2017 May 15

**Coordinator’s remarks on comments in the first round, TOR .2**

**2 Draft new Guidelines for safe mooring operations (TOR .2)**

**ANNEX 2**

**DRAFT GUIDELINES ON DESIGN, ARRANGEMENT AND SELECTION OF APPROPRIATE EQUIPMENT FOR SAFE MOORING OPERATIONS**

**INTERTANKO**

The whole Annex 2 is still written with both design and operations in mind, some suggestions on rewording to allow only for design is suggested below, However, seeing the amount of rewording needed, it is suggested to consider rewording the whole guideline to take away all reference to operations unless they focus on design, and to follow the IMO Goal based standard guidelines.

Our suggestions below may or may not adhere to the Goal based standards, they are following the same layout as the coordinators have used so far.

Firstly this part should be worded “Draft new Guidelines for safe design of mooring stations” Mooring operations will have their own guidelines. The two must work well together but must also be kept separate.

Thus, propose a new title leaving out operation:

“DRAFT GUIDELINES ON DESIGN, ARRANGEMENT AND SELECTION OF APPROPRIATE EQUIPMENT FOR SAFE MOORING.”

**ICS**

Title of the Guidelines needs to be amended to reflect the actual matters covered.

Coordinators remarks: Text has been revised as proposed taking into account the provided comments on the corresponding draft SOLAS text.

CG is invited to consider revised text.

**IACS**

a. It is understood that SDC 4 mandated the guidelines not to require risk assessment for each ship. As a result, the requirements for risk assessments are deleted from the draft guidelines. However, section 6 of the draft guidelines (in particular 6.2 – 6.8) in an implicit way still retains the requirements of risk assessment even after the terminology pertaining to risk assessment has been removed to a large extent from the draft. The verification of the arrangements during design stage will, thus, have to go through hazard identification (Paragraph 6.2). Paragraph 6.3 requires that risks of the planned arrangements be mitigated. Paragraph 6.4 requires a “representative range of assessments addressing major risk contributors”. Paragraphs 6.7 and 6.8 again refer to “risk assessment figure” and “acceptable level of risk of hazard” respectively.

b. In line with SDC 4 conclusions, IACS recommends to delete all references (implicit or explicit) to risk assessment within the guidelines as listed in a. above to eliminate any potential confusion. It would be preferred if Section 6 entirely could be dropped as it keeps hinting to risk assessment requirements and no amount of workarounds in the draft text will help to eliminate the topic. This being said, IACS does not oppose the risk assessment process as such, but believes this would be cumbersome to be performed for each ship at the design stage.

c. For ensuring all pertinent hazards are accounted for and keep the risk within ALARP uniformly over the entire fleet and for ease of implementation, IACS again recommends the guidelines to be prescriptive but however developed based upon the IMO Formal Safety assessment procedure for rule making (MSC.MEPC.2/Circ.12/Rev.1). This would be a one-time effort for a holistic consideration of the risk arising from mooring and unmooring of ships in a transparent and justified manner. Guidelines so developed would be convenient to use by, both, designers and verifiers, while ensuring safety to a desired level.

Coordinators remark: Section 6 has been put in square brackets. CG is (underneath) invited to consider whether this part should be deleted.

**United States**

General comment: there is still too much repetition of certain terms. For example, “ensure safety” and “occupational health” are scattered throughout the Guidelines in many places, but they are only needed once in Section 1, to explain the purpose/goals of the Guidelines.

Cooordinators remark: The places that could be "removed" have been put into square brackets.

CG is invited to consider deletion of these parts.

**1 Introduction**

**Netherlands**

Paragraph 1.1 text in square brackets and paragraph 1.4 need to be reconsidered to align with the objective of Solas Reg. II-1/3-8.1, where reference is made to the safe conduct of all towing and mooring operations associated with the normal operation of the ship.

Paragraph 1.1 refers to ship to shore integrity implying mooring between ship and shore only and paragraph 1.4 could be more specific in explaining the meaning of the text “all towing and mooring operations” in SOLAS Reg.II-1/3-8.1. For that purpose please refer also to definitions of towing in Annex 3 Draft revised annex to MSC.1/Circ.1175

Coordinators remarks: 1.1. and 1.4 has been modified accordingly.

CG is invited to consider revised text.

1.1 Historical evolution in ship designs, especially the design of large ships have resulted in optimized performance and a greater degree of complexity; this has not been extended into consideration of design of ships mooring arrangements. In order to improve safety and occupational health during mooring operations on new ships, new design methods for mooring operations should be introduced [which additionally take into account the ship shore integrity for likely mooring configurations].

**Vanuatu**

It is difficult to understand the intent of the wording [which additionally take into account the ship shore integrity for likely mooring configurations] in 1.1. The document seems to imply that perfectly located bollards and spacious docks are available at all times.

**France**

Proposes the following text: “Historical evolution in ship designs, especially the design of large ships, have resulted in optimized performance and a greater degree of complexity; this has not been extended ~~into considerations of~~ to the design of ships mooring arrangements. In order to improve safety and occupational health during mooring operations on new ships, new design methods for mooring operations should be introduced, [~~which additionally~~ also taking into account the ship shore integrity for likely mooring configurations].

**Australia**

Remove square bracket from the last sentence.

**Netherlands**

Text in square brackets: delete the text “the ship shore integrity for” so as to read as follows: [which additionally take into account likely mooring configurations].

**IACS**

IACS proposes to use the term “occupational health and safety” instead of “safety and occupational health” here and below, see also comment to paragraph 2 of Annex 1.

**ICHCA**

Not sure what the phrase at the end *“which additionally take into account the ship shore integrity for likely mooring configurations*” actually means? As you can see from (1) above ICHCA is suggesting adding the words “*and whilst the vessel remains berthed”* to (2) in the Regulation and we think this is what the phrase above refers to so would suggest amending the wording of the final sentence in 1.1 to:

“which also take into account the integrity of the ship/shore mooring configuration throughout the vessels stay”

**OCIMF**

OCIMF suggests the following wording:

“Historical evolution in ship designs, especially the design of large ships have resulted in optimized performance and a greater degree of complexity; this has not been extended into consideration of design of ships mooring arrangements. In order to improve safety and occupational health during mooring operations on new ships, new design methods for mooring operations should be introduced to design the vessel mooring as a complete system and not individual components. Where possible ship designers should take into account the ship shore interface.”

Coordinators remarks: Text has been modified as proposed. Square brackets has been removed as proposed by Australia. As to the last sentence the proposed new text by NL seems to accommodate the expressed wishes for clarity.

CG is invited to consider revised text.

1.2 The International Convention for the Safety of Life at Sea (SOLAS), as amended, requires in chapter [II-1, part A, regulation 3-8] that the mooring arrangement in ships of 3,000 gross tonnage or above constructed on or after [1 January 2024] shall be designed and arranged to ensure the safety and occupational health of those involved during mooring operations . Ships less than 3,000 gross tonnage constructed on or after [1 January 2024] shall comply with the above requirement, as far as reasonable and practicable.

**Japan**

Japan proposes to add the phrase “or with applicable national standards of the Administration which provide an equivalent level of safety.” after “as far as reasonable and practicable” in paragraph 1.2, to keep consistency with paragraph 3 of the draft revised SOLAS regulation II-1/3-8 in Annex 1.

Coordinators remarks. Text has been modified in accordance with proposal by Japan and the comments above on new draft SOLAS regulation.

CG is invited to consider revised text.

1.3 These guidelines are intended for use by Administrations, owners, operators, designers and classification societies when applying the requirement for the design, arrangement and selection of mooring equipment.

**OCIMF**

OCIMF suggests an additional paragraph after 1.3 as follows:

1.3.bis To further improve the safety and occupational health during mooring operations, owners and operators of existing ships are encouraged to take note of these guidelines, and so far as is reasonably practicable, take into consideration the intent of guidance therein.

If accepted, then paragraph 1.4 becomes 1.5

Coordinators remarks: Text has been included.

CG is invited to consider new text in in square brackets.

1.4 References to mooring in these guidelines include unmooring and all harbour towing operations relating to mooring operations.

**Vanuatu**

Regarding 1.4 - To what extent are harbor towing operations to be considered? Same is not explained in Annex 2.

**INTERTANKO**

The scope for the guideline could be discussed, the guidelines must allow for the intended trade and use of the ship. This scope would limit it to mooring, unmooring and all harbour towing. We are not discussing, anchoring, offshore mooring, STS operations etc, which could also be included. Consider expanding/rewording this point.

Consider adding a first bullet point to establish what we mean with normal or typical mooring in these guidelines. Should be referred to in the rest of the document instead of using wordings like “typical mooring” or “normal mooring” etc.

**Netherlands**

Rewrite 1.4 as follows:

1.4 References to mooring in these guidelines include mooring and unmooring from ashore or mooring boats and limited to towing operations as defined in MSC.1/Circ.1175

**ICHCA**

Should be re-worded to “References to “mooring” in these guidelines included mooring, unmooring and any in-harbour towing operations related to such mooring operations.”

Coordinators remarks: The proposed text provided by the Netherlands seems to accommodate the remarks provided.

CG is invited to consider revised text.

**2 Definitions**

**ICS**

The functional requirements in Section 2 are not drafted in accordance with Generic guidelines for developing IMO goal-based standards (MSC.1/Circ.1394/Rev.1). A number of the functional requirements in Annex 2 are actually specific rules or regulations rather than functional requirements. Therefore the functional requirements need to be further amended to reflect current IMO guidance on drafting functional requirements. The proposed text below, addresses this matter and also addresses some of the impractical recommendations included in the draft guideline text and repetition. However, the essential elements of facilitating safe operation and protecting personnel are covered throughout.

**Netherlands**

Add the definition of mooring personnel and mooring boat as follows (both copied FAL.6/Circ.11/Rev.1):

Mooring personnel: is defined as “the personnel tasked to assist in the activity of mooring and unmooring ships, either ashore or from mooring boats, carried out within the framework of port marine services”.

Mooring boat: is defined as “the boat handling mooring lines between the ship and ashore during mooring and unmooring operations and does not include harbour ship assist tugs”.

**United States**

General comment: definitions are only needed when a term has a special meaning beyond its common meaning. The following terms should be deleted because they are used in the Guidelines within the context of their normal meanings (and therefore do not need special definitions)

For the purposes of these guidelines

2.1 Administration means the Government of the State whose flag the ship is entitled to fly.

**United States**

Delete

Coordinators remarks: Text has been deleted.

2.2 Mooring deck refers to the local deck area where mooring equipment is installed and line-handling takes place. It also includes deck areas where there is a risk of personnel injury in event of snap-back or other failure of mooring equipment. There may be multiple mooring decks on a vessel.

**ICHCA**

ICHCA prefers “mooring area” to “mooring deck” as in some cases the equipment and operation are fitted in and take place in an area of deck that is not dedicated to mooring. Also “snap-back” is only a “failure of mooring equipment” if “mooring lines” are included in the definition of “mooring equipment” and therefore “mooring equipment” needs definition as mentioned above. So with reference to this would suggest the following definitions;

“Mooring arrangements means the configuration of the mooring equipment and fittings and other design features of the ships related to the mooring operation i.e. lighting and communication equipment.”

“Mooring equipment and fittings means items such as winches, capstans, bollards, bitts, fairleads, rollers, chocks etc and also includes mooring lines.”

“Mooring operations means mooring and unmooring of the ship and in-harbour towing operations related to mooring and unmooring of the ship.”

