INTERNATIONAL MARITIME ORGANIZATION

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Agenda item 15

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DRAFT REPORT TO THE MARITIME SAFETY COMMITTEE AND THE MARINE ENVIRONMENT PROTECTION COMMIITTEE

1 GENERAL

Introduction

1.1 The Sub-Committee on Carriage of Cargoes and Containers (CCC) held its third session from 5 to 9 September 2016 under the chairmanship of Mr. H. Xie (China). The Vice-Chair, Mr. P. Van Lancker (Belgium), was also present.

1.2 The session was attended by delegations from Member States and an Associate Member of IMO; and by observers from intergovernmental organizations and non-governmental organizations in consultative status, as listed in document CCC 3/INF.1.

Secretary-General's opening address

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

Chair's remarks

1.4 In response, the Chair thanked the Secretary-General for his words of guidance and encouragement and assured him that his advice and requests would be given every consideration in the deliberations of the Sub-Committee.

Adoption of the agenda and related matters

1.5 The Sub-Committee adopted the agenda (CCC 3/1/Rev.1) and agreed to be guided in its work, in general, by the annotations contained in document CCC 3/1/1 (Secretariat) and the working arrangements in document CCC 3/1/2 (Chairman). The agenda, as adopted, together with the list of documents considered under each agenda item, is set out in document CCC 3/INF.[...]

2 DECISIONS OF OTHER IMO BODIES

2.1 The Sub-Committee noted the outcomes of A 29, MEPC 69 and MSC 96 relevant to the work of the Sub-Committee, as reported in document CCC 3/2 (Secretariat), and took them into account in its deliberations when dealing with relevant agenda items.

2.2 With regard to outputs 5.2.3.3 (Amendments to the IMSBC Code and supplements) and 5.2.3.4 (Amendments to the IMDG Code and supplements), the Sub-Committee noted that MSC 96 had agreed that the scope of these outputs was limited to the technical aspects of the cargoes only and that operational and administrative requirements associated with the IMSBC and IMDG Codes were not included within the scope of these outputs. Therefore, should any amendment to the Codes have a possible impact on other parts of the respective Codes, Member States or the Sub-Committees should present a proposal for a new output to the Committee, in accordance with the Committees' guidelines.

2.3 The Sub-Committee also noted that, with the availability of a new GISIS module on "Development of amendments to the 1974 SOLAS Convention and related mandatory instruments", MSC 96 had instructed its subsidiary bodies and the Secretariat to keep the records updated in GISIS during the preparation of draft amendments to the 1974 SOLAS Convention and related mandatory instruments, in respect of relevant decisions taken at the Committee or Sub-Committee level.

2.4 The Sub-Committee further noted that the Assembly, at its twenty-ninth session, had approved the *Strategic Plan for the Organization (for the six-year period 2016 to 2021)* (resolution A.1097(29)) and the *High-level Action Plan of the Organization and priorities for the 2016-2017 biennium* (resolution A.1098(29)).

3 AMENDMENTS TO THE IGF CODE AND DEVELOPMENT OF GUIDELINES FOR LOW-FLASHPOINT FUELS

GENERAL

3.1 The Sub-Committee recalled that CCC 2 established a Correspondence Group on Development of Technical Provisions for the Safety of Ships using Low-flashpoint Fuels (correspondence group) with the terms of reference set out in paragraph 3.36 of document CCC 2/15.

REPORT OF THE CORRESPONDENCE GROUP

3.2 The Sub-Committee had for its consideration document CCC 3/3 (Sweden), providing the report of the correspondence group with regard to the development of draft technical provisions for the safety of ships using methyl/ethyl alcohol as fuel and the development of draft requirements for fuel cells for inclusion in the IGF Code.

3.3 In considering the report of the correspondence group, the Sub-Committee noted the following general comments expressed on this matter:

.1 the correspondence group had made significant progress in its tasks and it could be envisaged that work at this session may be carried out with a view to finalization;

.2 there is a need for further investigation into the properties and use of fuel cells and methyl/ethyl alcohol fuels before setting safety requirements;

.3 a careful and conservative approach is required in order to delimit the use of fuel cells and methyl/ethyl alcohol fuels and set appropriate and strict structural and operational safety requirements;

.4 there is a need to include requirements for fuel cells operating not only with natural gas but also with other fuels in order for the marine industry to be in a position to take advantage of these rapidly developing technologies; and

.5 the fundamental principles of operation of fuel cell power systems are common to all fuel cell types and the core components of fuel cell power systems can be generalized. In this regard the United Kingdom made a

statement, supported by Norway and the Marshall Islands, the full text of which is set out in annex [...].

3.4 Taking the above views into account, the Sub-Committee approved the report in general and took action as indicated in paragraphs 3.5 to 3.17.

Draft technical provisions for the safety of ships using methyl/ethyl alcohol as fuel

Terminology in the context of ships using methyl/ethyl alcohol as fuel

3.5 The Sub-Committee noted the outcome of the correspondence group's discussion regarding the terminology to be used in the context of ships using methyl/ethyl alcohol as fuel, specifically that the term "fuel" should be understood as "methyl/ethyl alcohol". Subsequently, the Sub-Committee agreed to refer the issue of the definition of ethyl and methyl alcohol as fuel to a Working Group on Amendments to the IGF Code and Development of Guidelines for Low-flashpoint Fuels (IGF Code Working Group) for further consideration.

Corrosivity of methyl/ethyl alcohols

3.6 The Sub-Committee noted the correspondence group's view that further information is needed on the corrosive nature of methyl/ethyl alcohols. In this regard, the Sub-Committee also noted the view that the matters that still need consideration would be dealt with as a high priority item by the IGF Code Working Group with the aim of finalizing the safety provisions for the use of methyl/ethyl alcohol as fuel.

Issues requiring further consideration

3.7 Following consideration of annex 1 to document CCC 3/3, containing the draft technical provisions for the safety of ships using methyl/ethyl alcohol as fuel, the Sub-Committee noted the progress made by the correspondence group and also noted that a significant number of issues remained unresolved and required further consideration. In this regard, the Sub-Committee agreed that the IGF Code Working Group should carefully review the draft technical provisions for the safety of ships using methyl/ethyl alcohol (CCC 3/3, annex 1), and attempt to resolve as many issues as possible or propose possible options on the way forward for items where agreement cannot be reached, in order to enable the Sub-Committee to have a well-structured discussion and for interested Member States and international organizations to submit specific proposals at the next session.

The MethaShip project and proposals for specific amendments to the draft technical provisions for the safety of ships using methyl/ethyl alcohol as fuel

3.8 The Sub-Committee had the following two documents for its consideration:

.1 CCC 3/INF.23 (Germany), providing information on MethaShip, a three-year German research project aiming to evaluate and support the sustainable development and safety aspects of ships using methyl/ethyl alcohol as fuel by exploring the economic case for the use of methyl alcohol, understanding the fuel infrastructure requirements and developing two ship designs; and

.2 CCC 3/3/1 (Germany), proposing the following amendments to the draft technical provisions for the safety of ships using methyl/ethyl alcohol as fuel, based on findings from the German project MethaShip:

.1 usage of the term "secondary barrier" instead of "cofferdam" in provisions that relate to leakage protection (CCC 3/3/1, paragraph 4);

.2 amendments to paragraph 5.3.2 of the draft technical provisions to allow the omission of a secondary barrier on the tank tops adjacent to machinery spaces containing low fire-risk machinery (such as pumps) (CCC 3/3/1, paragraph 6);

.3 amendments to paragraph 11.4.4 of the draft technical provisions to align it with paragraph 11.3.3 of the IGF Code so as not to require a cofferdam for tanks adjacent to low fire-risk machinery spaces (CCC 3/3/1, paragraph 9);

.4 reintroduction of the Emergency Shutdown (ESD) concept and reconsideration of the requirements for emergency shutdown of power generating units and of machinery spaces in chapters 2, 5, 9, 10, 13 and 15 of the draft technical provisions (CCC 3/3/1, paragraph 14);

.5 addition of definitions for "spaces not normally entered" and "units not normally accessed", and amendments to chapter 5 of the draft

technical provisions, with a view to allowing access to tank connection spaces (that are not normally accessed) through manholes rather than airlocks (CCC 3/3/1, paragraphs 17 to 19); and

.6 deletion of paragraphs 12.5.2.1.4 and 12.5.3.1.1 of the draft technical provisions, which contain requirements for the classification of the hazardous zone for the discharge of tank vents (CCC 3/3/1, paragraph 23).

3.9 Having briefly considered the above two documents, the Sub-Committee agreed to refer them to the IGF Code Working Group for further consideration, having noted the view that the ESD protected machinery concept was only suitable for fuel lighter than air, such as natural gas, and not methyl/ethyl alcohols, and a concern regarding the proposal to allow the arrangement of fuel pump units directly in the machinery space.

European Maritime Safety Agency (EMSA) study on the use and bunkering of methyl/ethyl alcohol fuels for passenger and cargo ships

3.10 The Sub-Committee noted with appreciation the information in document CCC 3/INF.22 regarding a study, commissioned by EMSA, on the use of ethyl/methyl alcohols as fuel in shipping, which offers a technology review, a regulatory gap analysis, a relevant business case and a safety assessment on the use and bunkering of ethyl/methyl alcohol fuels for both passenger and cargo ships. Subsequently, the Sub-Committee agreed to refer the document to the IGF Code Working Group for information purposes.

Status of the technical provisions for ships using methyl/ethyl alcohol as fuel

3.11 The Sub-Committee recalled that CCC 2, having noted divergent views on whether the provisions for the use of methyl/ethyl alcohol as fuel should be developed as amendments to the IGF Code or as non-mandatory guidelines, had decided to hold in abeyance any final decisions related to application issues until the safety provisions had been finalized from a technical perspective.

3.12 Notwithstanding the aforementioned decision of CCC 2, the Sub-Committee again considered the issue of the intended status of the technical provisions for the safety of ships using methyl/ethyl alcohol as fuel (i.e. non-mandatory guidelines or mandatory requirements to be incorporated into the IGF Code), with a view to providing a clear indication to the IGF

Code Working Group. Following discussion, the Sub-Committee, having again noted divergent views on this matter, agreed to revisit this issue at CCC 4, once the draft safety provisions were closer to finalization from a technical perspective.

Potential input by other Sub-Committees

3.13 Having considered the correspondence group's suggestions as to which safety provisions should be forwarded to other sub-committees (CCC 3/3, paragraph 63), the Sub-Committee agreed to instruct the IGF Code Working Group, time permitting, to further consider the correspondence group's suggestions and advise the Sub-Committee in this regard, taking into account the progress made at this session. The Sub-Committee also instructed the IGF Code Working Group to be as specific as possible as to the input sought of other sub-committees.

Requirements for fuel cells

Equipment boundaries

3.14 In considering annex 2 to document CCC 3/3, containing draft amendments to the IGF Code regarding fuel cells, the Sub-Committee noted the draft definitions developed by the correspondence group. In this context, the Sub-Committee, having considered the sample diagram representing a "fuel cell power installation", noted general support for the inclusion of such a diagram in the main body of the draft provisions for fuel cells rather than as an appendix.

Types of feed fuel

3.15 With regard to whether or not the draft requirements for fuel cells should address only natural gas as a feed fuel, the Sub-Committee, having noted the various comments made in the correspondence group and having recalled the statement by the United Kingdom and the relevant general comments on the report of the correspondence group (see paragraphs 3.2, 3.4 and 3.5), also noted the following views expressed on this matter:

.1 the use of low-flashpoint fuels other than natural gas, such as hydrogen, as feed fuel for fuel cells should be carefully considered, including implementing a risk assessment for using such fuels, before introducing them into the IGF Code;

.2 a number of provisions in the draft amendments to the IGF Code regarding fuel cells developed by the correspondence group require further consideration before discussing different types of feed fuel;

.3 the focus at this session should be on finalizing the draft amendment to the IGF Code regarding fuel cells using natural gas;

.4 fuel cells should not only be limited to natural gas; and

.5 fuel cell requirements should be developed as a separate, general part of the IGF Code rather than being included in part A-1 of the Code, in order to allow the use of different kinds of feed fuels other than natural gas.

3.16 Following discussion and having taken the above views into account, the Sub-Committee agreed that the draft amendments to the IGF Code regarding fuel cells should be developed as a general part to the IGF Code, separate to the natural gas-specific parts. With regard to feed fuels other than natural gas, the Sub-Committee agreed with the understanding that the provisions of the IGF Code for alternative design and arrangements would have to be used with regard to, for example, fuel storage and piping outside the fuel cell power systems, until specific provisions for these aspects are developed for each of the low-flashpoint fuels in question.

3.17 Consequently, having noted the progress made by the correspondence group on the draft requirements for fuel cells, the Sub-Committee decided to instruct the IGF Code Working Group to further develop the draft amendments to the IGF Code regarding fuel cells as a separate, general part using annex 2 to document CCC 3/3 as a basis.

PROPOSED DEFINITION OF BUNKERING STATION, GAS CONTROL SYSTEM AND GAS SAFETY SYSTEM AND PROPOSED AMENDMENTS TO PARAGRAPHS 11.3.6 AND 15.2.6 OF THE IGF CODE

3.18 The Sub-Committee recalled that the IGF Code Working Group established at CCC 2, owing to time constraints, had been unable to consider document CCC 2/3/3 (China), which proposed amendments to the IGF Code, including definitions for "bunkering station", "gas control system" and "gas safety system"; revised text for paragraph 15.2.6 of the Code on the independence requirements for the gas control system and the gas safety system; and revised text for paragraph 11.3.6 of the Code on fire protection for the LNG bunkering station located on open deck. Consequently, CCC 2 had invited interested Member States and international

organizations to submit comments and proposals to CCC 3 on the draft amendments to the IGF Code proposed in the aforementioned document.

3.19 With regard to whether or not document CCC 2/3/3 could be considered, taking into account that it was proposing amendments to the natural gas-specific part of the IGF Code that had recently been adopted, the Sub-Committee recalled that MSC 94 had endorsed the approach that in the second phase of the IGF Code development, the CCC Sub-Committee could consider matters related to natural gas, in addition to low-flashpoint fuels other than natural gas, based on experience gained by the application of the IGF Code.

3.20 Having noted that no comments on document CCC 2/3/3 had been submitted, the Sub-Committee decided to instruct the IGF Code Working Group to further consider document CCC 2/3/3 and advise the Sub-Committee on how best to proceed.

