



Overview of PPR 5 and the IMarEST engagement

This report provides a summary of the key discussions and outcomes of the 5th session of the Sub-Committee on Pollution Prevention and Response (PPR 5) together with an overview of the IMarEST's engagement in the work of this Sub-Committee.

1. **IMarEST engagement and paper submissions at PPR 5**
2. **Key outcomes of PPR 5**
3. **Future IMO meetings**

1. IMarEST engagement and paper submissions at PPR 5

The IMarEST contributed to the work of the following Working/Drafting Groups:

- Working Group on Ballast water management and anti-fouling systems (WG2)
- Working Group on Prevention of air pollution from ships (WG3)
- Drafting Group on Use of electronic record books (DG1)

The IMarEST submitted the following papers:

- PPR 5/23/1 Any Other Business

“Proposed new output on development of amendments to MARPOL Annex VI and the NO_x Technical Code on the use of multiple engine operating profiles (Maps) for marine diesel engines”

Executive Summary: With regard to the request from MEPC for PPR to further consider the title and scope of this proposed new output, together with the associated definition, it is seen that the term "emission control strategy" should be applied instead of "engine operating profile". The basis of this proposal is the potential possibilities and ease of change of electronic engine management systems which now requires this overall strategy to be addressed within the NO_x certification process. To do so, it would ensure that the process is sufficiently robust, appropriate and meets the challenges of modern marine diesel engines in a uniform manner consistent with the MARPOL Annex VI objectives.

This paper has been the outcome of the IMarEST's initiative to invite a number of interested parties to an informal workshop to discuss a proposed new output on developing amendments to MARPOL Annex VI and the NO_x Technical Code to tackle some of the regulatory issues resulting from the potential for more than one operational profiles (multi-mapping) to be fitted to modern engines, particularly in those with electronic controls. More details about the workshop can be downloaded [here](#).

The [full text of the submission](#) is available on the Virtual Library.

- PPR 5/20/1 Unified interpretation to provision of IMO environment-related conventions

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“Comments on proposed unified interpretation on engine test cycles required by the NOX Technical Code 2008”

Executive Summary: Comment is given on document MEPC 71/5/4, as referred to PPR 5, which introduces a revised version of the existing IACS Unified Interpretation MPC 51. While the proposed revision could be supported in respect of a marine diesel engine installed as part of an integrated electric propulsion system, it is noted that the text of the revised IACS UI is considerably wider in scope. In the first part of subparagraph (c) of that UI there is only reference to the "main purpose" of the engine, however that may be defined. In the second part of that subparagraph the position of the existing IACS UI is reversed and instead now gives that for an engine which may also independently provide power to auxiliary systems should only be certified for its propulsion duty and hence when operating in an auxiliary role would not be subject to the same level of control as it would be if it was a dedicated engine.

The [full text of the submission](#) is available on the Virtual Library.

2. Key outcomes of PPR 5

1) Ballast Water Management (BWM)

Ballast water sampling and analysis

Proposed amendments to the Guidance on ballast water sampling and analysis for trial use in accordance with the BWM Convention and Guidelines (G2) was considered to have some merit, however concerns were expressed about the on-board implementation of the sampling device and possible negative implications to ship operations (pressures, fouling, etc.). Since ISO is finalizing their standard for ballast water sampling, it was decided BWM.2/Circ.42/Rev.1 should not be revised in accordance with the proposal at this time, but it might be revisited in the future.

Observations from a port State initiative on indicative ballast water sampling were considered. While appreciative of the efforts, most of the delegation agreed it is too early to begin revising Guidelines (G2) with indicative sampling. More information and a better understanding of the indicative sampling methods and its implications is needed.