“Mooring personnel means ships crews and shore based or mooring boat personnel involved in mooring operations whether supervising, monitoring or handling.”

“Mooring boat means a small craft engaged in mooring line handling between ship and shore.”

(or reproduce the new definitions in the separate guidelines on mooring operations.)

Introduced this last one because we used “mooring boat” in the preceding one.

**JAPAN**

The definition of “mooring deck”, i.e. paragraph 2.2, should be reviewed, for the reason that the mooring deck will be too wide according to the second sentence. It should be noted that non-slip coating on mooring decks is adopted to comply with the requirement in paragraph 4.2.18 on minimizing tripping and slipping hazards and that non-slip coating may lead to rapid wear and tear of mooring lines. Japan therefore proposes to delete the second sentence of paragraph 2.2.

Coordinators remarks: New definitions included as suggested. The revised definition of mooring area should accommodate the comments by Japan.

CG is invited to consider revised text.

2.3 Occupational health in the context of these guidelines means that the mooring

operation can be carried out in such a manner that those involved are not exposed to adverse effects, e.g. due to heavy lifting, poor posture, noise, vibrations, high demands of work, stress, fatigue.

**Norway**

Do we need this and if so, is this in line with definitions in other international instruments? Norway would prefer deletion.

**ICHCA**

Paragraphs 2.3 to 2.6 appear to ICHCA to be out of place in these guidelines as the intended readers of these guidelines would already understand these terms and it is not IMO’s purpose to teach on health and safety rules. Plus we are removing “risk assessment” from the guidelines.

**United States**

Delete.

[2.4 Hazard identification means a process to find, list, characterize, and rank hazards.]

**Norway**

Propose deletion

**IACS**

Definitions 2.4 should be deleted if “risk assessment” is removed from the document.

**ICHCA**

Paragraphs 2.3 to 2.6 appear to ICHCA to be out of place in these guidelines as the intended readers of these guidelines would already understand these terms and it is not IMO’s purpose to teach on health and safety rules. Plus we are removing “risk assessment” from the guidelines.

**OCIMF**

OCIMF suggests removal of square brackets

2.5 Risk is a measure of the likelihood that an undesirable event will occur together with a measure of the resulting consequence within a specified time, i.e. a combination of the frequency and the severity of the consequence (this can be either a quantitative or qualitative measure).

**IACS**

Definitions 2.5 should be deleted if “risk assessment” is removed from the document.

**Norway**

Norway proposes deletion. Risk, hazard and other related definition are found for example in the FSA guidelines and need not be repeated here.

**Italy**

The definition of “Risk” should be reviewed according to the existing ISO standard for consistency with the definition of “Hazardous identification”. In that standard the risk is defined “as an event where the outcome is uncertain”.

**ICHCA**

Paragraphs 2.3 to 2.6 appear to ICHCA to be out of place in these guidelines as the intended readers of these guidelines would already understand these terms and it is not IMO’s purpose to teach on health and safety rules. Plus we are removing “risk assessment” from the guidelines.

**United States**

Delete.

2.6 Safety is the absence of unacceptable levels of risk to life, limb and occupational

health (from non-willful acts).

**Norway**

Norway proposes deletion. We have not seen similar definitions in other safety-related guidelines developed by the Organization. If kept it should at least be amended to read “In the context of these guidelines.....”

**IACS**

We see no need to explicitly mention occupational health. The focus of these guidelines is highlighted in the introduction, so there is no need to do this again in the definition. Further, if the term “occupational” is used in front of health one may conclude that “life” and “limb” refer to other persons. Typical definitions used are:

1. Safety is the absence of unacceptable levels of risk. (MSC.1/Circ.1394/Rev.1)

2. Safety is the absence of unacceptable levels of risk to life, limb and health (from non-willful acts) (IACS FSA Glossary)

Both are acceptable to us, but with preference of the second.

**ICHCA**

Paragraphs 2.3 to 2.6 appear to ICHCA to be out of place in these guidelines as the intended readers of these guidelines would already understand these terms and it is not IMO’s purpose to teach on health and safety rules. Plus we are removing “risk assessment” from the guidelines.

**United States**

Delete.

Coordinators remarks: The bulk of the (many) comments have now been included just as the deletion of paragraphs 2.3 to 2.6 has been prepared.

CG is invited to consider revised text.

**3 Goals**

**ICS**

Section 3 should be clarified to align with the Generic guidelines for developing IMO goal-based standards (MSC.1/Circ.1394/Rev.1) to be high-level objectives to address the issues relating to equipment and fitting selection and arrangement and reflect the required level of safety. Proposal for a new text:

“The equipment selection and mooring arrangement design safety objectives should be to facilitate safe mooring operations and reduce the risk to mooring personnel caused by inappropriate selection and arrangement of equipment and fittings.”

3.1 The goal of these guidelines is to establish a common approach to the implementation and enforcement of the SOLAS requirements on the design and arrangement of mooring systems which ensures the safety and occupational health of those involved.

**IACS**

Our understanding is that “enforcement” is a task of Administration and it is not clear how these guidelines addresses this topic. These guidelines aim on specifying a process for design in order to increase the safety. Propose to amend 3.1 to say “The goal of these guidelines is to establish a common approach which ensures occupational health and safety of involved persons by implementing the SOLAS requirements on the design and operation of mooring arrangements.”

3.2 The guidelines provide recommendations on how to interpret and apply the provisions of the SOLAS requirements.

**China**

3.2 and 3.3 are no goals and should be moved to the introduction.

**Norway**

This is one of the reasons that we would like to see some functional requirements included in SOLAS.

**IACS**

3.2 and 3.3 are no goals and should be shifted to the introduction.

**ICHCA**

3.2 and 3.3 do not appear to be “goals” and merely statements that should be in the introduction

3.3 Adherence to these guidelines will facilitate compliance with the SOLAS requirements by ship designers, equipment suppliers, shipyards, shipping companies and port terminal facilities and their employees, in understanding their respective roles in the development of better designs ensuring safety and occupational health of those participating in mooring operations.

**China**

3.2 and 3.3 are no goals and should be moved to the introduction.

**Australia**

After 3.3 suggest a new paragraph 3.4 as below

[3.4 The overall goal is, to guide designers, classification societies, flag States and owners to think in terms of innovative, safe and occupational health preserving solutions for mooring systems.]

**Republic of Korea**

It is just explanation for adherence to these guidelines, Therefore, 3.3 should be deleted or moved to Introduction.

**Netherlands**

“port terminal facilities and their employees” could be replaced by “mooring personnel” if we accept to insert the definition in section 2.

**IACS**

3.2 and 3.3 are no goals and should be shifted to the introduction.

**ICHCA**

3.2 and 3.3 do not appear to be “goals” and merely statements that should be in the introduction

Coordinators remarks: In essence the bulk of the comments seek to simplify and express a common goal i.e. to progress on occupational health and safety during mooring operations. Combined with the moving up of 4.1 beneath and based on the received comments, the coordinator has tried to provide a common text.

CG is invited to consider revised text.

**4 Functional objectives**

**France**

France proposes a number of small verbal corrections.

**ICS**

Amend to read:

“In order to achieve the equipment selection and mooring arrangement design safety objectives set out in paragraph […], the following functional requirements should be considered applicable. Ships of 3000 gross tonnage and above should be provided with mooring equipment and fittings

.1 arranged to allow unobstructed access to and operation of the mooring equipment;

.2 arranged to minimize the need for complex mooring line configurations during the normal operation of the ship;

.3 arranged to minimize the need for manual handling of mooring lines under load;

.4 arranged to reduce the exposure of personnel involved in mooring operations to the dynamic loads of mooring lines;

.5 selected to facilitate safe mooring operations; and

.6 properly maintained in good condition for their intended purpose.

In addition, ships shall be provided with mooring lines appropriate for the equipment and fittings installed on board, and maintained for their intended purpose.”

**IACS**

In SDC 3 discussion it was suggested to develop “goal and function based regulation”, however no reference was made to MSC.1/Circ.1394 GENERIC GUIDELINES FOR DEVELOPING IMO GOAL-BASED STANDARDS. It is recommended to consider these guidelines in order to avoid significant differences to other IMO developments. Following MSC.1/Circ.1394, functional requirements should consider three elements: Description, rationale, and expected performance. As a starting point it is suggested to use the same terminology. It is proposed to change “Functional objectives” to “Functional requirements”.

**United States**

Relocate these to the SOLAS regulation. We generally concur with the editorial suggestions submitted by other Group members.

4.1 The overall goal is, to guide designers, classification societies, flag States and owners to think in terms of innovative, safe and occupational health preserving solutions for mooring systems. The outcome of the design shall be the creation of a corresponding mooring arrangement, enabling the crew to maintain the ship shore interface throughout the port call.

**China**

“4.1” are not functional objectives and should be deleted.

**France**

France proposes the following text:

The overall goal is to guide designers, classification societies, flag States and owners into thinking in terms of innovative, safe and occupational health preserving solutions for the design of mooring systems. The outcome of the design shall be the creation of a corresponding mooring arrangement, enabling the crew to maintain the ~~ship~~ ship/shore interface throughout the port call.

Change 4.1 to 3.4.

**Australia**

Paragraph 4.1 – delete as this a goal and sits better under chapter 3 omitting the second sentence as suggested in 3.4 above.

**IACS**

This is not a functional requirement but introduction. Propose to move it to 1 Introduction or to delete it.

**ICHCA**

Starts with *“the overall goal”* which means it is not a functional objective anymore. ICHCA suggests changing first few words to “*The overall objective is ….”*

**OCIMF**

OCIMF suggests removal of innovation as this makes it sound as if each mooring design will need to be new and different than a previous method. OCIMF suggests rewording as follows:

“The overall goal is to guide designers, classification societies, Flag States and owners to provide mooring designs that take into account the safety and occupational health of the mooring crew, when operating around the mooring workspace, or engaged in the safe berthing/unberthing of the ship. The outcome of the design shall be the creation of a corresponding mooring arrangement, enabling the crew to maintain the ship shore interface throughout the port call”

Coordinators remarks: As noted by several the wording "goal" seems misplaced in this section (of functional objectives). Also in substance this paragraph seems to belong in section 3, as noted by Australia and France and others. The text has been moved to section 3.

4.2 In order to achieve the appropriate goal, the mooring arrangement should be designed and arranged in order to ensure that:

**France**

France proposes to add “the following functional objectives are met” in order to acknowledge the fact that the following is indeed the list of functional objectives.

Change 4.2 to 3.5.

**Australia**

Paragraph 4.2 chapeau – The word “in order” is unnecessary and should be deleted. Rewrite as below omitting unnecessary words (and renumbering as 4.1 if above suggestion agreed, then all provisions will need to be renumbered)

“4.2 To achieve the appropriate goal, the mooring arrangement should be designed and arranged to ensure that:”

**IACS**

Propose to say “achieve the goals as set out above” instead of “achieve the appropriate goal” as well as “the mooring equipment should be designed and arranged” instead of “the mooring arrangement should be designed and arranged”.

**ICHCA**

What does “in order to achieve the appropriate goal” mean ? There only is one goal. ICHCA would suggest deleting these words and starting with “ The mooring arrangement……”

Coordinators remarks: The proposed amendments have been included. As to the comment from France to move the paragraph to section 3, the proposed rewording by IACS seems to underline its proper placing in section 4.

.1 the mooring arrangement provide unobstructed access to and operation of the mooring equipment;

**China**

“.1” and “.11” in 4.2 are similar and can be merged.

**INTERTANKO**

- What is this bullet point trying to achieve? Reword to be clearer.

