludge) tank(s) listed in item 3.1 in the Supplement to the IOPP Certificate.

2.8 Sludge collecting pumps are pumps capable of taking suction from any oil residue (sludge) producing equipment or tank, other than an oil residue (sludge) tank(s), and discharging only to oil residue (sludge) tank(s).

2.9 Separated sludge is sludge resulting from the purification of fuel and lubricating oil.

3 Collection and storage of oil residue (sludge) and oily bilge water

3.1 Providing an oil residue (sludge) tank or tanks is mandatory under regulation 12 of MARPOL Annex I.

3.2 An oily bilge water holding tank is arranged to receive the daily generation of oily bilge water before this water is discharged ashore or discharged through the 15 ppm bilge separator overboard. The oily bilge water holding tank is not mandatory, but it will enable ships to operate safely during port visits, during operation in special areas and coastal waters and during periods of maintenance of the 15 ppm bilge separator.

3.3 An oily bilge water holding tank will also provide additional safeguards in the purification of oily bilge water should quick-separating detergents be used for cleaning purposes.

3.4 If fitted, oily bilge water holding tanks shall be listed in the Supplement to the IOPP Certificate (MARPOL Annex I, appendix II, section 2.5.2 or 3.3).

4 Arrangements for oil residue (sludge) and oily bilge water tanks

4.1 Tanks for the purposes mentioned above should be arranged to satisfy the intended service of the ship.

4.2 Oil residue (sludge) tanks may be separate and independent but may also be combined, as suitable, depending on the size and the service of the ship.

4.3 The merits of arranging an independent tank for the collection of separated sludge should be considered, having regard to the smaller tank volume that needs to have cleaning and heating arrangements and the reduced space requirement for tank capacity that should preferably be arranged above the tank top.

4.4 If an oily bilge water holding tank is arranged, it should be separate and independent from other tanks for the collection of oil residue (sludge).

4.5 Ships operating with heavy fuel oil of a relative density greater than 0.94 at 15°C should be provided with an oily bilge water holding tank of adequate capacity and fitted with heating facilities to preheat the oily mixture prior to the discharge of the tank's contents into the sea through the 15 ppm bilge separator.

5 Size of oily residue (sludge) and oily bilge water tanks

5.1 Tanks for collection of oily wastes from various functions in the engine-room should have adequate capacity, having regard to the intended type of service of the ship. The information given below will provide guidance in this respect, but all other aspects applicable to the specific ship trading pattern and time in port should additionally be taken into account.

5.2 The recommended capacity for oil residue (sludge) tanks is specified in the interpretations to regulation 12 of MARPOL Annex I.

5.3 Oily bilge water holding tanks, if fitted, should have a capacity that provides to the ship the flexibility of operation in ports, coastal waters and special areas, without the need to discharge de-oiled water overboard. The operational merit of not having to operate the 15 ppm bilge separator frequently should also be considered. The recommended capacity of oily bilge water holding tanks should be as follows:

Main engine rating (kW)	Capacity (m3)
up to 1,000	4
Above 1,000 up to 20,000	P/250
Above 20,000	40+P/500

Where: P = main engine rating in kW.

For ships adopting IBTS, the capacity of oily bilge water holding tanks may be reduced.

6 Pumping, piping and discharge systems in machinery spaces

6.1 On board ships, the propulsion systems of which are operated by heavy fuel oil, the following guidelines are provided for the piping system comprising the plant components for the treatment and storage of oily bilge water, oil residue (sludge), drain and leakage oil and exhausted oil.

6.2 The effluent from the 15 ppm bilge separators should be capable of being recycled to the oily bilge or oily bilge water holding tank.

6.3 If an integral pump is fitted, the discharge should not bypass the 15 ppm bilge separator.

6.4 The discharge piping system of the 15 ppm bilge water separator should be completely separate from the bilge pumping and ballast water system except the recycling line referred to in paragraph 6.2.

6.5 Discharge piping systems fitted to secure the safety of the ship in emergency situations, such as fire or flooding, should efficiently and promptly tackle such emergencies and therefore should be available at all times in order to comply with the provisions of bilge pumping arrangements in SOLAS chapter II-1. Accordingly, the bilge overboard discharges should not be blanked off and should remain operational at all times.

6.6 The ship's discharge pipeline for oil residue (sludge) to the standard discharge connection shall be in compliance with regulation 12 of MARPOL Annex I

6.7 The separated dirty water and exhausted control water of fuel oil purifiers should be discharged into a particular tank for this purpose in order to minimize the influx to the oil residue (sludge) drain tank for separated sludge. This particular tank should be located above the double bottom for the purpose of facilitating its drain without the need of a drain pump. If dirty water and exhausted control water from purifiers is not discharged to a particular tank, and in lieu of this to an oil residue (sludge) drain tank for separated sludge, the tank should be located above the double bottom for the purpose of the aforementioned draining facilities.

6.8 In accordance with regulation 12.3 of MARPOL Annex I, piping to and from sludge tanks shall have no direct connection overboard, other than the standard discharge connection required by regulation 13.

7 Systems for separated sludge

7.1 Tanks for separated sludge and their pipework

Tanks for separated sludge, their pipework and pumps should be designed taking into account the guidance contained in the following sub-paragraphs. For size of tanks, refer to the guidance contained in section 5.

7.1.1 Tank heating system

Tanks for separated sludge should be equipped with tank heating systems. The heating pipes should be arranged such that, seen from the heating inlet, to start with they are arranged in the way of the boundaries and then across the whole bottom area sufficiently high, in order to avoid being covered totally by sediments in the tank. The tank heating system should be designed such as to enable heating of the oil sludge up to 60°C. The suction line from the sludge tank to the pump should be provided with heat tracing.

7.1.2 Oil residue (sludge) drain tank

The tank for separated sludge or other waste oils may be arranged as a separate oil residue (sludge) drain tank.

7.1.3 Pipelines from the heavy fuel oil purifier to the tank

Whenever possible, the oil residue (sludge) tank should be located below the heavy fuel oil purifier. If this is not possible, the oil residue (sludge) holding tank should be situated close to the heavy fuel oil purifier in such a way that the discharge line to the tank can be installed at the maximum gradient. The pipelines should, wherever possible, be straight or fitted with large radius elbows.

7.1.4 Suction line from the oil residue (sludge) tank

The pump suction should be arranged so that the path to the suction opening is as short as possible; or the oil residue (sludge) tank should be mounted or designed so that the oil residue (sludge) moves down a slope towards the suction opening. The openings should be placed as wide as possible in the frames above the tank bottom in such a way that the oil sludge has free access to the suction line.

7.1.5 Oil residue (sludge) collecting pump and pressure lines

The pump should be suitable for use with high viscosity oil residue (sludge), e.g. "self-priming displacement pump", with suitable means for protection against dry running. It should have a sufficient total head, and delivery rate to facilitate the transfer of the daily sludge production on board.

7.1.6 Oil residue (sludge) discharge pump and pressure lines

The pump should be suitable for use with high viscosity oil sludge, e.g. "self-priming displacement pump", with suitable means for protection against dry running. It should have a sufficient total head and be capable of discharging the tank within 4 to 8 hours.

7.1.7 Oil residue (sludge) tank design to facilitate cleaning

Access holes should be arranged so that all areas of the tank can be cleaned. An access hole should be sited on top of the tank to facilitate the use of a portable pump.

7.1.8 Steaming-out lines

The oil residue (sludge) tanks should be fitted with steaming-out lines for cleaning.

8 Example of an onboard system for oil residue (sludge) incineration

8.1 General

Oil residue (sludge) from oil residue (sludge) tanks may be incinerated in incineration systems on board. Oil residue (sludge) tanks are not a means for disposal of oil residue (sludge), but for retention of oil residue (sludge) for disposal.

8.2 Oil residue (sludge) incineration systems

An oil residue (sludge) incineration system may be composed of:

.1 steam boiler or heater of thermal fluid systems or an incinerator;

.2 oil burner;

.3 oil sludge processing system; and

.4 service tanks for oil residue (sludge).

8.3 Oil residue (sludge) processing systems

The oil sludge processing system consists of:

.1 oil residue (sludge) tank intended as servicing the oil residue (sludge) sludge incinerating system;

.2 oil residue (sludge) preheating system;

.3 filter; and

.4 homogenization system.

8.4 Oil residue (sludge) service tank

The oil residue (sludge) service tank should be listed under item 3.1 in the Supplement of the IOPP Certificate, as it is provided with means for drainage of water (disposal) and subsequent disposal of the oil residue (sludge) in the oil residue (sludge) incineration system.

The oil residue (sludge) service tank should be provided in addition to the oil residue (sludge) tank for oil residue (sludge) and other waste oils. It should be equipped with suitable drainage facilities terminating as provided for in regulation 12.3.3.1 of MARPOL Annex I. With a view to improving combustibility and calorific value, a fuel oil supply connection should be provided.

8.5 Homogenization system

The homogenization system should assure that the entire contents of the oil residue (sludge) service tank should be processed into a homogenous and combustible mixture. This system should be put into operation following the adequate draining of the tank. A device for continuous indication and monitoring of the water content of the oil sludge should be provided.

9 Statement of Fact

A Statement of Fact may be issued by the Administration, or surveyors or recognized organizations nominated by the Administration, to ships flying its flag having voluntarily installed an integrated bilge water treatment system (IBTS) under the provisions of the Guidelines contained in appendix 1. The recommended format of the Statement of Fact is contained in appendix 2.

APPENDIX 1

GUIDANCE NOTES FOR AN INTEGRATED BILGE WATER TREATMENT SYSTEM (IBTS)

1 Introduction

1.1 Oily bilge water is generated by the leakage of water and oil from the equipment and piping or maintenance works resulting from the routine operation in the machinery space of ships. Such leaked oil and water are usually mixed and collected on the tank top or bilge wells as oily bilge water.

1.2 MARPOL Annex I provides mandatory requirements with regard to treatment of oily bilge water. The operation of such treatment, including the operation and maintenance of the oily water separator, is a heavy load for engineers on board.

1.3 After the revision of the *Guidelines and Specifications for Pollution Prevention Equipment for Machinery Space Bilge of Ships* adopted by resolution MEPC.107(49), the capability of oily water separators has been improved. However, the treatment process of oily bilge water with the improved equipment and the engineers' load will be basically unchanged as the amount of oily bilge water generated in ships has not been reduced.

1.4 To promote the prevention of oil pollution from machinery spaces of ships and reduce the load of the engineers on board, it is effective to minimize the amount of oily bilge water generated in machinery spaces.

1.5 The purpose of these Guidance notes is to provide shipowners and shipbuilders with information to help in the design of ships incorporating the concept of IBTS.

2 Concept of Integrated Bilge Water Treatment System (IBTS)

The Integrated Bilge Water Treatment System (IBTS) is a system to minimize the amount of oily bilge water generated in machinery spaces by treating the leaked water and oil separately. It also provides an integrated means to process the oily bilge water and oil residue (sludge).

3 Definitions for the purpose of the Guidance notes

3.1 "Clean drains" mean internal drains such as those resulting from the leakage of, and condensate from, equipment used for seawater, fresh water, steam, air conditioning, etc., which are not normally contaminated by oil.

3.2 "Oily drains" mean drains such as those resulting from the leakage of equipment used for oil and drains from equipment which under normal circumstances may contain oil.

3.3 "Oily bilge water" means water collected in the bilge wells or the tank top such as those resulting from the unexpected leakage from piping or the maintenance work in machinery spaces, which may be contaminated by oil.

3.4 "Oil residue (sludge)": refer to paragraph 2.2 of the revised Guidelines; includes oily drains.

3.5 "Bilge separation unit" is a pretreatment unit designed to separate out oil from the bilge water before the bilge water goes into the oily bilge water holding tank.

3.6 "Clean bilge holding tank" means tanks which hold processed water from the oil filtering equipment.

4 Outline of IBTS

4.1 Collection of drains

4.1.1 Oily drains are collected through the fixed drainage arrangements to oil residue (sludge) tanks.

4.1.2 Clean drains are collected through the fixed drainage arrangements to clean drain tanks. Open scuppers should not be directed into the clean drain tank.

4.1.3 Oily drains and clean drains should be collected separately so as not to contaminate clean drains with oil.

4.2 Pretreatment of oily bilge water

To avoid feeding excessive oil to oil filtering equipment, oily bilge water in the bilge wells is transferred to the bilge separation unit for the preseparation of oil. The high oil content water is transferred to sludge tanks, and the low oil content water is transferred to the oily bilge water holding tank.

4.3 Discharge of oily bilge water

4.3.1 Oily bilge water in the oily bilge water holding tank is discharged overboard through the oily water separator in accordance with regulation 14 of the Convention.

4.3.2 Clean bilge water that has been processed through the oil filtering equipment may only be discharged through the 15 ppm bilge alarm combined with an automatic stopping device by means of a separate clean bilge water pump.