RESEARCH PROJECTS RELATING TO LNG AS FUEL

3.21 The Sub-Committee noted with appreciation the information in the following documents submitted by the Republic of Korea:

.1 CCC 3/INF.13 on a research project the purpose of which was to identify potential risks of LNG bunkering and to present a statistical method for determining the safe exclusion zone around LNG bunkering stations with the help of a purpose-built computer program;

.2 CCC 3/INF.14 on the results of an LNG leakage rate analysis, conducted as part of a research project, to be used as a reference for the risk assessment required in the context of paragraph 8.3.1.1 in part A-1 of the IGF Code;

.3 CCC 3/INF.15 on a research project which was conducted with the aim of investigating the extent of the potential risks of a high pressure LNG fuel gas supply system through a case study; and

.4 CCC 3/INF.16 on a research project in which a quantitative risk assessment of LNG bunkering port side was completed by means of parametric analysis.

LNG AS FUEL FOR SHIPS TRADING IN SHALLOW WATERS

3.22 The Sub-Committee noted with appreciation the information on experience gained in using the IGF Code for vessels trading in shallow waters provided by Germany in document CCC 3/INF.24 and agreed to refer the document to the IGF Code Working Group for information purposes.

ESTABLISHMENT OF A WORKING GROUP

3.23 The Sub-Committee established the Working Group on Amendments to the IGF Code and Development of Guidelines for Low-flashpoint Fuels and instructed it, taking into account comments made and relevant decisions taken in plenary, to:

.1 finalize the draft amendments to the IGF Code regarding fuel cells, based on annex 2 to document CCC 3/3;

.2 further develop the draft technical provisions for the safety of ships using methyl/ethyl alcohol as fuel, based on annex 1 to document CCC 3/3, taking into account documents CCC 3/3/1, CCC 3/INF.22 and CCC 3/INF.23;

.3 further consider document CCC 2/3/3 and advise the Sub-Committee on how best to proceed, taking into account document CCC 3/INF.24;

.4 if time permits, further consider and advise the Sub-Committee with regard to which safety topics and parts of the draft technical provisions for the safety of ships using methyl/ethyl alcohol as fuel ought to be forwarded to other sub-committees and, where possible, prepare specific requests as to the input sought of the other sub-committees;

.5 update the work plan for phase 2 of the development of the IGF Code (CCC 1/WP.3, annex 3), taking into account the progress made at this session; and

.6 consider whether it is necessary for the correspondence group to be re-established and, if so, prepare terms of reference for consideration by the Sub-Committee.

REPORT OF THE WORKING GROUP

3.24 Having considered the report of the working group (CCC 3/WP.3), the Sub-Committee approved it in general and took action as described in paragraphs 3.25 to 3.[...]

[to be prepared by the Secretariat in consultation with the Chair after the session, based on the group's report and the actions requested therein, taking into account the decisions taken by the Sub-Committee during subsequent discussions]

4 SAFETY REQUIREMENTS FOR CARRIAGE OF LIQUEFIED HYDROGEN IN BULK

Background

4.1 The Sub-Committee recalled that MSC 94, having considered document MSC 94/18/3 (Australia and Japan), proposing to develop safety requirements for carriage of liquefied hydrogen in bulk and to amend the IGC Code, agreed to include the new output on "Safety requirements for carriage of liquefied hydrogen in bulk" in the biennial agenda of the Sub-Committee, with a target completion year of 2016.

4.2 The Sub-Committee also recalled that CCC 2, having considered document CCC 2/4 (Australia and Japan), proposing:

.1 the development of interim recommendations for the carriage of hydrogen in bulk, in order to complete the output by the target completion year; and

.2 the development of relevant amendments to the IGC Code at a future time, as experience was gathered from shipments of liquefied hydrogen in bulk based on the interim recommendations,

established the Correspondence Group on Development of Safety Requirements for Carriage of Liquefied Hydrogen in Bulk and instructed it to develop draft interim recommendations for carriage of liquefied hydrogen in bulk, taking into account the information contained in the annex to document CCC 2/4, and submit a report to this session.

Report of the correspondence group

4.3 The Sub-Committee had for its consideration the report of the Correspondence Group on Development of Safety Requirements for Carriage of Liquefied Hydrogen in Bulk (CCC 3/4), providing the draft Interim recommendations for carriage of liquefied hydrogen in bulk (draft Interim recommendations) (CCC 3/4, annex) and information on the relevant discussions.

4.4 In considering the report of the correspondence group, the Sub-Committee noted the following general views:

.1 more work should be done before finalizing the draft Interim recommendations, in particular, the use of a risk assessment in the approval process needs to be limited, and prescriptive requirements to be developed to mitigate hazards; and

.2 practical trials at sea are required to progress the pilot project and, therefore, finalization of the draft Interim recommendation should be considered as a matter of urgency.

4.5 Taking the above views into account, the Sub-Committee agreed that further careful consideration should be carried out before finalizing the draft Interim recommendations.

4.6 In considering actions requested in paragraph 89 of the correspondence group's report (CCC 3/4), the Sub-Committee approved the report in general and took actions as outlined in paragraphs 4.7 to 4.10 below.

4.7 The Sub-Committee noted the information of the discussion on the aspects related to the risk assessment, special segregation requirements, sloshing, electrical equipment, machinery and equipment to safely handle hydrogen, permeability, tests carried out by the United States on LH_2 pool fires, prevention of leakage from pipes, design of cargo containment systems, criteria of oxygen concentration and quenching distance, without taking any specific actions.

4.8 With regard to the issues listed in paragraph 89.3, the Sub-Committee considered:

.1 document CCC 3/4/1 (Japan), proposing:

.1 that, in addition to helium, a mixture of 5% hydrogen and 95% nitrogen, which is classified as non-flammable in ISO 10156:2010 "Gases and gas mixtures – Determination of fire potential and oxidizing ability for the selection of cylinder valve outlets", should be acceptable for leak testing; and

.2 alternative texts for the last paragraph of draft Special Requirement No.24 on piping arrangements, regarding the applicability of the requirement to spaces constituting a part of the cargo containment

system; and for paragraph 4.8.3 permitting thermal oxidation of hydrogen boil-off gas.

.2 document CCC 3/INF.20 (Japan), inviting the Sub-Committee to note the outline of the hazard identification (HAZID) studies at the Front End Engineering Design (FEED) stage of a 2,500 m^3 liquefied hydrogen carrier and the subsequent analysis of the HAZID studies conducted by Japan; and

.3 document CCC 3/4/2 (Japan), drawing from the analysis of the HAZID studies reported in document CCC 3/INF.20 and proposing an additional special requirement on minimizing bolted flange connections of hydrogen piping, in conjunction with additional text listing the issues that should be addressed in the risk assessment to be added at the end of section 4.1 of the draft Interim recommendations.

4.9 The Sub-Committee also noted the following views expressed on these issues:

.1 statements clearly defining the scope of application of the draft Interim recommendations and clarifying the need for further revisions, if they would be applied to ships other than a pilot ship, should be included in the introductory notes of the draft Interim recommendations; and

.2 acceptance of boil-off gas should be considered in detail, before taking any final decisions.

4.10 Following the discussion, the Sub-Committee agreed that a working group should be instructed to further review the 13 issues listed in paragraph 89.3 of document CCC 3/4, with a view to finalizing the draft Interim recommendations, based on the annex to this document.

Establishment of a working group

4.11 The Sub-Committee established the Working Group on Carriage of Hydrogen in Bulk and Suitability of Materials for Cryogenic Service and instructed it, taking into account the comments and decisions made in plenary, to finalize the draft Interim recommendations for carriage of liquefied hydrogen in bulk, based on the annex to document CCC 3/4, together with the associated draft MSC resolution, taking into account documents CCC 3/4/1, CCC 3/4/2 and CCC 3/INF.20.

Report of the working group

4.12 Having considered the report of the Working Group on Carriage of Hydrogen in Bulk and Suitability of Materials for Cryogenic Service (CCC 3/WP.4), the Sub-Committee approved it in general and took action as described in paragraphs 4.13 to 4.[…]

[to be prepared by the Secretariat in consultation with the Chairman after the session, based on the group's report and the actions requested therein, taking into account the decisions taken by the Sub-Committee during subsequent discussions]

5 AMENDMENTS TO THE IMSBC CODE AND SUPPLEMENTS

GENERAL

5.1 The Sub-Committee noted that E&T 25 prepared the draft amendments (04-17) to the IMSBC Code.

5.2 The Sub-Committee also noted that, after consideration of documents submitted to this session, E&T 26 will be instructed to finalize the draft amendment 04-17 to the IMSBC Code for circulation and its subsequent adoption by MSC 98.

5.3 The Sub-Committee recalled that CCC 2 established a Correspondence Group on Evaluation of Properties of BAUXITE and COAL, with the terms of reference set out in paragraph 5.75 of document CCC 2/15, and instructed the group to report to this session.

REPORT OF E&T 25

5.4 The Sub-Committee considered the report of E&T 25 (CCC 3/5) together with the related documents submitted to the session and, having approved it in general, took action as indicated in paragraphs 5.5 to 5.35.

MHB Specification

5.5 The Sub-Committee noted the deliberations of the group regarding those individual schedules in the IMSBC Code which do not specify the basis for MHB classification and invited Member States and international organizations, in particular those which submitted the proposals that resulted in the inclusion of the affected individual schedules in the Code, to submit the necessary supporting documentation to the next session of the Sub-Committee, in order to justify the notational listing assignment.

Classification of Alumina Hydrate as MHB

5.6 The Sub-Committee noted the discussions and deliberations of the group with regard to the classification of Alumina Hydrate as MHB cargo and that there were no submissions on this matter to this session.

Transportability test of nickel ore from New Caledonia

5.7 With regard to the Rheolat 2 project to optimize a VTPB (Vibration Table with Penetration Bit) transportability test for New Caledonian nickel ores, the Sub-Committee noted the recommendation of the group that before the implementation of the Rheolat test, which may have an impact on sections 4.1.4 and 8 of the IMSBC Code, it would be important to take into account remarks from the experts.

5.8 The Sub-Committee had the following documents for its consideration:

.1 CCC 3/5/6 (France), proposing a draft CCC circular on the transportability test of nickel ore from New Caledonia; and

.2 CCC 3/INF.5 (France), providing the final status of phase 2 of the Rheolat study, in particular, the context and conditions for implementing the transportability test for New Caledonian nickel ores.

5.9 Following the discussion, the Sub-Committee noted the following views expressed on this matter:

.1 the intention is not to amend the IMSBC Code in order to include the conditions for transport (test method) for New Caledonian nickel ores;

.2 after experience has been gained on the referred test method, it could be included in the Code; and

.3 a State has the right to endorse and approve its own method under section 1.5 of the IMSBC Code;

5.10 After consideration, the Sub-Committee agreed that, at this stage, the preferred method for disseminating the information regarding the test method to parties interested in the transport of New Caledonian nickel ores was through an IMO circular letter. Subsequently, the

Sub-Committee invited the delegation of France to upload the information to the GISIS module on reporting (MSC 94/21, paragraph 15.3).

5.11 The Sub-Committee also agreed to refer documents CCC 3/5/6 and CCC 3/INF.5 to the Working Group on IMSBC Code Matters in order to advise France on possible improvements to the proposed text and technical matters.

Bulk cargo shipping name in relation to dangerous goods transported in solid bulk form

5.12 The Sub-Committee agreed to the decision of the group to amend the requirements (paragraph 4.1.1 of the Code) regarding the appropriate Bulk Cargo Shipping Name (BCSN) to be used when dangerous goods are transported in solid bulk form and the consequential amendments to the definition of BCSN in the Code.

Table for "Characteristics"

5.13 The Sub-Committee endorsed the group's recommendation to manage the information related to the table for "Characteristics", in particular, the information to be included when the material may possess chemical hazards when carried in bulk (MHB) in addition to hazards corresponding to materials classified as dangerous goods in the IMDG Code.

5.14 The Sub-Committee, having considered document CCC 3/5/13 (Canada) proposing to amend the "Characteristics" table of individual schedules of solid bulk cargoes in appendix 1 and the related provisions of the Code, in particular the "Class" box, to adequately reflect the hazards associated with the carriage of bulk cargoes, noted the following views expressed on this matter:

.1 the way to differentiate when there is no IMDG subsidiary risks related to a cargo contained in the IMSBC Code should be clarified;

.2 descriptive physical properties may not be needed;

.3 careful consideration should be given before amending the definition for MHB, as it may cause confusion;

.4 this proposal is related to the technical classification of the cargo and would not result in any administrative burdens to Administrations and, therefore, a new agenda item is not necessary; and

.5 the proposal should be considered for future work related to amendments to the IMSBC Code.

5.15 After consideration, the Sub-Committee noted that this proposal could be the basis for future work on this matter but, at this stage, its inclusion in amendment 04-17 would not be feasible. In this context, it was agreed to refer document CCC 3/5/13 to E&T 26 for further consideration and to advise the Sub-Committee at its next session.

Ammonium Nitrate Based Fertilizer (non-hazardous)

5.16 The Sub-Committee, having noted the discussions and deliberations of the group on the proposed amendment to the individual schedule for AMMONIUM NITRATE BASED FERTILIZER (non-hazardous) and its invitation to interested delegations to submit related documents to CCC 3 with a view to providing further justification and more information, considered the following documents:

.1 CCC 3/5/9 (Germany), proposing to classify AMMONIUM NITRATE BASED FERTILIZER (non-hazardous) as a MHB (OH) Group B cargo, based on more detailed data regarding the hazards connected to the loading and storage of bulk material in cargo holds; and

.2 CCC 3/5/14 (CEFIC), commenting on document CCC 3/5/9, in particular that AMMONIUM NITRATE BASED FERTILIZERS (non-hazardous) are in themselves non-hazardous products and in the case of the cargo being classified as MHB (OH), the criteria for such classification should be clearly specified.

5.17 Following discussion, the Sub-Committee noted the following views expressed on this matter:

.1 there are currently three individual schedules related to this cargo in the IMSBC Code and careful consideration should be taken in order to avoid overlapping their current classifications;

.2 the accident report of the **Purple Beach** general cargo ship has not yet been published;

.3 the OH classification should be analysed in detail in relation to the cargo and the MHB criteria;

.4 improving awareness and improved hazard communication for the ship's crew is necessary, but other means, such as training rather than reclassification of the cargo, could be easier; and

.5 a comprehensive consideration of all information contained in the existing schedule is necessary in order to determine and update the classification of the cargo, while in the meantime the current Group C schedule should not be deleted.

