

MARINE ENVIRONMENT PROTECTION  
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Agenda item 11

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## WORK PROGRAMME OF THE COMMITTEE AND SUBSIDIARY BODIES

### Proposal to extend the scope of existing output 2.15 related to multiple engine operational profiles

Submitted by Finland, United States and IACS

#### SUMMARY

<i>Executive summary:</i>	This document proposes to extend the scope of existing output 2.15 to address test cycles and related amendments of the NO <sub>x</sub> Technical Code 2008
<i>Strategic direction, if applicable:</i>	2
<i>Output:</i>	2.15
<i>Action to be taken:</i>	Paragraph 18
<i>Related documents:</i>	PPR 7/18, PPR 7/13/2, PPR 7/22 (paragraphs 18.5 and 18.6) and MEPC 73/19 (paragraphs 15.16 to 15.18)

#### Introduction

1 This document is submitted in accordance with the provisions of the *Organization and method of work of the Maritime Safety Committee and the Marine Environmental Protection Committee and their subsidiary bodies* (MSC-MEPC.1/Circ.5/Rev.2) on the submission of proposals for new outputs and proposes an extension of the existing output 2.15 with a view to improving section 3.2 of the NO<sub>x</sub> Technical Code 2008 (resolution MEPC.177(58)) (NTC 2008) to permit its consistent application.

#### Background

2 In order to facilitate global and consistent implementation of the requirements of the NTC 2008, IACS has developed and further revised its unified interpretation (UI) MPC51; the revised UI (revision 2) was submitted as document PPR 7/18 for consideration by PPR 7.

3 Referring to paragraph 3.2.1 of the NTC 2008, revision 2 of UI MPC51 provided clarification with respect to the selection of test cycles. As pointed out in paragraphs 10 to 13 of document PPR 7/18, according to the experience of IACS members, paragraph 3.2.1 of the NTC 2008 needs further specification to permit its consistent application.

4 At PPR 7, while not challenging the UI MPC51 from a technical perspective, a number of delegations were of the view that the issue needs to be considered through the review of the IMO Instruments (PPR 7/22, paragraphs 18.5 and 18.6). Subsequently, IACS withdrew revision 2 of UI MPC 51.

### **IMO's objectives**

5 The goal of the proposal is to extend the existing output 2.15 to allow consideration of clarification of test cycles (mentioned in section 3.2 of the NTC 2008), with a view to developing the necessary amendments to the NTC 2008 in order to resolve the issue of the precise specification of test cycles. This clearly lies within the IMO strategic directions SD 1 "Improve implementation" and SD 6 "Ensure regulatory effectiveness".

### **Need**

6 During the plenary discussion at PPR 7, a view was expressed that the appropriate instrument through which to resolve the issue of precise specification of test cycles would be the NTC 2008. Another view supplemented the above consideration by the need to amend MARPOL Annex VI as well.

7 The co-sponsors note that MEPC 73 agreed to the work output 2.15 "Development of amendments to MARPOL Annex VI and the NO<sub>x</sub> Technical Code on the use of multiple engine operational profiles for a marine diesel engine", and specified the scope "Taking into account the concept of Not to Exceed (NTE) Zones, as described in documents MEPC 73/11/1 and MEPC 73/INF.15 (United States), clarify whether multiple engine operational profiles are allowed, and if so, what regulatory controls should be applied, noting these may also need to include amendments to MARPOL Annex VI and the NO<sub>x</sub> Technical Code; and if not allowed, then what amendments would be necessary to MARPOL Annex VI and the NTC 2008 to explicitly prohibit multiple engine operational profiles" (MEPC 73/19, paragraphs 15.16 to 15.18).

8 One of the views mentioned in paragraph 4 above considered that this output 2.15 is linked to the issue of certification test cycles (requiring clarification in order to foster uniform application by industry) as addressed in document PPR 7/13/2 (Finland) on multiple engine operational profiles and selection of test cycles. For instance, recent developments in marine power generation question the usage of test cycles for traditionally constant-speed application.