4.4 Discharge of clean drains

Clean drains may be discharged overboard directly through the discharge arrangement, independent from the system for oily bilge water or oil.

4.5 Treatment of oil residue (sludge)

4.5.1 Oil residue (sludge) may be collected in separate tanks designated for fuel oil residues and lubrication oil residues, respectively.

4.5.2 Water in oil residue (sludge) may be evaporated by mixing and heating in the oil residue (sludge) service tanks. The process of reducing water in the oil residue (sludge) by forced evaporation should be carefully managed to control the temperature in the sludge tank to allow water evaporation but also reduce the chance of oil mist formation in the vent lines. The maximum temperature of the oil residue (sludge) service tanks should not exceed 100℃. The heating time for evaporation should be kept to a minimum, only to reduce water content enough to secure sufficient combustibility. To prevent back flow of condensed water, the vent line should be thermally insulated or fitted with other means, e.g. an extraction fan. The use of a condensate/mist-capture return line may be considered to divert any condensate back to the oil residue (sludge) tank or oil residue (sludge) service tank.

4.5.3 Oil residue (sludge) may be incinerated by the sludge incineration system or disposed of to the reception facilities through the standard discharge connection.

4.6 Regenerating fuel oil from sludge

4.6.1 Oil residue (sludge) may be used on board as regenerated fuel. Oil residue (sludge) is collected in an oil residue (sludge) tank prior to processing (disposal) back into the fuel oil system as regenerated fuel oil.

4.6.2 Oily drains should be recorded in the oil record book as any other oil residue (sludge) collection.

4.6.3 Regeneration of fuel oil from oil residue (sludge) should be an approved means of disposal of oil residue (sludge) according to the Supplement to the IOPP Certificate.

4.6.4 The regenerating process may include filtration, decanting or purification to remove unwanted heavy parts from the oil residue (sludge).

4.6.5 Care should be taken to ensure that fuel oil quality requirements in Emission Control Areas (SO_X) are complied with when regenerated fuel oil is used in such an area.

4.6.6 The regenerated fuel is fed back into the vessel's fuel oil system at a rate equal to or less than the average sludge production on board. This is in order not to change the emission level of the exhaust when using the fuel oil with added regenerated fuel oil compared to using fuel oil as delivered without prior sludge separation.

5 Additional installations of IBTS

In addition to the installations required by the Convention, the following installations should form part of IBTS:

5.1 Drainage system

5.1.1 Drip trays or coamings with sufficient depth should be provided under the equipment used for oil such as diesel engines, burners, pumps, heaters, coolers, filters and tanks to contain spillage of oil.

5.1.2 Drip trays or coamings with sufficient depth should be provided under the equipment used for water such as pumps, heaters, coolers, filters, tanks, condensers and boilers to contain spillage of water.

5.1.3 Independent drainage arrangements for oil and water to sludge tanks and the bilge water holding tank should also be provided. Any open water drain in the engine-room falls under the definition of oily bilge water from engine-rooms. Such water shall be disposed ashore or via an oily water separator overboard.

5.1.4 Independent drainage of clean water drains from equipment not normally containing oil should be to clean drain tanks.

5.2 Pretreatment unit for oil separation

Pretreatment may take place in dedicated equipment or bilge separation unit.

A bilge separation unit is not a holding tank and should only be filled or emptied during maintenance. It is a unit which separates oil from oily bilge water by gravity. It may make use

of a cascade with drainage facilities for the oil on the top so as to enable primary separation of oily bilge water. Facilities to remove sediments should be provided.

Refer to the example of a bilge separation unit shown in figure 1.

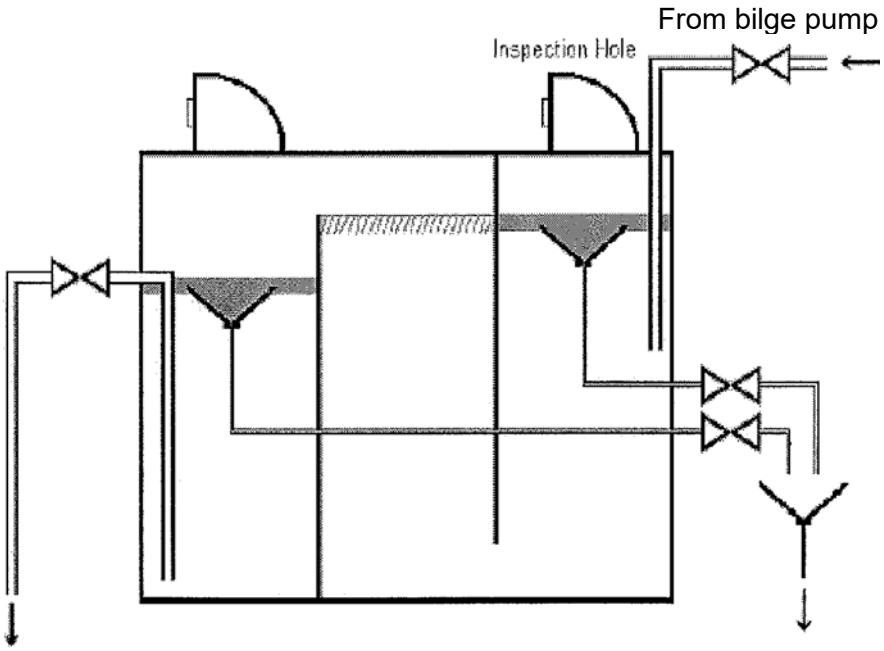

Figure 1 – Example of a bilge separation unit

5.3 Storage tanks

5.3.1 Clean drain tank: tank for the retention of clean drains.

5.3.2 Oily bilge water holding tank: tank for the collecting of oily bilge water.

5.3.3 Oil residue (sludge) service tanks: tank for preparation of oil residue (sludge) for incineration.

5.4 Discharge arrangement of clean drains

The overboard discharge arrangement of clean drains should be independent from the system for oily bilge water. Cleaning of equipment having clean drains should take account of the proper handling of chemical cleaning agents (e.g. emulsifiers) and wash water residue (including soot and sooty oil). The cleaning agent/wash water residue can foul an oil filtration system and should, therefore, be subjected to separate collection and/or filtration (e.g. portable units).

5.5 Exclusive pump for the oily water separator

It is preferable that an exclusive pump is provided to transfer the pretreated bilge water from the oily bilge water holding tank to the oily water separator so as not to mix the pretreated bilge water with untreated oily bilge water.

5.6 Heating arrangement

5.6.1 Heating arrangement for the bilge separation unit to facilitate the separation of oil.

5.6.2 Heating arrangements for the oil residue (sludge) service tank to vaporize water and facilitate incineration. The maximum temperature of the oil residue (sludge) service tanks should not exceed 100℃. The heating time for evaporation should be kept to a minimum, only to reduce water content enough to secure sufficient combustibility.

6 Example of IBTS

A typical flow diagram of the IBTS is shown in figure 2.

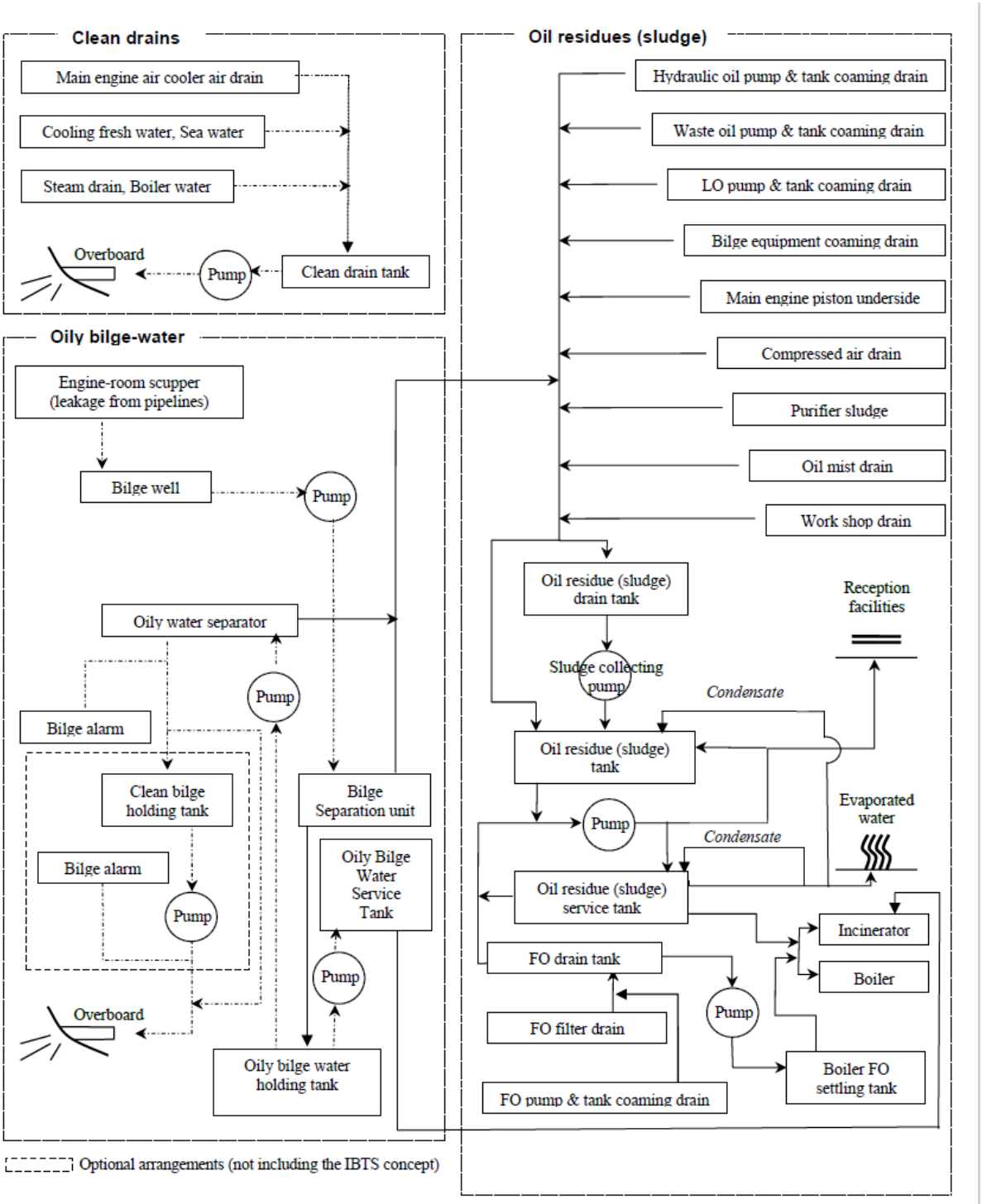

Figure 2 – Flow Diagram of Integrated Bilge Water Treatment System (IBTS)

APPENDIX 2

FORMAT OF STATEMENT OF FACT ON INSTALLATION OF AN INTEGRATED BILGE WATER TREATMENT SYSTEM (IBTS)

Particulars of ship:

Name of ship

.....

Distinctive number or letters

.....

Port of registry

.....

Gross tonnage

.....

IMO Number

.....

This is to confirm that the arrangement of the integrated bilge water treatment system (IBTS) installed on this ship is in accordance with the specifications contained in the annex to the *2020 Revised Guidelines for systems for handling oily wastes in machinery spaces of ships incorporating Guidance notes for an integrated bilge water treatment system (IBTS)* (MEPC.1/Circ.XXX) to the extent as recorded below ("X" indicates provided and "-" indicates not provided).