5.18 In this context, the Sub-Committee noted that the proposal in document CCC 3/5/9 (Germany) was not widely supported. Nevertheless it was recognized that there is a classification issue that needs to be addressed and that more technical information (i.e. cargo specifications, composition) was needed for that purpose. Subsequently, the Sub-Committee agreed to refer documents CCC 3/5/9 and CCC 3/5/14 to E&T 26 for further consideration and to advise the Sub-Committee at its next session.

Glass Cullet

5.19 The Sub-Committee endorsed the Group's decision on amending the existing individual schedule for "GLASS CULLET" in order to incorporate the proposed individual schedule for flat glass cullet.

Monocalciumphosphate (MCP)

5.20 The Sub-Committee noted that additional information is needed in order to finalize the section for "Emergency procedures" in the draft individual schedule for MONOCALCIUMPHOSPHATE (MCP).

Seed Cake

5.21 The Sub-Committee noted the discussions and deliberations of the group regarding potential amendments to the existing schedules for SEED CAKE and endorsed the group's recommendations on the need for a road map to define the path that would lead to amending the set of schedules related to seed cakes.

5.22 In this regard, the Sub-Committee had the following documents for its consideration:

.1 CCC 3/5/11 (Australia, Canada, China, Italy, Spain, the United States and

BIMCO), proposing to revise the existing individual schedule for SEED CAKE (non-hazardous) in the IMSBC Code, and proposing to introduce individual schedules for Group B (MHB) and Group C (non-hazardous) and proposing that a new paragraph 9.3.3.3.3bis and the associated classification diagram be included in section 9.2.3.3 of the IMSBC Code;

.2 CCC 3/5/18 (Germany), commenting on the document CCC 3/5/11, in particular, providing specific comments on the draft individual schedules as set out in document CCC 3/5/11, in order to address some ambiguities, and

.3 CCC 3/6/2 (Spain), providing some differences identified between the UN Model Regulations and the IMSBC and IMDG Codes, for UN 1386 SEED CAKE, in particular regarding the contents of oil and moisture, and proposing to achieve a common definition of UN 1386 by amending the IMDG Code, considering possible consequential amendments to the individual schedule for SEED CAKE in the IMSBC Code.

5.23 Following discussion, the Sub-Committee noted the following views expressed on this matter:

.1 the proposal in document CCC 3/5/11 was generally supported based on the view that it provides a good basis in order to make progress on this matter, with the understanding that there is room for improvement with a more uniform approach, such as consideration of the inclusion of grain screening pellets in the new proposed schedule for seed cakes and other residues of processed oily vegetables due to their apparent similar properties, which could be further analysed;

.2 the proposed flow chart in annex 3 to document CCC 3/5/11 may apply also to grain screening pellets, so the introductory sentence could be revised in order to clarify the range of its application;

.3 there are apparent differences between the UN Model Regulations and the IMSBC and IMDG Codes for UN 1386 SEED CAKE, as indicated in document CCC 3/6/2. Nevertheless, it is recognized that, when possible,

these Codes should be fully harmonized with the UN Model Regulations, but harmonization, in some cases, should not be a priority over safety; and

.4 action needs to be taken in order to clarify the distinction between types of seed cakes, but updating the existing schedules is a complex matter and will affect the proper shipping name as contained in the UN Orange Book and, therefore, a cautious approach is necessary;

5.24 After consideration, the Sub-Committee decided to refer documents CCC 3/5/11, CCC 3/5/18 and CCC 3/6/2 to the Working Group on IMSBC Code Matters for further consideration.

5.25 Having noted the actions taken by E&T 25 to amend appendix 4 of the IMSBC Code in order to address the inconsistencies between the existing schedules for SEED CAKE and appendix 4, the Sub-Committee decided to instruct E&T 26 to further consider this matter.

FishMeal

5.26 Having noted that in the draft amendment for the individual schedule for FISHMEAL (FISHCRAP), STABILIZED UN 2216 Anti-Oxidant treated, as set out in annex 1 to document CCC 3/5, the sentence under BCSN is to be deleted, which may create confusion, the Sub-Committee instructed E&T 26 to further consider the proposed amendment.

Harmonization of the Code

5.27 The Sub-Committee endorsed the actions of the group regarding the editorial and substantial amendments and harmonization of existing individual schedules.

5.28 Having noted the group's view on the possible wording harmonization in the Code, e.g. reference to "section" and "paragraph", the Sub-Committee considered the document CCC 3/5/8 (Finland), proposing editorial amendments to the provisions in the IMSBC Code, in order to addressing the inconsistencies with regard to the usage of the words "section", "subsection" and "paragraph" throughout the Code.

5.29 Following the discussion, the Sub-Committee noted the concerns expressed on how the proposed harmonization would be applied to the Code. Some delegations also highlighted that the proposed harmonization could result in a burden for Administrations and, therefore, further consideration is needed.

5.30 After consideration, the Sub-Committee agreed that the above proposal should be considered in future when a comprehensive revision of the Code is undertaken. Notwithstanding, the Sub-Committee agreed to invite E&T 26, if time permits, to consider document CCC 3/5/8 and provide constructive advice to Finland regarding harmonization of the Code in relation to the current structure (i.e. sections, subsections, etc.) for future reference.

Pig iron by-products

5.31 The Sub-Committee considered document CCC 3/5/12 (IIMA), proposing to extend the scope of application of the draft schedule for BLAST FURNACE IRON BY-PRODUCTS to include by-products from the production of iron via the smelting of ilmenite and titaniferous magnetite, by changing the name to IRON: BY-PRODUCTS FROM SMELTING OF IRON ORE, ILMENITE AND TITANIFEROUS MAGNETITE and amend the "Description" section.

5.32 Having considered the technical information provided, the Sub-Committee agreed that the most appropriate name for this cargo would be "Iron Smelting by-Products" and that the "Description" section could be improved.

5.33 Subsequently, the Sub-Committee agreed, in principle, to the above proposal and decided to refer document CCC 3/5/12 to E&T 26 for further consideration and inclusion, if appropriate, in the draft amendment 04-17 of the Code.

Draft amendment 04-17

5.34 Having considered the above matters, the Sub-Committee agreed to the draft amendment (04-17) to the IMSBC Code, as set out in annex 1 to document CCC 3/5, and refer it to the E&T Group for finalization.

Amendments to MSC.1/Circ.1395/Rev.2

5.35 The Sub-Committee agreed to the consequential amendments to MSC.1/Circ.1395/Rev.2 on the *Lists of solid bulk cargoes for which a fixed gas fire-extinguishing system may be exempted or for which a fixed gas fire-extinguishing system is ineffective*, as set out in annex 2 to document CCC 3/5, and referred it to the E&T Group for finalization.

REPORT OF THE CORRESPONDENCE GROUP ON EVALUATION OF PROPERTIES OF BAUXITE AND COAL

5.36 The Sub-Committee considered the correspondence group report (CCC 3/5/1) together with the related documents submitted to the session and, having approved it in general, took action as indicated in paragraphs 5.37 to 5.56.

Evaluation of properties of Bauxite

5.37 The Sub-Committee noted the discussion and deliberation of the group, in particular that a Global Bauxite Working Group (GBWG) has been established, which may be in a position to provide a global industry peer review report to the next session of the Sub-Committee.

5.38 The Sub-Committee considered paragraphs 5 to 10 of document CCC 3/5/21 (Australia), recommending to establish a correspondence group at this session to consider the research work of the GBWG prior to CCC 4, in order to finalize consideration on suitable schedules for bauxite both Group A and Group C. Australia also recommended that, whilst the work on bauxite continues, CCC.1/Circ.2 should remain in effect.

5.39 Following the discussion, the Sub-Committee agreed to wait for the results of research by the GBWG, which is expected to be provided to CCC 4.

5.40 The Sub-Committee, having noted the comments of the group on the marine safety investigation report on the loss of the bulk carrier **Bulk Jupiter**, considered document CCC 3/5/20 (Italy, ICS, INTERCARGO, the International Group of P&I Clubs and BIMCO) commenting on the correspondence group report and proposing amendments to the IMSBC Code to enhance safety procedures for the ship and crew when carrying Group A cargoes, in particular that the testing requirement should be made more prominent and placed appropriately in any of the parts of section 4, 7 or 8, to highlight the risk of liquefaction and ought to be checked before loading. The co-sponsors also invited the Sub-Committee to note that INTERCARGO's Bulk Carrier Casualty Report 2005-2015 (III 3/INF.26) had reported that cargo shift and/or liquefaction is still a serious concern in the safe carriage of solid bulk cargoes and that additional safety improvements are still needed and necessary.

5.41 Following the discussion, the Sub-Committee noted the following views expressed on this matter:

.1 there is a general concern regarding the continued loss of life at sea in connection with the need for improvement and clarity of relevant provisions to ensure the verification of the moisture content of the cargoes that may liquefy prior to loading and that care should be exercised when shippers declare moisture content below the TML, as well as the responsibility of shippers regarding reliable sampling;

.2 the proposal in document CCC 3/5/20 intends to offer an alternative in order to enhance safety procedures for crews and ships carrying cargoes that may liquefy, but there are ambiguities in the proposed text, for example, the term "significant precipitation" is not well defined and the ambient humidity is not being considered in the proposal, nor is the ship's master considered involved in the moisture testing prior to loading, bearing in mind that the master cannot be aware of the precipitation if the samples are taken prior to the arrival of the ship;

.3 explicitly appointing shippers to be responsible for ensuring the moisture content may not solve the problem and it could be contradictory to section 1.4.3 of the Code which, provides the right to each government to assign this responsibility;

.4 the proposed amendments concern operational and administrative aspects, rather than technical characteristics of the cargo. In particular, the proposed paragraph 3.7.1.1*bis* could be impractical and unrealistic in terms of implementation for all parties involved, considering that all wet cargoes should be tested and certificates are to be recognized by the Administrations.

5.42 In considering the above views, the Sub-Committee decided to refer the matter to the Working Group on IMSBC Code Matters for further consideration, specifically the proposed amendments to provisions 4.5.1 and 4.5.2, as contained in document CCC 3/5/20, and instructed the group to advise the Sub-Committee on a possible way forward.

5.43 In this connection, the Sub-Committee noted that the correspondence group decided to wait for the results of ongoing researches and to suspend the consideration on the adequacy of the current methods for determining the transportable moisture limit for Bauxite and noted

the discussion on the preliminary draft new individual schedule for Bauxite of Group A and the preliminary draft amendment to the individual schedule for Bauxite of Group C.

5.44 Consequently, the Sub-Committee agreed to instruct the Working Group on IMSBC Code Matters to further consider the issue of evaluation of the properties of Bauxite, with a view to developing draft the terms of reference for a correspondence group.

Modified Proctor/Fagerberg method for Coal

5.45 The Sub-Committee noted the discussion of the group on the examination of test data provided by coal producers to validate the application of the modified Proctor/Fagerberg method for Coal to international coals.

5.46 The Sub-Committee also noted document CCC 3/INF.7 (Australia), providing five reports describing the findings of further testing carried out by the Australian Coal Industry's Research program (ACARP).

5.47 The Sub-Committee further noted document CCC 3/INF.9 (Canada) providing the results of the research programme to evaluate the applicability of the modified Proctor/Fagerberg method for coal to typical Canadian coals, in particular, the research confirmed that the modified Proctor/Fagerberg method for Coal is applicable to Canadian coals based on the testing of the samples provided.

5.48 In this context, the Sub-Committee agreed to incorporate the modified Proctor/Fagerberg test procedure for Coal in appendix 2 to the IMSBC Code.

5.49 The Sub-Committee considered paragraphs 3 and 4 of document CCC 3/5/21 (Australia), providing more information on modified Proctor/Fagerberg test for coal, in particular that it has been in use for all coal shipped from Australian ports since 1 January 2015 and that it has also been applied to blends of different coals during the same period. The Sub-Committee noted that Australia was of the opinion that experience remains a major factor in a shipper being able to identify the likelihood of formation of a wet base in coal cargoes, in the same way as it is for virtually all solid bulk cargoes.

5.50 After consideration, the Sub-Committee agreed to incorporate the procedure for determining the TML of blends of two or more coals and the draft new paragraph 1.5 of appendix 2 to the IMSBC Code.

5.51 Subsequently, the Sub-Committee agreed to the draft modified Proctor/Fagerberg test procedure for Coal, as contained in annex 2 to document CCC 3/5/1 for inclusion in the draft amendments 04-17 to the Code.

Individual schedule for Coal

5.52 The Sub-Committee noted the group's discussion about the inclusion of a generic precaution on moisture migration of blended coals, e.g. "due consideration shall be given to moisture migration and formation of dangerous wet base when blended coals are loaded" in the individual schedule for Coal. In this context, the Sub-Committee instructed the working group to further consider this matter.

5.53 The Sub-Committee agreed to delete the sentence "can liquefy if predominantly fine 75% less than 5 mm coal" in the section for Hazard of the existing individual schedule for Coal.

5.54 The Sub-Committee also agreed that the criterion was based on particle size distribution for Group B only and agreed to incorporate the mandatory application provision on the criteria for Group B only.

5.55 The Sub-Committee further agreed to incorporate the sentence "See sections 7 and 8 of this Code" in the section for Hazard, and consider the inclusion of the sentence "This cargo may liquefy if shipped at a moisture content in excess of its transportable moisture limit (TML)".

5.56 Subsequently, the Sub-Committee agreed to instruct the IMSBC Code matters Working Group, based on annex 3 to document CCC 3/5/1, to finalize the amendment to the individual schedule for Coal, in particular, to clarify the cargo group for coal, for inclusion in amendment 04-17 of the IMSBC Code.

PROPOSALS FOR AMENDMENT 04-17 OF THE IMSBC CODE

Amendments to existing individual schedules and provisions in the IMSBC Code

Corrections to amendment 03-15

5.57 The Sub-Committee considered document CCC 3/5/2 (France) proposing corrections to amendment 03-15 as set out in resolution MSC.393(95), for both the English and French versions.

5.58 The Sub-Committee agreed to refer the above document to the E&T Group for further consideration, with a view to it providing corrections to the publication and include any editorial corrections in amendment 04-17, as appropriate.

Salt

5.59 The Sub-Committee considered document CCC 3/5/7 (Finland), proposing to amend the individual schedule for SALT in appendix 1 of the IMSBC Code, in order to refer to the formation of a liquid base instead of a wet base. The Sub-Committee decided to refer this document to E&T 26 for further consideration.