Data presented during an evening presentation revealed that of 45 ships with Ballast Water Treatment Systems (BWTS) installed, five failed to meet the D-2 standard; while of 24 ships with no BWTS/using ballast exchange, 22 passed and two failed to meet the D-2 standard. The presenters, citing reasons of confidentiality, declined to elaborate on why the ships with BWTSs failed. However, it is important that the reasons for failures are eventually ascertained. It would be useful to find out, for instance, if the BWTS was inoperable due to mechanical issues; if it was operated properly by crew; if it was operated regularly or just in advance of the sampling event; and if the entire vessel was treated or only some ballast tanks (i.e. potential for cross contamination of treated/untreated water). However under no circumstances would these results become “proof” that type-approved BWTSs do not work or that type-approval testing is not robust/reliable, in case that would give ammunition to industry representatives arguing for further delays in implementation. Additionally, administrations undertaking such exercises were reminded to take Experience Building Phase (EBP) guidance into consideration, so that the resulting data is delivered in a format that maximises its utility within IMO.

On another note, ISO updated delegations on its standardization work for ballast water sample ports, in which it specifically cited the IMarEST paper PPR4/6 on sample port standardization, and intimated further collaboration on the matter. ISO would like the standard it is developing (ISO 1171-1) to be considered as a means to address the issue of sample port standardization, instead of amendments to Guidelines (G2). Member States were invited to consider the information, and this was not referred to the WG2.

Revised Guidance on methodologies for enumerating viable organisms

A discussion on proposed analytical methods for determining viability of organisms in the 10-50um size range revealed concerns about their precision and suitability for type-approval testing – although they may be appropriate for indicative analysis. The WG2 opposed revising the Guidance contained in BWM.2/Circ.61 to include these methods at this time.

System Design Limitations (SDL)

The WG 2 had substantive discussions and made revisions to the annex of MEPC 71/4/10. The IMarEST contributed on the engineering aspects and merits of the proposal. After lengthy discussion, draft guidance was finalized for submission to MEPC 73, and it was proposed for approval and dissemination as a BWM.2 circular.

Contingency measures for ports with challenging water quality

Discussions on proposals for ballast water management at ports with challenging water quality (PCWQs) included detailed suggestions and options for how PCWQs may be identified and agreed upon by involved Parties, and possible development of a common approach for managing ballast water from PCWQs. It became evident that there is still confusion on what constitutes a contingency measure and when they should be applied. For instance, the concept of PCWQs may be related to the uptake water in a port, which is distinctly different from contingency measures that are intended for managing ballast discharge from a vessel. The matter of PCWQs was recognized as a topic requiring further consideration, and submissions were invited to PPR6. Furthermore, submissions to PPR6 were invited for examples of specific contingency measures that are acceptable to port States and/or the shipping industry for possible inclusion in BWM.2/Circ.62.

The IMarEST's contribution to the work of the Ballast Water Management was facilitated by experts from its Ballast Water Special Interest Group. If you possess relevant expertise and want to get involved in shaping ballast water regulation, you can join the IMarEST [Ballast Water SIG as a corresponding member through Nexus](#).

2) Air Pollution

The impact of Black Carbon emissions from international shipping on the Arctic

The issue remains whether IMO should address Black Carbon (BC) in general or focus on its impact on the Arctic as the actual work title suggests. The signs are that the latter – Arctic-only focus – is more likely.

To do this, it will be necessary to consider how data is collected (three candidate methods have been put forward) and how the contribution from ship emissions is separated out from other sources of BC to the environment. This latter aspect, in particular, is likely to be non-trivial due to numerous overlapping influences.

It has to be borne in mind that measurement methods could be selected before the consideration and implementation of mechanisms aimed at controlling BC emissions. Since control mechanisms will need to operate through the service life of a ship engine, whether the question of whether the selected measurement method is only test bed suitable (i.e. engines as new) or field deployable should be examined. Furthermore, control mechanisms will need to function in parallel, and in harmony, with the NOx Technical Code.

If you have relevant expertise and would like to become more involved in the work related in the Arctic, you are urged to join the IMarEST [Arctic SIG as a corresponding member through Nexus](#), while those with specialist knowledge of black carbon are invited to join the IMarEST [Emissions from shipping SIG as a corresponding member through Nexus](#).

Guidelines for the discharge of exhaust gas recirculation (EGR) bleed-off water

These Guidelines were finalized and sent to MEPC for approval. It remains to be seen whether the omission of the turbidity requirement is acceptable from the point of view of MARPOL Annex I 'Bilge requirements'. In fact this whole approach of differing bleed-off water criteria depending on whether the fuel oil's sulphur content is compliant with the relevant area of operation is spurious since the sulphur content itself is not a factor. In other words one cannot say that 'compliant fuel is a distillate / a non-compliant is a residual fuel'. Nor can it be said that 'discharges from residual fuelled systems automatically have higher suspended particulate material than distillates'.