1 Drainage system

	(1)	Drip trays or coamings with sufficient depth are provided under the equipment using oil such as diesel engines, burners, pumps, heaters, coolers, filters, fuel and oil purifiers and tanks to contain spillage of oil.	☐
	(2)	Drip trays or coamings with sufficient depth are provided under the equipment using water such as pumps, heaters, coolers, filters, tanks, condensers and boilers to contain spillage of water.	☐
	(3)	Independent drainage arrangements for oily drains to oil residue (sludge) tanks are provided.	☐
	(4)	Independent drainage arrangements of clean water drains from equipment in machinery spaces not normally containing oil are provided.	☐
	(5)	An exclusive pump to transfer the oily bilge water from bilge wells or tank top to the pretreatment unit or to bilge separation unit is provided.	☐

2 Pretreatment unit for oil separation

	(1)	Bilge separation units or other equipment are provided for the separation of oil from oily bilge water.	☐
	(2)	Bilge separation unit.	
		(a) Cascades with drainage facilities for oil on the top so as to enable primary separation of oily bilge water is provided.	☐
		(b) Facilities to remove sediments are provided.	☐
		(c) Heating arrangements to facilitate separation of oil in case where the primary separation by gravity is difficult are provided.	☐
	(3)	Pretreatment unit other than the bilge separation unit.	
		(a) If the pretreatment unit other than the bilge separation unit is provided on board the vessel, its pretreatment ability is to be ensured as equivalent to the bilge separation unit.	☐

3 Storage Tanks

	(1)	The ship is provided with clean drain tank(s) for the retention on board of clean drain water as follows:	☐

Identification	Tank Location: Frames (from)-(to)	Tank Location Lateral position	Volume (m^3)

	(2)	The ship is provided with oily bilge holding tank(s) for the retention on board of oily bilge water as shown in section 3.3 of Form A or B.	☐
	(3)	The ship is fitted with oily bilge holding tank(s) for the total retention on board of all oily bilge water as shown in section 2.5.2 of Form A or B.	☐
	(4)	The ship is provided with oil residue (sludge) tank(s) for retention of oil residues (sludge) on board, as shown in section 3.1 of Form A or B.	☐

4 Discharge arrangement of clean drains

	(1)	Overboard discharge arrangements of clean drains which are independent from the system for oily bilge water are provided.	☐
	(2)	Means, if provided, to monitor discharges of the clean drains into the sea, as follows:	☐

5 Discharge arrangement of oily bilge water

	(1)	An exclusive pump to transfer the pretreated bilge water from the oily bilge water holding tank to the oily water separator/filtering (15 ppm) equipment is provided so as not to mix the pretreated bilge water with untreated oily bilge water.	☐
	(2)	The ship is provided with oil filtering equipment for the treatment of oily bilge water as shown in sections 2.2, 2.3 and 2.4 of Form A or B.	☐

	(3)	The ship can discharge oily bilge holding tank(s) by way of a standard discharge connection as shown in section 4 of Form A or B, with protection to avoid contamination of oil residue (sludge) into the oily bilge system. Refer to MARPOL Annex I, regulation 12.3.3.	☐

6 Discharge arrangement of oil residue (sludge)

	(1)	Heating arrangements for forced evaporation of water are provided for oil residue (sludge) service tank(s).	☐
	(2)	The oil residue (sludge) service tank(s) evaporation vent line is thermally insulated.	☐
	(3)	The oil residues (sludge) service tank(s) evaporation vent line is fitted with an extraction fan.	☐
	(4)	The oil residues (sludge) service tank(s) evaporation vent line is fitted with a condensate/mist-capture return line to divert any condensate back to the oil residue (sludge) (or service) tank	☐
	(5)	The ship is provided with means for the disposal of oil residues (sludge) retained in oil residue tanks as shown in section 3.2 of Form A or B.	☐
	(6)	The ship is provided with a pipeline for the discharge of oil residues (sludge) from machinery bilges to reception facilities, fitted with a standard discharge connection in compliance with MARPOL Annex I, regulation 13, as shown in section 4 of Form A or B.	☐

Issued at ..... on .....

Issued by ..... of .....

***

ANNEX 14

DRAFT AMENDMENTS TO MARPOL ANNEX I

Amendments to appendix II (Form of the IOPP certificate and Supplements) and appendix III (Form of Oil Record Book)

Appendix II (Form of the IOPP certificate and Supplements)

FORMs A and B

[1 The chapeau of section 3 is replaced by the following:

"3 Means for retention and disposal of oil residues (sludge) (regulation 12) and oily bilge water*

* Oily bilge water holding tank(s) are not required by the Convention; if such tank(s) are provided, they should be listed in table 3.3."

2 The following new section is added after existing section 3.3:

"3.4 Other acceptable means for the disposal of oily bilge water (regulation 17.2.4) (state which)……."

Appendix III (Form of Oil Record Book)

PART I – Machinery space operations

LIST OF ITEMS TO BE RECORDED

3 The code (D) "Non-automatic starting of discharge overboard, transfer or disposal otherwise of bilge water which has accumulated in machinery spaces" is replaced by the following:

"(D) Non-automatic starting of discharge overboard, transfer or disposal otherwise of bilge water which has accumulated in machinery spaces:

15 Method of transfer, discharge, or disposal:

.1 through 15 ppm equipment (state position at start and end);

.2 to reception facilities (identify port);*

.3 to slop tank or holding tank or other tank(s) (indicate tank(s); state quantity retained in tank(s), in m^3); and

.4 other method (state which).

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

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ANNEX 15

DRAFT REVISED MEPC CIRCULAR

GUIDANCE FOR THE RECORDING OF OPERATIONS IN THE OIL RECORD BOOK PART I – MACHINERY SPACE OPERATIONS (ALL SHIPS)

1 The Marine Environment Protection Committee, at its seventy-sixth session, (19 to 23 October 2020), approved a revised text of the *Guidance for recording of operations in the Oil Record Book Part I – Machinery space operations (all ships)*, set out in the annex.

2 The Guidance is intended to facilitate compliance with MARPOL requirements on board ships by providing advice to crews on how to record the various operations in the Oil Record Book by using the correct codes and item numbers in order to ensure a more uniform port State control procedure.

3 Administrations of Parties to MARPOL are invited to encourage implementation of the annexed Guidance for use aboard ships flying their flags and to disseminate it among all stakeholders including ship operators, surveyors and port State control officers.

4 This circular revokes MEPC.1/Circ.736/Rev.2.

ANNEX

GUIDANCE FOR RECORDING OF OPERATIONS IN THE OIL RECORD BOOK PART I – MACHINERY SPACE OPERATIONS (ALL SHIPS)

General Guidance

- This guidance only includes sections C to I.
- Operations should be recorded in chronological order as they have been executed on board.
- Dates should be entered in dd-MONTH-yyyy format, e.g. 16-MAR-2009.
- Incineration or landing ashore of oily garbage and used filters should be recorded in the Garbage Record Book only.
- All Entries are to be made and signed by the officer or officers in charge of the operations concerned and each completed page shall be signed by the master of the ship.
- Do not leave any full lines empty between successive entries.
- If a wrong entry has been recorded in the Oil Record Book (ORB), it should immediately be struck through with a single line in such a way that the wrong entry is still legible. The wrong entry should be signed and dated, with the new corrected entry following.
- Tank nomenclature should be recorded as per the format noted within the International Oil Pollution Prevention Certificate (IOPPC).
- Recording of quantities retained in bilge water holding tanks listed under section 3.3 of the IOPPC is voluntary and not required by the Convention.
- The recording of general maintenance of items pertaining to the OWS remains voluntary and is not required to be recorded in the ORB.

Usage of code C.11: Collection of oil residues (sludge)

Example #1

Weekly inventory of oil residues (sludge) tanks (tank listed under item 3.1 in the Supplement to the IOPPC)

Date	*Code*	*Item No.*	*Record of operations/signature of officer in charge*
dd-MONTH-yyyy	*C*	*11.1*	*[Name of sec 3.1 Tank & Designation]*
		11.2	*xx* m^3
		11.3	*xx* m^3
			signed: (Officer-in-charge, Name & Rank) dd-MONTH-yyyy
dd-MONTH-yyyy	*C*	*11.1*	*[Name of sec 3.1 Tank & Designation]*
		11.2	*xx* m^3
		11.3	*xx* m^3
			signed: (Officer-in-charge, Name & Rank) dd-MONTH-yyyy

Example #2

Recording of oil residue (sludge) collected by manual operation in oil residue (sludge) tank (tank listed under item 3.1 in the Supplement to the IOPPC)*

Date	*Code*	*Item No.*	*Record of operations/signature of officer in charge*
dd-MONTH-yyyy	*C*	*11.1*	*[Name of sec 3.1 Tank & Designation]*
		11.2	*xx m^3*
		11.3	*xx m^3*
		11.4	*xx m^3 collected from [identification of source]*
			signed: (Officer-in-charge, Name & Rank) dd-MONTH-yyyy

Note: Operator initiated manual collection where oil residue (sludge) is transferred (transfer with a pump) into the oil residue (sludge) tank(s). Examples of such operations could be:

1. Collection of oil residue (sludge) from fuel oil separator drain tanks.

2. Collection of oil residue (sludge) by draining engine sump tanks.

3. Adding fuel oil to an oil residue (sludge) tank (all content of a sludge tank is considered sludge).

4. Collection of sludge from bilge water holding tanks – in this case a disposal entry for bilge water is also needed.

* Use of Code Item Number C 11.4 only becomes applicable in accordance with MARPOL Annex I amendments which enter into force on 1 January 2011 (resolution MEPC.187(59)).

Usage of code C.12: Disposal or Transfer of oil residues (sludge)

Example #3

Disposal of oil residue (sludge) via shore connection

Date	*Code*	*Item No.*	*Record of operations/signature of officer in charge*
dd-MONTH-yyyy	*C*	*12.1*	*xx m^3 sludge from [Name of sec 3.1 Tank & Designation], xx m^3 retained,*
			to "identity or name of sludge receiver, i.e. barge, tank truck or shore facility" during port stay (Name of Port)
			signed: (Officer-in-charge, Name & Rank) dd-MONTH-yyyy

Note: Ships' masters should obtain from the operator of the reception facilities, which includes barges and tank trucks, a receipt or certificate detailing the quantity of oil residue (sludge) transferred, together with the time and date of the transfer. This receipt or certificate, if attached to the Oil Record Book Part I, may aid the master of the ship in proving that his ship was not involved in an alleged pollution incident. The receipt or certificate should be kept together with the Oil Record Book Part I.

Example #4

Draining of water (disposal) from an oil residue (sludge) tank listed under item 3.1 in the Supplement to the IOPPC, to a bilge water holding tank listed under item 3.3 in the Supplement to the IOPPC

Date	*Code*	*Item No.*	*Record of operations/signature of officer in charge*
dd-MONTH-yyyy	*C*	*12.2*	*xx m^3 water drained from [Name of sec 3.1 Tank & Designation] xx m^3 retained,*
			to [Name of sec 3.3 Tank & Designation] retained in tank(s) xx m^3
			signed: (Officer-in-charge, Name & Rank) dd-MONTH-yyyy

Note: Collection of bilge water need not to be accounted for, so only one entry is required. Capacity of sludge tanks should not be recorded for C.12.x entries.

Example #5

Transfer from one oil residue (sludge) tank to another oil residue (sludge) tank, both listed under item 3.1 in the Supplement to the IOPPC

Date	*Code*	*Item No.*	*Record of operations/signature of officer in charge*
dd-MONTH-yyyy	*C*	*12.2*	*xx m^3 sludge transferred from [Name of sec 3.1 Tank & Designation], xx m^3 retained,*
			to [Name of sec 3.1 Tank & Designation] retained in tank(s) xx m^3
			signed: (Officer-in-charge, Name & Rank) dd-MONTH-yyyy

Example #6

Incineration of oil residue (sludge) in Incinerator

Date	*Code*	*Item No.*	*Record of operations/signature of officer in charge*
dd-MONTH-yyyy	*C*	*12.3*	*xx m^3 sludge from [Name of sec 3.1 or 3.2.3 Tank & Designation], xx m^3 retained,*
			Burned in Incinerator for xx hours
			signed: (Officer-in-charge, Name & Rank) dd-MONTH-yyyy

Example #7

Burning of oil residue (sludge) in Boiler

Date	*Code*	*Item No.*	*Record of operation and signature of officer in charge*
dd-MONTH-yyyy	*C*	*12.4*	*xx m^3 sludge from [Name of sec 3.1 Tank & Designation], xx m^3 retained,*
			Burned in Boiler for xx hours

			signed: (Officer-in-charge, Name & Rank) dd-MONTH-yyyy

Example #8

Evaporation of water (disposal) by forced or natural ventilation from an oil residue (sludge) service tank listed under items 3.1 in the Supplement to the IOPPC

Date	*Code*	*Item No.*	*Record of operations/signature of officer in charge*
dd-MONTH-yyyy	*C*	*12.4*	*xx m^3 water evaporated from [Name of sec 3.1 Tank & Designation], xx m^3 retained.*
			signed: (Officer-in-charge, Name & Rank) dd-MONTH-yyyy

In case of forced ventilation or other physical arrangements are provided in the vent line to prevent backflow of condensed water this may be noted as other acceptable means in the IOPPC Supplement under 3.2.3.

Note: If forced evaporation is used to reduce the water in the oil residue (sludge) then "heating of oil residue (sludge) as a method of reducing its volume by forced evaporation" should be recorded in paragraph 3.2.3 "Other acceptable means" of the IOPPC Supplement.

Example #9

Regeneration of fuel oil from oil residue (sludge)*

Date	*Code*	*Item No.*	*Record of operation and signature of officer in charge*
dd-MONTH-yyyy	*C*	*12.4*	*xx m^3 sludge disposed by regeneration of x m^3 fuel in [Fuel Tank & Designation] and x m^3 of water in [Name of sec 3.3 Tank & Designation]*
			signed: (Officer-in-charge, Name & Rank) dd-MONTH-yyyy

* Only permitted if mentioned as an approved means of disposal in the IOPPC Supplement.