9 The co-sponsors are of the view that in light of the above-stated close link, it would be appropriate and beneficial to address the revision to the NTC 2008 regarding the further specification of test cycles to be used in certification, and their related definitions, within the existing work output on the use of multiple engine operational profiles, either in parallel or successively.

### **Analysis of the issue**

#### **Paragraph 3.2.1 of the NTC 2008**

10 Paragraph 3.2.1 of the NTC 2008 states:

"3.2.1 For every individual engine or parent engine of an engine family or engine group, one or more of the relevant test cycles specified in 3.2.2 to 3.2.6 shall be applied for verification of compliance with the applicable NO<sub>x</sub> emission limit contained in regulation 13."

11 The co-sponsors consider that the vague expression "one or more of the relevant test cycles" in the above paragraph needs further specification to permit its consistent application.

### **Analysis of implications**

12 No costs to the maritime industry are anticipated. The intention is to amend the pertinent requirements to make them clearer. The administrative burden to the Organization and to the Member States is anticipated to be minimal. The completed checklist for identifying administrative requirements and burdens is set out as annex 1 to this document.

### **Benefits**

13 It is anticipated that clearer requirements of the NTC 2008 will lead to its more efficient and consistent application.

### **Industry standards**

14 No other industry standards address the specific concern.

### **Output**

15 In order to improve section 3.2 of the NTC 2008 to permit its consistent application, the following extension (shaded) to the existing output 2.15 is proposed:

“Development of amendments to MARPOL Annex VI and the NO<sub>x</sub> Technical Code on the use of multiple engine operational profiles for a marine diesel engine and on the clarification of test cycles”.

### **Human element**

16 The completed checklist for considering human element issues contained in MSC-MEPC.7/Circ.1 is set out in annex 2 to this document. As the proposal is to clarify existing requirements only, no impact on the human element is anticipated.

### **Urgency**

17 It is proposed that the work as a result of the extension of the output should continue in the 2022-2023 biennium.

### **Action requested of the Committee**

18 The Committee is invited to consider the foregoing, in particular, proposals in paragraphs 15 and 17, and take action as appropriate.

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**ANNEX 1**

**CHECKLIST FOR IDENTIFYING ADMINISTRATIVE REQUIREMENTS**

This checklist should be used when preparing the analysis of implications required in submissions of proposals for inclusion of outputs. For the purpose of this analysis, the term "administrative requirement" is defined in accordance with resolution A.1043(27), as an obligation arising from a mandatory IMO instrument to provide or retain information or data.

**Instructions:**

- (A) If the answer to any of the questions below is **YES**, the Member State proposing an output should provide supporting details on whether the requirements are likely to involve start-up and/or ongoing costs. The Member State should also give a brief description of the requirement and, if possible, provide recommendations for further work, e.g. would it be possible to combine the activity with an existing requirement?
- (B) If the proposal for the output does not contain such an activity, answer **NR** (Not required).
- (C) For any administrative requirement, full consideration should be given to electronic means of fulfilling the requirement in order to alleviate administrative burdens.

1. Notification and reporting? Reporting certain events before or after the event has taken place, e.g. notification of voyage, statistical reporting for IMO Members	<b>NR</b> <input checked="" type="checkbox"/>	Yes <input type="checkbox"/> Start-up <input type="checkbox"/> Ongoing
Description of administrative requirement(s) and method of fulfilling it: (if the answer is yes)		
2. Record keeping? Keeping statutory documents up to date, e.g. records of accidents, records of cargo, records of inspections, records of education	<b>NR</b> <input checked="" type="checkbox"/>	Yes <input type="checkbox"/> Start-up <input type="checkbox"/> Ongoing
Description of administrative requirement(s) and method of fulfilling it: (if the answer is yes)		
3. Publication and documentation? Producing documents for third parties, e.g. warning signs, registration displays, publication of results of testing	<b>NR</b> <input checked="" type="checkbox"/>	Yes <input type="checkbox"/> Start-up <input type="checkbox"/> Ongoing
Description of administrative requirement(s) and method of fulfilling it: (if the answer is yes)		
4. Permits or applications? Applying for and maintaining permission to operate, e.g. certificates, classification society costs	<b>NR</b> <input checked="" type="checkbox"/>	Yes <input type="checkbox"/> Start-up <input type="checkbox"/> Ongoing
Description of administrative requirement(s) and method of fulfilling it: (if the answer is yes)		
5. Other identified requirements?	<b>NR</b> <input checked="" type="checkbox"/>	Yes <input type="checkbox"/> Start-up <input type="checkbox"/> Ongoing
Description of administrative requirement(s) and method of fulfilling it: (if the answer is yes)		