Corrosivity test protocols for solid bulk cargoes

5.60 The Sub-Committee had the following documents for its consideration:

.1 CCC 3/5/17 (Australia), advising on concerns related to the efficacy of the tests used to assess solid bulk materials as corrosive solids in section 9.2.3.7.3 of the IMSBC Code and informing that Australian industry will be working with international partners on this issue with the intention of developing a solution in cooperation with their respective competent authorities;

.2 CCC 3/5/19 (IIMA), providing comments on document CCC 3/5/17, and in particular, welcoming the pragmatic approach by application of an existing test for corrosivity in soils (DIN 50929-3) to assess localized corrosion in IRON ORE and IRON ORE FINES and expressing concerns over the C.1 test being mandated for other complex bulk mineral cargoes;

.3 CCC 3/INF.17 (Australia), providing a literary review of the C.1 test prescribed in section 9.2.3.7.3 of the IMSBC Code to classify corrosive solids;

.4 CCC 3/INF.18 (Australia), providing a literature review of alternate tests to the C.1 test prescribed in section 9.2.3.7.3 of the IMSBC Code to determine solid bulk cargoes corrosion to metals; and

.5 CCC 3/INF.19 (Australia), providing information on an alternative test method for the classification of corrosive solids under section 9.2.3.7.3 of the IMSBC Code.

5.61 The Sub-Committee noted that there was general agreement and support for an alternative test method for iron ore fines which could also be used for other mineral cargoes, but the present proposal still requires further studies, practice and experience before its application through the IMSBC Code.

5.62 After discussion, the Sub-Committee expressed its appreciation to Australia for undertaking this project and encouraged Member States and international organizations to actively participate in the work coordinated by Australia.

Proposals for new individual schedules

Olivine Sand of Group A and Olivine Sand and Olivine Granulary and gravel aggregate products of Group C

5.63 The Sub-Committee had the following documents for its consideration:

.1 CCC 3/5/3 (Norway), proposing a new individual schedule for Olivine Sand as a Group A cargo in the IMSBC Code;

.2 CCC 3/5/4 (Norway), proposing a new individual schedule for Olivine Granulary and gravel aggregate products as a Group C cargo in the IMSBC Code; and

.3 CCC 3/INF.2 (Norway), containing the cargo information to support the proposed new individual schedules for Olivine Sand and Olivine Granulary and gravel aggregate products.

5.64 After consideration, the Sub-Committee agreed, in principle, to the above proposals and decided to refer these documents to E&T 26 for further consideration and inclusion, if appropriate, in the draft amendment 04-17 of the Code.

Direct Reduced Iron (D) (By-product fines with moisture content typically <12%)

5.65 The Sub-Committee had the following documents for its consideration:

.1 CCC 3/5/5 (Belgium and IIMA), proposing new individual schedule for Direct Reduced Iron (D) (By-product fines with moisture content typically <12%);

.2 CCC 3/INF.3 (IIMA), providing background information on the provenance, manufacture, composition and properties of DRI (D), in order to support the proposed new individual schedule for Direct Reduced Iron (D), as set out in document CCC 3/5/5; and

.3 CCC 3/INF.4 (IIMA), providing supporting information for the proposal of a revised schedule for Direct Reduced Iron (D) (By-product fines with moisture content typically <12%), in particular, the information related to inadequacies identified by E&T 21 and the reasons for the existing schedule for DIRECT REDUCED IRON (C).

5.66 Following the discussion, the Sub-Committee noted the views expressed regarding the urgent need for the shipping industry to have an individual schedule for this cargo within the IMSBC Code. The Sub-Committee also noted the need for further clarification and additional information on ventilation and height of ventilators, MHB hazards, self-heating and oxygen depletion. In this regard, the delegation of Trinidad and Tobago made a statement, which is set out in annex [...]

5.67 After consideration, the Sub-Committee agreed to refer this matter to E&T 26 and instructed the group to further consider the draft individual schedule for Direct Reduced Iron (D) (By-product fines with moisture content typically <12%), using the annex to document CCC 3/5/5 as a basis and taking into account documents CCC 3/INF.3 and CCC 3/INF.4, and advise CCC 4 accordingly.

Foam glass gravel

5.68 The Sub-Committee considered documents CCC 3/5/10 and CCC 3/INF.6 (Germany), proposing a new individual schedule for Foam glass gravel and providing supporting documentation for the new individual schedule for Foam glass gravel, the IMO Solid Bulk Cargo Information Reporting Questionnaire, the Material Safety Data Sheet and images of the material for Foam glass gravel.

5.69 In this regard, the delegation of Germany advised that an updated Material Safety Data Sheet (MSDS) would be provided to E&T 26 for its consideration.

5.70 After consideration, the Sub-Committee agreed, in principle, to this proposal and decided to refer them to E&T 26 for further consideration and inclusion, if appropriate, in the draft amendment 04-17 of the Code.

Sugarcane Biomass Pellets

5.71 The Sub-Committee considered documents CCC 3/5/15 and CCC 3/INF.11 (Brazil), proposing a new individual schedule for Sugarcane Biomass Pellets in the IMSBC Code as a Group B cargo and providing supporting documentation for the new individual schedule for Sugarcane Biomass Pellets, such as IMO Solid Bulk Cargo Information Reporting Questionnaire, Material Safety Data Sheet, ESG Analysis Reports and Ignition, Burning Rate and Explosivity Testing of Sugar Cane Dust.

5.72 After consideration, the Sub-Committee agreed, in principle, to the above proposal and decided to refer them to E&T 26 for further consideration and inclusion, if appropriate, in the draft amendment 04-17 of the Code.

Palm kernel shells

5.73 The Sub-Committee considered documents CCC 3/5/16 and CCC 3/INF.21 (Liberia, the Marshall Islands, Poland and the International Group of P&I Clubs), proposing a new individual schedule for Palm kernel shells and providing additional technical information, in particular, information based on supplementary investigation research undertaken after two recent incidents involving the production of significant quantities of methane gas.

5.74 The Sub-Committee welcomed the proposal, in general, and noted that various physical properties, such as particle size, moisture content and fibre and oil content as well as other technical matters such as MHB hazards and ventilation, need further analysis.

5.75 Having agreed, in principle, to the proposal, the Sub-Committee decided to refer them to E&T 26 for further consideration and inclusion, if appropriate, in the draft amendment 04-17 of the Code.

ESTABLISHMENT OF THE WORKING GROUP

5.76 Having considered the above matters, the Sub-Committee established the Working Group on IMSBC Code Matters and instructed it, taking into account the comments and decisions made in plenary and documents CCC 3/5/1, CCC 3/5/11, CCC 3/5/18, CCC 3/5/20 and CCC 3/6/2, to:

.1 finalize the draft amendments to the individual schedule for Coal based on annex 4 to document CCC 3/5/1;

.2 prepare draft terms of reference for the Correspondence Group on the evaluation of properties of BAUXITE and revision of individual schedules for SEED CAKE, taking into account documents CCC 3/5/1, CCC 3/5/11, CCC 3/5/18, CCC 3/5/20 and CCC 3/6/2;

.3 further consider the draft amendments to paragraphs 4.5.1 and 4.5.2 of the IMSBC Code, based on document CCC 3/5/20;

.4 if time permits, consider the transportability test of nickel ore from New Caledonia as set out in the annex to document CCC 3/5/6, taking into account document CCC 3/INF.5, with a view to providing comments, as appropriate; and

.5 submit a written report by Thursday, 8 September 2016.

REPORT OF THE WORKING GROUP

5.77 Having considered the part of the report of the Working Group on IMSBC Code matters (CCC 3/WP.5) dealing with this agenda item, the Sub-Committee took action as outlined in paragraphs […] below.

[to be prepared by the Secretariat in consultation with the Chairman after the session, based on the group's report and the actions requested therein, taking into account the decisions taken by the Sub-Committee during subsequent discussions]

DRAFT AMENDMENT 04-17 OF THE IMSBC CODE AND INSTRUCTIONS TO THE E&T GROUP

5.78 The Sub-Committee authorized E&T 26 to finalize the draft amendments (04-17) to the IMSBC Code, based on documents submitted to CCC 3 and taking into account comments made and decisions taken by the Sub-Committee, excluding matters related to HME substances and paragraphs 4.5.1 and 4.5.2 of the Code, with a view to submitting the draft amendments to MSC 98 for consideration and adoption (see paragraph 5.3), and to submit a written report to CCC 4. In this regard, the Sub-Committee also instructed E&T 26 to prepare related recommendations and circulars for submission to MSC 98 for approval, together with the adoption of amendments to the IMSBC Code.

5.79 In accordance with the procedures agreed at MSC 75 (MSC 75/24, paragraph 7.36), the Sub-Committee requested the Secretary-General to circulate, in accordance with SOLAS article VIII, the draft amendments to the IMSBC Code as prepared by E&T 26, for consideration and subsequent adoption by MSC 98.

5.80 The Sub-Committee also instructed E&T 26 to identify and correct any editorial mistakes in amendments 02-13 and 03-15 of the Code and requested the Secretariat to issue such editorial corrections.

6 AMENDMENTS TO THE IMDG CODE AND SUPPLEMENTS

GENERAL

6.1 The Sub-Committee recalled that amendments (37-14) to the IMDG Code, adopted by resolution MSC.372(93), entered into force on 1 January 2016.

6.2 The Sub-Committee also recalled that MSC 96 adopted the amendments (38-16) to the IMDG Code by resolution MSC.406(96), which is envisaged to enter into force on 1 January 2018 and on a voluntary basis from 1 January 2017.

6.3 The Sub-Committee further recalled the related decisions of MSC 96 and MEPC 69 on this output, in particular that MSC 96 approved MSC.1/Circ.1522 on *Amendments to the Emergency Response Procedures for Ships Carrying Dangerous Goods (EmS Guide)*. In this regard, the Committee, having taken into account the number of times that MSC/Circ.1025 had been amended, instructed the CCC Sub-Committee to consider, at the next revision of the EmS Guide, preparing a new draft revised MSC circular containing a consolidated version of the Guide for ease of reference, rather than continue issuing MSC circulars every two years which contain only amendments. The Sub-Committee was invited to take into account that a new consolidated MSC circular with a new number may result in consequential changes to references contained in the IMDG Code.

REPORT OF E&T 24

6.4 The Sub-Committee considered the report of E&T 24 (CCC 3/6) together with the related documents submitted to the session and, having approved it in general, took action as indicated in paragraphs 6.5 to 6.20.

Editorial corrections to amendment 37-14 of the Code

6.5 The Sub-Committee noted that the group finalized editorial corrections to amendment 37-14 of the Code (resolution MSC.372(93)) and that the Secretariat has prepared and issued the corrigendum as set out in document MSC 93/22/Add.2/Corr.1.

6.6 The Sub-Committee also noted that the group agreed to the editorial corrections applicable to the French and Spanish text of amendment 37-14 to the IMDG Code (resolution MSC.372(93)) and that the Secretariat has prepared and issued the corrigendum as set out in document MSC 93/22/Add.2/Rev.1/Corr.2 for the French version and MSC 93/22/Add.2/Corr.1 for the Spanish version.

Amendment 38-16 of the IMDG Code

Issues to be considered by the UN TDG Sub-Committee

6.7 The Sub-Committee noted that, as requested by E&T 24, the Secretariat has informed the forty-eighth session of the UN TDG Sub-Committee and that a consequential correction of the deletion of the text in the columns for test pressure and filling ratio in P 200, table 2, for UN 1058 has been introduced in the UN Model Regulations.

6.8 The Sub-Committee also noted that, as requested by E&T 24, the Secretariat has informed the 48th session of the UN TDG Sub-Committee that the requirements for lithium batteries contained in SPs 240, 312, 363 and 385, as contained in the UN Model Regulations 19th revised edition, have not been incorporated into the draft amendment 38-16.

Harmonization of the segregation table

6.9 The Sub-Committee agreed to request the E&T 26 to harmonize the segregation table as contained in section 9 (9.3.3.2) of the IMSBC Code with the amended segregation table (7.6.3.5.2). Furthermore, the Sub-Committee noted the difference of dates of entry into force of the amendments to both Codes, i.e. 1 January 2018 for amendment 38-16 of the IMDG Code and 1 January 2019 for the amendment 04-17 of the IMSBC Code.

Stowage of goods of class 1

6.10 Regarding the stowage of goods of class 1, the Sub-Committee noted the discussions of the group with regard to stowage of goods of class 1 and the consequential amendment of the wording of note 2 in 7.21.2 of draft amendment 38-16.

Reference to GESAMP Hazard Profiles in the IMDG Code

6.11 The Sub-Committee, having noted the views of the group on the reference to GESAMP Hazard Profiles in the IMDG Code, considered document CCC 3/6/9 (Republic of Korea) proposing to insert an informative and recommendatory reference note in the IMDG Code, in order to indicate those substances that meet "environmentally hazardous substances" criteria according to the latest GESAMP Hazard Profiles.

6.12 In the ensuing discussion, the Sub-Committee noted divergent views with regard to:

.1 the value of including the GESAMP Hazard Profiles within the IMDG Code;

.2 the potential to create confusion if the inclusion of the GESAMP Hazard Profiles in the IMDG Code is misinterpreted as implying that the GESAMP data is the preferred source; and

.3 the potential impact on the principle of shipper self-classification.

6.13 Following consideration, the Sub-Committee noted that the intention of the proposal in document CCC 3/6/9 was to provide recommendatory information to facilitate the classification of cargo. However, the Sub-Committee could not reach an agreement as to whether or not the information proposed in document CCC 3/6/9 should be included in the IMDG Code or in what form.

6.14 In light of the lack of consensus, the Sub-Committee agreed that interested Member States and international organizations could submit proposals to future sessions of the Sub-Committee with a view to facilitating discussions and resolving any of the concerns expressed at CCC 2, E&T 25 and CCC 3.

Training provisions

6.15 The Sub-Committee noted that the group could not reach a general consensus regarding measures to improve the training provisions in chapter 1.3 of the IMDG Code.

Finalization of amendment 38-16 to the IMDG Code

6.16 The Sub-Committee noted that the group finalized draft amendment 38-16 to the IMDG Code and that the Secretariat circulated the final draft amendment 38-16 of the IMDG Code as set out in Circular Letter No.3598.

Circulars related to the IMDG Code

6.17 The Sub-Committee noted that the group finalized the draft amendments to the EmS Guide and the Secretariat circulated the MSC.1/Circ.1522 as approved by MSC 96.

6.18 The Sub-Committee also noted the opinion of the group with regard to altering the title of MSC.1/Circ.1442 on *Inspection programmes for cargo transport units carrying dangerous goods* and the revised circular, as finalized by the group, and that the Secretariat circulated the MSC.1/Circ.1521 as approved by MSC 96.