What remains outstanding is how the verification of the correct functioning of the water side of EGR devices is to be a) given and b) checked. Since EGR will only be fitted in order to meet NOx requirements, the exhaust gas side will automatically be included in the engine's Technical File as required by 2.4.1 NOx Technical Code (NTC). Ultimately this aspect of water discharges to the sea from NOx reduction devices of any type will need to be covered by a revised NTC. Still such a general revision is not at present scheduled. Therefore, the IMarEST has recommended that IACS generate a Unified Interpretation (UI) to the effect that where a NOx reducing device, as included within the Technical File, the aspects related to that device's water discharge to the sea (in terms of documentation, specification, settings, operation and discharge limits) are also to be included within the engine's Technical File. In this way, the information will be found within the onboard NOx Verification Procedure and will be

applied at surveys and used at Port State Control inspections. Necessary would also be the consideration of the application of the NTC formulae in respect of exhaust gas mass flow, wet / dry correction, NOx correction and time specific emission rate given the effects of EGR with washing on emission composition.

Revised certification requirements for Selective Catalytic Reduction (SCR) systems under NTC

This agenda item was introduced in respect of making Schemes A and B equal whereas paper submission (PPR 5/10/1) was implying a far more fundamental NOx Technical Code (NTC) revision. The IMarEST commented that the solutions proposed and the subsequent outcome to MEPC on this matter can only be seen as a short-term, minimum effort, resolution of the issue. In order to render Scheme B truly equal to Scheme A all aspects of both procedures need to be included into a revised NTC that would be a specified mandatory Code, rather than Guidelines which Administrations are invited to take into account when granting approvals.

It is to be recognised that the resolution of the text does not resolve the outstanding pressures to separate 'engine' and 'NOx reduction device' approvals on the basis of the existing NOx Technical Code and EIAPP certification principles. The reason for that is due to the fact that for NOx certification there can only be one applicant party which has overall responsibility for the total engine package. E.g. an automotive manufacturer is the sole applicant party for EU certification (applicants cannot be the makers of the individual emission elements included). In effect this means if the approvals of 'engine' and 'NOx reduction device' were to be separated as part of a potential general NTC revision, then the NOx approval would move from the pre-installation stage to the in-service demonstration by the shipowner.

The drive behind this 'separation' would appear to be the concern of those SCR manufacturers outside the engine builders who may be excluded from the marine market. The answer to that would probably be SCR manufacturers to convince shipowners of the particular merits of their offering and hence get that option written into the ship / engine contract stage, as already occurs with items such as turbochargers.

Consistent implementation of the 0.50% max sulphur limit on 2020

The implementation of MARPOL Annex VI 14.1.3 regarding the introduction of fuel oils of 0.50% max sulphur limit outside ECA areas is regarded as an operational matter so concerns have been raised as to how involved IMO should become in operational issues.

With regard to machinery compatibility issues (motor and steam) this would be seen as comprising two aspects; design and condition. Relating to design, the 0.50% max sulphur limit was established in 2008 with the possibility of deferral to 2025. Therefore there are systems which by design cannot operate satisfactorily on distillate fuel for extended periods. Noting that 0.50% max sulphur limit fuel oils are not necessarily distillates, the onus is now ship-owners who have not made the necessary modifications over the past decade to source higher viscosity fuel oils. Similar to what happened following the switch to distillate fuels prompted by the introduction of the 0.10% max sulphur limit in ECA areas in 2015, there could be an increase in the incidence of problems related to worn fuel oil injection nozzles, which were not designed for the different viscosity. End-users would therefore be urged to test start / load-up / running condition in a safe location when receiving fuel oils of lower than usual viscosity.