**ANNEX 2**

**CHECKLIST FOR CONSIDERING HUMAN ELEMENT ISSUES BY IMO BODIES**

<p><b>Instructions:</b> If the answer to any of the questions below is:</p> <p>(A) <b>YES</b>, the preparing body should provide supporting details and/or recommendation for further work.</p> <p>(B) <b>NO</b>, the preparing body should make proper justification as to why human element issues were not considered.</p> <p>(C) <b>NA</b> (Not Applicable) – the preparing body should make proper justification as to why human element issues were not considered applicable.</p>	
<p><b>Subject being assessed:</b> (e.g. resolution, instrument, circular being considered)</p> <p>NO<sub>x</sub> Technical Code 2008</p>	
<p><b>Responsible Body:</b> (e.g. Committee, Sub-Committee, Working Group, Correspondence Group, Member State)</p> <p>Marine Environment Protection Committee/ the PPR Sub-Committee</p>	
1. Was the human element considered during development or amendment process related to this subject?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
2. Has input from seafarers or their proxies been solicited?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
3. Are the solutions proposed for the subject in agreement with existing instruments? (Identify instruments considered in comments section)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
4. Have human element solutions been made as an alternative and/or in conjunction with technical solutions?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
5. Has human element guidance on the application and/or implementation of the proposed solution been provided for the following:	
• Administrations?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
• Ship owners/managers?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
• Seafarers?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
• Surveyors?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
6. At some point, before final adoption, has the solution been reviewed or considered by a relevant IMO body with relevant human element expertise?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
7. Does the solution address safeguards to avoid single person errors?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
8. Does the solution address safeguards to avoid organizational errors?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
9. If the proposal is to be directed at seafarers, is the information in a form that can be presented to and is easily understood by the seafarer?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
10. Have human element experts been consulted in development of the solution?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
<p><b>11. HUMAN ELEMENT: Has the proposal been assessed against each of the factors below?</b></p>	
<input type="checkbox"/> CREWING. The number of qualified personnel required and available to safely operate, maintain, support, and provide training for system.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA

<input type="checkbox"/> PERSONNEL. The necessary knowledge, skills, abilities, and experience levels that are needed to properly perform job tasks.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
<input type="checkbox"/> TRAINING. The process and tools by which personnel acquire or improve the necessary knowledge, skills, and abilities to achieve desired job/task performance.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
<input type="checkbox"/> OCCUPATIONAL HEALTH AND SAFETY. The management systems, programmes, procedures, policies, training, documentation, equipment, etc. to properly manage risks.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
<input type="checkbox"/> WORKING ENVIRONMENT. Conditions that are necessary to sustain the safety, health, and comfort of those on working on board, such as noise, vibration, lighting, climate, and other factors that affect crew endurance, fatigue, alertness and morale.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
<input type="checkbox"/> HUMAN SURVIVABILITY. System features that reduce the risk of illness, injury, or death in a catastrophic event such as fire, explosion, spill, collision, flooding, or intentional attack. The assessment should consider desired human performance in emergency situations for detection, response, evacuation, survival and rescue and the interface with emergency procedures, systems, facilities and equipment.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
<input type="checkbox"/> HUMAN FACTORS ENGINEERING. Human-system interface to be consistent with the physical, cognitive, and sensory abilities of the user population.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
<p><b>Comments:</b> (1) Justification if answers are NO or Not Applicable. (2) Recommendations for additional human element assessment needed. (3) Key risk management strategies employed. (4) Other comments. (5) Supporting documentation.</p> <p>Human element is not considered further as the proposal is to clarify existing requirements only.</p>	