Usage of code D: Non-automatic starting of discharge overboard, transfer or disposal otherwise of bilge water which has accumulated in machinery spaces

Example #10

Pumping of bilge water from engine-room bilge wells to a tank listed under item 3.3 (via a bilge separation unit, if installed) in the Supplement to the IOPPC

Date	*Code*	*Item No.*	*Record of operations/signature of officer in charge*
dd-MONTH-yyyy	*D*	*13*	*xx m^3 bilge water from engine-room bilge wells,*
		14	*Start: hh:mm, stop: hh:mm*
		15.3	*To [Name of sec 3.3 Tank & Designation], retained in tank(s) xx m^3*
			signed: (Officer-in-charge, Name & Rank) dd-MONTH-yyyy

Transfers from the bilge wells to the oily bilge water holding tank when passing through the bilge separation unit should be considered as a single transfer from bilge wells to the oily bilge water holding tank and recorded as above.

Example#10-1

Emptying and filling of bilge separation unit for maintenance purposes

Date	*Code*	*Item No.*	*Record of operations/signature of officer in charge*
dd-MONTH-yyyy	*I*		*XX m^3 oily bilge water drained from bilge separation unit to (oily bilge holding tank, etc.), now YY m^3*
			Unit cleaned and refilled with water
			signed: (Officer-in-charge, Name & Rank) dd-MONTH-yyyy

Note: Entries should be made for the transfer for filling and emptying the bilge separation unit during maintenance.

Example #11

Transfer of bilge water between tanks listed in item 3.3 in the Supplement to the IOPPC

Date	*Code*	*Item No.*	*Record of operations/signature of officer in charge*
dd-MONTH-yyyy	*D*	*13*	*xx m^3 bilge water from, [Name of sec 3.3 Tank & Designation], xx m^3 retained,*
		14	*Start: hh:mm, stop: hh:mm*
		15.3	*To [Name of sec 3.3 Tank & Designation], retained in tank(s) xx m^3*
			signed: (Officer-in-charge, Name & Rank) dd-MONTH-yyyy

Example #12

Pumping of bilge water overboard from tank listed in item 3.3 in the Supplement to the IOPPC

Date	*Code*	*Item No.*	*Record of operations/signature of officer in charge*
dd-MONTH-yyyy	*D*	*13*	*xx m^3 bilge water from [Name of sec 3.3 Tank & Designation]*
			Capacity xx m^3, xx m^3 retained
		14	*Start: hh:mm, stop: hh:mm*
		15.1	*Through 15 ppm equipment overboard*
			Position start: xx deg xx min N/S, xx deg xx min E/W
			Position stop: xx deg xx min N/S, xx deg xx min E/W
			signed: (Officer-in-charge, Name & Rank) dd-MONTH-yyyy

Example #13

Disposal of bilge water from tank listed in item 3.3 in the Supplement to the IOPPC to oil residue (sludge) tank listed in item 3.1 in the Supplement to the IOPPC

Date	*Code*	*Item No.*	*Record of operation and signature of officer in charge*
dd-MONTH-yyyy	*D*	*13*	*x m^3 bilge water from [Name of sec 3.3 Tank & Designation], now xx m^3*
		14	*Start: hh:mm stop:, hh:mm*
		15.3	*Collected in [Name of sec 3.1 Tank & Designation] retained in tank(s) xx m^3*
			signed: (Officer-in-charge, Name & Rank) dd-MONTH-yyyy

Note: A code C.11.4 recording may be required if this operation is a manual operator initiated operation.

Usage of code E: Automatic starting of discharge overboard, transfer or disposal otherwise of bilge water which has accumulated in machinery spaces

Example #14

Pumping of bilge water overboard via 15 ppm equipment from tank listed in item 3.3 in the Supplement to the IOPPC or from engine-room bilge wells

Date	*Code*	*Item No.*	*Record of operations/signature of officer in charge*
dd-MONTH-yyyy	*E*	*16*	*Pump start hh:mm at xx deg xx min N/S, xx deg xx min E/W from*
			[Name of sec 3.3 Tank & Designation]
		18	*Stop hh:mm*
			signed: (Officer-in-charge, Name & Rank) dd-MONTH-yyyy

Example #15

Transfer of bilge water from engine-room bilge wells to a tank listed under item 3.3 in the Supplement to the IOPPC

Date	*Code*	*Item No.*	*Record of operations/signature of officer in charge*
dd-MONTH-yyyy	*E*	*17*	*Transfer start hh:mm to*
			[Name of sec 3.3 Tank & Designation]
		18	*Stop hh:mm*
			signed: (Officer-in-charge, Name & Rank) dd-MONTH-yyyy

Usage of code F: Condition of oil filtering equipment

Example #16

Failure of Oily Filtering Equipment, Oil Content Meter or stopping device

Date	*Code*	*Item No.*	*Record of operations/signature of officer in charge*
dd-MONTH-yyyy	*F*	*19*	*hh:mm*
		20	*hh:mm (might be unknown – if spare parts has been ordered)*
		21	*[Reason for Failure, if known]*
			signed: (Officer-in-charge, Name & Rank dd-MONTH-yyyy

Note: The condition of the oil filtering equipment also covers the alarm and automatic stopping devices, if applicable.

A code 'I' entry should also be made indicating that the overboard valve was sealed shut due to non-working Oil Filtering Equipment or Oil Content Meter.
On the date where the system is functional again, a new entry, using code F 19/20/21 should be made where F 19 is the date and time of the initial failure and F 20 is the time the system is functional again.

Example #16*bis*

When proper operation of the Oily Filtering Equipment, Oil Content Meter or stopping device is restored

Date	*Code*	*Item No.*	*Record of operations/signature of officer in charge*
dd-MONTH-yyyy	*F*	*19*	*hh:mm (the same time as in example 16)*
		20	*hh:mm (the time the system is functional)*
		21	*[Reason for Failure, if known]*
			signed: (Officer-in-charge, Name & Rank) dd-MONTH-yyyy

Note: The condition of the oil filtering equipment also covers the alarm and automatic stopping devices, if applicable.
A code 'I' entry should also be made indicating that the overboard valve was unsealed since the operation of the Oil Filtering Equipment or Oil Content Meter has been restored.

Usage of code G: Accidental or other exceptional discharges of oil

Example #17

Accidental Pollution

Date	*Code*	*Item No.*	*Record of operations/signature of officer in charge*
dd-MONTH-yyyy	*G*	*22*	*hh:mm*
		23	*Place or Position: xx deg xx min*
		24	*Type and Quantity of oily residue (if known)*
		25	*Circumstances of the discharge*
			signed: (Officer-in-charge, Name & Rank) dd-MONTH-yyyy

Note: If the failure of Oil Filtering Equipment or Oil Content Meter related equipment is involved, appropriate (F) entry is to be made in ORB.
Relevant sections of the SOPEP (SMPEP) are to be used to combat oil spills at sea.
Examples of Circumstances of discharge include, but are not limited to:
1. Oil Content Meter failure.
2. Fuel tank overflow.
3. Ruptured bunkering hose/flange.
4. Fuel tank leakage (due to collision or grounding).

Usage of code H: Bunkering of fuel or bulk lubricating oil

Example #18

Bunkering of Fuel oil

Date	*Code*	*Item No.*	*Record of operations/signature of officer in charge*
dd-MONTH-yyyy	*H*	*26.1*	*[Name of Port]*
		26.2	*Start* dd-MONTH-yyyy-*hh:mm Stop* dd-MONTH-yyyy-*hh:mm*
		26.3	*xxxx MT of ISO-xxxxx HFO x.x % S bunkered in tanks:*
			aaaa MT added to [Tank Name & Designation] now containing bbbb MT
			cccc MT added to [Tank Name & Designation] now containing dddd MT
			signed: (Officer-in-charge, Name & Rank) dd-MONTH-yyyy

Example #19

Bunkering of Bulk Lubricating oil

Date	*Code*	*Item No.*	*Record of operations/signature of officer in charge*
dd-MONTH-yyyy	*H*	*26.1*	*[Name of Port]*
		26.2	*Start* dd-MONTH-yyyy-*hh:mm Stop* dd-MONTH-yyyy-*hh:mm*
		26.4	*xx MT [Type of Oil] bunkered in tanks:*
			xx MT added to [Tank Name & Designation] now containing xx MT
			signed: (Officer-in-charge, Name & Rank) dd-MONTH-yyyy

Note: Separate entries required for each grade of fuel oils and lubricating oils respectively to ensure transparency.
This entry is not required if lubricating oils are delivered on board in packaged form (55 gallon drum, etc.).

Usage of code I: Additional operational procedures and general remarks

Example #20

Pumping oily bilge water from a Cargo Hold bilge holding tank to a tank listed under item 3.3 in the Supplement to the IOPPC

Date	*Code*	*Item No.*	*Record of operations/signature of officer in charge*
dd-MONTH-yyyy	*I*		*xx m^3 oily bilge water from Cargo Hold bilge holding tank*
			to [Name of sec 3.3 Tank & Designation]
			signed: (Officer-in-charge, Name & Rank) dd-MONTH-yyyy

Note: Any collection and transfer of oily bilge water into the engine-room bilge holding tank(s) from a cargo hold bilge holding tank(s) should be recorded using code (I)

Example #21

Entry pertaining to an earlier missed operational entry

Date	*Code*	*Item No.*	*Record of operations/signature of officer in charge*
dd-MONTH-yyyy *(1)*	*I*		*Entry pertaining to an earlier missed operational entry*
dd-MONTH-yyyy *(2)*	*C*	*12.2*	*xx m^3 sludge transferred from [Name of sec. 3.1 Tank and Designation], xx m^3 retained*
			to [Name of sec 3.1 Tank & Designation], retained in tank(s) xx m^3
			signed (1): (Officer-in-charge, Name & Rank) dd-MONTH-yyyy
			signed (2): (Officer-in-charge, Name & Rank) dd-MONTH-yyyy

Note: Date (1) to be the date of the original operation.
Date (2) to be the current date i.e. the date the entry is made.
Signed (1) Signature of Officer making I entry
Signed (2) Signature of Officer making missed entry

Example #22

De-bunkering of Fuel oil

Date	*Code*	*Item No.*	*Record of operations/signature of officer in charge*
dd-MONTH-yyyy	*I*		*xxxx MT of ISO-xxxxx HFO x.x % S de-bunkered from tanks:*
			xxxx MT removed from [Tank Name & Designation] now containing xxx MT
			De-bunkered to "identity or name of receiver i.e. barge, tank truck or shore facility" in "Name of Port"
			Start dd-MONTH-yyyy*; hh:mm Stop* dd-MONTH-yyyy*; hh:mm*
			signed: (Officer-in-charge, Name & Rank) dd-MONTH-yyyy

Note: Include receipt and certificate from receiver for amount and type of fuel oil de-bunkered.

Tankers with slop tanks

Example #23

Transfer of sludge from engine-room oil residue (sludge) tank to deck/cargo slop tank

Date	*Code*	*Item No.*	*Record of operations/signature of officer in charge*
dd-MONTH-yyyy	*C*	*12.4*	*xx m^3 sludge from [Name of sec 3.1 Tank & Designation], xx m^3 retained,*
			Transferred to Deck Slop Tank [designation]
			signed: (Officer-in-charge, Name & Rank) dd-MONTH-yyyy

Example #24

Transfer of bilge water from tank listed in item 3.3 in the Supplement to the IOPPC to deck/cargo slop tank

Date	*Code*	*Item No.*	*Record of operations/signature of officer in charge*
dd-MONTH-yyyy	*D*	*13*	*xx m^3 bilge water from [Name of sec 3.3 Tank & Designation]*
			Capacity xx m^3, xx m^3 retained
		14	*Start: hh:mm, stop: hh:mm*
		15.3	*Transferred to Deck Slop Tank [designation]*
			signed: (Officer-in-charge, Name & Rank) dd-MONTH-yyyy

Note: Requires this method listed in the IOPP Supplement under item 3.2.3.
If non-oil-cargo related oily residues are transferred to slop tanks of oil tankers, the discharge of such residues should be in compliance with regulation 34. (UI 22.1.1 for regulation 15).
Requires an entry in the Oil Record Book – Part II using code (J).
If sludge or bilge water is transferred from multiple tanks in engine-room a separate entry must be made in ORB Parts I & II for each transfer.