- Propose a new

“4.2.1.bis For design of the mooring arrangements a mooring plan to be developed. This plan should include a standard mooring configuration and at least two alternate mooring configurations to be defined and be appropriate to the ships intended trade. Further the mooring plan to include towing arrangements and if appropriate, offshore and STS mooring arrangements.”

**Australia**

4.2.1 – Editorial – add “s” after the word “provide”

**ICHCA**

Add an “s” after “provide”

**OCIMF**

OCIMF suggests rewording for clarity as follows, and adding 1.bis;

“the mooring arrangement provides sufficient space and unobstructed access to and operation of the mooring equipment;

1.bis a mooring plan detailing standard and non-standard/ alternative arrangements to be provided including separate mooring plans for offshore (eg SPM, MBM,) and STS operations.”

Coordinators remarks: As to the remark from China; .1 deals with access to equipment while .11 deals with sufficient working space at the mooring deck. The proposed reference to a mooring plan has been covered under .17 beneath.

.2 the mooring equipment minimize the need for complex mooring line configurations during the normal operation of the ship;

**IACS**

IACS proposes to amend .2 to say “the mooring equipment arrangement minimize …”

**ICHCA**

4.2.2 and 4.2.3 what does “normal” mean? Does that imply we can have other arrangement for “non-normal”? Presumably emergency situations which we are not covering here and the crew would carry out dynamic risk assessments and plan the operation to suit the emergency situation so would suggest;

4.2.2 - “the mooring equipment minimizes the need for complex mooring line configurations during mooring operations”

**OCIMF**

Typo – minimizes – corrected as follows;

the mooring equipment minimizes the need for complex mooring line configurations during the normal operation of the ship;

Coordinators remarks: Proposed amendments have been included. As to the comment by ICHA, the wording "normal" was included during round 1 to underline that designers were not expected to deal all possible situations the ships may encounter.

.3 in normal mooring operations, only mooring lines that are permanently fixed to a winch is needed;

**Vanuatu**

Regarding 4.2.3, on smaller vessels, perhaps up to 4,000 or 5,000 GRT, with multiple mooring bitts on each side to allow for flexibility when mooring, there are not necessarily “permanent” mooring lines, so there are typically no winches. This requirement implies winches are required.

**Norway**

Normal mooring operation

A ‘normal mooring operation’ may be specified for a specific ship, but different berth configurations often requires alternative mooring arrangements on board the ship.

(Are there any ‘abnormal mooring operations’...?)

It may be impossible for small vessels (3000 +) to arrange mooring winches for each line. Also when using winches with several drums.

**China**

“.3” are not functional objectives and should be moved to 5.

**INTERTANKO**

Seem to be an operational objective, consider rewording to apply to design. Suggestion:

“Design and arrangements to allow for *mooring lines to be permanently fixed to winches [as defined in the mooring plan].”*

**Republic of Korea**

Due to the lack of space for small ships, these are difficult to apply for small ships. Therefore, following sentence should be added to at the end of 4.1 “Alternative arrangement can be allowed by administration.

**Italy**

Permanent mooring lines may not be enough also in normal condition. The FR should be better clarified taking into account the indication of both paragraphs 5.2.2 and 5.2.4 where the manual handling of mooring lines should be reduced as far as reasonably pratical. Could be re-write as follow

“.3 in normal mooring operations **and** **as far as reasonably pratical**, only mooring lines that are permanently fixed to a winch are needed;”

**IACS**

This is more a mean to achieve functional requirements .5, .8 and .12. It is proposed to delete .3 here and include the mean in 5.

**ICHCA**

4.2.2 and 4.2.3 what does “normal “ mean? Does that imply we can have other arrangement for “non-normal” ? Presumably emergency situations which we are not covering here and the crew would carry out dynamic risk assessments and plan the operation to suit the emergency situation so would suggest:

4.2.3 - remove the word “normal” and also replace “fixed” with “dedicated” as the lines are not fixed and are removable and replaceable.

Coordinators remarks: As noted by China the current text is not functional. Text has been modified in order to accommodate the provided comments. IACS notes that the intent may be covered by .5. In this respect it should be noted that .5 (underneath is proposed to be deleted). Accordingly it seems relevant to retain .3.

.4 each mooring line has a straight lead and its own dedicated fairlead(s);

**Vanuatu**

Regarding 4.2.4, on smaller vessels, it may not be practicable or even possible to have straight leads and dedicated fairleads. Fairleads often serve multiple bits or mooring lines, depending on the dock geometry and space.

**Norway**

It may be impossible for small vessels (3000 +) to have a strait lead and a dedicated fairlead for each mooring line.

**China**

“.4” are not functional objectives and should be moved to 5.

**Republic of Korea**

Due to the lack of space for small ships, these are difficult to apply for small ships. Therefore, following sentence should be added to at the end of 4.1 “Alternative arrangement can be allowed by administration.

**Italy**

It could be difficult to apply “dedicated fairlead(s)” for the same reasons explained above (in 4.2.3).

**Japan**

In order to clearly distinguish chapter 4 “functional objectives” and chapter 5 “Achievement of the objectives”, Japan proposes to replace the text in paragraph 4.2.4 with “line handling is simplified;” taking into account paragraph 5.1.1. Japan further proposes to replace paragraph 4.2.19 with “overload of mooring winches and mooring lines are avoided through careful deck layout; and”, taking into account paragraph 5.2.5.

**IACS**

This is more a mean to e.g. achieve the functional requirement .2 and is already given as such in 5.1.1. Propose to delete .4.

**ICHCA**

May be impossible on small or special purpose vessels so if we are keeping this statement in we may need to add a qualifier such as “As far as is reasonably practicable”.

Coordinators remarks: As noted by China, the current text is not functional. Text has been modified as proposed by Japan. As pointed out by IACS the current aim may be covered by .2 for which reason i could be considered to delete current .4.

.5 manual handling of mooring lines is reduced to an absolute minimum during mooring operations and never involves manual handling during load, heaving or ease situations; and

**Vanuatu**

Regarding 4.2.5, does manual handling of lines include the use of capstans? Same are common and beneficial on smaller (up to 4,000 GRT) vessels.

**INTERTANKO**

Suggested wording:

“Design and arrangements to reduce manual handling of mooring lines to an absolute minimum and never involve manual handling during load, heaving or ease situations.”

4.2.5.bis: Suggested new paragraph, could potentially be added to 4.2.5. The suggestion is probably one of the intentions of 4.2.5, but in this case, we suggest it to be written:

“Winch design speed is enough should allow for fast slacking. There should be no need for lines to be rolled out on deck before mooring.”

**ICHCA**

Impossible to “never” manually handle, add a qualifier as in 4.2.4 above

**OCIMF**

OCIMF suggests revision for clarity – releasing as opposed to eases:

“manual handling of mooring lines is reduced to an absolute minimum during mooring operations and never involves manual handling during load, heaving or releasing situations; and”

Coordinators remarks: Text has been modified to accommodate the comments. As to the comment from INTERTANKO the proposal for a new .5bis does not seem to be functional in its present wording.

.6 the mooring arrangement is appropriate for the specific ship type and its usual mooring configuration;

**Norway**

The mooring arrangement is appropriate for the specific ship type and its usual mooring configuration. Again, the ‘usual mooring configuration’ may vary depending on the berth (ref. 4.2.3).

**INTERTANKO**

Consider referring to the proposed 4.2.1.bis above instead of using “usual mooring configuration”

Suggestion: Mooring lines are appropriate for the mooring equipment installed on board and the ships intended trade [as defined in 4.2.1.bis above].

**ICHCA**

Coupled with the chapeau this is repeating “mooring arrangement” so it should just start as “ it is appropriate….” And we are introducing a new term “mooring configuration” which either needs defining or removing so would suggest:

“it is appropriate for the specific ship type and expected mooring operations”

**OCIMF**

OCIMF suggests this is deleted, the goals in 4.1 should make all mooring arrangements ‘appropriate’.

Coordinators remarks: The intent is to underline that the layout is appropriate for the particular ship type, e.g. tankers and bulker would be likely to berth alongside jetty's while ferries and containerships would berth alongside berths. Text has been modified as proposed by ICHA.

.7 there is an unobstructed view of the mooring deck for those taking part in the mooring operation.

**ICHCA**

Change “deck “ to “area”.

**OCIMF**

OCIMF suggests the following rewording for clarity;

“an unobstructed view of the mooring deck shall be available for all mooring operations supervisors, and those taking part in the mooring operation; this may include CCTV.”

Coordinators remarks: Text has been modified. As to the proposed text from OCIMF this is not a functional recommendation.

.8 the mooring arrangements minimize the exposure of mooring personnel, including personnel monitoring lines and supervising the mooring deck, to the hazards associated with mooring lines under tension or dynamic load;

**Australia**

Australia suggests deletion in entirety as it is better covered by 4.2.12 which is short and precise.

**Republic of Korea**

It should be deleted because of duplication with 4.2.8

**ICHCA**

Change “deck “ to “area” and take out *“monitoring and supervising”* as this is now included in the new definition ICHCA proposed and also covers shore and boat based personnel

**OCIMF**

Add the word “shall” for clarity as follows:

“the mooring arrangements shall minimize the exposure of mooring personnel, including personnel monitoring lines and supervising the mooring deck, to the hazards associated with mooring lines under tension or dynamic load;”

**IACS**

As it may be difficult to achieve this only by arrangement design it is proposed to amend .8 to say:

“the mooring arrangements and/or equipment minimize the exposure of mooring personnel, including personnel monitoring lines and supervising the mooring deck, to the hazards associated with mooring lines under tension or dynamic load;”

Coordinators remarks: Text has been modified to accommodate the chapeau and provided comments. As noted .8 and .12 which seems to have the same aims for which reason they could be merged (under .8).

.9 mooring lines are appropriate for the mooring equipment installed on board.

**INTERTANKO**

It is suggested to add the following at the end as follows:

“Mooring deck configuration should be arranged such that unnecessary stresses are not added to the mooring lines”.

**ICHCA**

Mooring “lines” are part of the “equipment” so re-word to *“ mooring lines are appropriate for the rest of the mooring equipment installed on board”*

**OCIMF**

OCIMF suggests the following text to highlight more than just a line being “appropriate”. This clarity provides specific direction.

“mooring lines have been evaluated following industry and manufacturer guidelines to ensure suitably for use with the mooring equipment installed on board.”

Coordinators remarks: A new .9 bis has been included as proposed by INTERTANKO. In order to accommodate the remarks from ICHA, .9 has been rephrased. As to the comment by OCIMF it seems to be more of a descriptive character than functional.

CG is invited to consider revised .9 and proposed new .9is.

.10 the working areas are adequately lit to minimize the areas of shadow, as far as reasonably practicable;

**China**

“.10” are not functional objectives and should be moved to 5.

**IACS**

This is more a mean to achieve the functional requirement .7 (as amended) and is addressed already by 5.1.4. Propose to delete .10.

**ICHCA**

“working area” is a new term, use “mooring areas” and re-word to “the mooring areas are adequately lit to minimize shadow sectors, as far as is reasonable practicable” (and not the qualifier is already used here so can be used elsewhere – see 4.2.4 above.)

**OCIMF**

OCIMF suggests “illuminated” is better than “lit” as follows:

“the working areas are adequately illuminated to minimize the areas of shadow, as far as reasonably practicable;”

Coordinators remarks: Text has been modified to reflect received comments and its functional character. As to the comment by IACS, .7 focus on unobstructed views in all situations while .10 deals with illumination during dark hours (i.e. an add on).