6.19 The Sub-Committee further noted that the group finalized the draft MSC circular on *Guidelines on consolidated IMO provisions for the safe carriage of dangerous goods in packaged form by sea* and that the Secretariat circulated the MSC.1/Circ.1520 as approved by MSC 96.

FAL Form 7

6.20 The Sub-Committee noted that the fortieth session of Facilitation Committee considered the additional information related for FAL Form 7 as prepared by E&T 24 and decided that the most appropriate place to include this information was in the Explanatory Manual to the FAL Convention. The Sub-Committee also noted the amendments to the Annex to the FAL Convention, which are expected to enter into force on 1 January 2018.

PROPOSALS RELATING TO AMENDMENTS 39-18

Segregation of organic peroxides, class 5.2

6.21 The Sub-Committee had for its consideration document CCC 3/6/1 (CEFIC), proposing amendments to the segregation requirements of organic peroxides, UN 3101 to UN 3120, and exempted organic peroxides, and a new table in 7.2.6.3 to be included in the IMDG Code.

6.22 In the ensuing discussion, the Sub-Committee noted the following comments on this matter:

.1 the generic nature of the organic peroxides in the Dangerous Goods List entries makes it difficult to confirm that none of the possible formulations would react and create a dangerous atmosphere;

.2 the existing paragraph 7.2.6.1 in the IMDG Code already allows for substances of the same class to be stowed together provided they do not react dangerously with each other;

.3 further clarifications with regard to the ability of shippers to use existing criteria and exceptions in paragraph 7.2.6.1 in the IMDG Code would be useful;

.4 no test data has been presented to show that the stowage of mixed peroxides is safe;

.5 similar tables exist already in the IMDG Code for other groups of substances and inclusion of a table for organic peroxides would reduce the administrative burden on competent authorities;

.6 the table in the annex of document CCC 3/6/1 is accurate and useful but could be made more user friendly; and

.7 the cargoes listed in the proposed table are inherently compatible.

6.23 Having taken the above comments into account, the Sub-Committee instructed E&T 27 to further consider the proposal in document CCC 3/6/1 and report to CCC 4. The Sub-Committee also urged interested Member States and international organizations, in the time leading up to E&T 27, to work with each other, with a view to clarifying the type of test data needed and to narrow down the list of chemicals so that E&T 27 can be in a better position to have all the information and data available to better consider this issue and report to the next session of the Sub-Committee.

Documentation for excepted packages of class 7 in chapters 5.1 and 5.4

6.24 The Sub-Committee considered document CCC 3/6/3 (Germany) proposing to align the related provisions in the IMDG Code with the requirements of IAEA Safety Standards Series No.SSR-6, by requiring the information according to SSR-6 section 546 introductory sentence and subparagraphs (a) and (k) in a special dangerous goods transport document; and requiring this information to be available on board the ship.

6.25 After consideration, the Sub-Committee agreed, in principle, to this proposal and decided to refer this document to E&T 27 for further consideration and inclusion, if appropriate, in the draft amendment 39-18 of the Code.

Stowage away from sources of ignition

6.26 The Sub-Committee considered document CCC 3/6/4 (Germany) proposing to amend the wording of 7.4.2.3.2 of the IMDG Code, in order to clarify the requirement to stow a container with flammable liquids (flashpoint below 23°C) and flammable gases 2.4 m away from sources of ignition.

6.27 After consideration, the Sub-Committee agreed to refer this document to E&T 27 for further consideration.

Stowage of jet perforating guns

6.28 The Sub-Committee had for its consideration document CCC 3/6/5 (United States) proposing to amend the existing stowage requirements for jet perforating guns, by amending the stowage of goods of class 1 requirements found in 7.1.4.4 and the addition of a new stowage code.

6.29 In the ensuing discussion, the Sub-Committee did not note any objections to the proposal but agreed that further consideration at E&T 27 was required to address issues such as the possible hazards arising in icy conditions, the ship type, segregation from initiation devices and the total explosive content of 91 kg. Subsequently, the Sub-Committee agreed to refer document CCC 3/6/5 to E&T 27 for further consideration.

Stowage of goods of class 1

6.30 The Sub-Committee considered document CCC 3/6/6 (United States) proposing to amend the Dangerous Goods List with regard to the existing stowage categories for articles of individual UN numbers, in order to balance regulation and the flow of commerce.

6.31 After consideration, the Sub-Committee agreed, in principle, to this proposal and decided to refer this document to E&T 27 for further consideration and inclusion, if appropriate, in the draft amendment 39-18 of the Code.

Segregation codes in the Dangerous Goods List

6.32 The Sub-Committee considered document CCC 3/6/7 (Germany) proposing to amend the assignment of segregation codes in the Dangerous Goods List, i.e. assign "SG35" in the

Dangerous Goods List to all entries for amines and the other identified entries. Furthermore, it proposed to discuss the amendments to the Dangerous Goods List with the entries for acids and fluorides where the SG36 and SG49 should be assigned.

6.33 After consideration, the Sub-Committee agreed, in principle, to this proposal and decided to refer this document to E&T 27 for further consideration and inclusion, if appropriate, in the draft amendment 39-18 of the Code.

Segregation provisions for ammonium bromate

6.34 The Sub-Committee considered document CCC 3/6/8 (Germany) proposing to clarify that ammonium bromate is prohibited for transport and therefore no segregation provision applies and to clarify the application of SP 352 and SP 900 to UN 1908 and UN 1791.

6.35 In the ensuing discussion, the Sub-Committee noted the view that the proposal relating to UN 1908 should be eventually submitted to UN TDC as it would affect other transport modes.

6.36 Following consideration, the Sub-Committee agreed to refer this document to E&T 27 for further consideration.

Harmonization of the packaging limits for viscous flammable liquids

6.37 The Sub-Committee considered document CCC 3/6/10 (IPPIC) proposing to harmonize the package size limits which can cause certain viscous flammable liquids to be removed from Packing Group III, by amending the provision 2.3.2.5 of the IMDG Code.

6.38 After consideration, the Sub-Committee agreed, in principle, to this proposal and decided to refer this document to E&T 27 for further consideration and inclusion, if appropriate, in the draft amendment 39-18 of the Code.

Battery-vehicles

6.39 The Sub-Committee noted document CCC 3/INF.25 (CEFIC) providing a plan to develop draft amendments for chapter 6 of the IMDG Code related to the sea transport of battery-vehicles for compressed gases and agreed to refer this document to E&T 27 with the aim of exchanging views and sharing information on this matter, if time permits.

DRAFT AMENDMENT 38-16 OF THE IMDG CODE AND INSTRUCTIONS TO THE E&T GROUP

Instructions to the E&T group

6.40 The Sub-Committee authorized E&T 27, which is scheduled to be held in Spring 2017, to prepare the draft amendments (39-18) to the IMDG Code, based on documents submitted to CCC 3 and taking into account comments made and decisions taken in plenary. E&T 27 was also instructed to take into consideration the outcome of the UN TDG Sub-Committee with regard to the corrections to the eighteenth revised edition of the UN Recommendations on the Transport of Dangerous Goods, Model Regulations. Furthermore, the group should, at the next revision of the EmS Guide (if any), prepare a new draft revised MSC circular containing a consolidated version of the Guide for ease of reference, taking into account that a new consolidated MSC circular with a new number may result in consequential changes to references contained in the IMDG Code. The group should also identify and correct any editorial mistakes of amendment 38-16 of the IMDG Code and submit a written report to CCC 4.

7 AMENDMENTS TO SOLAS REGULATIONS II-2/20.2 AND II-2/20-1 TO CLARIFY THE FIRE SAFETY REQUIREMENTS FOR CARGO SPACES CONTAINING VEHICLES WITH FUEL IN THEIR TANKS FOR THEIR OWN PROPULSION

General

7.1 The Sub-Committee recalled that MSC 96, following consideration of document MSC 96/23/9 (Antigua and Barbuda, France and IACS) proposing the development of amendments to SOLAS regulations II-2/20.2 and II-2/20-1 in order to address confusion regarding the provisions of SOLAS chapter II-2 relating to spaces carrying vehicles with fuel in their tanks and Special Provisions 961 and 962 in the IMDG Code, agreed to include in the 2016-2017 biennial agenda of the CCC Sub-Committee and the provisional agenda for CCC 3 a new output on "Amendments to SOLAS regulations II-2/20.2 and II-2/20-1 to clarify the fire safety requirements for cargo spaces containing vehicles with fuel in their tanks for their own propulsion", with a target completion year of 2017, in association with the SSE Sub-Committee as and when requested by the CCC Sub-Committee.

7.2 The Sub-Committee also recalled that MSC 96 agreed, in accordance with MSC.1/Circ.1481 and MSC.1/Circ.1500, that:

.1 the amendments to be developed should apply to new and existing ships to which SOLAS regulations II-2/20 and II-2/20-1 apply;

.2 the instrument to be amended is the 1974 SOLAS Convention, as amended (i.e. SOLAS II-2/20.2 and II-2/20-1); and

.3 the amendments to be developed should enter into force on 1 January 2020, provided that they are adopted before 1 July 2018.

Amendments to SOLAS regulations II-2/20.2 and II-2/20-1

7.3 The Sub-Committee noted that annex 2 to document MSC 96/23/9 provided draft amendment to SOLAS regulations II-2/20.2 and II-2/20-1.

7.4 Following consideration of annex 2 to document MSC 96/23/9, the Sub-Committee noted general support for the draft amendments to SOLAS regulations II-2/20.2 and II-2/20-1, based on the understanding that:

.1 they did not affect the fire safety requirements of ro-ro spaces; and

.2 they provided clarity with regard to the relationship between SOLAS regulations II-2/20.2 and II-2/20-1 and the IMDG Code.

7.5 Subsequently, having confirmed that no changes to the draft amendments to SOLAS regulations II-2/20.2 and II-2/20-1 contained in annex 2 to document MSC 96/23/2 were needed, the Sub-Committee endorsed the draft amendments to SOLAS regulations II-2/20.2 and II-2/20-1, as set out in annex [...].

7.6 Taking into account the need to provide clarity with regard to the relationship between SOLAS regulations II-2/20.2 and II-2/20-1 and the IMDG Code as soon as possible, the Sub-Committee agreed to forward the draft amendments to SOLAS regulation II-2/20-1, as set out in annex [...], to MSC 97 for approval, with a view to subsequent adoption.

7.7 In this context, the Sub-Committee noted that SSE 3 had requested MSC 97 to consider the decision made by SSE 3 that only "pure car and truck carriers" need to comply with SOLAS regulation II-2/20-1 and that the definition provided in SOLAS regulation II-2/3.56 should be amended accordingly (SSE 3/16, paragraph 16.2.6). Consequently, the Sub-Committee confirmed that if the aforementioned decision by SSE 3 were to be endorsed by MSC 97, then the draft amendments to SOLAS regulation II-2/20-1 endorsed at this session would be unnecessary.

7.8 Consequently, the Sub-Committee also invited MSC 97 to consider the necessity for the draft amendments to SOLAS regulation II-2/20-1, as set out in annex [...], in conjunction with the aforementioned request by SSE 3.

8 SUITABILITY OF HIGH MANGANESE AUSTENITIC STEEL FOR CRYOGENIC SERVICE AND DEVELOPMENT OF ANY NECESSARY AMENDMENTS TO THE IGC CODE AND IGF CODE

Background

8.1 The Sub-Committee recalled that MSC 96, having considered document MSC 96/23/5 (Republic of Korea), which proposed to amend the IGC and IGF Codes to include high manganese austenitic steel for cryogenic service, agreed to include in the 2016-2017 biennial agenda of the CCC Sub-Committee and the provisional agenda for CCC 3, a new output on "Suitability of high manganese austenitic steel for cryogenic service and development of any necessary amendments to the IGC Code and IGF Code", with a target completion year of 2017.

8.2 The Sub-Committee also recalled that MSC 96 had further agreed, in accordance with MSC.1/Circ.1481 and MSC.1/Circ.1500, that:

.1 the amendments to be developed should not modify the scope of application of the IGC and IGF Codes, adopted respectively by resolutions MSC.370(93) and MSC.391(95);

.2 the instruments to be amended are the IGC and IGF Codes; and

.3 the amendments to be developed should enter into force on 1 January 2020, provided that they are adopted before 1 July 2018.

Information on the properties of high manganese austenitic steel and proposed amendments to the IGC and IGF Codes

8.3 The Sub-Committee had the following documents for its consideration:

.1 CCC 3/8 (Republic of Korea), providing technical information regarding high manganese austenitic steel and welding consumables (CCC 3/8, annex 1) and proposing the establishment of a working group to consider the suitability of high manganese austenitic steel for cryogenic service, together with the proposed draft amendments to the IGC and IGF Codes (CCC 3/8, annex 2); and

.2 CCC 3/8/1 (Japan), proposing that, prior to discussing the amendments to the IGC and IGF Codes, the following issues should be considered by the Sub-Committee:

.1 the ductile fracture properties at portions such as the heat affected zone and the centreline of the weld metal, at which carbides precipitate most heavily, should be evaluated and reported;

.2 both the required absorbed energy and the allowable stress design factor should be determined based on the evaluated ductile fracture properties, in order to ensure toughness in the case where carbides precipitate most heavily; and

.3 the chemical composition and the manufacturing process conditions used to prevent precipitation of grain boundary carbides in the base metal should be specified.

8.4 In considering the above documents, the Sub-Committee noted general support for the continued evaluation of the suitability of high manganese austenitic steel for cryogenic service and also noted the following views expressed on this matter:

.1 the stress corrosion cracking (SCC) resistance of high manganese austenitic steel is compared to that of 304 stainless steel in document CCC 3/8. However, in considering the suitability of high manganese austenitic steel for cargo piping, its SCC resistance should be compared to 304L or 316L stainless steel, which are normally used for weather-exposed piping due to their superior (SCC) resistance;

.2 further information and discussions are required with regard to the properties of high manganese austenitic steel (e.g. its chemical composition);

.3 the issues raised in document CCC 3/8/1 are equally applicable to materials whose use is already permitted for cryogenic service;

.4 high manganese austenitic steel offers economic benefits compared to nickel steels;

.5 amendments to the IGC and IGF Codes should only be considered once a complete and thorough examination of the properties of high manganese austenitic steel has been carried out to the satisfaction of the Sub-Committee and the suitability of high manganese austenitic steel for cryogenic service has been agreed; and

.6 while it is premature, at this stage, to develop draft amendments to the IGC and IGF Codes, high manganese austenitic steel can still be used currently in liquefied gas carriers and LNG-fuelled ships if the provisions for equivalents and alternative design and arrangements are followed.