General Guidance – Additional Voluntary Recordings

Example #25

Voluntary declaration of quantities retained in bilge water holding tanks ref. MEPC.1/Circ.640 – record weekly

Date	*Code*	*Item No.*	*Record of operations/signature of officer in charge*
dd-MONTH-yyyy	*I*		*Weekly Inventory of Bilge Water Tanks (listed under item 3.3)*
			[Name of sec 3.3 Tank & Designation]
			capacity xx m^3, xx m^3 retained
			signed: (Officer-in-charge, Name & Rank) dd-MONTH-yyyy

Example #26

Optional sealing of MARPOL Annex I related valve and/or equipment

Date	*Code*	*Item No.*	*Record of operations/signature of officer in charge*
dd-MONTH-yyyy	*I*		*Overboard valve [Valve Number] from 15 ppm bilge water separator unit sealed*
			seal No.: xxxxxxx,
			signed: (Officer-in-charge, Name & Rank) dd-MONTH-yyyy

Example #27

Breaking of optional seal on MARPOL Annex I related valve and/or equipment

Date	*Code*	*Item No.*	*Record of operations/signature of officer in charge*
dd-MONTH-yyyy	*I*		*Overboard valve [Valve Number] from 15 ppm bilge water separator unit unsealed*
			for normal operation of 15 ppm unit
			seal No.: xxxxxxx
			signed: (Officer-in-charge, Name & Rank) dd-MONTH-yyyy

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ANNEX 16

DRAFT MEPC CIRCULAR

PROVISION OF ADEQUATE FACILITIES AT PORTS AND TERMINALS FOR THE RECEPTION OF PLASTIC WASTE FROM SHIPS

1 The Marine Environment Protection Committee, at its seventy-third session, having recognized that more needed to be done to address the environmental and health problems posed by marine plastic litter, adopted the *Action plan to address marine plastic litter from ships* (resolution MEPC.310(73)) (Action Plan).

2 The Action Plan, which builds on existing policy and regulatory frameworks, identifies opportunities to enhance these frameworks and introduce new supporting measures to address the issue of marine plastic litter from ships. The Action Plan includes, inter-alia, some measures to improve the effectiveness of port reception facilities and treatment in reducing marine plastic litter.

3 To progress the Action Plan, the Marine Environment Protection Committee reminds Parties to MARPOL Annex V of their obligation under regulation 8 of MARPOL Annex V to ensure the provision of adequate facilities at ports and terminals for the reception of garbage, including plastic waste from ships and fishing gear, without causing undue delay to ships, and according to the needs of the ships using these facilities.

4 Parties are also reminded that the Marine Environment Protection Committee had, with a view to facilitating efficient and environmentally responsible disposal of MARPOL wastes/residues, adopted and/or approved the following manual and guidelines relating to port reception facilities:

.1 *Port Reception Facilities – How to do it (2016)*;

.2 *Guidelines for ensuring the adequacy of port waste reception facilities* (resolution MEPC.83(44)); and

.3 *Consolidated Guidance for port reception facility providers and users* (MEPC.1/Circ.834/Rev.1).

5 Parties are further reminded of their obligation to notify the Organization for transmission to the Contracting Parties concerned of all cases where the facilities provided under regulation 8 of MARPOL Annex V are alleged to be inadequate. Such notification should be submitted through the Port Reception Facilities module in the Global Integrated Shipping Information System (GISIS).

6 In this regard, port States are also reminded to provide proper arrangements to consider and respond appropriately and effectively to reports of inadequacies, informing IMO and the reporting flag State of the outcome of their investigation (MEPC.1/Circ.834/Rev.1, paragraph 41).

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ANNEX 17

DRAFT MEPC CIRCULAR

SHARING OF RESULTS FROM RESEARCH ON MARINE LITTER AND ENCOURAGING STUDIES TO BETTER UNDERSTAND MICROPLASTICS FROM SHIPS

1 The Marine Environment Protection Committee, at its seventy-third session, having recognized that more needed to be done to address the environmental and health problems posed by marine plastic litter, adopted the *Action plan to address marine plastic litter from ships* (resolution MEPC.310(73)) (Action Plan).

2 The Action Plan, which builds on existing policy and regulatory frameworks, identifies opportunities to enhance these frameworks and introduce new supporting measures to address the issue of marine plastic litter from ships. One measure to improve understanding of the contribution of ships to marine plastic litter is the sharing of results from research related to marine litter.

3 To progress the Action Plan, Member States and international organizations are encouraged to:

.1 provide to the Organization results of any research conducted on marine litter, including any information on the areas contaminated by marine litter from ships; and

.2 undertake studies to better understand microplastics from ships and provide the results of such studies to the Organization.

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ANNEX 18

DRAFT MEPC CIRCULAR

UNIFIED INTERPRETATIONS TO THE NO_X TECHNICAL CODE 2008, AS AMENDED

1 The Marine Environment Protection Committee, at its [seventy-sixth session (dates to be inserted)], approved unified interpretations to the NO_X Technical Code 2008, as amended.

2 The updated consolidated text of all existing unified interpretations to the NO_X Technical Code 2008, as amended, including those set out in circular MEPC.1/Circ.865, are set out in the annex.

3 Member Governments are invited to apply the annexed unified interpretations to the NO_X Technical Code 2008, as amended, as appropriate, and bring them to the attention of all parties concerned.

4 This circular revokes MEPC.1/Circ.865.

ANNEX

UNIFIED INTERPRETATIONS TO THE NO_X TECHNICAL CODE 2008, AS AMENDED

1 Paragraph 2.2.4.1

Paragraph 2.2.4.1 reads as follows:

> "There are engines which, due to their size, construction and delivery schedule, cannot be pre-certified on a test-bed. In such cases, the engine manufacturer, shipowner or shipbuilder shall make application to the Administration requesting an onboard test (see 2.1.2.2). The applicant must demonstrate to the Administration that the onboard test fully meets all of the requirements of a test-bed procedure as specified in chapter 5 of this Code. In no case shall an allowance be granted for possible deviations of measurements if an initial survey is carried out on board a ship without any valid pre-certification test. For engines undergoing an onboard certification test, in order to be issued with an EIAPP Certificate, the same procedures apply as if the engine had been pre-certified on a test-bed, subject to the limitations given in paragraph 2.2.4.2."

Interpretation:

1.1 Engines undergoing an on-board certification test should have a preliminary approved Technical File, pending the results of the emission test.

1.2 If the result of the emission test does not comply with the applicable NO_X regulation, the engines should be re-adjusted to the compliance condition originally approved, if any, or the applicant should apply to the flag Administration for acceptance of further testing.

2 Paragraph 4.4.6.1

Paragraph 4.4.6.1 reads as follows:

> "The Engine Group may be defined by basic characteristics and specifications in addition to the parameters defined in 4.3.8 for an Engine Family."

Interpretation:

2.1 Paragraph 4.4.6.1 cross references paragraph 4.3.8 which provides guidance for selection of an engine family. For engines fitted with an SCR system to reduce NO_X emissions, it is recognized that some of the parameters provided may not be common to all engines within a group, in particular paragraphs 4.3.8.2.3 and 4.3.8.2.4 state that:

> ".3 individual cylinder displacement:
> - to be within a total spread of 15%
>
> .4 number of cylinders and cylinder configuration:
> - applicable in certain cases only, e.g. in combination with exhaust gas cleaning devices"

2.2 For engines fitted with an SCR system to reduce NO_X emissions, the number and arrangement of cylinders may not be common to all members of the engine group. These

parameters may be replaced with new parameters derived from the SCR chamber and catalyst blocks, such as the SCR space velocity (SV), catalyst block geometry and catalyst material.

3 Paragraph 4.4.6.2

Paragraph 4.4.6.2 reads as follows:

> "The following parameters and specifications shall be common to engines within an Engine Group
>
> .1 bore and stroke dimensions;
>
> .2 method and design features of pressure charging and exhaust gas system:
>
> - constant pressure;
>
> - pulsating system;
>
> .3 method of charge air cooling system:
>
> - with/without charge air cooler;
>
> .4 design features of the combustion chamber that effect NO_X emission;
>
> .5 design features of the fuel injection system, plunger and injection cam or gas valve which may profile basic characteristics that effect NOx emission; and
>
> .6 rated power at rated speed. The permitted ranges of engine power (kW/cylinder) and/or rated speed are to be declared by the manufacturer and approved by the Administration."

Interpretation:

3.1 For engines fitted with an SCR system to reduce NO_X emissions it is recognized that some of the parameters provided may not be common to all engines within a group and that new parameters derived from the SCR chamber and catalyst blocks may be used instead, such as the SCR Space Velocity (SV), catalyst block geometry and catalyst material.

3.2 Whilst the provisions of paragraph 4.4.6.2.1 should remain common to all engines within the group, the remaining parameters listed in paragraph 4.4.6.2 may be replaced by alternative SCR parameters, provided that the applicant is able to demonstrate that these alternative parameters are suitable for defining the engine group.

3.3 The applicant remains responsible for selecting the parent engine and demonstrating the basis of this selection to the satisfaction of the Administration.

4 Paragraph 5.10.1

Paragraph 5.10.1 reads as follows:

> "For every Individual Engine or Parent Engine tested to establish an Engine Family or Engine Group, the engine manufacturer shall prepare a test report which shall contain the necessary data to fully define the engine performance and enable calculation of the gaseous emissions including the data as set out in section 1 of appendix 5 of this

Code. The original of the test report shall be maintained on file with the engine manufacturer and a certified true copy shall be maintained on file by the Administration."

Interpretation:

4.1 The "necessary data to fully define the engine performance and enable calculation of the gaseous emissions" should be incorporated, in accordance with 5.12, from the raw data units to the cycle weighted NO_X emission value in g/kWh. The data set given under Appendix 5 should not be considered definitive and any other test data (i.e. engine performance or setting data, description of control devices) relevant to the approval of a specific engine design and/or on-board NO_X verification procedures should also be given. For the engine fitted with SCR, under scheme A, the parameters listed in sub-paragraphs of paragraph 5.2.2 of IMO resolution MEPC. 291(71) should be measured and recorded in the engine test report. Under scheme B, the exhaust gas temperature at the intended inlet of the SCR chamber should be determined and recorded in the test report. For Dual fuel engines, the ratio of liquid-to-gas, Gas fuel temperature and its measurement point position should be recorded during the testing.

4.2 With reference to appendix 5 of the Code, it should be further interpreted that:

.1 the term "Deviation" as given under "Sheet 3/5, Measurement equipment, Calibration" refers to the deviation of the analyser calibration and not the deviation of the span gas concentration; and

.2 the "Fuel properties" as given under "Sheet 3/5, Fuel Characteristics, Fuel properties" should, include sufficient data to justify the ISO 8217:2017 grade (i.e. DMA, DMB, etc.) as given on EIAPP Certificate Supplement 1.9.4 by considering other additional analysis results for the fuel oil characteristics, i.e. Cetane index (ISO 4264:2018), carbon residue (ISO 10370:2014).

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ANNEX 19

BIENNIAL STATUS REPORT 2020-2021

Sub-Committee on Pollution Prevention and Response (PPR)									
Reference to SD, if applicable	Output number	Description	Target completion year	Parent organ(s)	Associated organ(s)	Coordinating organ	Status of output for Year 1	Status of output for Year 2	References
1. Improve implementation	1.3	Validated model training courses	Continuous	MSC / MEPC	III / PPR/ CCC / SDC / SSE / NCSR	HTW	No work requested		
1. Improve implementation	1.11	Measures to harmonize port State control (PSC) activities and procedures worldwide	Continuous	MSC / MEPC	HTW / PPR / NCSR	III	Ongoing		MEPC 74/18, paragraphs 5.118, 5.120 and annex 15; and PPR 7/22, section 21
1. Improve implementation	1.12	Review of the 2015 Guidelines for exhaust gas cleaning systems (resolution MEPC.259(68))	2020	MEPC	PPR		Complete		MEPC 69/21, paragraphs 19.4 and 19.5; PPR 5/24, section 11; PPR 6/20, section 11; and PPR 7/22, section 11
1. Improve implementation	1.14	Revised guidance on ballast water sampling and analysis	2021	MEPC	PPR		Complete		MEPC 68/21, paragraphs 7.14 and 17.26; MEPC 70/18, paragraph 4.47; MEPC 71/17, paragraph 4.45;

Sub-Committee on Pollution Prevention and Response (PPR)									
Reference to SD, if applicable	Output number	Description	Target completion year	Parent organ(s)	Associated organ(s)	Coordinating organ	Status of output for Year 1	Status of output for Year 2	References
									PPR 6/20, section 4; MEPC 74/14, paragraph 4.36; and PPR 7/22, section 4
1. Improve implementation	1.15	Revised guidance on methodologies that may be used for enumerating viable organisms	2021	MEPC	PPR		In progress		MEPC 71/17, paragraph 4.54; PPR 5/24, section 6; PPR 6/20, section 5; and PPR 7/22, section 5
1. Improve implementation	1.17	Development of guidelines for onboard sampling of fuel oil not in use by the ship	2020	MEPC	PPR		Complete		MEPC 74/18, paragraphs 5.57 to 5.59; and PPR 7/22, section 9
1.Improve implementation	1.21	Review of the 2011 Guidelines for the control and management of ships' biofouling to minimize the transfer of invasive aquatic species (resolution MEPC.207(62))	2021	MEPC	PPR		In progress		MEPC 72/17, para.15.8; and PPR 7/22, section 7
1. Improve implementation	1.23	Evaluation and harmonization of rules and guidance on the discharge of liquid effluents	2021	MEPC	PPR		In progress		MEPC 74/18, paragraph 14.11; and PPR 7/22, section 12