.11 sufficient working space is present at the mooring decks;

**China**

“.1” and “.11” in 4.2 are similar and can be merged.

**France**

France proposes the following text:

“the mooring decks offer sufficient working space;”

**IACS**

IACS proposes to combine .11 with .1 as very similar.

**ICHCA**

This is a bit vague and is surely covered by the other objectives in principal

**OCIMF**

OCIMF suggests that this can be deleted as it is covered under 4.2.1

Coordinators remarks: The text has been modified as proposed by France. As to comments of merging .1 and .11 please consult explanation above.

.12 personnel involved in mooring operations are not exposed to the dynamic loads of mooring lines;

**France**

France proposes to delete .12 as they find it to be included in .8.

**IACS**

IACS proposes to delete .12 as already covered by .8. Dynamic load may be better specified to clarify whether it means the loads due to varying external loads like wind and current during mooring or also loads during heaving in mooring lines.

**ICHCA**

This subparagraph is basically the same as 4.2.8 so remove.

Coordinators comments: As reflected above the aim could be covered by .8.

.13 those involved in mooring operations are not at risk of tripping over, or being trapped or impacted by free lying mooring lines;

**INTERTANKO**

What we are we trying to do here? We have above said that mooring lines will be on winches, thus there are no free lying lines. If the intent is when/if extra lines are used no free lying mooring lines are to be on deck, then maybe this suggested text will be appropriate:

“Design and arrangements to ensure that there will be no free lying mooring lines on the deck.”

However, this may be impossible to do. So, what are we trying to achieve here.

**Australia**

Paragraph 4.2.13 – the end result of being trapped or impacted (not sure what “impacted” means here) by free lying mooring lines is getting tripped over. So suggest

“.13 those involved in mooring operations are not at risk of tripping over by free lying mooring lines.”

**ICHCA**

ICHCA doesn’t read well and if the rest of the objectives are met there will not be any free lying mooring lines.

Coordinators remarks: The revised functional objectives have been modified above to ensure flexibility for in particular small ships. .13 therefore remains relevant for those ships where mooring lines will remain prepared on the deck in the mooring area. As to the comment by Australia "impacted" has been included to cover the situation where the free lying mooring line is e.g. let go/has run out its full length. In those situations a sudden movement is quite likely.

.14 manual handling of mooring lines that may have detrimental impact on the occupational health of the involved personnel are avoided;

**INTERTANKO**

This seems to be a repetition of 4.2.5.

**IACS**

IACS proposes to clarify that e.g. manual handling of heavy mooring lines is considered here. May be combined with .5. “are avoided” should be “is avoided”.

**ICHCA**

Needs a qualifier “as far as is reasonably practicable”

**OCIMF**

OCIMF suggests deleting as covered under 4.2.5; however, if this is retained we suggest moving under 4.2.5 so manual handling of mooring lines is in one location

Coordinators remarks: "Heavy" has been included. It seems that content is included in chapeau for which reason .5 and .14 could be deleted.

.15 noise in way of mooring decks does not impair effective communication;

**INTERTANKO**

Suggested rewording

Winches and equipment in and around the mooring area to be designed in such way that during operation, noise will not impair effective communication.

**Republic of Korea**

Specific restriction of noise is to be considered (Ex. Max 00 dB for Mooring Deck etc.)

**IACS**

This is more a mean to achieve the functional requirement .16 and is addressed already by 5.1.3. Propose to delete .15.

Coordinators remarks: The suggested wording by INTERTANKO seems covered through the chapeau and the current .15. As to the comment by IACS, ca text to clarify differences between .15 and .16 has been included.

.16 effective means of communication is available;

**INTERTANKO**

From a design perspective, what do we mean with this? That we should have a remote operation station for the winches at the ship side? Or that there is a fixed communication system installed? Or? Whatever the intention is, we should be more specific.

**Italy**

The FR should be better clarified indicating “all personnel involved” as follow indicated

“.16 effective means of communication between all personnel involved is available;”

**IACS**

IACS proposes to amend .16 to say “**~~effective means of~~** communication is **~~available~~ not impaired**”. The provision for effective means of communication is not related to design and arrangement of mooring equipment addressed by 4.2., while limited machinery noise and unobstructed lines-of-sight are addressed by 5.1.3

**ICHCA**

At least “a minimum of two types of effective communication are available”

Coordinators remarks: It seems that this point deals with communication between master/pilot and supervision at mooring areas. A corresponding text has been included.

[.17 the ship is provided with appropriate information about the mooring arrangement and its intended use included in the Towing and arrangements plan;]

**INTERTANKO**

See a suggested wording in 4.2.1.bis above.

**Australia**

This is not a design or equipment arrangement issue, suggest delete. This can be placed in the Operational guidelines.

**IACS**

Item .17 is covered by MSC.1/Circ.1175, while the provisions in 5.2.7 may address more than this. Thus, propose to modify .17 to say “the ship is provided with appropriate information about the mooring arrangement**, equipment** and its intended use **~~included in the Towing and arrangements plan~~**”.

**ICHCA**

This is operational and can be removed to the separate guideline

**OCIMF**

OCIMF suggests the following text and removal of square brackets:

“the ship is provided with appropriate information about the mooring arrangement and its intended use during normal mooring operations and also includes Towing arrangement plans;”

Coordinators remarks: The suggested rewording by IACS seems to accommodate the provided comments.

.18 a mooring deck surface, which minimizes tripping and slipping hazards, is provided;

**Australia**

Weather conditions should be considered. Australia suggests:

“4.2.18 a mooring deck surface, which minimizes tripping and slipping hazards in all anticipated weather conditions, is provided;”

Coordinators comments: Text has been revised accordingly.

.19 additional stresses on mooring lines are avoided through careful deck layout; and

**INTERTANKO**

- It is suggested to add the following at the end as follows: “Mooring deck configuration should be arranged such that unnecessary stresses are not added to the mooring lines”.

- Unsure what we mean, but suspect that we do want lines to go straight from a lid to the winch, if so, consider rewording

**IACS**

IACS proposes to amend wording of .19 to say “**the mooring arrangement and equipment avoid** additional stresses on mooring lines **~~are avoided through careful deck layout~~**;”. Additional stresses should be clarified and means to achive this functional objective should be included in section 5. It should not be recommended to use auto-tension winches as this operation mode should not be applied in mooring under conditions approaching the design limits.

**OCIMF**

OCIMF suggests deletion as this is too broad and will be included within sections 4.2.2, 4.2.4, 4.2.9 or alternatively to utilize suggested wording:

“Ship shall have a management plan for mooring lines to monitor wear, loss of mooring line strength, and retire lines before failure”

**Japan**

In order to clearly distinguish chapter 4 “functional objectives” and chapter 5 “Achievement of the objectives”, Japan proposes to replace the text in paragraph 4.2.4 with “line handling is simplified;” taking into account paragraph 5.1.1. Japan further proposes to replace paragraph 4.2.19 with “overload of mooring winches and mooring lines are avoided through careful deck layout; and”, taking into account paragraph 5.2.5.

Coordinators remarks: The intent of this point was in its origin to prevent chafing and exceptional wear due to e.g. sharp bends, crossing of other mooring lines or inappropriate fairleads. A slightly revised text is proposed.

[.20 mooring equipment and lines can be properly maintained in good condition for its intended purpose.]

**INTERTANKO**

4.2.20 Suggested rewording

Winches, lines and all other mooring equipment are designed and chosen to allow for easy maintenance. (or what are we trying to achieve?)

From this point onwards, we will not give detailed comments on design vs. operation seeing the amount of work needed in the guidelines to take away the operational parts and focus on design. INTERTANKO suggests that the coordinators take on the job to do that rewording for round 2. Furthermore, for the operations parts taken out of these guidelines, consider moving those to the operations guidelines.

**Australia**

Australia suggests modified text below

“4.2.20 - Mooring equipment and lines should be designed and configured to allow necessary maintenance.”

**Republic of Korea**

It is related to maintenance. Therefore, it should be moved to “Guidelines on safety mooring operation”.

**IACS**

This should better be covered by the “Guidelines on safe mooring operations” or associated provisions should be included in 5. Otherwise .20 may be deleted.

Propose to group above list items as follows (including above proposals for combining and deleting items as well as for rewording)

.1 the mooring arrangement is appropriate for the specific ship type and its usual mooring configuration;

.2 the mooring arrangement minimize the need for complex mooring line configurations during the normal operation of the ship;

.3 the mooring arrangement provide unobstructed access to and operation of the mooring equipment and sufficient working space is present at the mooring decks;

.4 the mooring arrangements minimize the exposure of mooring personnel, including personnel monitoring lines and supervising the mooring deck, to the hazards associated with mooring lines under tension or dynamic load;

.5 the mooring arrangement avoids additional stresses on mooring lines;

.6 there is good visibility of the mooring deck for those taking part in the mooring operation;

.7 manual handling of mooring lines is reduced to an absolute minimum during mooring operations and never involves manual handling during load, heaving or ease situations;

.8 manual handling of mooring lines that may have detrimental impact on the occupational health of the involved personnel, e.g. manual handling of heavy mooring lines, is avoided;

.9 communication is not impaired;

.10 those involved in mooring operations are not at risk of tripping over, or being trapped or impacted by free lying mooring lines;

.11 a mooring deck surface, which minimizes tripping and slipping hazards, is provided;

.12 mooring lines are appropriate for the mooring equipment installed on board;

[.13 mooring equipment and lines can be properly maintained in good condition for its intended purpose;]

[.14 the ship is provided with appropriate information about the mooring arrangement, equipment and its intended use.]

**ICHCA**

This is operational and can be removed to the separate guideline

**OCIMF**

Square brackets can be removed

Coordinators remarks: Text has been reworded to make it functional based on the comments provided. As to the new structure proposed by IACS it is noted however a reshuffling seems premature at this stage where the content is still being considered.

ICG is invited to consider the revised text of section 4.

**5 Achievement of the objectives**

**China**

The proposal in 5 should be corresponding to the functional objectives. There are no corresponding functional objectives for “5.7~5.12”.

**ICS**

Section 5 on achieving the objectives should include all the appropriate specific rules and requirements necessary to support the achievement of the functional requirements. In line with the decisions taken at SDC 4, it may be appropriate to comprehensively revise this section to bring clarity, remove operational references (because these are design guidelines) and ensure that unrealistic requirements (particularly those which assume uniformity in mooring arrangements at berths) are revised. The proposal outlined below is a substantial review but it was felt necessary to assist in providing clarification of the intent that ICS is proposing. It is hoped that this contribution will be viewed as a constructive development of the existing text, on which it is based.

Coordinator: A corresponding proposal is attached as appendix 1.

**IACS**

Propose to amend heading to say “Design and Equipment”

Coordinators remarks: DSC 4 instructed the CG to base its work on annex 2 to document SDC 4/11, regarding the design of arrangements and selection of equipment for safe mooring. An instruction that has also been the starting point for the CG. As to the comprehensive work provided in parallel by ISC, this has - where feasible on design - been considered and included under the relevant paragraphs underneath;

Revised heading as proposed by IACS has been included.

CG is invited to consider the new heading proposed by IACS.

In order to meet the functional objectives, the following construction and equipment features should be considered.

**Australia**

The words “in order” is redundant and suggest delete to read

“To meet the functional objectives, the following construction and equipment features should be considered.”

IACS

IACS proposes to say “….**~~construction~~ design** and equipment features…”. “Design” is considered to be a more appropriate term than “Construction” here.

