



MARITIME SAFETY COMMITTEE
84th session
Agenda item 5

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GOAL-BASED NEW SHIP CONSTRUCTION STANDARDS

Report of the Working Group on Goal-Based Standards at MSC 83 (Part 2)

Submitted by the Chairman of the Working Group

SUMMARY

Executive summary: The document briefly reports on the discussions of the GBS Working Group at MSC 83 on the draft Guidelines for the verification of compliance with GBS and contains in the annex a list of detailed comments made during the work of the group

Action to be taken: Paragraph 3

Related documents: MSC 83/28, section 5; and MSC 83/WP.5

1 At MSC 83, the GBS Working Group discussed in general Part B of the draft Guidelines for the verification of compliance with GBS, as prepared by the Pilot Panel (MSC 83/5/2, annex 2), including the appropriate level of detail, possible inclusion of functional requirements in Tier III, potential conflicts between information and documentation requirements and evaluation criteria and flexibility of the evaluation criteria and process. The group agreed that the Pilot Panel needed to refine the Guidelines prior to conducting the second trial application, based on relevant documents submitted to this session, as well as comments made in the working group, and included appropriate terms of reference in the project plan (MSC 83/28, annex 5). The group further agreed to include detailed comments on Part B of the draft Guidelines made by the group in Part 2 of this report, to be issued immediately after MSC 83 and taken into account by the Pilot Panel when finalizing the draft Guidelines.

2 Consequently, the group agreed on the list of comments set out in the annex for the Pilot Panel to consider when refining the Tier III verification guidelines, Part B, including specific examples where the current draft of the guidelines: includes functional requirements that belong in Tier II; includes evaluation criteria that preclude the consideration of alternatives or hinder the development of new technology and concepts; contains conflicts between the information and documentation requirements, evaluation criteria and functional requirements; and contains insufficient flexibility to allow the Group of Experts to exercise judgement during the evaluation process. Comments regarding other technical considerations have also been included in the list.

Action requested of the Committee

3 The Committee is invited to note the list of detailed comments on the Tier III verification guidelines set out in the annex to this document, bearing in mind that they have been taken into account by the Pilot Panel when finalizing the guidelines.

ANNEX

DETAILED DISCUSSION OF THE GBS WG AT MSC 83 ON PART B OF THE DRAFT TIER III VERIFICATION GUIDELINES

General

- Is scientific commentary/data required to be in the rules, or is it sufficient for it to be contained in the rule commentary or other related document?
- Not clear that the answers to all the evaluation criteria can be yes at all times.
- Is it possible to avoid the use of vague phrases such as ‘properly applied’, ‘adequate’, ‘sufficient’, ‘reasonable’, etc? Are these expressions needed to provide flexibility to the Group of Experts?
- Need to be aware of consistencies in approach and assumptions throughout entire rule set (e.g. corrosion allowance as compared to net scantlings)
- Should try to avoid the use of the word “ensure” throughout the text, considering that the Rules do not ensure, they require
- Consider the use of the evaluation criteria used in Tier III.14.c.1 in other areas where there are relevant international convention requirements.

III.1 – Design Life

No comments.

III.2 – Environmental Conditions

- c.1: sea state data comes from measurement – unclear of the need to benchmark
- c.3 and 4: design extreme values and probable extreme loads should be reconsidered in light of document by Argentina and Spain (MSC 83/5/13)

III.3 – Structural Strength

- b & c: Concerned about the term ‘tertiary’; it is listed throughout both sections in both information/documentation requirements and evaluation criteria; methodology to calculate tertiary stresses exceeds current state of the art; no established acceptance criteria for tertiary stress (b.6, c.7) (i.e. specific criteria for very specific problem)
- b.1: consider whether subparagraphs .4 and .11 need to be rationalized or combined
- b.1.4: the term ‘deflection’ should be replaced with ‘excessive deformation’ since the deflection may be allowed to give some design flexibility in the integrity of ship’s structure
- b.11: no mention in Tier II regarding vibration levels; what is the linkage?
- c.2: is this question also relevant to other headings i.e. fatigue life?
- c.3: does the term ‘consistently applied’ apply to the Rules or the process of ensuring compliance?
- c.6: some tank vessels have barred filling heights, either for higher specific gravity or sloshing; therefore, if the answer to the question is no, then the Rules should clearly state that the operators are aware of the barred range
- c.6.1: this is an example of a functional requirement, and could even be considered a SOLAS requirement

- c.6.1: could eliminate questions if referred to all predicted conditions of loading and ballasting?
- c.7: requirement understood as requesting FEA; if required, then functional requirement; if not, should be made clear
- c.7: example of potential problems with the use of the ‘yes/no’ scheme – rules require ships to be built to withstand all required patterns of loading, which implies no

III.4 – Fatigue

- b.1.1: has an alternative to benchmarking (i.e. through use of analytical risk-based evaluation of fatigue life) been considered?
- b.3 & c.5: use of tertiary stresses as noted in III.3 – Structural strength
- b.6: consideration of slamming and vibratory induced fatigue effects are areas of research and cannot be achieved by current technology
- c.3: suggest rewording to clarify that question is geared toward Rules and not the ship
- c.5: does this evaluation criteria mean that the nominal stress concept for fatigue assessment is not allowed?; if this is the intention, this will limit methodology that could be used and the restriction should be avoided; additionally, implies a functional requirement
- c.8: considerations should also address surface treatment, such as grinding and peening

III.5 – Residual strength

- c.1: where does the data come from for casualty history?
- b.1: it is difficult to use representative ship designs for new rule development
- c.2: the listed scenario appears to be very strict and should be geared towards actual foreseeable scenarios; more information on scenarios, including example, would be helpful
- c.3: evaluation criteria should be clarified; is the intent to consider more than a single failure mode

III.6.1 – Coating life

- b: please check the consistency between “target useful life” as used in the section and “design life” in the functional requirement
- c.4: could be interpreted to limit the possibility to use alternatives

III.6.2 – Corrosion addition

- b.1: there does not appear to be any consideration of maintenance, which will have an impact on corrosion rate, e.g. should look at the average/normal case versus the extreme case
- c.3: appears to introduce new functional requirement and require corrosion addition even if alternative methods are used
- c.4: use of the word “never” may conflict with the revised definition of net scantlings, a more flexible approach may be needed

III.7 – Structural redundancy

No comments

III.8 – Watertight and weathertight integrity

No comments

III.9 – Human element considerations

- difficult to cover these aspects in the rules considering the new ILO Convention and other national standards; if otherwise covered, leave out
- consider that requirements should be consistent with Maritime Labour Convention
- c.2: instead of minimize, consider limiting the level to that acceptable for ergonomic standards; no information/documentation requirement to support this item

III.10 – Design transparency

No comments

III.11 – Construction quality procedures

- Is the intent that the rules establish shipyard quality construction standards or are existing international standards adequate?
- b.2-6: Consideration that these primarily procedural issues are not covered by the rules

III.12 – Survey during construction

- c.5: unclear as to the relationship of criteria to class rules, specifically related to individual projects
- c.6: Consideration that these primarily procedural issues are not covered by the rules; may be preferable to include under existing recognized organization approval provisions

III.13 – Survey and maintenance

No comments

III.14 – Structural accessibility

No comments

III.15 – Recycling

- a: suggest alternate or additional wording – ‘where the use of hazardous materials is unavoidable, the rules should require the identification, location and logging of such materials throughout the life of the vessel’