Sub-Committee on Pollution Prevention and Response (PPR)									
Reference to SD, if applicable	Output number	Description	Target completion year	Parent organ(s)	Associated organ(s)	Coordinating organ	Status of output for Year 1	Status of output for Year 2	References
		from EGCS into waters, including conditions and areas							
1. Improve implementation	1.26	Revision of MARPOL Annex IV and associated guidelines to introduce provisions for record-keeping and measures to confirm the lifetime performance of sewage treatment plants	2021	MEPC	III / HTW	PPR	In progress		MEPC 74/18, paras 14.2 to 14.7; and PPR 7/22, section 16
2. Integrate new and advancing technologies in the regulatory framework	2.3	Amendments to the IGF Code and development of guidelines for low-flashpoint fuels	2021	MSC	HTW / PPR / SDC / SSE	CCC	No work requested		MSC 94/21, paragraphs 18.5 and 18.6; MSC 96/25, paragraphs 10.1 to 10.3
2. Integrate new and advancing technologies in the regulatory framework	2.13	Review of the IBTS Guidelines and amendments to the IOPP Certificate and Oil Record Book	2020	MEPC	PPR		Complete		MEPC 70/18, paragraph 15.12; PPR 5/24, section 12; PPR 6/20, section 13; and PPR 7/22, section 15
2. Integrate new and advancing technologies in the regulatory framework	2.15	Development of amendments to MARPOL Annex VI and the NO_X Technical Code on the use of multiple engine operational profiles for a marine diesel engine	2021	MEPC	PPR		In progress		MEPC 73/19, paragraph15.18; and PPR 7/22, section 13

Sub-Committee on Pollution Prevention and Response (PPR)									
Reference to SD, if applicable	Output number	Description	Target completion year	Parent organ(s)	Associated organ(s)	Coordinating organ	Status of output for Year 1	Status of output for Year 2	References
2. Integrate new and advancing technologies in the regulatory framework	2.18	Standards for shipboard gasification of waste systems and associated amendments to regulation 16 of MARPOL Annex VI	2020	MEPC	PPR		In progress		MEPC 70/17, paragraph 15.17; PPR 5/24, section 8; MEPC 72/17, paragraph 15.10; PPR 6/20, section 10; and PPR 7/22, section 10
Note: The Sub-Committee has requested MEPC to extend the target completion year of output 2.18 to 2021									
2. Integrate new and advancing technologies in the regulatory framework	2.19	Amendment of annex 1 to the AFS Convention to include controls on cybutryne, and consequential revision of relevant guidelines	2020	MEPC	PPR		In progress		MEPC 71/17, paragraph 14.3; PPR 5/24, section 19 and paragraph 24.2.25; MEPC 73/19, paragraphs 15.12 to 15.15; PPR 6/20, section 6; MEPC 74/18, paragraphs 10.19 and 10.20; and PPR 7/22, section 6
Note: The Sub-Committee has requested MEPC to extend the target completion year of output 2.19 to 2022 and approve the change of title of the output to "Revision of guidelines associated with the AFS Convention as a consequence of the introduction of controls on cybutryne"									

Sub-Committee on Pollution Prevention and Response (PPR)									
Reference to SD, if applicable	Output number	Description	Target completion year	Parent organ(s)	Associated organ(s)	Coordinating organ	Status of output for Year 1	Status of output for Year 2	References
2. Integrate new and advancing technologies in the regulatory framework	2…	Development of an operational guide on the response to spills of Hazardous and Noxious Substances (HNS)	2022	MEPC	PPR		In progress		MEPC 74/18, paragraph 14.20
Note: The Sub-Committee has requested MEPC to note that this above output has been moved to the provisional agenda of PPR 8 and that the target completion year has been set to 2022, taking into account that the Committee agreed that two sessions would be required to complete the work.									
3. Respond to climate change	3.3	Reduction of the impact on the Arctic of Black Carbon emissions from international shipping	2021	MEPC	PPR		In progress		MEPC 71/17, paragraph 5.3; PPR 5/24, section 7 and paragraph 24.2.7; MEPC 73/19, paragraph 5.3; PPR 6/20, section 7; MEPC 74/18, paragraph 5.67; and PPR 7/22, section 8
4. Engage in ocean governance	4.3	Follow-up work emanating from the Action Plan to address marine plastic litter from ships	2021	MEPC	PPR / III / HTW		In progress		MEPC 72/17, paragraphs 15.2 to 15.6; MEPC 73/19, section 8 and annex 10; MEPC 74/18, paragraph 8.37.1; and PPR 7/22, section 17

Sub-Committee on Pollution Prevention and Response (PPR)									
Reference to SD, if applicable	Output number	Description	Target completion year	Parent organ(s)	Associated organ(s)	Coordinating organ	Status of output for Year 1	Status of output for Year 2	References
6. Ensure regulatory effectiveness	6.1	Unified interpretation of provisions of IMO safety, security, and environment-related conventions	Continuous	MSC / MEPC	III / PPR / CCC / SDC / SSE / NCSR		Ongoing		PPR 7/22, section 18
6. Ensure regulatory effectiveness	6.3	Safety and pollution hazards of chemicals and preparation of consequential amendments to the IBC Code	Continuous	MEPC	PPR		Ongoing		PPR 7/22, section 3
6. Ensure regulatory effectiveness	6.11	Development of measures to reduce risks of use and carriage of heavy fuel oil as fuel by ships in Arctic waters	2020	MEPC	PPR		In progress		MEPC 71/17, paragraph 14.13; MEPC 72/17, section 11; MEPC 73/19, section 9; MEPC 74/18, paragraphs 10.22 to 10.25; and PPR 7/22, section 14
Note: The Sub-Committee requested MEPC to extend the target completion year of output 6.11 to 2021									
6. Ensure regulatory effectiveness	6.15	Role of the human element	Continuous	MSC / MEPC	III / PPR / CCC / SDC / SSE / NCSR	HTW	No work requested		

OUTPUTS ON THE COMMITTEE'S POST-BIENNIAL AGENDA THAT FALL UNDER THE PURVIEW OF THE SUB-COMMITTEE

SUB-COMMITTEE ON POLLUTION PREVENTION AND RESPONSE								
ACCEPTED POST-BIENNIAL OUTPUTS				**Parent organ(s)**	**Associated organ(s)**	**Coordinating organ**	**Timescale (sessions)**	**Reference**
No.	**Biennium***	**Reference to strategic direction, if applicable**	**Description**					
2	2018-2019	1. Improve implementation	Development of an operational guide on the response to spills of Hazardous and Noxious Substances (HNS)	MEPC	PPR		2	MEPC 74/18, paragraph 14.20
Note: The Sub-Committee hase requsted MEPC to note that this above output has been moved to the provisional agenda of PPR 8 and that the target completion year has been set to 2022, taking into account that the Committee agreed that two sessions would be required to complete the work.								
4	2018-2019	6. Ensure regulatory effectiveness	Development of necessary amendments to MARPOL Annexes I, II, IV, V and VI to allow States with ports in the Arctic region to enter into regional arrangements for port reception facilities (PRFs)	MEPC	PPR		2	MEPC 74/18, paragraph 14.18

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* Biennium when the output was placed on the post-biennial agenda.

ANNEX 20

PROPOSED PROVISIONAL AGENDA FOR PPR 8

Opening of the session

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

4 Development of an operational guide on the response to spills of Hazardous and Noxious Substances (HNS)

5 Revised guidance on methodologies that may be used for enumerating viable organisms

6 Revision of guidelines associated with the AFS Convention as a consequence of the introduction of controls on cybutryne

7 Review of the 2011 Guidelines for the control and management of ships' biofouling to minimize the transfer of invasive aquatic species (resolution MEPC.207(62))

8 Reduction of the impact on the Arctic of Black Carbon emissions from international shipping

9 Standards for shipboard gasification of waste systems and associated amendments to regulation 16 of MARPOL Annex VI

10 Evaluation and harmonization of rules and guidance on the discharge of discharge water from EGCS into the aquatic environment, including conditions and areas

11 Development of amendments to MARPOL Annex VI and the NO_X Technical Code on the use of multiple engine operational profiles for a marine diesel engine

12 Development of measures to reduce risks of use and carriage of heavy fuel oil as fuel by ships in Arctic waters

13 Revision of MARPOL Annex IV and associated guidelines to introduce provisions for record-keeping and measures to confirm the lifetime performance of sewage treatment plants

14 Follow-up work emanating from the Action Plan to address marine plastic litter from ships

15 Unified interpretation to provisions of IMO environment-related conventions

16 Biennial agenda and provisional agenda for PPR 9

17 Election of Chair and Vice-Chair for 2022

18 Any other business

19 Report to the Marine Environment Protection Committee

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ANNEX 21

DRAFT REVISED BWM CIRCULAR

GUIDANCE FOR THE COMMISSIONING TESTING OF BALLAST WATER MANAGEMENT SYSTEMS

1 The Marine Environment Protection Committee (MEPC), at its seventy-third session (22 to 26 October 2018), approved *Guidance for the commissioning testing of ballast water management systems*.

2 MEPC 74 (13 to 17 May 2019) invited submissions to the Sub-Committee on Pollution Prevention and Response (PPR) concerning proposals on any necessary changes to the Guidance in light of the draft amendments to regulation E-1 of the BWM Convention.

3 [MEPC 75 (30 March to 3 April 2020)], approved the revised *Guidance for the commissioning testing of ballast water management systems*, prepared by PPR 7 (17 to 21 February 2020), as set out in the annex.

4 Member Governments and international organizations are invited to bring the annexed Guidance to the attention of all parties concerned.

5 This circular supersedes BWM.2/Circ.70.

ANNEX

GUIDANCE FOR THE COMMISSIONING TESTING OF BALLAST WATER MANAGEMENT SYSTEMS

Context

1 The purpose of commissioning testing is to validate the installation of a ballast water management system (BWMS) by demonstrating that its mechanical, physical, chemical and biological processes are working properly. Commissioning testing is not intended to validate the design of type-approved BWMS that are approved by the Administration.

2 The following Guidance for the commissioning testing of BWMS has been developed for use by persons fitting and verifying the installation of BWMS in accordance with:

.1 regulation E-1 of the Convention;

.2 paragraph 8.2.5 of the BWMS Code, which requires that the Administration issuing the International Ballast Water Management Certificate verify that installation commissioning procedures are on board the ship in a suitable format;

.3 paragraph 8.3.6 of the BWMS Code, which requires that the installation commissioning procedures have been completed prior to the issuance of the IBWMC following the installation of a BWMS; and

.4 paragraph 1.18 of resolution MEPC.174(58), which provides that, when a type-approved ballast water management system is installed on board, an installation survey according to section 8 should be carried out.

Commissioning testing

3 Local ambient water should be used for testing regardless of the level of challenge it poses to the BWMS.

4 The following steps should be undertaken following installation of the BWMS on board the ship, and after all ballasting equipment (e.g. pumps and piping) has been fully installed and tested as appropriate:

.1 a sample may be collected during ballast water uptake to characterize the ambient water, by any means practical (e.g. in-line sample port or direct harbour sample). Characterization of the ambient water does not require detailed analysis of the uptake water, however an indicative analysis may be undertaken;

.2 a representative sample should be collected during the corresponding ballast water discharge after the full treatment has been applied. Samples should be collected from the sampling point as described in the *Guidelines on ballast water sampling* (G2). The total sample volume should be at least 1 m^3. If a smaller volume is validated to ensure representative sampling of organisms, it may be used;

.3 the representative samples should be analysed for the two size classes of organisms, namely ≥ 50 µm and ≥ 10 µm to < 50 µm, as specified in the D-2 standard, using indicative analysis methods listed in BWM.2/Circ.42/Rev.1 as may be amended; and

.4 the applicable self-monitoring parameters (e.g. flow rate, pressure, TRO concentration, UV transmittance/intensity, etc.) of the BWMS should also be assessed, taking into account the System Design Limitations of the BWMS, and the correct operation of all sensors and related equipment should be confirmed.

5 The commissioning test is successful if the indicative analysis indicates that the discharge samples do not exceed the D-2 standard for the size classes analysed (see paragraph 4.3) and the self-monitoring equipment indicates correct operation. Indicative analysis equipment used should be to the satisfaction of the Administration. Indicative analysis is defined in BWM.2/Circ.42/Rev.1 as may be amended.