Coordinators remarks: Proposed amendments have been included. Also the proposed connection with MSC/Circ.[1175/[Rev.1] as propos by ICS has been included.

CG is invited to consider revised text.

**5.1 Construction**

**France**

France proposes to change the heading to “Arrangement”.

**IACS**

IACS proposes to amend heading to say “Design”

The provisions given under 5.1 and 5.2 should be revisited with a view to the question whether they correspond to the functional requirements as per section 4. However, the repetition of functional requirements in several places should be avoided.

Coordinators remarks: Taking into account the proposal by IACS for the heading of this section, the word "Design" seems more appropriate.

CG is invited to consider the new headline.

5.1.1 The mooring equipment is arranged to minimize the need for complex mooring line configurations during the normal operation of the ship. This should include the use of direct leads from the mooring winch to the fairlead, i.e. mooring arrangements involving a complex conveying of hawsers across deck by means of guide rollers (turtles), guide pulleys, bollards, fairleads should be avoided. Furthermore, the mooring arrangement should be so designed that there is [only] one dedicated fairlead for each mooring line on each side of the ship, if applicable.

**Vanuatu**

Regarding 5.1.1, only one dedicated fairlead per mooring line may not be practical on smaller vessels.

**Norway**

It may be impossible for small vessels (3000 +) to have one dedicated fairlead for each mooring line.

**China**

There is no need to repeat functional objectives in 5, like the first sentences in “5.1.1”, “5.1.5”, “5.1.6”, “5.1.7”, “5.2.5” and “5.2.7”.

**Republic of Korea**

It is difficult to apply for small ships. Again following sentence should be added to at the end of 4.1 “Alternative arrangement can be allowed by administration.”

**IACS**

It should be observed that for some ship types the omission of any guide rollers can have considerable impact on the design and, thus, it is proposed to amend the second sentence as follows: “…, i.e. mooring arrangements involving a complex conveying of hawsers across deck by means of guide rollers (turtles), guide pulleys, bollards, fairleads should be avoided **as far as reasonable possible**.” In the first sentence “is arranged” should be replaced by “should be arranged”. Propose to amend the last sentence to say “Furthermore, the mooring arrangement should be so designed that there is **ideally** one dedicated fairlead for each mooring line **or, if considered necessary, one dedicated fairlead for each mooring line** on each side of the ship**~~, if applicable~~**.”

**ICHCA**

Construction, as some of these requirements will be difficult (or impossible ) on small or special purpose ships do we need a paragraph to reflect that? i.e stating that alternative arrangements may be necessary but they should comply as closely as possible?

**OCIMF**

OCIMF suggests rewording for clarity and believes pedestal rollers is the correct term for turtles:

“The mooring equipment is arranged to minimize the need for complex mooring line configurations during the normal operation of the ship. This should include the use of direct leads from the mooring winch to the fairlead, i.e. mooring arrangements involving a complex mooring line lead across deck by means of guide rollers, pedestal rollers, guide pulleys, bollards, and fairleads should be avoided. Furthermore, the mooring arrangement should be so designed that there is one dedicated fairlead for each mooring line on each side of the ship, if applicable.”

Coordinators remarks: Proposed text has been included. This also accommodates the concerns raised for small-/special purpose built ships. As to the comment by China the first sentence has been modified accordingly.

CG is invited to consider revised text.

5.1.2 The position of the mooring deck and placing of fairleads should be planned with respect to the typical mooring pattern corresponding to type of ship and the berth configuration of the ports the ships is expected to call at. In this respect it should be possible to obtain a sufficient length of hawser line from the fairlead to the quayside bollard. Furthermore, the mooring deck should as far as foreseeable be arranged in respect to the vertical distance to the quayside in order to ensure an efficient pull towards the quayside.

**Norway**

It may be inappropriate to design ships according to specific berths (various ports of call, change of routes, new routes...).

**INTERTANKO**

Propose to delete.

**Republic of Korea**

It may be impossible to consider berth configuration at the design stage.

**IACS**

IACS proposes to amend the first sentence to say “The position of the mooring deck and **~~placing~~** of **the** fairleads should be planned with respect to the typical mooring pattern corresponding to **the** type of ship and **~~the~~ to** berth **~~configuration of the ports the ships is expected to call at~~** **configurations typically encountered by the type of ship**.” This would omit the implication of predicting ports of call, the latter being usually not possible in a ship design process.

**ICHCA**

It is going to be impossible to embrace the concept of “the ports the ship is expected to call at” and would leave this out. Also talking about lengths of “hawser” is introducing new terminology and lengths to quayside bollards change with the tidal range in many ports, would re-word this paragraph to:

“the position and arrangement of the mooring area and placing of mooring equipment should be planned with respect to the typical mooring pattern corresponding to the ship type and where possible, the expected type of facility the ship will be berthed at”

We also now need a definition of “mooring pattern” and if we make that “*mooring pattern means the location and type of mooring lines that will be used to keep the ship alongside the type of port facility it is moored to and will include the appropriate number and distribution of head, stern, breast and spring lines”* and include this in definitions above. If we do this then the intent of this paragraph is covered and the other wording is redundant.

**OCIMF**

OCIMF is of the view that this is purely a jetty design consideration and the vessel has minimal if any influence on the vertical lead to the dock. Suggested rewording for clarity.

“The position of the mooring deck and placing of fairleads should be planned with respect to the typical mooring pattern corresponding to type of ship and the berth configuration of the ports the ships is expected to call at. In this respect it should be possible to obtain a sufficient length of mooring line from the fairlead to the quayside bollard.”

Coordinators remarks: The text proposed by IACS has been included. This further seems to accommodate the comments received.

CG is invited to consider the revised text.

5.1.3 Effective means of communication (verbal, hand signals, radio, etc.) for both the shipboard and dockside mooring personnel shall be provided, and should not be impaired by machinery noise or obstructed lines-of-sight.

**IACS**

“Shall” should be replaced by “should”. Propose to amend 5.1.3 as effective means of communication are not related to design and arrangement of mooring equipment addressed by 4.2. 5.1.3 could better say “**~~Effective means of~~** Communication (verbal, hand signals, radio, etc.) for both the shipboard and dockside mooring personnel **~~shall be provided, and~~** should not be impaired by machinery noise or obstructed lines-of-sight.”

**ICHCA**

We are talking about “Construction” so why do we need to mention “verbal and handsignals” that should be in the other guidelines

Coordinators remarks: With the proposal by IACS this point focus on design. Further this amendment seems to accommodate the other comments.

CG is invited to consider the revised text.

5.1.4 The mooring deck should be arranged to give the crew the best possible view during mooring operations. This should involve that

**IACS**

Propose to amend the sentence to say “…to provide good visibility… “ instead of “…to give the crew the best possible view…”, also refer to proposed change to 4.2.7.

**OCIMF**

Addition of a safe location for clarity

The mooring deck should be arranged to give the crew a safe location and the best possible view during mooring operations. This should involve that:

Coordinators remarks: The core of this point is to provide as an appropriate view (oversight) of the working area. Visibility and safe location(s) seems misplaced here.

CG is invited to consider the revised text.

.1 the officer in charge has the ability to safely obtain an unobstructed view of the mooring deck as well as the berth arrangements planned to be used;

.2 the winch-operator has an unobstructed view of the mooring area involved;

**Japan**

Japan proposes to replace the term “mooring area” with “mooring deck” in paragraph 5.1.4.2, taking into account that the term “mooring area” is not defined in the Guidelines.

**OCIMF**

OCIMF suggests including personnel here – suggested text below

the winch-operator has an unobstructed view of the mooring area and personnel involved;

.3 mooring personnel, in general, have an unobstructed view of the mooring deck on which they are planned to operate; and

**Australia**

Australia suggests small modification as the word “expected” covers more areas than the word “planned”

“5.1.4.3 mooring personnel, in general, have an unobstructed view of the mooring deck on which they are expected to operate; and”

**IACS**

IACS proposes to amend .3 to say “mooring personnel, in general, have an unobstructed view of the mooring deck **area** **~~on~~** in which they are planned to operate;”

**ICHCA**

ICHCA proposes to replace “deck “ with “area “ and wherever this appears throughout the text, to avoid any confusion we could always add in a definition of *“mooring area includes a dedicated mooring deck or other part of the ship where mooring equipment is fitted”*

**OCIMF**

OCIMF suggests removal of the phrase ‘in general’. Revised text below:

“mooring personnel have an unobstructed view of the mooring deck on which they are planned to operate; and”

.4 adequate lighting is provided.

**Republic of Korea**

Details or more information are to be provided for adequate lighting (Ex. mooring operation Area, In way of Bollard: 00 lux, Access area: 00 lux)

Coordinators remarks: Provided comments has been included. As to the proposal by republic of Korea, it seems quite prescriptive, just as it would be difficult to cover all situations. Coordinator has included a general text to clarify the intent.

CG is invited to consider the revised text.

5.1.5 The mooring arrangement should be designed to provide adequate space for the crew to safely and effectively operate the equipment involved [not adversely affected by other] structural elements of the ship. This should include that mooring operations are not impeded by e.g. restricted space for the mooring operation due to ships' structural elements, accommodation, ventilation exhausts, cargo equipment or similar obstacles.

**China**

There is no need to repeat functional objectives in 5, like the first sentences in “5.1.1”, “5.1.5”, “5.1.6”, “5.1.7”, “5.2.5” and “5.2.7”.

**Australia**

Text inside square brackets doesn’t add any value and the second sentence explicitly says what it means, so rewrite as follows:

“5.1.5 The mooring arrangement should be designed to provide adequate space for the crew to safely and effectively operate the equipment involved. This should include that mooring operations are not impeded by e.g. restricted space for the mooring operation due to ships' structural elements, accommodation, ventilation exhausts, cargo equipment or similar obstacles.”

**Republic of Korea**

Details or more information are to be considered for adequate space (Ex. mooring operation Area, In way of Bollard:Min.000 mm, Access area:Min.000 mm)

**IACS**

It is proposed to delete “not adversely affected by other structural elements of the ship” in the first sentence. Propose also to give more detailed recommendations for adequate space (e.g. as taken from: The Swedish Maritime Administration’s regulations and general advice on safety arrangements and safety measures on board ships SJÖFS 2005:25, SFH 1.2.2.1)

* Personnel essential to the operation should as far as reasonably practicable be able to stand in a [protected]/[safe] position and allow people to avoid all ‘Snap-Back’ Zones.
* Where mooring lines are to be heaved on a drum end, it should be possible to station one person at the drum end. For heavy mooring lines and large vessel operations, there should be space for a second person backing and coiling down the slack.
* Throughout the operation, at each mooring station there should be sufficient space for a minimum of two people.
* Next to, or behind, bollards the clear space should be at least 0.4 metres. In front of the bollard or the place where a person works on securing or releasing, there should be a clear breadth of at least 1.2 metres.
* Space behind the winch head, i.e. the place where a person stands when casting, should be at least 2 metres. Alongside the winch head there should be a space of at least 1 metre.
* Next to the wire drum there should be a clear space with a breadth of at least 0.6 metres if the wire has to be rolled manually.

**ICHCA**

We have to be careful that we are not mixing up the terms used which are (as ICHCA proposes) clearly defined. This is something to check once we are further along the process but for example here we the text is using “mooring arrangement”

**OCIMF**

OCIMF suggests removal of square brackets

Coordinators remarks: Provided comments has been included. As proposed by IACS the "Swedish clarifications" as far as they deal with "space" has been included.

CG is invited to consider the revised text and the added text in square brackets.