8.5 Having considered the documents and comments above, the Sub-Committee agreed that, at this stage, further work and information was required before arriving at a firm conclusion with regard to the suitability of high manganese austenitic steel for cryogenic service and that such work should be completed before draft amendments to the IGC and IGF Codes could be developed.

8.6 Consequently, the Sub-Committee agreed to refer this matter to the Working Group on Carriage of Hydrogen in Bulk and Suitability of Materials for Cryogenic Service, established under agenda item 4 (Safety requirements for carriage of liquefied hydrogen in bulk) (see paragraph 4.[...]) for further consideration. In this regard, the Sub-Committee noted that the Republic of Korea would present additional information addressing the issues raised in document CCC 3/8/1 to the working group.

Instructions to the Working Group on Carriage of Hydrogen in Bulk and Suitability of Materials for Cryogenic Service

8.7 The Sub-Committee instructed the Working Group on Carriage of Hydrogen in Bulk and Suitability of Materials for Cryogenic Service, established under agenda item 4 (Safety requirements for carriage of liquefied hydrogen in bulk), taking into account the comments and decisions made in Plenary, to:

.1 further consider the suitability of high manganese austenitic steel for cryogenic service, taking into account the information in annex 1 to document CCC 3/8 and document CCC 3/8/1;

.2 develop draft amendments to the IGC and IGF Codes to include high manganese austenitic steel for cryogenic service, if appropriate, based on annex 2 to document CCC 3/8; and

.3 consider whether it is necessary for a correspondence group to be established and, if so, prepare terms of reference for consideration by the Sub-Committee.

Report of the Working Group on Carriage of Hydrogen in Bulk and Suitability of Materials for Cryogenic Service

8.8 Having considered the part of the report of the Working Group on Carriage of Hydrogen in Bulk and Suitability of Materials for Cryogenic Service (CCC 3/WP.4) dealing with this agenda item, the Sub-Committee took action as indicated in paragraphs 8.9 to 8.[...] below.

[to be prepared by the Secretariat in consultation with the Chairman after the session, based on the group's report and the actions requested therein, taking into account the decisions taken by the Sub-Committee during subsequent discussions]

9 MANDATORY REQUIREMENTS FOR CLASSIFICATION AND DECLARATION OF SOLID BULK CARGOES AS HARMFUL TO THE MARINE ENVIRONMENT

General

9.1 The Sub-Committee noted the outcomes of MEPC 69 and MSC 96 related to this agenda item, as reported by the Secretariat in document CCC 3/9, in particular that MEPC 69 approved the draft amendments to MARPOL Annex V related to substances that are harmful to the marine environment (HME), as set out in annex 8 to document MEPC 69/21.

9.2 In addition, the Sub-Committee recalled that MEPC 69 noted the draft amendments to the IMSBC Code related to HME substances prepared by CCC 2 (CCC 2/15, annex 8) and instructed CCC 3 to finalize them, taking into account the approved draft amendments to MARPOL Annex V. MEPC 69 also instructed CCC 3 to review the draft amendments to the *2012 Guidelines for the implementation of MARPOL Annex V* (resolution MEPC.269(63)), with a view to ensuring that they are brought in line with the amendments to MARPOL Annex V.

9.3 The Sub-Committee also recalled that MSC 96 noted the progress made by CCC 2 on this output and the related decisions of MEPC 69.

Amendments to the IMSBC Code related to HME substances

9.4 The Sub-Committee had for its consideration the following documents:

.1 CCC 3/9/1 (Finland) providing additional amendments to the IMSBC Code and related instruments in order to further facilitate the long-term implementation of MARPOL Annex V; in particular, the addition of a new section of "Harmfulness to the marine environment" into each individual schedule in appendix 1 of the IMSBC Code and consequential amendments to the IMSBC Code, e.g. section 14 and paragraphs1.2.2 and 1.3.3 of the IMSBC Code and MSC.1/Circ.1453/Rev.1; and

.2 CCC 3/INF.8 (Finland) providing a list of the individual schedules that could be affected by adding a new section of "Harmfulness to the marine environment".

9.5 In considering documents CCC 3/9/1 and CCC 3/INF.8, the Sub-Committee noted the following comments on this matter:

.1 the responsibility of a shipper to declare HME properties of a solid bulk cargo is regulated by MARPOL Annex V and the IMSBC Code is not a mandatory instrument under the MARPOL Convention;

.2 there is no added value in stating in each individual schedule that the shipper has to declare a cargo in accordance with MARPOL Annex V since this requirement is already contained clearly in MARPOL Annex V and is referenced in section 4.2 of the IMSBC Code;

.3 some cargoes with the same shipping name may be classified differently in terms of their impact on the marine environment depending on their composition;

.4 CCC 1 had agreed not to prepare any indicative lists of HME substances and the concerns in relation to the lack of practical value and the difficulty in developing such lists also apply to the proposals in document CCC 3/9/1;

.5 implementation of the proposals in document CCC 3/9/1 would cause an undue administrative burden and may complicate rather than facilitate the implementation of MARPOL Annex V;

.6 the approach proposed in document CCC 3/9/1 had financial implications to the Member States and the Organization and raised questions as to the liability of the Organization and the potential body that would take on the task of indicating cargoes as HME or non-HME;

.7 it is essential that the shipper provides all necessary information to the master regarding the safe transport of a cargo and the correct handling and disposal of wash-water, and the additional information in the IMSBC Code on the environmental properties of cargoes proposed in document CCC 3/9/1 would be useful for all stakeholders and would further emphasize that it is the shipper's responsibility to declare if a cargo is HME or not; and

.8 information on the treatment of HME cargoes is very important to the shipping industry as there is a lack of availability of reception facilities and cargo hold wash-water is currently being discharged at a very high financial cost.

9.6 Following discussion, the Sub-Committee, having taken the above comments into account, recognized the intention of Finland to assist in the implementation of requirements regarding HME substances and also recognized the difficulties faced by the shipping industry in this regard. However, the Sub-Committee noted that the majority of delegations that spoke did not support the proposals in document CCC 3/9/1.

9.7 In this context, the Sub-Committee agreed that a strong implementation regime of the HME requirements in Member States was essential for alleviating the problems faced by industry and that issues related to implementation of MARPOL Annex V should be brought forward to the Marine Environment Protection Committee.

9.8 Consequently, the Sub-Committee agreed to instruct the Working Group on IMSBC Code matters, established under agenda item 5, to finalize the draft amendments to the IMSBC Code related to HME substances based on annex 8 to document CCC 2/15, taking into account

the approved draft amendments to MARPOL Annex V, with a view to inclusion in the draft amendment 04-17.

Amendments to the 2012 Guidelines for the implementation of MARPOL Annex V

9.9 The Sub-Committee noted that the draft amendments to the *2012 Guidelines for the implementation of MARPOL Annex V* were set out in annex 9 to document CCC 2/15 and no document had been submitted on this matter.

Instructions to the Working Group on IMSBC Code matters

9.10 The Sub-Committee instructed the Working Group on IMSBC Code matters, taking into account the comments and decisions made in plenary, to:

.1 finalize the draft amendments to the IMSBC Code related to HME substances, based on the annex 8 to document CCC 2/15 and taking into account the approved draft amendments to MARPOL Annex V, with a view to inclusion in the draft amendment 04-17; and

.2 finalize the draft amendments to the *2012 Guidelines for the implementation of MARPOL Annex V*, with a view to ensuring that they are brought in line with the amendments to MARPOL Annex V, based on annex 9 to document CCC 2/15 and taking into account the approved draft amendments to MARPOL Annex V.

Report of the Working Group on IMSBC Code matters

9.11 Having considered the part of the report of the Working Group on IMSBC Code matters (CCC 3/WP.5) dealing with this agenda item, the Sub-Committee took action as outlined in paragraphs 9.12 to 9.[…] below.

[to be prepared by the Secretariat in consultation with the Chairman after the session, based on the group's report and the actions requested therein, taking into account the decisions taken by the Sub-Committee during subsequent discussions]

10 UNIFIED INTERPRETATION OF PROVISIONS OF IMO SAFETY, SECURITY, AND ENVIRONMENT-RELATED CONVENTIONS

General

10.1 The Sub-Committee recalled that this was a continuous item on the biennial agenda and that the Assembly, at its twenty-eighth session, had expanded the output to include all proposed unified interpretations to provisions of IMO safety, security and environment-related conventions, so that any newly developed or updated draft unified interpretation could be submitted for the consideration of the Sub-Committee, with a view to developing an appropriate IMO interpretation.

10.2 The Sub-Committee agreed to consider the documents submitted under this agenda item in the following order:

.1 firstly, document CCC 3/10/1, with a view to finalizing the terms of reference for the Working Group on Amendments to the IGF Code and Development of Guidelines for Low-flashpoint Fuels (IGF Code Working Group), established under agenda item 3 (Amendments to the IGF Code and development of guidelines for low-flashpoint fuels);

.2 secondly, documents CCC 3/10, CCC 3/10/2, CCC 3/10/3 and CCC 3/10/5 to CCC 3/10/9, in numerical order, with a view to finalizing the terms of reference for the Working Group on Carriage of Hydrogen in Bulk and Suitability of Materials for Cryogenic Service, established under agenda item 4 (Safety requirements for carriage of liquefied hydrogen in bulk); and

.3 lastly, documents CCC 3/10/4, CCC 3/10/10, CCC 3/10/11 and CCC 3/10/11/Corr.1.

Clarification of IGF Code requirements

10.3 The Sub-Committee had for its consideration document CCC 3/10/1 (IACS), containing 14 draft IACS Unified Interpretations (IACS UIs) regarding requirements of the IGF Code that, in the view of IACS, required clarification in order to facilitate consistent and global implementation of the IGF Code. The Sub-Committee noted that IACS was seeking the Sub-Committee's views on the draft IACS UIs prior to IACS proceeding with their finalization and IACS Members subsequently applying them when verifying the implementation of the

IGF Code on behalf of Administrations on whose behalf they are authorized to act as recognized organizations.

Tank connection space applied to fuel tanks on open deck

10.4 In considering annex 1 to document CCC 3/10/1, providing a draft IACS UI on paragraph 2.2.15.3 of the IGF Code, the Sub-Committee noted that the draft IACS UI was developed based on IACS view that a tank connection space should not be excluded from being applied to tanks on open deck, where considered appropriate, since a tank connection space will restrict hazardous zones on an open deck of ships that are not tankers and will also give environmental protection for essential safety equipment.

10.5 In this regard, the Sub-Committee agreed to the proposed interpretation as submitted, for inclusion in the draft MSC circulars containing the draft unified interpretations agreed at this session (see paragraph 10.[...]).

Passive equipment in tank connection spaces

10.6 In considering annex 2 to document CCC 3/10/1, providing a draft IACS UI on paragraph 2.2.15.3 of the IGF Code, the Sub-Committee noted that the draft IACS UI was developed based on IACS view that, since a tank connection space is considered only to contain potential sources of release but not sources of ignition, a tank connection space may contain passive equipment such as vaporizers or heat exchanges in addition to tank connections and tank valves.

10.7 In the ensuing discussion, a proposal was made to delete the word "passive" from the proposed interpretation. Subsequently, the Sub-Committee agreed to the proposed interpretation with the aforementioned modification, for inclusion in the draft MSC circulars containing the draft unified interpretations agreed at this session (see paragraph 10.[...]).

10.8 Having considered annex 3 to document CCC 3/10/1, providing a draft IACS UI on paragraph 2.2.17 of the IGF Code, which had been developed based on IACS view that a tank connection space, even with passive equipment such as vaporizers or heat exchangers installed inside, is not regarded as a fuel preparation room, the Sub-Committee agreed to the proposed interpretation, for inclusion in the draft MSC circulars containing the draft unified interpretations agreed at this session (see paragraph 10.[...]), subject to the words "even with passive" being replaced with the words "which contains".

Location of premixed engines

10.9 Having considered annex 4 to document CCC 3/10/1, providing a draft IACS UI on paragraph 5.4.1 of the IGF Code, which had been developed based on IACS view that, for premixed engines (i.e. gas or dual fuel engines where the gas is introduced before the turbocharger rather than directly into the cylinder or cylinder head port), a single failure may result in release of gas into the machinery space and consequently, such engines must be located in an emergency shutdown (ESD) protected machinery space, the Sub-Committee agreed to the proposed interpretation as submitted, for inclusion in the draft MSC circulars containing the draft unified interpretations agreed at this session (see paragraph 10.[...]).

Fuel preparation rooms located on open deck

10.10 In considering annex 5 to document CCC 3/10/1, providing a draft IACS UI on paragraphs 6.2.1.1 and 5.8 of the IGF Code, the Sub-Committee noted that the draft IACS UI was developed based on IACS view that, despite the existence of prescriptive requirements only for fuel preparation rooms located below deck with regard to protection against cryogenic leakages and control of hazardous zones, fuel preparation rooms on open decks should be arranged in the same way as a fuel preparation room below deck.

10.11 Subsequently, the Sub-Committee agreed to the proposed interpretation as submitted, for inclusion in the draft MSC circulars containing the draft unified interpretations agreed at this session (see paragraph 10.[...]).

Leakage detection for drip trays

10.12 In considering annex 6 to document CCC 3/10/1, providing a draft IACS UI on paragraph 6.3.10 of the IGF Code, the Sub-Committee noted that the draft IACS UI was developed based on IACS view that, leakage detection, as required by paragraph 15.3.2 of the IGF Code for tank connection spaces, is also relevant for drip trays used to protect the ship's steel from potential leakages from tank connections and other sources of leakage from liquefied gas fuel storage tanks located on open deck.

10.13 In this regard, having confirmed that the proposed unified interpretation went beyond the requirement of the IGF Code, the Sub-Committee agreed to instruct the IGC Code Working Group to further consider annex 6 to document CCC 3/10/1 and advise the Sub-Committee on how best to proceed.

Temperature and pressure of liquefied gas fuel tanks

10.14 In considering annex 7 to document CCC 3/10/1, providing a draft IACS UI on paragraphs 6.9.1.1 and 6.9.1.2 of the IGF Code, the Sub-Committee noted that the draft IACS UI was developed based on IACS view that the requirement for the pressure and temperature of liquefied gas fuel tanks to be controlled and maintained within the design range at all times, includes those instances when the safety system is activated as a result of a fault condition, which are not necessarily regarded as an emergency situation.