6 In the case that the ambient water is not appropriate for the commissioning testing (e.g. salinity of ambient water is outside the System Design Limitations of the BWMS), testing should be evaluated to the satisfaction of the Administration.

7 The collection and analysis of the representative samples should be independent of the BWMS manufacturer or supplier and to the satisfaction of the Administration.

Documentation

8 A written report including methods, results (including raw data) and information on the self-monitoring parameters should be provided to the Administration.

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ANNEX 22

STATEMENTS BY DELEGATIONS AND OBSERVERS*

ITEM 1

Statement by the delegation of Japan

"First of all, with regard to the spread of the new coronavirus (2019-nCoV) infection in China, Japan would like to take this opportunity to express its sympathy and compliment to the Chinese government and its citizens for their great efforts to tackle and prevent the spread of the virus, as well as its deepest condolences to the victims of the infection.

Due to this serious situation in China, Japan would like to draw the attention that some difficulties are happening in implementation of the IMO mandatory regulations.

For example, ship repairs and maintenances or retrofit of Ballast Water Management Systems in shipyards and their surveys by Administrations or ROs are facing delays, difficulties or even inevitable cancels in China. Many ships are concerned to have difficulty in fulfilling their obligations under the MARPOL and other IMO conventions.

Taking this emergent situation, the Government of Japan has decided to take contingency measures such as providing flexibly to the period of statutory survey and validity of Certificates, if deemed to be force majeure due to the effect of coronavirus. Japan would like to invite other Member States to consider taking such actions as appropriate under this an emergent situation.

Japan believes that the serious situation caused by the new coronavirus infection should be properly addressed through the cooperation of all Member States in a global manner.

In this regard, Japan would like to request to include this statement of Japan into the report of the Subcommittee."

Statement by the delegation of Greece

"Greece would like to refer to the intervention from the distinguished delegation of Japan on the first day of the present session and supported by other delegations, on the effects of the coronavirus to the normal operations of shipping and more particularly to the difficulties encountered to the timely execution of programmed inspections in yards in China and perhaps elsewhere is South East Asia, resulting in the inability to timely certify the ships.

With this in mind, this delegation also reflects the concerns of delegations with the situation that has occurred. We would thus like to request the IMO Secretariat to examine the possibility of distributing, by means perhaps of a circular, on the effects of coronavirus on shipping, additional to the Circular Letter No.4204/Add1., that has already been published by the Secretariat. In that way, it could be provided more clarification in relation to the certain elements of the implications of force majeure under the IMO conventions and/or under the general principles of international law, where it is generally recognized as an exceptional

* Statements have been included in this annex as provided by delegations/observers, 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 accessible in all official languages on audio file at: http://docs.imo.org/Meetings/Media.aspx

situation which could not be anticipated even with the greatest possible attentiveness, providing grounds for exemption to situations regulated for normal conditions.

Such a document could prove to be of assistance to member governments when examining requests for extensions of certificates, i.e. in their capacities as flag states but would also be of relevance for the execution of port state functions.

We would kindly request to include this statement in the report of the Sub-Committee.

Thank you, Mr Chair."

ITEM 8

Statement by the observer from ISO

"Mr. Chair, distinguished delegates

ISO thanks Germany and Finland for their submission. Having read the submission PPR 7/8 and the technical paper on "Combustion quality of low sulfur marine fuels after 2020 -will be better or worse " referenced in PPR 7/8 and in particular paragraph 23 of document PPR 7/8 recommending the introduction of a specification on aromatic content and H/C ratio in the ISO 8217 marine fuels specification standard. ISO would also like to draw attention to several pertinent facts and to have this statement recorded in the report of this meeting.

PPR 7/8, paragraph 6, states that the 0.50% S fuels tested in the black carbon measurement campaign have been selected as possible sample mixtures from refinery streams most likely to be used in 2020. This statement acknowledges the uncertainty as to whether these blends are realistic and indeed, the blends referenced to in the technical paper have been proven to be significantly different from fuels currently being supplied globally as max 0.50% S fuel.

There are a number of reasons for this:

- The technical paper referenced in PPR 7/8 was published in 2018, well before the max 0.50% VLSFOs were first introduced in the market.
- Blend C referenced in the technical paper has an unusually high aromatic content and its choice at that time was not a realistic representation of the VLSFOs that refiners or traders were anticipating to supply.
- The lack of a full characterisation of the fuels formulated, in this submission, including the methodology used for determining aromaticity, are lacking in order to make any comparison to current experiences.

In contrast:

- Actual data available today on a few thousand samples from major testing services shows that in the period October 2019 up to 27 Jan 2020, VLSFOs have a lower average density of approximately 940 kg/m3 than HSFOs which have an approximate average density of 978 kg/m3. This points to VLSFOs being more paraffinic in nature than the Germany and Finland submission implied.

As suggested in document PPR 7/8, the proposal to introduce aromatic content and H/C ratio specification into ISO 8217 can be considered by the ISO working group, however it should be

understood that a number of routinely tested fuel characteristics such as density, pour point and micro carbon residue, are already good indicators for the nature of the fuels. This proposal will nevertheless be considered as to what other measures, if any, can be considered against what is already included.

Current fuel testing services data shows that:

- Less than 5% of the HSFOs have a pour point above 21°C, whereas 20-25% of the VLSFOs have a pour point above 21°C. A higher pour point is indicative of a more paraffinic nature of the fuel

- For the same period, VLSFOs have a lower average MCR (micro carbon residue) of approximately 5.8 m% than HSFOs which have an approximate average micro carbon residue of 12.8 m% also pointing to VLSFOs being more paraffinic in nature. The MCR gives an indication of the quantity and type of hydrocarbons in a fuel that have inferior combustion characteristics

- The CCAI (Calculated Carbon Aromaticity Index) average is considerably lower for VLSFOs than HSFO, approximately 816 and 844 respectively. Low CCAI points to a more paraffinic fuel

- Paraffinic fuels will have a higher Net Specific Energy value than more aromatic fuels, which is supported by the data drawn from the VLSFOs on the market today by as much as 2-3 %

Document PPR 7/8 shows increased black carbon emissions for fuels with high aromatic content when used in a medium speed test engine. High aromatic content may affect the combustibility of fuels, though low speed engines are less sensitive to the aromatic content than medium and high-speed engines. This is well described in the CIMAC guide - Fuel quality - ignition and combustion and limits for CCAI (calculated carbon aromaticity index) are already included in ISO 8217. The type of engine and its settings, poor engine maintenance and certain operating conditions will contribute to the performance of the fuel and to the degree of black carbon emissions as well.

Since early analysis of VLSFOs supplied to vessels in Jan 2020 when compared with HSFO analysis data, illustrates the more paraffinic nature of VLSFOs than most of the HSFO, the ignition/combustion performance is expected to be improved and hence to result in lower BC emissions.

ISO did not take forward C/H ratio into ISO/PAS 23263:2019. In view of the revision of ISO 8217, ISO is already in the process of and will continue to monitor the VLSFO/HSFO properties and provide feedback on their performance.

ISO will also consider whether it is possible to add a further measure to what is already included to providing an approximate indication as to whether a fuel is rather more paraffinic or aromatic, based on the characteristics already included in the ISO 8217.

We should not overlook the fact that the industry is less than two months into 2020 and is still building experience with the new fuels.

Thank you Mr Chair."

Statement by the observer from IMarEst

"Thank you Mr Chair.

We would take this opportunity in thanking the submitters of PPR 7/8 for the useful further confirmation that FSN is a reliable measurement method for Black Carbon.

However, taking the need for a scientifically informed way forward we have a number of concerns as regards this submission. Those are in respect of the core basis of the test programme and the reporting its findings. Furthermore, we see no justification for the extrapolations made in papers PPR 7/8/2 and 7/8/3 that a particular finding of PPR 7/8 in terms of Black Carbon is applicable to all 0.50% max sulphur residual based fuel oils used by any engine type in the world fleet.

We would like at this point to refer to our seven main observations that led us to these conclusions:

1 We question the selection of these high aromatic content oil mixtures as universally representing 0.50% max sulphur residual based fuel oils. Those do not reflect the general industry views as already expressed in the Joint Industry Guidance, of which IMarEST was a co-author. The JIG identified an expectation of greater variability in both composition and characteristics of these 0.50% max sulphur fuel oils than had experienced previously and the expectation that these fuel oils would tend to be more parafinnic – not aromatic – in nature. Furthermore, the basis of the selection of the single aromatic content values used to generally represent all pre-2020 HFOs and distillates is not given.

2 There is no identification of any of the other characteristics of the test fuels beyond the advised aromatic and sulphur content values to allow them to be categorised as marine type fuel oils. We would expect information to be provided in respect of their respective aromatic compound types and distribution and in terms of the commonly used fuel oil characteristics including the ignition performance indicating parameters as already included in ISO 8217. Given the intent of this test programme it is inexplicable that cetane number / index or Estimated Cetane Number (ECN) were not determined since without these there is no functional link to real world fuels past, present or future.

3 As shown in document PPR 7/8 Figure 1 at 100%, 50% and 25% engine loads (excluding in the latter case the extreme 95% blend), the FSN findings in respect of the HFO and the three aromatic oil mixtures are essentially identical, and to put this on an absolute basis, below the typically applied limit of 0.3 FSN, but we do not see those findings to be further explored in the discussion of the results obtained.

4 We could identify that the particular FSN findings at 75% load are primarily a function of the E2 cycle, when a common rail engine has been particularly tuned to Tier II NOx compliance. For example, settings which tend to reduce NOx can conversely tend to result in increased Black Carbon. The science being to bring both down together.

5 In common rail engines the inter-mode point performance, FSN in this case, cannot be assumed to be indicated by the presented curves for the reasons provided in the IMarEST document PPR 5/23/1.

6 As a conclusion drawn from the last three observations, it seems that the engine type used for the test programme that although, in terms of FSN, sensitive to fuel oil type –noting the environmental well-to-wake production energy implications of those fuels – it was not generally sensitive to the fuel's aromatic content - showing sensitivity only at that mode point

where a specific tuning objective, NOx in this case, was applied covering a range of perhaps no more than a few load % points around that 75% load mode point. Therefore ,we would like to emphasise that Black Carbon emissions are as much of a function of engine related factors such as design, settings and condition, as they are of fuel related factors such as type, composition and preparation.

7 Different engine types and models operating at different load points maintenance conditions will have different sensitivities to Black Carbon emissions. The finding that aromatic type fuel components result in an increased tendency to ignition delay – and hence particulate / Black Carbon emissions – is not new. It is a known fact from the earliest days of engine performance testing and is the fundamental basis of cetane number determination where the zero reference fuel is a specified aromatic hydrocarbon. Hence the FSN findings from this particular constant speed medium speed test engine are not seen as being capable of the applied unqualified extrapolation, as given by PPR 7/8/2 and 7/8/3 to all other engines, for example, all those low speed crosshead engine types in which the bulk of marine fuel oils are used.

Consequently, we would ask that the above outlined points are carefully considered by the Sub-Committee when deciding the way forward on this matter.

Thank you Mr Chair."

ITEM 9

Statement by the observer from BIMCO

"Thank you Chair

BIMCO has grave concerns regarding the proposal by IMarEST in MEPC 74/10/2.

Allow me try to explain why.

A normal fuel oil tank only has two openings, the manhole, for inspection when the tank is empty, and the sounding pipe. Fuel oil tanks are not constructed with any designated sampling points and ships are not equipped with appropriate sampling equipment. We agree with the statement of IMarEST, - sampling should not be taken using the sounding pipe, since it would not be representative.

In order to get a representative sample, the alternative then would be using the manhole. The manhole should never be opened while there is fuel oil inside the tank, as the oil would be spilled. Fuel oils are stored at high temperatures and it is consequently unsafe for the people taking the sample.

An indirect sample using the fuel oil transfer pump, cannot in our opinion be used, since it cannot be homogenous and representative of the sulphur content in the tank. Since the transfer pump's suction is placed in the bottom of the fuel tank, BIMCO fears that such samples would show wrong results even though the fuel oil actually is compliant.

The only truly homogenous and representative fuel oil sample, that is available today is the MARPOL sample because it is drawn over the entire bunker operation.

Thank you Chair."

ITEM 11

Statement by the delegation of Ireland

"Thank you Chair, Good Morning to all.

Firstly, apologies for coming back on agenda item 11 at this point of proceedings, but it is necessary.

During this session, Working Group 2, conducted a review of the guidelines for EGCS using PPR 6/11 as the base document.

The 2015 EGCS Guidelines have been finalized to produce the new 2020 draft Guidelines. The Working Group was also tasked with reviewing PPR 6/11 Appendix 6, with the intention of updating and generating a Circular that is specific to the newly drafted EGCS 2020 guidelines.