5.1.6 The mooring arrangement should be so designed that the crew is at no stage exposed to lines under tension through snap back [or by sudden movements] of mooring lines. This could be established through e.g. short distances from mooring winch to fairlead, by placing the mooring winch directly before the fairlead, by enclosing the mooring line behind a barrier or through alternative design where crew members do not need to work close to or have to pass [mooring lines under tension or potentially under tension].

**Vanuatu**

Regarding 5.1.6, On smaller vessels with large deck areas for “customer” use, it may not be possible to have a mooring winch directly before the fairlead. Additionally, mooring winches are very uncommon at the side mooring bit locations on smaller vessels.

**China**

There is no need to repeat functional objectives in 5, like the first sentences in “5.1.1”, “5.1.5”, “5.1.6”, “5.1.7”, “5.2.5” and “5.2.7”.

**IACS**

It is noted that winches which are dedicated to pull in towing lines using the warping head and where the towing line is intended to be attached to a fitting located between the chock and the winch, it is not possible to locate the winch such close to the chock. For this case, it may be recommended to install dedicated capstans for pulling in a messenger line for a towing line.

The use of mooring lines with reduced recoil risk or snapback protection could be also an option mentioned here to mitigate the risk of the crew being exposed to the dynamic loads of breaking lines. See e.g. Cordage institute standard CI 1502.

**ICHCA**

ICHCA needs a qualifier “as far as is reasonably practicable”. Whilst it is no longer recommended that “Snap-back zones” are painted in a separate colour, there should be signage of some sort to remind personnel when they are entering one.

**OCIMF**

OCIMF suggest removal of square brackets

Coordinators remarks: The text has been revised, based on the received comments. As to the comment of marking snap-back zones it is the intent of these guidelines to prevent snap-back zones. Further it seems like a general understanding that such marking is not an appropriate tool. It is difficult to predict all mooring situations within the existing framework, and they may give a sometimes false perception of safety to the mooring personnel.

CG is invited to consider the revised text.

5.1.7 The mooring arrangement should be so designed that manual handling of towing and mooring lines is minimized. This could be accomplished through use of fixed/dedicated mooring lines, use of spooling equipment and by placing winches close to the ship side served.

**China**

There is no need to repeat functional objectives in 5, like the first sentences in “5.1.1”, “5.1.5”, “5.1.6”, “5.1.7”, “5.2.5” and “5.2.7”.

**Netherlands**

3rd line, delete “fixed” (mooring lines should be dedicated but not be fixed).

4th line after the word “winches close” add “to the fairleads of ship side served”.

**Japan**

In the second sentence of paragraph 5.1.7, the word “and” should be replaced with “or”.

**IACS**

The options to minimize manual handling are limited and the given solutions are vague. It is proposed to provide more specific means. Also propose to amend last sentence to say “This could be accomplished through use of fixed/dedicated mooring lines **on winches**, use of spooling equipment and by placing winches close to the ship side served.”

**ICHCA**

Remove the word “fixed”

Coordinator remarks: Text has been amended to accommodate the provided comments.

CG is invited to consider the revised text.

**5.2 Equipment**

**Vanuatu**

Regarding 5.2, this section is built assuming mooring winches are provided for all mooring lines “normally used”. This is not practical for smaller vessels, such as Offshore Support Vessels, as large as 4,000 GRT.

**IACS**

For provisions 5.2.7 to 5.2.12, no matching functional objectives can be found in 4. Propose to provide corresponding functional objectives in 4.

The provisions given under 5.1 and 5.2 should be revisited with a view to the question whether they correspond to the functional requirements as per section 4. However, the repetition of functional requirements in several places should be avoided.

**ICHCA**

Equipment should be “ Mooring Equipment”

Coordinators comments: CG is invited to provide functional comments on 5.2.7 to 5.2.12 and to consider including the text in square brackets.

5.2.1 A sufficient number of mooring winches should be installed so that, during normal mooring operations, manual use of winch drum ends, stoppers, capstans and bollards are minimized as far as possible.

**ICHCA**

A “bollard” is a shore side piece of equipment, use “bitts”

**OCIMF**

OCIMF suggests the following rewording:

“A sufficient number of mooring winches shall be installed to ensure vessel can be adequately secured at the jetty through the use of sufficient winch mounted lines with direct leads.”

Coordinators comments: CG is invited to consider the alternative wording by OCIMF.

5.2.2 Mooring winches should, as far as reasonably practical, be designed to prevent unsafe and unhealthy work situations through manual handling of mooring lines.

**Australia**

Australia suggests to delete the words “as far as reasonably practical” as this is very subjective:

“5.2.2 Mooring winches should be designed to prevent unsafe and unhealthy work situations by minimising manual handling of mooring lines.”

**IACS**

IACS proposes to amend 5.2.2 to say:

“As far as reasonably practical, mooring winches should be selected that are designed to prevent unsafe and unhealthy work situations through manual handling of mooring lines.”

**OCIMF**

OCIMF suggests removal of unhealthy – revised text as follows:

“Mooring winches should, as far as reasonably practical, be designed to prevent unsafe work situations through manual handling of mooring lines.”

Coordinators remarks: The proposal from IACS seems to clarify the intent (selection) and combine the three proposals.

CG is invited to consider revised text.

5.2.3 Mooring winches should be designed to ensure flexibility during exceptional mooring operations, e.g.

.1 a sufficient number of winch drum ends/capstans, bollards and fittings related to mooring should be available on each mooring deck; and

.2 additional (loose) mooring lines should be stored close to and easily accessible to the winch drum/bollard where they are expected to be used.

**Japan**

Japan is concerned about the practicality of the requirement in paragraph 5.2.3.2 in the case that a winch is located around midship. In the case that mooring winch is located between cargo hatches in way of cargo hold of bulk carrier, the provision of store for additional mooring lines near the winch is not practical. Japan proposes to replace paragraph 5.2.3 with the following text:

“5.2.3 Mooring winches should be designed to ensure flexibility during exceptional mooring operations, e.g. a sufficient number of winch drum ends/capstans, bollards and fittings related to mooring are available on each mooring deck.”

**IACS**

IACS proposes to amend first paragraph of 5.2.3 to say “The mooring **~~winches~~ arrangement** should be designed to ensure flexibility during exceptional mooring operations, e.g.”

**OCIMF**

OCIMF suggests additional text to this paragraph as follows:

“Additional (loose) mooring lines should be stored close to and easily accessible to the winch drum/bollard where they are expected to be used. Storage provided should minimize the exposure to harmful environments (eg: water, chemical, cargo, extreme temperature).”

Coordinators remarks: CG is invited to consider deletion of .2 and the addition of new .3.

5.2.4 Mooring winches should be so designed that minimal manual handling of mooring lines is needed, e.g. if split-drum type mooring winches are fitted, the layout should be designed to avoid any requirement for manual intervention in transfer of the mooring line from storage drum to winch drum and vice versa.

**INTERTANKO**

Even winches without split drums may need manual handling, consider changing accordingly.

**Japan**

Japan proposes to delete the text in paragraph 5.2.4 for the reason that the requirement may be impractical. Japan does not know whether there is an appropriate split drum type winch for transferring a mooring line from storage drum to winch drum (tension drum), and vice versa, without manual intervention.

**IACS**

This should be merged with 5.2.2 as it addresses also manual handling at winches.

**OCIMF**

OCIMF suggests reduce rather than avoid. Suggested text as follows:

“Mooring winches should be so designed that minimal manual handling of mooring lines is needed, e.g. if split-drum type mooring winches are fitted, the layout should be designed to reduce the requirement for manual intervention in transfer of the mooring line from storage drum to winch drum and vice versa.”

Coordinators remarks: As proposed by IACS text has been moved to 5.2.2. Further the word "prevent" have been included instead of avoid.

CG is invited to consider the revised text (now) included in 5.2.2.

5.2.5 The mooring arrangement should be designed to avoid overload on mooring winches and mooring lines. In order to achieve this, considerations should be given to fit/adjust mooring winches with brake capacity of less than the minimum breaking load of the mooring line, mooring lines with integrated high stress indicators or mooring winches which monitor the stress load on the equipment and the mooring lines.

**China**

There is no need to repeat functional objectives in 5, like the first sentences in “5.1.1”, “5.1.5”, “5.1.6”, “5.1.7”, “5.2.5” and “5.2.7”.

**INTERTANKO**

This point should be adjusted to the discussions in OCIMFs Mooring Equipment Guidelines. Knowing OCIMF are part of the CG, it would be good if they could come up with a suitable wording here.

**Japan**

In the first sentence of paragraph 5.2.5, Japan proposes to add the words “, outfittings such as chock, fairlead and stand roller,” after the term “mooring winches”, because overload is relevant not only to winches but also outfittings.

**IACS**

For the case of mooring winches with brake capacity adjustable to a value of less than the minimum breaking load of the mooring line, it should be recommended to fit winches with brakes that can reliably set to a certain brake holding capacity. In order to ensure the functionality of the winch system an appropriate inspection and maintenance plan should be developed.

**OCIMF**

OCIMF believes that the term MBL needs additional clarification and mooring lines are actually based on a specific breaking force, not just a minimum breaking load (MBL). Industry guidance MEG4 by OCIMF will provide greater clarification on this. Suggested text below:

“The mooring arrangement should be designed to avoid overload on mooring winches and mooring lines. In order to achieve this, considerations should be given to fit/adjust mooring winches with brake capacity less than the Line Design Break Force of the mooring line, mooring lines with integrated high stress indicators or mooring winches which monitor the stress load on the mooring lines.”

Coordinators remarks: Text has been revised as proposed.

CG is invited to consider the revised text.

5.2.6 The mooring arrangement should be designed such that the bearing surface of the fairlead structure and mooring line prevents chafing.

**IACS**

It is not fully understood what is meant here. Propose to amend 5.2.6 to say “The mooring **equipment and** arrangement should be designed such that **~~the bearing surface of the fairlead structure and~~** **chafing of the** mooring line **~~prevents chafing~~ at fairleads or chocks is prevented. This may be achieved by suitable line leads and sufficient large radii of bearing surfaces at chocks and fairleads.**”

**OCIMF**

Suggested revision for clarity:

“The mooring arrangement should be designed such that the contact surface of the fairlead and mooring line minimizes chafing.”

Coordinators remark: Text has been modified as proposed.

CG is invited to consider revised text.

5.2.7 The mooring winches and the dedicated mooring lines should at all times be compatible in e.g. design, diameter, strength and suitability, and maintained with the original purpose and concept of the mooring arrangement. This should be established through the mooring manual (which may be part of the SMS) which informs upon

**China**

There is no need to repeat functional objectives in 5, like the first sentences in “5.1.1”, “5.1.5”, “5.1.6”, “5.1.7”, “5.2.5” and “5.2.7”.

**INTERTANKO**

Needs rewording to focus only on design not operation. If we discuss documentation, it’s what the shipyard needs to deliver. For operation, we are writing other guidelines.

Coordinators remarks: It is difficult to accommodate the comment by INTERTANKO. This part is about maintaining the original mooring arrangement concept in particular, that when taking new equipment e.g. mooring lines into use, they still remain within the original concept. In this respect it is not obvious which parts can be qualified as design and which as operation. As to referencing to [MSC.1/Circ.1175.Rev1], this seems like the correct way to proceed i.e. to refer to an existing instrument.

CG is invited to consider the preferred alternative.

