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PLANNING OF GESAMP ACTIVITIES: REVIEW OF APPLICATIONS FOR 'ACTIVE SUBSTANCES' TO BE USED IN BALLAST WATER MANAGEMENT SYSTEMS

Report of the GESAMP Ballast Water Working Group (Working Group 34)

Background and introduction

1 The International Convention for the Control and Management of Ships' Ballast Water and Sediments, (hereafter referred to as the BWM Convention) was adopted at IMO on 13 February 2004, in response to the increasing concern of the international community with regard to the transfer of invasive species in ships' ballast water. On 8 September 2017, the Ballast Water Management Convention entered into force. Currently, the ratification status is that the combined tonnage of contracting States to the treaty adds up to 80.76% and with 81 contracting Parties (status at 27 June 2019).

2 Within this framework, an approval procedure has been set up for those ballast water management systems that make use of an Active Substance or Preparation to comply with the Convention. The procedure consists of a two-step approach for granting Basic Approval and Final Approval. The approval is granted by the Marine Environment Protection Committee (MEPC) based on the advice provided by the Ballast Water Working Group of the GESAMP (WG 34). There is a third step, the type approval, but that is outside the remit of WG 34.

3 The more general outline, scope and aim of the BWM Convention have been addressed in the report to the GESAMP 35 (see document GESAMP 35/5/1) and will only be referred to here. The Terms of Reference of WG 34 have been added as annex 1 to this report. As the terms of reference of WG 34 have not changed, several parts of this report have been kept unchanged. For the readability of the report these sections are kept in the report with apologies for the experienced reader.

4 This report focuses on the main activities of WG 34, which consist of the evaluation of several ballast water management systems (hereafter BWMS) and the further development of the Methodology of the Group, which has been accepted as a 'living' document. This means that the Methodology will be a discussion item at (almost) each meeting of the Group and changes and improvements are made, as appropriate (see further below).

Ballast water management systems

5 'Active Substances' are defined by the Convention as "substances or organisms, including a virus or a fungus, that have a general or specific action on or against harmful aquatic organisms and pathogens" and the approval of BWMS using such substances is described in resolution MEPC.169(57) adopted in 2008. However, not only 'Active Substances' are evaluated by the WG 34. Also, all other substances considered relevant are taken into account in the evaluation report. The Procedure for approval of ballast water management systems that make use of Active Substances (G9) contained in resolution MEPC.169(57) under the BWM Convention distinguishes also 'Relevant Chemicals' and 'Other Chemicals'.

6 Therefore, WG 34's task is to evaluate the risks of the BWMS for the crew, the ship's safety, the risk for the public at large and the environment. It is, furthermore, the intention of

WG 34 to perform these evaluations in a consequent, consistent and transparent manner, which helps Administrations to prepare a concise dossier, containing all the necessary data. The Methodology, as developed by WG 34 in the course of its work process, serves as guidance in the evaluation.

7 WG 34 convened two times since GESAMP 45 to evaluate proposed BWMS, one time for a regular meeting, from 26 to 30 November 2018, where three BWMS have been evaluated, and one time for an additional meeting from 14 to 17 January 2019 with also three BWMS to be evaluated. Of these six BWMS submitted to MEPC 74, two received a recommendation for Basic Approval, one was not recommended for Final Approval and two received a recommendation for Final Approval. During its meeting in May 2019, MEPC agreed with the recommendations of WG 34 regarding all systems evaluated. An overview of the BWMS evaluated this meeting is presented in annex 2 to this report.

8 The last system evaluated deserved a specific paragraph in this report as it was the first system that received Final Approval based on the new procedure developed by WG 34 on the request of MEPC to consider data on freshwater treatment of ballast water for systems that previously received Final Approval only for brackish and marine water. There was a growing need to demonstrate that these systems, originally lacking data on freshwater because only two salinities were needed, were able to operate under freshwater conditions. In the procedure developed by WG 34, provisions on relevant data had been described to be submitted by the Administrations.

9 WG 34 was able to clear the whole stock of BWMS submitted for evaluation before the meeting of MEPC for which the evaluation was requested. The Group recognized that the number of BWMS presented to the Group had increased compared to recent reporting periods. The Group does expect that more BWMS will have to be evaluated for freshwater as there are still many BWMS that received only Final Approval for marine and brackish water.

Methodology for information gathering and the conduct of work of WG 34

10 The evaluation Methodology of WG 34 has been determined to be a living document based on increasing experience in the evaluation of BWMS. The WG34 added three more substances to the GISIS database of IMO based on the regularly occurring second neutralizer sodium sulfate. The current version of the database contains now 44 specific chemicals, including an AS and two neutralizers frequently used in BWMSs. For these 44 substances the applicants of BWMS do not have to submit the physico-chemical characteristics and the data on (eco-)toxicology anymore to IMO as the Group is of the opinion that all and sufficient, relevant information is already available. If, however, new data becomes available, it has to be submitted to IMO in any application dossier.

11 GESAMP may recall that during the last meeting it was discussed whether or not WG 34 should continue working on the further development of the Methodology. It was decided that there was no need any more to have a regular stocktaking workshop (STW) every year and MEPC 73 agreed with that as well. Nevertheless, the possibility is still open to continue improving the Methodology based on newly emerging scientific developments. A possibility could be e.g. the occurrence of heavy metals and persistent organic compounds that recently have been found in ballast water tanks (MEPC 71/INF.11 and MEPC 71/INF.10, respectively). Although the direct relation with the functioning of BWMS is not clear yet, it may be needed to follow further findings in this area.