In fact, during the groups work, Appendix 6 to the 6/11 document was deleted – the rational given was that MEPC.1/Circ.883; approved at MEPC 74 for the 2015 EGCS Guideline, had superseded Appendix 6, and that Appendix was not required. The entire body content of Circular 883 was retained; with the only amendment being the deletion of references to the EGCS 2015 Guidelines from the title.

Ireland does not agree that Circ. 883 accurately encompasses the recent amendments of the 2020 ECGS Guideline or specific operational and technical proposals listed in document PPR 6/11 Annex 6. In-fact by removing the reference to the 2015 guideline, the scope of application for Circ. 883 may have been inadvertently broadened to include all future versions of amended EGCS guidelines.

Thank you to the Chair of the Group Mr. Lundy for addressing those proceedings in his opening statement, and his athletic efforts in reaching consensus. However, Ireland does not accept that the content of circular 883 has been adequately reviewed, and that as a result, it is not specific to the 2020 EGCS guideline. Ireland does not believe that Circ. 883 either complements or reflects the guidelines; and will raise this issue at MEPC 75 to propose a more complete review of that Circular.

Further, Ireland would like this statement added to the report of the working group.

Thank you Mr. Chair."

ITEM 14

Statement by the delegation of the Bolivian Republic of Venezuela

"Gracias señor Presidente, Buenas Días a todos.

Permítame ante todo expresar nuestra solidaridad con la República Popular China y los otros países que están siendo afectados por el nuevo Coronavirus.

Mi Delegación agradece a las distinguidas Delegaciones de los países que han presentado documentos en este tema, y especialmente a la Delegación de la Federación de Rusia por los documentos PPR7/14/2 y PPR7 INF.13, los cuales contienen una evaluación muy completa y documentada sobre el impacto de una prohibición del uso y el transporte por barco de fueloil pesado en aguas del Ártico.

De la lectura del PPR7/14/2, en sus párrafos 17 (numerales 1 al 4), y 18, se desprende con claridad la necesidad de tomar en cuenta la realidad socioeconómica de los Estados afectados, como condición prioritaria para el desarrollo de medidas restrictivas en el marco del tema 14.

Mi Delegación estima que los objetivos para la elaboración y puesta en vigencia de una prohibición son claros: salvar al Ártico de la amenaza de la contaminación ambiental y proteger de manera sostenible a las comunidades de la región y sus economías y modos de vida.

Hay una gran diversidad de circunstancias en las poblaciones e industrias de la región y por ello mismo es necesario que la norma que se aplique no sea rígida, si no que responda a las particularidades de los Estados Árticos para garantizar la protección ambiental y el Aprovisionamiento del Norte, ese complejo sistema de transporte por mar destinado a proveer de insumos esenciales a pueblos e industrias aislados. El enfoque único no parece ser el más aconsejable.

En tal sentido, mi Delegación apoya las acciones solicitadas por la Delegación de Rusia en el documento PPR7/14/2 y solicita que esta declaración conste en Acta.

Gracias señor Presidente."

Statement by the delegation of the Russian Federation

"Господин Председатель,

В первую очередь хотел бы поблагодарить председателя рабочей группы господина C.H. Goh (Сингапур) и сотрудников Секретариата за профессиональную работу, а также всех участников рабочей группы за интересную и продуктивную дискуссию. Это в равной степени относится и к российским коллегам.

В отношении проекта руководства по снижению рисков мы подтверждаем нашу готовность координировать работу корреспондентской группы и призываем все заинтересованные стороны к активному участию в ее работе, если Подкомитет примет решение о воссоздании группы.

Теперь касательно непосредственно запрета.

В целом с удовлетворением отмечаем проявленное участниками рабочей группы стремление к поиску компромисса в целях максимального учета результатов оценки последствий запрета, а также важных особенностей социально-экономического положения различных арктических государств.

Считаем, что подготовленный группой проект поправок является хорошей основой для дальнейшей работы по этому «чувствительному» вопросу.

При этом мы исходим из того и это очень важно, что каждая из государств-сторон МАРПОЛ, в том числе и Российская Федерация, еще раз тщательно изучит разработанный проект поправок и представит по необходимости на КЗМС-76 свою позицию относительно его приемлемости.

В отношении непосредственно текста поправок хотели бы обратить внимание на несколько важных аспектов и поделиться своими озабоченностями.
В проекте устанавливается предельный срок действия исключений (waivers), которые Администрация может предоставлять отдельным судам – это 1 июля 2029 года.

Положение об изъятиях было включено в текст поправок по нашей инициативе, поскольку считаем, что это позволит государству снизить негативное влияние запрета и, прежде всего, снять те тяжелые социально-экономические последствия, которые лягут на плечи местного населения.

На рабочей группе мы обсуждали включение в текст поправок также положения о возможности пересмотра этой даты по результатам оценки последствий, которую заинтересованные государства могли бы провести к 2027 году, т.е. за два года до истечения предельного срока действия исключений.

К сожалению, это предложение не было принято, хотя оно, по нашему мнению, несло в себе очень важный смысл. Дополнительная оценка для уточнения даты прекращения действия исключений закладывала бы механизм обратной связи, который необходим для полного учета интересов местного населения арктических регионов в изменившихся условиях.

Сегодняшняя ситуация на бункерном рынке, господин Председатель, не позволяет делать даже краткосрочные прогнозы. Несмотря на это, нам предложено принять решение, последствия которого наступят более, чем через 9 лет, хотя сейчас невозможно предположить в какой степени использование тяжелого топлива будет актуально к этому времени, сохранятся ли негативные последствия, связанные с отказом от его использования.

Считаем, что заложниками такого подхода опять становятся наши граждане и экономика.

Еще один не менее важный аспект, господин Председатель.

Как видно из пункта 13 отчета рабочей группы (WP.6), некоторые делегации сошлись во мнении относительно отсутствия достаточных обоснований технического характера, которые подтверждали бы целесообразность распространения запрета на суда с конструктивной защитой топливных танков. Они просто не были представлены сторонниками данного ограничения. Исходим из того, что их просто нет. Кроме того, приводившаяся статистика по аварийности таких судов не относилась к Арктике.

Это - очередной пример, когда запретительные меры, а это главным образом касается экологических ограничений, разрабатываются без достаточной научно-технической проработки, можно сказать в спешке. К сожалению, в последнее время таких примеров все больше.

Экологические запреты, господин Председатель, по нашему мнению, можно разрабатывать и применять только в самых крайних (как крайнюю меру) и обоснованных случаях. Иначе, как было справедливо отмечено в ходе обсуждения на рабочей группе, проще запретить судоходство в целом.

Это - довольно опасная тенденция, особенно с учетом ведущихся сегодня в ИМО важнейших переговоров по очень серьезному вопросу снижения выбросов парниковых газов. Результаты этих переговоров будут во многом определять состояние и дальнейшие перспективы развития международного судоходства.

В этой связи в очередной раз призываем ИМО вернуться на путь должной научно-технической проработки обязательных решений. Нам всем необходим конструктивный и непредвзятый диалог, который опирается исключительно на проверенные научные данные. Только такой подход позволит обеспечить правильный баланс между

экологическим благополучием и поступательным развитием судоходства, а значит - и успех дальнейший работы ИМО".

English version of the statement by the Russian Federation

"Chair,

First of all we would like to thank the Chair of the working group Mr. C.H.Goh from Singapore and the Secretariat staff for the professional excellent work as well as all participants of the working group for an interesting and productive discussion; this refers equally to the Russian colleagues.

With regard to the draft Guidelines on mitigation measures to reduce risks of use and carriage for use of HFO as fuel by ships in Arctic waters we reaffirm our willingness to coordinate the work of the correspondence group and encourage all interested parties to actively participate in its work if the Sub-Committee decides to re-establish the group.

Now with regard to the draft ban itself.

On the whole, we note with satisfaction the desire shown by the participants of the working group to seek a compromise in order to maximize the inclusion of the results of the assessment of the consequences of the ban, as well as the important features of the socio-economic situation of various Arctic states.
We believe that the draft amendments prepared by the group is a good basis for further work on this "sensitive" issue.

At the same time we are assuming and it is very important, that each of the MARPOL Member States, including the Russian Federation, will once again carefully study the draft amendments that have been developed and submit to MEPC-76, as necessary, their position regarding its acceptability.

With regard to the text of the amendments themselves, we would like to draw attention to several important aspects and share our concerns.

The draft sets the deadline for the validity of waivers that the Administration can provide to individual ships - this is July 1, 2029. The provision on waivers was included in the text of the amendments at our initiative, since we believe that this will allow the state to reduce the negative impact of the ban, primarily by eliminating those difficult socio-economic consequences that will fall on the shoulders of the local population.

At the working group, we also discussed the inclusion in the text of the amendments of a provision on the possibility of reviewing this date based on the results of an impact assessment of the consequences that interested states could conduct by 2027, i.e. two years before the expiration of the waivers (para 21 of the WP.6)

Unfortunately, this proposal was not accepted, although it was in our view extremely important. An additional assessment to clarify the expiration date of the waivers would establish a feedback mechanism, which is essential to fully take into account the interests of the local population of the Arctic regions under changing conditions.

Chair, the current situation in the bunker market does not allow us even to make short-term forecasts. Despite this, we are being invited to make decision, the consequences of which will come in more than 9 years, although it is now impossible to predict to what extent the use of

heavy fuel will be relevant by this time, whether the negative consequences associated with the refusal to use it will continue.

We believe that our citizens and the economy again become hostages of this approach.

Another equally important aspect, Chair. As can be seen from para 13 of the report of the working group (WP.6), some delegations agreed on the lack of sufficient technical justifications for the extension of the ban on vessels with constructive protection of fuel tanks. It is simply the case that no such justifications were submitted by supporters of this restriction. We must assume that they simply do not exist. Furthermore, the statistics on the accident rates of such vessels do not relate to the Arctic itself.

This, in our view, is one more example when prohibitive measures - and this mainly concerns environmental restrictions - are developed without sufficient scientific and technical study, one could say in haste. Unfortunately, recently there have been more and more such examples.

Environmental bans, Chair, in our opinion, can be developed and applied only in the most extreme (as extreme measure) and in thoroughly justifiable cases. Otherwise, as was rightly noted by colleagues during the discussions at the working group, it would simply be easier to ban shipping entirely.

This is a rather dangerous trend, Chair, especially given the IMO's extremely important negotiations on the very serious issue of reducing greenhouse gas emissions. The results of these negotiations will largely determine the state and future prospects for the development of international shipping as a whole.

In this regard, we once again urge the IMO to return to the path of proper scientific and technical study of mandatory decisions. We all need a constructive and objective dialogue that relies solely on well-founded scientific evidences. Only such an approach will ensure the right balance between the environmental well-being and the progressive development of shipping, and hence the success of IMO's further work."

ITEM 21

Statement by the delegation of Belgium

"Before commenting on the content of document PPR 7/2/5, we would like to comment on the procedure for further developments of the 2019 Guidelines for port State control under MARPOL Annex VI (being Resolution MEPC.321(74)). We refer to earlier interventions made by Belgium during PPR 6, MEPC74 and III 6 and we repeat our concerns. We believe there is a need to clarify, line up and communicate to all concerned Committees and sub-committees the intended way forward for further amendments to the Resolution MEPC.321(74) and the integration of these guidelines as an Appendix to the overall Resolution on 'Procedures for port State control' (now being Assembly resolution A.1137(31). This to be in line with earlier decisions by III 3, adopted by MEPC 70 and MSC 97, to avoid issuing individual port State control guidelines as stand-alone instruments.

The strategic plan for the organization clearly states the coordinating role of III on output OW 10. The coordination by III and its PSC experts will assure that all PSC guidelines are grouped together. But more important it will assure that the scope of the inspections and the documents to be checked as described in the different Appendices is consistent throughout the Assembly resolution, regardless the subject or convention.

At III 6 we have already been confronted with the problems eminating from the parallel development of PSC guidelines at III and at PPR or MEPC.

It was realised that the newly added appendix 18 was not fully consistent with the rest of the assembly resolution A.1137(31), in particular with the general Chapters 2 and 3 and the newly developed criteria to be applied for a consistent approach on which documents are to be checked during PSC inspections. It is clear that these inconsistencies within the Assembly Resolution are confusing and result in ambiguous and unclear guidance to the PSCO's.

We therefore propose to forward document PPR 7/2/5 directly to III for that Sub-Committee to deal with the proposals made in the document. III may afterwards decide to send their amended PSC guidelines to PPR for technical review by the experts of environmental legislation, being in this case Marpol Annex VI. This technical review is then not intended to add or remove items to the scope of the inspection or to what documents are to be checked (this task belongs to the mandate and expertise of the III subcommittee), but has to focus on the review of any technical or legal inconsistencies there might exist between the text of the PSC guidelines and the relevant conventions."

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