.1 a mooring arrangement plan or other means of information about the mooring equipment (i.e. numbers and location of winches, pedestal leads, fair leads and rollers);

.2 the mooring winches installed, design limitations and safe working loads;

.3 the appropriate mooring lines, including tails, and connecting apparatus to be used and the planned operating parameters/maximum permissible loads;

.4 the planned mooring arrangement, including the most appropriate lead of mooring lines in the most common mooring operations;

**OCIMF**

OCIMF suggests rewording for clarity:

“the planned mooring arrangement, including the most appropriate lead of mooring lines and common mooring operations;”

.5 relevant mooring procedures on the specific ship, including potential snap-back risk areas across the mooring deck; and

**IACS**

IACS proposes that “procedures” are not addressed here as this should be part of the operation and, thus, included in the “Guidelines on safe mooring operations”.

.6 proper maintenance and inspection of the mooring arrangement, including parameters on the identification and handling of worn-out mooring lines. The frequency of inspection and maintenance should be based on the manufacturer's recommendations, the conditions the equipment is exposed to and the frequency of use, so as to ensure that excessive wear or damage is identified prior to failure and the equipment remains fit for purpose.

**Italy**

We are of the view that this section should be compaired with the existing classification societies rules for “Shipboard fittings and supporting hull structures” where, for all vessels built on or after 1 January 2008”, a **Towing and mooring arrangement plan** is required. For the above we deem necessary to avoid a duplication of information if it already exists in the other controlled form. (see also Section 5 of the **Draft revised annex to MSC.1/Circ.1175**).

**IACS**

IACS proposes to amend first sentence of .6 to say “proper maintenance and inspection of the mooring **~~arranagement~~ equipment**, …”.

Item .6 of the listing should be moved to the “Guidelines on safe mooring operations”. Here it may be referred to those Guidelines. For all information given by the above listing but already contained in the mooring and towing arrangement plan as required by MSC.1/Circ.1175 it should be referred to those Guidelines.

**OCIMF**

OCIMF suggests rewording as follows:

“proper maintenance and inspection of the mooring system, including parameters on the condition monitoring and retirement of mooring lines before mooring line failure. The frequency of inspection and maintenance should be based on the manufacturer's recommendations, ship operator experiences, the conditions the equipment is exposed to and the frequency of use, so as to ensure that excessive wear or damage is identified prior to failure and the equipment remains fit for purpose.”

Coordinators remarks: The bulk of paragraph 5.2.7 is operational in its nature and should be moved to the Guidelines on safe mooring operations. Also the reference to the Towing and mooring arrangement plan seems covered by [MSC.1/Circ.1175.Rev.1]. Accordingly this paragraph could be amended accordingly.

CG is invited to consider which parts of the current text in .1 to .6. would be covered by [MSC.1/Circ.1175.Rev.1] and which should be moved to the Guidelines on safe mooring operations.

5.2.8 Consideration should be given to control and certification of mooring ropes, wires, tails and associated attachments. Manufacturer's test certificates for mooring lines, joining shackles and synthetic tails should be kept in a file or with the mooring manual, clearly showing to which winch each particular component has been fitted.

**INTERTANKO**

Needs rewording to focus only on design not operation. If we discuss documentation, it’s what the shipyard needs to deliver. For operation, we are writing other guidelines.

**Italy**

We are of the opinion to identify clearly which type of certificates need, in consultation with IACS in way to insert the list in the ship’s documents.

**OCIMF**

OCIMF suggests removal of the word “test”.

Coordinators remarks: Text has been revised to accommodate the remark by INTERTANKO.

CG is invited to approve the revised text.

5.2.9 As far as possible, mooring lines of the same size and type (i.e. material) should be used for all leads, but at least for lines in the same service, e.g. headlines, breastlines, springs.

**France**

France proposes to change the text to: “As far as possible, but at least for lines in the same service, (e.g. headlines, breastlines, springs), mooring lines of the same size and type (i.e. material) should be used for all leads.”

**INTERTANKO**

Consider taking away the word headlines. Effective mooring is best achieved using springs and breast lines only. See 5.2.12.

**Italy**

We are of the view that in the paragraph should be taking into account the requirements already existing in the classification societies rules about the size (e.g. length) of the towing and mooring lines that could differs between ship’s type (e.g. ro-ro cargo ship; ro-ro passenger ship and cruise ships).

**Japan**

To clarify the requirement in paragraph 5.2.9, Japan proposes to replace “size and type (i.e. material)” with “diameter and type (e.g. material)”. Japan further proposes to delete the term “for all leads”.

**OCIMF**

For clarity an additional phrase at the beginning is suggested:

“Unless a [safety assessment] [hazard identification] has been conducted; As far as possible, mooring lines of the same size and type (i.e. material) should be used for all leads, but at least for lines in the same service, e.g. headlines, breastlines, springs.”

Coordinators remarks: Text has been revised to accommodate the received comments.

CG is invited to agree to the revised text.

5.2.10 Mooring lines should as far as possible be arranged so that all lines in the same service are about the same length between the ship and the shore bollard.

**Vanuatu**

Regarding 5.2.10, same length lines is not practical for smaller vessels operating out of congested ports.

**INTERTANKO**

Needs rewording to focus only on design not operation. If we discuss documentation, it’s what the shipyard needs to deliver. For operation, we are writing other guidelines.

**Republic of Korea**

It is related to operation. Therefore, it should be moved to “Guidelines on safety mooring operation.

**Italy**

We have some concerns on how can this be achieved considering the different position of the ship at the berth and that the distance between the bollards is not always standard.

**ICHCA**

This is difficult in practice and would suggest deleting, plus this is operational anyway

**OCIMF**

Remove the word “all” from this paragraph.

Coordinators remarks: CG is invited to consider if this point should be moved to the Guidelines on safe mooring operations.

5.2.11 No extra weight should be attached to the heaving lines for any reason.

**INTERTANKO**

Is this design?

**Japan**

In paragraph 5.2.11, the meaning of “no extra weight” should be more clarified. Japan proposes to replace “no extra weight” with “no extra weight other than monkey-fists”.

**IACS**

This seems to be more an operational issue and may be shifted to the “Guidelines on safe mooring operations”.

**OCIMF**

Repeat that whilst this is valid and true, it is operational and not design, thus should not be in this document. There is however a valid place for it in Annex 5

Coordinators remarks: CG is invited to consider if this point should be moved to the Guidelines on safe mooring operations.

[5.2.12 Breast lines provide the maximum transverse restraint and spring lines the maximum longitudinal restraint against vessel movement in athwart and in fore-aft direction, respectively. Head and stern lines are much less effective for these purposes. The applied mooring layout should follow these principles, as far as possible with respect to the port facilities and as far as reasonable with respect to the vertical line angles.]

**Vanuatu**

Regarding 5.2.12, the use of head and stern lines is often dictated by availability, or lack thereof of shore side bollards, and the position of outer vessels along the dock.

**INTERTANKO**

Consider adding a new point on how establish what mooring lines to buy for a new built ship (suggest OCIMF propose a wording following the work on MEG4)

**IACS**

If kept, propose to amend the last sentence to say “The applied mooring layout should follow these principles, as far as possible with respect to **~~the~~** port facilities **typically encountered by the considered ship type** **~~and as far as reasonable with respect to the vertical line angles~~**.”

**ICHCA**

Many ship/port configurations exclude the use of breast lines, so whilst the intent is good in this paragraph surely this is also operational and should be moved to the other guidelines

**OCIMF**

Although this is a true statement there is no guidance to the reader on the vertical angle requirements. OCIMF suggest this is deleted here, but be included in MSC.1/Circ.1175 at Annex A.3.1.1. Additionally, the guidelines could steer the reader to industry best practice (e.g. MEG)

Coordinators remarks: Text has been modified as proposed.

CG is invited to agree to the amended text and consider if it should be kept in this guideline.

**6 Preferred techniques (for different system components]**

**Norway**

This chapter implies that a risk assessment is a preferred technique.

The idea of risk assessment at the design stage is still present through this chapter.

Independent competent person is not defined.

Common international standard is not defined; there are many, and they vary a lot.

We would prefer to delete this part based on the discussions at SDC 4. The guidelines gives a standard. A risk assessment can be an optional solution, but “cherry-picking” issues to be considered in a risk assessment is not helpful. There are a number of perfectly good risk assessment tools well known to those who carry out such assessments and they will need to look at the functional requirements.

**China**

Paragraph 6 should be deleted.

**INTERTANKO**

INTERTANKO is of the view that we should use the Goal based approach and not the risk based approach. This goal based approach is followed in the in the first five sections. Thus, this chapter should be reworded in a goal based/functional requirement structure to follow the structure of the document as a whole.

**ICS**

Section 6 still refers to a form of risk assessment and therefore should be deleted in full, taking into account the decisions made at SDC 4. Definitions relating to risk assessment should also be deleted from the “Definitions” section. If a risk assessment of mooring arrangement is required then it should be done now, by interested Member States and international organizations.

**Japan**

In the heading of chapter 6, the term “different system components” is vague and should be clarified. Japan proposes to replace the title of this chapter with “Alternative arrangement not complying with the requirements in section 5”.

**ICHCA**

ICHCA understood it was agreed to remove reference to risk assessment etc so this whole section should be deleted

**United States**

Delete this section.

Coordinators remarks: In general it seems that those that commented prefer that this section is deleted.

In order to still recognize the provided comments of substance, they have been addressed in the amended draft, however not commented in detail.

CG is invited to consider deleting (the entire) paragraph 6.

6.1 The complete mooring arrangement should be planned at the early design phase in order to identify risks and unhealthy work situations to those involved in the mooring operation. This should include a study of the interface and effectiveness of the ships mooring equipment and the anticipated shore mooring equipment that the ship may encounter. This should describe shore mooring capability, environmental operational windows and an analysis of external loads that can be reasonably anticipated, such as the load exerted by passing ships, weather, sea and current.

**IACS**

To clarify and simplify wording, propose to amend the last two sentences to say “This should include a study of the interface **~~and effectiveness~~** of the ships mooring equipment and the anticipated shore mooring equipment that the ship may encounter **with respect to its effectiveness**. **Furthermore,** this should **~~describe shore mooring capability, environmental operational windows and~~ include** an analysis of external loads that can be reasonably anticipated, such as the load exerted by **~~passing ships, weather, sea and current~~** **wind, current, sea, and passing ships**”.

**OCIMF**

OCIMF suggested rewording as follows to remove unhealthy:

“The complete mooring arrangement should be planned at the early design phase in order to identify occupational health and safety risks to those involved in the mooring operation. This should include a study of the interface and effectiveness of the ships mooring system and the anticipated shore mooring equipment that the ship may encounter. This should describe shore mooring capability, environmental operating windows and an analysis of external loads that can be reasonably anticipated, such as the load exerted by passing ships, weather, sea and current.”

6.2 Risks of injury and occupational health should be identified and assessed and measures should be initiated to eliminate or minimize risks through appropriate design solutions and by use of appropriate equipment. This process should be based on a hazard identification exercise and should be finalized well ahead of planned construction.

**OCIMF**

As the guidance speaks primarily to ‘design’ of ‘new’ vessels, initiating measures seems too passive for addressing identified risks, as they should be designed in. Suggested rewording as follows:

“Risks of injury and occupational health should be identified and assessed and measures should be initiated to eliminate or minimize risks through appropriate design solutions and by use of appropriate equipment. This process should be based on a hazard identification exercise and should be finalized before planned construction.”

6.3 As a tool to ensure that the functional objectives reflected in section 5 are identified and that the risks of the planned mooring arrangement are mitigated in accordance with the aims of paragraphs 6.1 and 6.2, a corresponding assessment should be applied.