As to the recommendation to ban the carriage of fuels of more than 0.50% sulphur content, it is clear that fuel oil is held on-board in tanks marked for such purpose which are connected solely to engine room piping systems. Fuel oils loaded for propulsion are entered into the mandatory Oil Record Book while fuel oil cargoes are not. Fuel oil cargoes have their own specific documentation, therefore the regulation is clear on what fuels are allowed on board.

One particular IMO instrument which is needed on this occasion is the Fuel Oil Non-Availability Report (FONAR) on a standard format with due guidance as to what represents 'best efforts' set within the usual context of marine fuel supply arrangements.

For a more detailed consideration of the introduction of the fuel oil 0.50% max sulphur limit, refer to IMarEST information paper on the subject: <https://www.imarest.org/policy-news/technical-leadership/item/3998-an-imarest-information-paper-on-the-introduction-of-the-fuel-oil-0-50-m-m-sulphur-limit-under-regulation-14-1-3-of-marpol-annex-vi>

Unified interpretation (UI) to provisions of IMO environment-related Conventions (IACS UI MPC 51)

In the revised UI as presented the point of discussion was clause (c). Clause (a) and clause (b) being seemingly self-evident but clause (c) would be read as a contradiction of the preceding two clauses.

It was not explained why a UI which has existed from 2004 (and before that as a Common Understanding), now needed to be changed. The IMarEST by its paper submission proposed that this issue to be undertaken as an amendment to the NOx Technical Code, not as a UI. There was support for the IMarEST position from both IACS members and engine builders. The [full text of the submission](#) is available on the Virtual Library.

Multiple engine operating profiles (Maps) for marine diesel engines

The IMarEST proposal to consider the term 'emission control strategy' was not accepted but the matter was sent back to MEPC on the basis of 'multiple operating profiles' which still provides enough scope for a new work item for PPR 6 onwards.

Noting that this new work item will impact the application of the whole Engine Group approval process, the term 'Irrational Control Strategy' will also need to be considered. Planning should begin on how this issue can be taken forward.

The [full text of the submission](#) is available on the Virtual Library.

If you have relevant expertise and would like to become more involved in the work related to air pollution, you are invited to join the IMarEST Emissions from Shipping SIG (<https://www.imarest.org/special-interest-groups/emissions-from-shipping>)

3) Other Issues

On the inclusion of controls on cybutryne in Annex 1 to the Anti-Fouling Systems Convention

The 2008 regulation only prevents certain substances following scientific evaluation. Evidence shows that cybutryne should also be prohibited as it leaches and is toxic even at low concentrations.

If you have relevant expertise and would like to become involved in the IMarEST's work with IMO relating to biofouling, we urge you to join our [Biofouling Management SIG as a corresponding member through Nexus](#).

On amendments to MARPOL Annex VI Regulation 14 on dedicated sampling points for fuel oil

The matter of dedicated sampling point for fuel oil can be divided into discussions on 1) the actual sampling points and 2) the testing/evaluation of the samples obtained. In relation to the former, the impact would be minimal as some Classification Societies already have relevant provisions on aspects such as safe construction and positioning. Therefore, the only question would be the actual required location in order to fulfil their required function. It was noted in the plenary that the objective is to have 'a sampling point for each combustion system' rather than a single sampling point onboard.

As to the testing/evaluation of samples obtained, the technical arguments towards adopting the ISO 4259 approach are totally supported. The question is now how the original MEPC direction can be made to align.

On electronic record books

The use of electronic record books will go ahead on the basis of Guidelines rather than as a mandatory Code that the U.S. had initially proposed. Thus the status of such electronic records when presented at US port for USCG inspection is unclear. Overall it would appear that where electronic records are maintained as means of demonstrating compliance that physical records will also be available and retained as back-up.

3. Future IMO meetings

- ISWG – GHG 3 is scheduled to take place on 3 to 6 April 2018
- MEPC 72 is scheduled to take place on 9 to 13 April 2018
- MSC 99 is scheduled to take place on 16 to 25 May 2018

- HTW 5 is scheduled to take place on 16 to 20 July 2018
- CCC 5 is scheduled to take place on 10 to 14 September 2018
- III 5 is scheduled to take place on 24 to 28 September 2018
- MEPC 73 is scheduled to take place on 22 to 26 October 2018