10.15 Following discussion, the Sub-Committee agreed to instruct the IGF Code Working Group to further consider annex 7 to document CCC 3/10/1 and advise the Sub-Committee on how best to proceed.

Risk assessment of closed or semi-enclosed bunkering stations

10.16 In considering annex 8 to document CCC 3/10/1, providing a draft IACS UI on paragraph 8.3.1.1 of the IGF Code listing design features, such as segregation, hazardous area, ventilation, leakage detection and related safety actions, access and monitoring that should, according to IACS, be subject to special consideration within the risk assessment of closed or semi-enclosed bunkering stations, the Sub-Committee agreed to the proposed interpretation, for inclusion in the draft MSC circulars containing the draft unified interpretations agreed at this session (see paragraph 10.[...]), subject to the two last bullet points being replaced with the following:

"access to bunkering station from non-hazardous areas through airlocks; and

monitoring of bunkering station by direct line of sight or by CCTV."

Design features for cryogenic pipe protection

10.17 In considering annex 9 to document CCC 3/10/1, providing a draft IACS UI on paragraph 9.2.3 of the IGF Code, the Sub-Committee noted that the draft IACS UI was developed with a view to clarifying the design features for cryogenic pipe protection and is based on the understanding that paragraph 9.2.3 implies that a secondary enclosure is required for LNG piping in general.

10.18 Following discussion, the Sub-Committee agreed to instruct the IGF Code Working Group to further consider annex 9 to document CCC 3/10/1 and advise the Sub-Committee on how best to proceed.

Requirement for a cofferdam

10.19 In considering annex 10 to document CCC 3/10/1, providing a draft IACS UI on paragraph 11.3.3 of the IGF Code, the Sub-Committee noted that the draft IACS UI was developed based on the following IACS views:

.1 the requirements of paragraph 11.3.3 are also applicable to fuel preparation rooms; and

.2 although the fuel storage hold for type C tanks may be considered as a cofferdam, as per paragraph 11.3.3 of the IGF Code, a cofferdam should be required for a type C tank located directly above machinery spaces of category A or other rooms with high fire risk, since the fuel storage hold space cannot act as a cofferdam in such an arrangement given that the tank support will be welded to the deck.

10.20 Following discussion, the Sub-Committee agreed to instruct the IGF Code Working Group to further consider annex 10 to document CCC 3/10/1 and advise the Sub-Committee on how best to proceed.

Fire detection and alarm system in the ventilation trunk

10.21 In considering annex 11 to document CCC 3/10/1, providing a draft IACS UI on paragraph 11.7.1 of the IGF Code, the Sub-Committee noted that the draft IACS UI was developed based on IACS view that the phrase "the ventilation trunk for fuel containment system below deck" in paragraph 11.7.1 is incorrect terminology which evolved in the transition from resolution MSC.285(86) to the IGF Code, specifically the transition of the "tank room" terminology used in resolution MSC.285(86) to the equivalent "tank connection space" terminology used in the IGF Code. According to the draft IACS UI, the reference to "the ventilation trunk for fuel containment system below deck" should be understood as meaning that fire detection and alarm system should be provided in the ventilation trunk to the tank connection space and in the tank connection space.

10.22 Following discussion, the Sub-Committee agreed with the understanding that in paragraph 11.7.1 of the IGF Code, the "fuel containment system below deck" ought to be "tank connection space" and decided that it would be more appropriate to deal with this error through the issuance of a corrigendum rather than an IMO unified interpretation.

10.23 Consequently, the Sub-Committee requested the Secretariat to prepare a corrigendum to annex 1 to the report of MSC 95 (MSC 95/22/Add.1), containing resolution MSC.391(95) *Adoption of the International Code of Safety for Ships using Gases or other Low-flashpoint Fuels (IGF Code)*, replacing the words "for fuel containment system below deck" in paragraph 11.7.1 of the annex to the resolution with the words "to the tank connection space and in the tank connection space". MSC 97 was invited to note this course of action and that the aforementioned modification should be incorporated into the authentic text of resolution MSC.391(95), once the corrigendum had been issued.

Ventilation system of machinery spaces

10.24 Having considered annex 12 to document CCC 3/10/1, providing a draft IACS UI on paragraph 13.5.1 of the IGF Code, that had been developed by IACS based on the view that the intention of the requirements in paragraph 13.5.1 is to segregate the ventilation system for machinery spaces containing gas-fuelled consumers from the ventilation system for other spaces in the ship such as the accommodation, not other spaces in the machinery space area such as purifier rooms or workshops, the Sub-Committee agreed to the proposed interpretation as submitted, for inclusion in the draft MSC circulars containing the draft unified interpretations agreed at this session (see paragraph 10.[...]).

Ventilation system for double piping and for gas valve unit spaces in gas safe engine rooms

10.25 In considering annex 13 to document CCC 3/10/1, providing a draft IACS UI on paragraph 13.8.2 of the IGF Code, the Sub-Committee noted that the draft IACS UI was developed based on IACS view that the segregation between the ventilation system for double piping inside and outside the machinery space is not necessarily safety critical, contrary to the segregation between the part of the system where there is potential for LNG leakages and the part of the system where there is no potential for LNG leakages, which is safety critical.

10.26 In this regard, the Sub-Committee agreed to the proposed interpretation as submitted, for inclusion in the draft MSC circulars containing the draft unified interpretations agreed at this session (see paragraph 10.[...]).

Location of the ventilation inlet for the double wall piping or duct

10.27 In considering annex 14 to document CCC 3/10/1, providing a draft IACS UI on paragraph 13.8.3 of the IGF Code, the Sub-Committee noted differing views as to whether the ventilation inlet for the double wall piping or duct should be located in the open air in addition to the requirement for it to be located in a non-hazardous area away from ignition sources, or whether ventilation inlet for double wall piping can be routed to the engine-room in cases where the pipe pressure is less than 10 bar.

10.28 Subsequently, the Sub-Committee agreed to instruct the IGF Code Working Group to further consider annex 14 to document CCC 3/10/1 and advise the Sub-Committee on how best to proceed.

Instructions to the Working Group on Amendments to the IGF Code and Development of Guidelines for Low-flashpoint Fuels

10.29 The Sub-Committee instructed the Working Group on Amendments to the IGF Code and Development of Guidelines for Low-flashpoint Fuels, taking into account comments and decisions made in plenary, to further consider the draft IACS Unified Interpretations set out in annexes 6, 7, 9, 10 and 14 to document CCC 3/10/1 and advise the Sub-Committee on how best to proceed.

Report of the Working Group on Amendments to the IGF Code and Development of Guidelines for Low-flashpoint Fuels

10.30 Having considered the part of the report of the Working Group on Amendments to the IGF Code and Development of Guidelines for Low-flashpoint Fuels (CCC 3/WP.3) dealing with the agenda item the Sub-Committee took action as outlined in paragraphs 10... to 10... below.

[to be prepared by the Secretariat in consultation with the Chairman after the session, based on the group's report and the actions requested therein, taking into account the decisions taken by the Sub-Committee during subsequent discussions]

Clarification of IGC Code requirements

Requirements for pump vents in machinery spaces

10.31 The Sub-Committee had for its consideration document CCC 3/10 (IACS), providing an update with regard to IACS UC GC14 on the requirements for pump vents in machinery spaces in paragraph 3.7.5 of the IGC Code, following the comments and feedback provided

at CCC 2. The Sub-Committee was informed by IACS that IACS UI GC14 (CCC 2/9/1, annex), clarifying that the requirement for pump vents not to be open to machinery spaces applies only to pumps in the machinery spaces serving dry duct keels through which ballast piping passes, was technically robust.

10.32 The Sub-Committee noted that IACS UI GC14 had been applied by IACS Members since 1 July 2016, unless they had been provided with written instruction to apply a different interpretation by the Administration on whose behalf they were authorized to act as a recognized organization.

10.33 Having considered document CCC 3/10, the Sub-Committee agreed to the interpretation, as submitted in the annex to document CCC 2/9/1, for inclusion in the draft MSC circulars containing the draft unified interpretations agreed at this session (see paragraph 10.[...]).

Closing devices for air intakes

10.34 Having considered document CCC 3/10/2 (IACS), providing a copy of IACS UI GC15 regarding the requirements for closing devices in air intakes in paragraph 3.2.6 of the IGC Code, the Sub-Committee noted that UI GC15 had been applied by IACS Members since 1 July 2016, unless they had been provided with written instruction to apply a different interpretation by the Administration on whose behalf they were authorized to act as a recognized organization.

10.35 Following discussion, the Sub-Committee agreed to the interpretation for inclusion in the draft MSC circulars containing the interpretations agreed at this session (see paragraph 10.[...]), subject to the following modifications:

.1 the text of the first paragraph being replaced with the following: "The closing devices need not be operable from within the single spaces and may be located in centralized positions. The centralized position should be accessible from all spaces protected by the closing devices."; and

.2 a new paragraph being added after the third paragraph as follows: "The closing devices required when carrying toxic products should be operable from inside and outside of the space.".

Cargo tank clearances

10.36 Having considered document CCC 3/10/3 (IACS), providing a copy of IACS UI GC16 regarding minimum clear opening requirements for access to compartments through openings, hatches or manholes (paragraphs 3.5.3.1.2 and 3.5.3.1.3 of the IGC Code) and providing clarification as to the required geometry and size of the openings based on IACS UI SC191, MSC.1/Circ.1464/Rev.1 (and Corr.1) and MSC.1/Circ.1545, the Sub-Committee noted that UI GC16 had been applied by IACS Members since 1 July 2016, unless they had been provided with written instruction to apply a different interpretation by the Administration on whose behalf they were authorized to act as a recognized organization.

10.37 Subsequently, the Sub-Committee agreed to the interpretation, as submitted, for inclusion in the draft MSC circulars containing the draft unified interpretations agreed at this session (see paragraph 10.[...]).

External surface area of prismatic tanks for determining the sizing of the pressure relief valve

10.38 The Sub-Committee had for its consideration document CCC 3/10/5 (IACS), providing clarification with respect to the implementation of requirements for the determination of the appropriate size of pressure relief valves in paragraph 8.4.1.2 and figure 8.1 of the IGC Code. The Sub-Committee noted that the same requirements are specified in paragraph 6.7.3.1.1.2 and figure 6.7.1 of the IGF Code and the same clarification applied.

10.39 Following discussion, the Sub-Committee noted general support for the proposal in document CCC 3/10/5 and agreed to instruct the Working Group on Carriage of Hydrogen in Bulk and Suitability of Materials for Cryogenic Service (Hydrogen Working Group) to prepare a draft unified interpretation based on document CCC 3/10/5.

ESD valve type

10.40 The Sub-Committee had for its consideration document CCC 3/10/6 (INTERTANKO), proposing that the term "fire closed type", which appears in paragraph 5.11.6.3 of the IGC Code, should be understood to mean "fail-closed type" (i.e. closed on loss of actuating power).

10.41 Following discussion, the Sub-Committee agreed with the aforementioned understanding and decided that it would be more appropriate to deal with this matter through the issuance of a corrigendum rather than an IMO unified interpretation.

10.42 Consequently, the Sub-Committee requested the Secretariat to prepare a corrigendum to annex 6 to the report of MSC 93 (MSC 93/22/Add.1), containing resolution MSC.370(93) *Amendments to the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (IGC Code)*, replacing the words "fire closed" in paragraph 5.11.6.3.7.1 of the annex to the resolution with the words "fail-closed". MSC 97 was invited to note this course of action and that the aforementioned modification should be incorporated into the authentic text of resolution MSC.370(93), once the corrigendum had been issued.

Safe means of emergency isolation in the event of a failure of a cargo tank-installed PRV

10.43 In considering document CCC 3/10/7 (INTERTANKO), proposing a clarification of paragraph 8.2.9 of the IGC Code with regard to the provision of a safe means of emergency isolation for a cargo tank Pressure Relief Valve (PRV), the Sub-Committee agreed to the following modified version of the proposed interpretation:

> "The 'safe means of emergency isolation', as required by paragraph 8.2.9, should be provided so that a PRV can be isolated on a temporary basis to reseat or repair the valve before putting the PRV back into service. Such means of emergency isolation should be installed in a manner that does not allow their inadvertent operation. Permanent arrangements such as valves placed in the vent lines to the PRV are not considered as a means of emergency isolation and should not be permitted.",

for inclusion in the draft MSC circulars containing the draft unified interpretations agreed at this session (see paragraph 10.[...]).

Arrangement for the water-spray system

10.44 In considering document CCC 3/10/8 (INTERTANKO), proposing a clarification of paragraph 11.3.6 of the IGC Code with regard to the provision of a means to back-flush the water-spray system with fresh water, the Sub-Committee noted general support for the proposal.

10.45 Consequently, the Sub-Committee agreed to instruct the Hydrogen Working Group to prepare a draft unified interpretation based on document CCC 3/10/8.

Requirements for fire safety and oxygen deficiency monitoring equipment

10.46 The Sub-Committee had for its consideration document CCC 3/10/9 (Japan), discussing the following two issues:

.1 whether SOLAS regulation II-2/4.5.10 is to be applied to liquefied gas carriers (see IGC Code paragraphs 3.3.1 and 11.1.1); and

.2 the necessity of an oxygen monitoring system for type C tanks (see IGC Code paragraph 13.6.4),

and providing two draft unified interpretations (CCC 3/10/9, annex, paragraphs 5 and 13), with a view to clarifying the relevant requirements of the IGC Code.

10.47 Following discussion, the Sub-Committee agreed to instruct the Hydrogen Working Group to further consider document CCC 3/10/9 and advise the Sub-Committee on how best to proceed.

Instructions to the Working Group on Carriage of Hydrogen in Bulk and Suitability of Materials for Cryogenic Service

10.48 The Sub-Committee instructed the Working Group on Carriage of Hydrogen in Bulk and Suitability of Materials for Cryogenic Service, taking into account comments and decisions made in plenary, to:

.1 prepare draft unified interpretations, based on documents CCC 3/10/5 and CCC 3/10/8; and

.2 further consider document CCC 3/10/9 and advise the Sub-Committee on how best to proceed; and

Report of the Working Group on Carriage of Hydrogen in Bulk and Suitability of Materials for Cryogenic Service

10.49 Having considered the part of the report of the Working Group on Carriage of Hydrogen in Bulk and Suitability of Materials for Cryogenic Service (CCC 3/WP.4) dealing with the agenda item the Sub-Committee took action as outlined in paragraphs 10.[...] to 10.[...] below.