**IACS**

It is anticipated that it should be referred to 4 instead of 5.

**OCIMF**

OCIMF suggested rewording as follows:

“As a tool to ensure that the functional objectives reflected in section 5 are identified and that the risks of the planned mooring arrangement are mitigated in accordance with the aims of paragraphs 6.1 and 6.2, a corresponding safety assessment should be conducted and, validated by an independent competent person(s)”

6.4 A representative range of assessments should be developed covering relevant mooring patterns with emphasis on all major risk contributors. As a minimum all mooring decks and equipment should be addressed at design level.

6.5 Involved areas/items should be identified and assessed for the dedicated systems. The assessment should for example include

**IACS**

IACS proposes to amend sentence to say “Involved areas/items should be **analyzed ~~identified and assessed for the dedicated systems. The assessment should~~** for example **~~include~~** including

.1 operation, activity, equipment or component under consideration;

.2 aspect under consideration;

.3 significant hazards;

.4 “Who is at risk?”;

[.5 the port/terminal side of the operations; and

.6 reviews upon change in equipment circumstances.]

**IACS**

Item .6 is unclear

**OCIMF**

Since the text states “for example” OCIMF suggest adding “but not limited to” prior to the sub sections. The square brackets on .5 and .6 can be removed. OCIMF suggests .6 is slightly rephrased as follows:

“reviews upon management of change in equipment circumstances.”

6.6 The second part of the assessment is to establish the actions needed to lower identified unacceptable risks. This part should for example include the following

**OCIMF**

OCIMF suggested rewording as follows:

“The second part of the assessment is to establish the actions needed to reduce identified risks to acceptable parameters. This part should for example include the following:”

.1 mitigation measure(s) taken by designer;

.2 effectiveness of the measures to eliminate the risk;

.3 description of action taken;

.4 reason why action was not taken at a higher mitigation/elimination level;

**OCIMF**

OCIMF suggested additional phrase to this paragraph as follows:

“reason why action was not taken at a higher mitigation/elimination level, and approval authority to allow work to proceed;”

.5 recommendations which may be used in conjunction with mitigating measures;

.6 notes to assist the recipient in further reducing the residual hazard risk; and

.7 reference to standard(s) and legislation.

**OCIMF**

Believe that addition of industry guidance would be beneficial as follows:

“reference to standard(s), industry guidance, and legislation.”

6.7 The risk assessment figure should be evaluated by an independent competent person. The evaluation should be made in connection with the authority approval of the mooring arrangement, thus ensuring an acceptable level of risk.

**Republic of Korea**

It seems that the risk assessment is still required. Therefore, it should be deleted according to the result of SDC 4.

6.8 The acceptable level of risk of hazard should be established taking into account common international standards. The approval of the assessment must reflect the common risk assessment or a set of individual minimum criteria related to unsafe situations with a high level of likelihood combined with a major or serious level of severity.

**Republic of Korea**

It seems that the risk assessment is still required. Therefore, it should be deleted according to the result of SDC 4.

**Italy**

At the end we are of the view to insert the paragraph related to the “training” of the ship’s Master and Officers for the towing and mooring operations. Actually such “competence” is clear existing only for Deck Able Seafarers qualified under Reg.II/5 of the STCW’s 78, as amended and Table A-II/5 of the Code, as amended. For the above the Reg.II/1 and II/2 of the STCW’s 78, and Table A-II/1 and A-II/2 of the Code should be further developed accordingly.

Draft text to new proposed:

***“Training***

*7 The master, officers, ratings and other personnel on ship involved in the towing and mooring operations shall be trained and qualified in accordance to the Reg. II/1[[1]](#footnote-1), II/2[[2]](#footnote-2) and II/5 of the STCW Convention and Section A-II/1, A-II/2 and A-II/5 of the STCW Code taking into account the specific hazardous of the methyl/ethyl alcohol used as fuel.”*

**OCIMF**

Industry guidance added again as follows:

“The acceptable level of risk of hazard should be established taking into account common international standards and industry guidance. The approval of the assessment must reflect the common risk assessment or a set of individual minimum criteria related to unsafe situations with a high level of likelihood combined with a major or serious level of severity.”

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**APPENDIX 1: Proposal for a new section 5 by ICS**

“**5.1 Design of equipment and fittings arrangements**

The guidance in this section on design of equipment and fittings arrangements should be read in conjunctions with the [Revised] guidance on shipboard towing and mooring equipment (MSC/Circ.[1175/[Rev.1]]), with particular reference to the distribution of load and the symmetrical arrangement of mooring lines.

5.1.2 The design of equipment and fittings arrangements on mooring decks should be addressed at an early stage in the design process taking into account the following constraints

.1 mooring deck space, given the size and purpose of the ship;

.2 variation in shore-based mooring arrangements and the need to preserve flexibility in mooring line configurations to achieve an appropriate restraining capacity;

.3 ships' structural elements, including accommodation, ventilation exhausts, cargo equipment or similar obstacles, on access; and

.4 […]

5.1.3 When developing an appropriate design for the arrangement of equipment and fittings on mooring decks, the following considerations should be amongst those taken into account

.1 Within the constraints imposed by the size and purpose of the ship, equipment and fittings on mooring decks should be positioned in order to provide mooring personnel with unobstructed access to the following during mooring operations

.1 mooring winches and winch controls;

.2 fittings necessary to achieve an appropriate mooring line configuration;

.3 [emergency equipment];

.4 mooring lines and mooring line stowages; and

.5 […]

.2 Mooring winch controls should be positioned so that the winch operator has a direct view of the line being worked without stepping away from the winch controls. So far as possible, winch controls should be positioned [clear of hazards][…].

.3 To minimize the need for complex mooring line configurations during the normal operation of the ship, mooring winches and fairleads should be positioned in order to permit the use of direct, unobstructed leads from the mooring winch to the fairlead for each of the mooring lines described in the Mooring arrangement plan. Where a straight lead is not possible, the deviation from a straight lead, should be by means of pedestal fairleads [only]. Deviations from a straight lead should not be more than […]o degrees;

.4 To provide for the oversight and supervision of the mooring operations, including the operation of mooring equipment and the handling of mooring lines, the mooring deck should be arranged to give supervising personnel an unobstructed view of the mooring equipment and fittings installed on the mooring deck. This should include the provision of

.1 a platform, or other appropriate means, by which supervising personnel can obtain an unobstructed view of the mooring deck from a position clear of hazards;

.2 deck illumination which allows a clear view of the mooring deck and the equipment and lines being worked during hours of darkness or in conditions of limited visibility; and

.3 […]

.5 In order to reduce the exposure of shipboard personnel to the dynamic forces of mooring lines under tension or in the event of mooring line failure (snap-back), the design of equipment and fitting arrangements should

.1 locate, so far as possible, winches close to shipside fairleads. The positioning of winches should be such that the distance between shipside fairleads and winches is at least [1.8m] to permit mooring personnel to safely apply stoppers to mooring lines when necessary. However, the position of winches should not result in inappropriate mooring line orientations, or block or otherwise interfere with the use of shipside fairleads for additional mooring lines, connecting up of tugs for towage during mooring operations or the ability to safely moor the ship in exceptional conditions; or

.2 consider the use of enclosures for mooring lines to protect mooring personnel, provided that such enclosures do not adversely affect the performance of the mooring system and do not prevent effective inspection and maintenance of equipment, fittings and mooring lines; or

.3 consider the use of appropriate, alternative means to moor the ship, including but not limited to automated mooring systems; or

.4 […]

.6 In order to minimize the need for manual handling of towing and mooring lines, equipment and fitting arrangements should minimize the distance over which any mooring line may need to be handled and, where compatible with the operation of the ship, have equipment or fittings arranged to enable the use of fixed or dedicated mooring lines. The use of fixed or dedicated mooring lines should be carefully considered, taking into account the need to avoid inappropriate mooring line orientations, or block or otherwise interfere with the use of shipside fairleads for additional mooring lines, connecting up of tugs for towage during mooring operations or the ability to safely moor the ship in exceptional conditions;

.7 In order to allow for the need to connect up tugs during mooring operations and ensure flexibility to moor the ship securely during exceptional mooring operations

.1 a sufficient number of mooring winches, fairleads, bollards and other fittings should be available on each mooring deck to allow for flexibility in mooring line configurations; and

.2 additional mooring lines should be stored in the immediate vicinity of mooring winches, provided that such stowage does not interfere with the safe operation of the winch.

.8 Fittings, particularly shipside fairleads, should be positioned so as to minimize the potential for chaffing of mooring lines during the normal operation of the ship.

5.1.3 The design of arrangement of equipment and fittings on mooring decks should take into account the principles for effective mooring arrangements included in appropriate industry guidance on mooring equipment and fittings.

**5.2 Selection of equipment [and][,] fittings [and mooring lines]**

5.2.1 Selection of equipment, fittings and mooring lines should not be undertaken independently. In order to facilitate safe mooring operations it is necessary for mooring equipment, fittings and mooring lines to be considered as a complete system within which all components are compatible.

5.2.2 The guidance in this section on selection of equipment [and][,] fittings [and mooring lines] should be read in conjunctions with the [Revised] guidance on shipboard towing and mooring equipment (MSC/Circ.[1175/[Rev.1]]).

5.2.3 The selection of winches should take into account

.1 the availability of winches with alternative drum arrangements, including split drum arrangements, which can reduce the need for manual handling of mooring lines during mooring operations;

.2 the positioning of winch controls, including the availability of remote controls for winches;

.3 the availability of constant tension winches, and the appropriateness of these winches for the normal operation of the ship; and

.4 […]

5.2.4 The selection of fittings should take into account

.1 the need to provide fittings which are compatible with the mooring lines that are anticipated to be used during the normal operation of the ship;

.2 the need for bearing surface of fittings to prevents chafing; and

.3 […]

5.2.5 The selection of mooring lines should take into account

.1 the compatibility of the MBL of mooring lines and the brake capacity of the mooring winches installed on board;

.2 the characteristics and limitations of alternative mooring line materials and designs, including anticipated behavior in the event of mooring line failure;

.3 the influence of the use of tails on the characteristics of mooring lines, particularly in the event of a mooring line failure;

.4 the appropriateness of the mooring line material for the environmental conditions anticipated during the normal operation of the ship; and

.5 […]

5.2.6 The design of arrangement of equipment and fittings on mooring decks should take into account the principles for effective mooring arrangements included in appropriate industry guidance on mooring equipment and fittings.

**5.3 Maintenance and inspection of equipment [and][,] fittings [and mooring lines]**

5.3.1 Equipment [and][,] fittings [and mooring lines] should be properly maintained and inspected, based on the manufacturer's recommendations, the conditions the equipment is exposed to and the frequency of use, so as to ensure that excessive wear or damage, particularly to mooring lines is identified and rectified to prevent failure during mooring operations.

5.3.2 Consideration should be given to control and certification of mooring lines, wires, tails and associated attachments. Manufacturer's test certificates for mooring lines, joining shackles and synthetic tails should be kept onboard.

5.3.3 Maintenance should include the preservation, by appropriate means, of the clear marking of information on equipment and fittings, including SWL and winch control instructions.

5.3.4 Records of maintenance and inspection of equipment [and][,] fittings [and mooring lines] should be available on board.

*------------------------------------*

1. Should be developed as already done for Reg.II/5 of the STCW’s 78, as amended; [↑](#footnote-ref-1)
2. Should be developed as already done for Reg.II/5 of the STCW’s 78, as amended; [↑](#footnote-ref-2)