[to be prepared by the Secretariat in consultation with the Chairman after the session, based on the group's report and the actions requested therein, taking into account the decisions taken by the Sub-Committee during subsequent discussions]

Draft MSC circulars on unified interpretations of the IGF and IGC Codes

10.50 Having considered the above documents and the draft interpretations agreed in plenary during this session (CCC 3/WP.6), the Sub-Committee agreed to the draft MSC circulars on unified interpretations of the IGF Code, as set out in annex [...], and on unified interpretations of the IGC Code, as set out in annex [...], both for approval by MSC 97.

Cargo securing based on environmental conditions – CSS Code, annex 13

10.51 The Sub-Committee had for its consideration document CCC 3/10/4 (IACS), proposing a draft IACS UI on paragraph 7.1 of annex 13 to the CSS Code containing a linearly reducing acceleration factor starting at a minimum allowable reduction of 0.3 at 0 m significant wave height and increasing linearly until reaching 1 at 7 m significant wave height, to be applied when carrying out reduction of the acceleration values set out in table 2 of paragraph 7.1 of annex 13 to the CSS Code, for operation in a restricted area.

10.52 The Sub-Committee noted that there are no formal requirements and procedures given in the CSS Code on how the reduction of the acceleration figures, as mentioned in paragraph 7.1 of annex 13 to the CSS Code, should be carried out when taking into account the season of the year and the duration of the voyage when operating in a restricted area.

10.53 In this regard, the Sub-Committee also noted that IACS, in order to develop the linear acceleration reduction factor that was included in the draft IACS UI, had completed a review of the text in annex 13 to the CSS Code and the acceleration reduction method given in section 6.2 of the Code of Safe Practice for Ships Carrying Timber Deck Cargoes, 2011 (2011 TDC Code) (resolution A.1048(27)) and had undertaken a validation exercise by comparing full-scale measurements from the Lashing@Sea project and seakeeping computations, which lead IACS to conclude that requirements for cargo securing based on environmental conditions should be specified by a method that is slightly different from the method in the 2011 TDC Code.

10.54 In considering the above document, the Sub-Committee noted divergent views as to whether it was appropriate to address this matter through a unified interpretation. The

Sub-Committee also noted that there was no unanimous support for the method contained in the draft unified interpretation.

10.55 Subsequently, the Sub-Committee did not agree to the draft unified interpretation proposed in document CCC 3/10/4 and urged interested Member States and international organizations to work with IACS with a view to submitting a proposal for a new output, in accordance with the Committees' Guidelines, to amend the CSS Code if they deemed it necessary.

Aperture deformation in corner fittings as provided for in CSC 1972 and CSC.1/Circ.138/Rev.1

10.56 Having considered document CCC 3/10/10 (China), proposing that the aperture width (66 mm) and the aperture length (127 mm) of corner fittings, for which full engagement of securing or lifting fittings is precluded, should apply only to the top aperture of corner fittings rather than to the top and the side as currently indicated in note 3 of the table under paragraph 4.1 of annex III to CSC 1972 and under paragraph 10.4.2 of the *Revised recommendations on harmonized interpretation and implementation of the International Convention for Safe Containers, 1972, as amended* (CSC.1/Circ.138/Rev.1), the Sub-Committee decided that there was no need to amend CSC 1972 and CSC.1/Circ.138/Rev.1, as the common understanding was that note 3 applies to the top aperture of corner fittings only.

10.57 With regard to the proposal to undertake research on the possible development of "serious deficiency" values for side apertures, the Sub-Committee noted that the row for "Corner and intermediate fittings" in the aforementioned tables deals with both top and side apertures and column (ii) defines side aperture cracks as a serious deficiency.

Test load for stacking test of tank containers

10.58 The Sub-Committee had for its consideration document CCC 3/10/11 and CCC 3/10/11/Corr.1 (China), proposing draft text to be included in the *Revised recommendations on harmonized interpretation and implementation of the International Convention for Safe Containers, 1972, as amended* (CSC.1/Circ.138/Rev.1), to reflect the understanding that a tank container that undergoes a stacking test in the tare condition should still reach an equivalent load of 1.8 times its maximum operating gross mass.

10.59 In considering documents CCC 3/10/11 and Corr.1, the Sub-Committee noted the following comments:

.1 ISO 1496-3 sets out a single stacking test procedure (i.e. the tank container filled completely with water).

.2 according to CSC 1972, a tank container can be tested in the tare condition but there is no need to test tank containers in the fully loaded condition since the corner fittings fitted on tank containers are the same as the corner fittings on box containers.

10.60 Having taken the above comments into account, the Sub-Committee could not agree on the way forward proposed in document CCC 3/10/11 and Corr.1 and invited interested Member States and international organizations to submit proposals for a new output on this matter, in accordance with the Committee's Guidelines, if they deemed it necessary.

11 CONSIDERATION OF REPORTS OF INCIDENTS INVOLVING DANGEROUS GOODS OR MARINE POLLUTANTS IN PACKAGED FORM ON BOARD SHIPS OR IN PORT AREAS

General

11.1 The Sub-Committee recalled that CCC 2 had expressed its appreciation to Member States for submitting the results of container inspection programmes and had requested them to continue to submit such reports in accordance with MSC.1/Circ.1442 (as amended by MSC.1/Circ.1521).

Inspection programmes for cargo transport units carrying dangerous goods

11.2 The Sub-Committee noted documents CCC 3/11 (Canada), CCC 3/11/1 (Sweden), CCC 3/11/2 (United States) and CCC 3/11/3 (Republic of Korea), reporting the results of container inspection programmes; and document CCC 3/INF.26 (Secretariat), containing the consolidated results. The Sub-Committee was informed that, among the 55,561 CTUs inspected, 5,232 were found with deficiencies, which means 9.5% of the CTUs inspected had deficiencies. As to the type of deficiencies, placarding and marking accounted for 67.5%, followed by securing/stowage inside the unit (21.9%) and documentation (6.1%).

11.3 The Sub-Committee expressed its appreciation to those States that submitted results of container inspection programmes and its concern about the high rate of deficiencies and the

lack of adherence to the provisions of the IMDG Code. In this context, the Sub-Committee noted the view that the relatively high occurrence of deficiencies in securing/stowage inside the unit highlighted the need for the IMO/ILO/UNECE CTU Code to be more widely and effectively applied.

11.4 Subsequently, the Sub-Committee invited Member States to continue submitting such reports and urged Member States which have not yet carried out container inspection programmes to do so and to submit the relevant information to the Organization in accordance with MSC.1/Circ.1442 (as amended by MSC.1/Circ.1521).

Reporting results via GISIS

11.5 In order to facilitate the submission of reports in the future, the Sub-Committee requested the Secretariat to investigate the feasibility of developing GISIS functionality that will allow Member States to fill out an electronic version of the form for reporting the results of inspection programmes (MSC.1/Circ.1442, annex 2) and automatically generate current and historical consolidated reports on the results of container inspection programmes. In this regard, the Secretariat was requested to update CCC 4 under the current agenda item. In the meantime, Member States were invited to continue the existing practice and submit the results of the inspection programmes for 2016 as CCC 4 documents.

[12 BIENNIAL STATUS REPORT AND PROVISIONAL AGENDA FOR CCC 4

Outcome of A 29, MSC 96 and C 116

12.1 The Sub-Committee noted that the Assembly, at its twenty-ninth session, had approved the *Strategic Plan for the Organization (for the six-year period 2016 to 2021)* (resolution A.1097(29)) and the *High-level Action Plan of the Organization and priorities for the 2016-2017 biennium* (resolution A.1098(29)).

12.2 The Sub-Committee also noted that C 116 had endorsed the new outputs agreed at MSC 96 for inclusion in the *High-level Action Plan of the Organization and priorities for the 2016-2017 biennium* (see C 116/D, paragraph 7.4(i); and MSC 96/25, paragraph 23.35 and annex 27).

Biennial status report and proposed provisional agenda for CCC 4

12.3 Taking into account the progress made at the session, the Sub-Committee prepared the revised biennial status report for the 2016-2017 biennium (CCC 3/WP.2, annex 1) and the

proposed provisional agenda for CCC 4 (CCC 3/WP.2, annex 2), as set out in annexes […] and […], respectively, for consideration by MEPC 70 and MSC 97.

Correspondence groups established at the session

12.4 The Sub-Committee established correspondence groups on the following subjects, due to report to CCC 4:

[*to be completed by the Secretariat after the session*]

Arrangements for the next session

12.5 The Sub-Committee agreed to establish, at its next session, working and drafting groups on the following subjects:

[*to be completed by the Secretariat after the session*],

whereby the Chair, taking into account the submissions received on the respective subjects, would advise the Sub-Committee before CCC 4 on the final selection of such groups.

Intersessional meetings

12.6 Having noted that MSC 96 had approved, and C 116 had endorsed, the twenty-sixth meeting of the E&T Group for the IMSBC Code, to be held from 12 to 16 September 2016, directly after CCC 3, the Sub-Committee invited MSC 97 to approve the holding of two intersessional meetings of the E&T Group in 2017 to prepare the next set of amendments to the IMDG Code, one in the first half of 2017 and another directly after CCC 4.

12.7 In the context of amendment 05-19 to the IMSBC Code, the Sub-Committee invited MSC 98 to approve the twenty-ninth meeting of the E&T Group for the IMSBC Code, to take place in the first half of 2018.

Date of the next session

12.8 The Sub-Committee noted that the fourth session of the Sub-Committee had been tentatively scheduled to take place from 11 to 15 September 2017.]

[**13 ELECTION OF CHAIR AND VICE-CHAIR FOR 2017**

13.1 In accordance with the Rules of Procedure of the Maritime Safety Committee, the Sub-Committee unanimously re-elected Mr. H Xie (China) as Chair and Mr. P. Van Lancker (Belgium) as Vice-Chair, both for 2017.]

14 ANY OTHER BUSINESS

Implementation of SOLAS chapter VI requirements for the verification of the gross mass of packed containers

14.1 The Sub-Committee had the following documents for its consideration:

.1 CCC 3/14 (BIC), containing information regarding the recently launched BIC Technical Characteristics Database, the purpose of which is to allow container owners and operators to upload container fleet technical characteristics, including container tare mass, maximum gross mass, maximum stack weight, etc. to a central database in order to make those technical characteristics (or a subset of those characteristics) available to any party in the transport chain. The database will be operated by BIC as an entirely stand-alone, not-for-profit, non-commercial service;

.2 CCC 3/14/2 (ICHCA and WSC), providing information regarding the supplementary joint industry frequently asked questions and answers (FAQ) that were developed in response to questions regarding the proper implementation of the SOLAS requirements for the verification of the gross mass (VGM) of packed containers; and

.3 CCC 3/INF.10 (ICHCA and WSC), providing, in its annex, a copy of the supplementary industry FAQs on the implementation of the SOLAS requirements for verification of the gross mass of packed containers, as developed by WSC and ICHA, in collaboration with the Global Shippers Forum (GSF) and the TT Club.

14.2 Having considered the above documents, the Sub-Committee expressed its appreciation to BIC, ICHCA and WSC for their efforts in support of the implementation of the SOLAS VGM requirements.

14.3 In this context, the Sub-Committee noted an update by WSC regarding the experience of WSC member companies in the period between 1 July 2016 (entry-into-force date of the amendments to SOLAS regulation VI/2) and CCC 3, in particular that:

.1 a high number of packed containers – 95% or more – were being accompanied by VGM information prior to initial vessel loading;

.2 the rate of compliance has steadily increased since 1 July 2016, and it is expected that compliance rates will continue to rise;

.3 there is a high degree of awareness amongst supply chain parties about the VGM requirements, and carriers are systematically engaging shippers who still are not providing VGM information;

.4 carriers have identified the UN/EDIFACT BAYPLAN MESSAGE (BAPLIE) version 2.2 as an industry best practice to demonstrate compliance with the requirement to obtain a VGM before loading packed containers aboard ship to port State control authorities;

.5 WSC member companies are of the view that the maritime industry as a truly global industry will be aided by implementation schemes that remain as close to the IMO guidelines as possible and not impose excessive additional documentation requirements such as the capturing of signatures in paper format; and

.6 the *Advice to Administrations, port State control authorities, companies, port terminals and masters regarding the SOLAS requirements for verified gross mass of packed containers* (MSC.1/Circ.1548) had proven helpful for the avoidance of major disruptions of international containerized maritime traffic, and the high rate of compliance demonstrates that the SOLAS VGM requirements are practical and attainable even after 1 October 2016 at which point MSC.1/Circ.1548 will no longer be in effect.

ACEP information

14.4 Having considered document CCC 3/14/1 (BIC), reporting on the activity of the Global ACEP Database since CCC 2, the Sub-Committee expressed its appreciation to BIC for its continued commitment to maintaining and running the Global ACEP Database and urged CSC 1974 Contracting Parties to make their ACEP information publicly available and communicate to the Secretariat the location where the ACEP information has been posted, in order for the List of locations of publicly available ACEP information (CSC.1/Circ.153), which was approved by MSC 96, to be populated and updated.

Preventing the use of counterfeit refrigerants

14.5 The Sub-Committee noted, with appreciation, the information in document CCC 3/INF.12 (IICL), providing an update on the Industry's Informal Correspondence Group for the Development of Best Practices for Preventing the Use of Counterfeit Refrigerants, chaired by IICL.

14.6 In particular, the Sub-Committee noted that:

.1 the Air Conditioning, Heating, & Refrigeration Institute (AHRI) had completed a review of the ASHRAE Report on R-40, and has published a revised AHRI Standard 700 for refrigerants, in which item 5.11.2.3 now allows up to 300 parts per million concentration (ppm) of R-40;

.2 the Industry's Informal Correspondence Group will resume its work on the development of best practices for preventing the use of counterfeit refrigerants; and

.3 the proposed "Possible steps to reduce the risk of R-40 contamination in refrigerated container machinery", as outlined in document DSC 18/5/1 (IICL), remain relevant.

[15 ACTION REQUESTED OF THE COMMITTEES

15.1 The Marine Environment Protection Committee, at its seventieth session, is invited to:

[to be prepared by the Secretariat in consultation with the Chairman after the meeting]

15.2 The Maritime Safety Committee, at its ninety-seventh session, is invited to:

[to be prepared by the Secretariat in consultation with the Chairman after the meeting]

15.3 The Marine Environment Protection Committee, at its seventy-first session, is invited to:

[to be prepared by the Secretariat in consultation with the Chairman after the meeting]

15.4 The Maritime Safety Committee, at its ninety-eighth session, is invited to:

[to be prepared by the Secretariat in consultation with the Chairman after the meeting]

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ANNEXES

[to be prepared by the Secretariat after the session]]