12 GESAMP may recall that WG 34 reported to GESAMP 43 that it was decided at STW 7 to publish part of the Methodology as a GESAMP R&S document. In November 2018 a finalized draft of the report was sent to GESAMP for peer review. The report is planned for publication at GESAMP 46. See also paragraph 18.

Working arrangements related to WG 34

13 Due to the reducing number of BWMS to be evaluated by WG 34 and, therefore, the decreasing budget, the Secretariat has informed the Group about some consequences to be considered, such as a reduction of the daily fees for the members and consultant of WG 34, the possibility of having a STW by teleconference, if needed, and the abolition of an administrative position in the Secretariat; all with the aim of reducing the costs of the Group.

14 It was further decided that, also on behalf of IMO because of the financial situation, it is not possible to hold STWs. If, due to some reason, the necessity arises to hold an STW it should be investigated whether this can be achieved by electronic means, like an extended teleconference.

15 Finally, it was decided that the peer review day within WG 34 would not be needed anymore, except for the Chair as in practice the Chair is handling nearly all review work.

16 The current working arrangements still depend on the upcoming workload for the Group. If the number of applications further decreases potentially additional working arrangements have to be discussed.

Planning ahead

17 The deadline for the submission of proposals for approval of BWMS to MEPC 75 is 13 September 2019. WG 34 scheduled two meetings to accommodate potential applications: BWWG 39 from 4 to 8 November 2019 and BWWG 40 from 9 to 13 December 2019, if needed. Of course, the number of meetings depends on the number of submissions. Both meetings are foreseen to be held at IMO Headquarters in London.

Acknowledgement

18 WG 34 is very thankful to all the members of GESAMP that took the time to critically review the work of WG 34. The quality of the work has been improved as a result of this peer review process and the comments made were brought to the attention of the consultant involved in the drafting of the reports for future use. WG 34 also would like to thank all the members of GESAMP that critically reviewed the draft GESAMP R&S report. The quality of the report was improved as a result of this peer review.

Action requested of GESAMP

19 GESAMP is invited to consider the information provided and to take action as appropriate.

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ANNEX 1

TERMS OF REFERENCE FOR THE TECHNICAL GROUP (GESAMP-BWWG/ WG 34)

1 Consideration of development of necessary methodologies and information requirements in accordance with the "Procedure for approval of ballast water management systems that make use of Active Substances (G9)" (adopted by resolution MEPC 169(57)).

2 For Basic Approval, the Group should review the comprehensive proposal submitted by the Member of the Organization along with any additional data submitted as well as other relevant information available to the Group and report to the Organization.

In particular, the Group should undertake:

.1 scientific evaluation of the data set in the proposal for approval (see paragraphs 4.2, 6.1, 8.1.2.3, 8.1.2.4 of Procedure (G9));

.2 scientific evaluation of the assessment report contained in the proposal for approval (see paragraph 4.3.1 of Procedure (G9));

.3 scientific evaluation of the risks to the ship and personnel to include consideration of the storage, handling and application of the Active Substance (see paragraph 6.3 of Procedure (G9));

.4 scientific evaluation of any further information submitted (see paragraph 8.1.2.6 of Procedure (G9));

.5 scientific review of the risk characterization and analysis contained in the proposal for approval (see paragraph 5.3 of Procedure (G9));

.6 scientific recommendations on whether the proposal has demonstrated a potential for unreasonable risk to the environment, human health, property or resources (see paragraph 8.1.2.8 of Procedure (G9)); and

.7 preparation of a report addressing the above-mentioned aspects for consideration by MEPC (see paragraph 8.1.2.10 of Procedure (G9)).

3 For Final Approval, the Group should review the discharge testing (field) data and confirm that the residual toxicity of the discharge conforms to the evaluation undertaken for Basic Approval and that the previous evaluation of the risks to the ship and personnel including consideration of the storage, handling and application of the Active Substance remains valid. The evaluation will be reported to the MEPC (see paragraph 8.2 of Procedure (G9)).

4 The Group should keep confidential all data, the disclosure of which would undermine protection of the commercial interests of the applicant, including intellectual property.

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ANNEX 2

LIST OF BALLAST WATER MANAGEMENT SYSTEMS THAT MAKE USE OF ACTIVE SUBSTANCES IN ACCORDANCE WITH PROCEDURE (G9) SINCE GESAMP 45

Name of the System/Manufacturer	Brief description of the System	Date of Approval	Specifications
1. Envirocleanse inTank BWTS (Bulk Chemical Variation) Envirocleanse, LLC United States submitted by Norway.	Disinfection with Active Substance sodium hypochlorite and doses ballast water after uptake based on a concentration-time (CT) treatment approach. This system requires the storage of the Active Substance and the neutralizer sodium thiosulfate on board.	Final Approval granted, May 2019.	The Flag State Administration was invited to ensure that the recommendations provided in annex 4 of the report of the GESAMP-BWWG 37 meeting were fully addressed during the further development of this ballast water management system before issuing the Type Approval certificate. The recommendations mainly relate to TRO measurements and the sampling possibilities.
2. CleanBallast Ocean Barrier System BWMS Veolia Water Technologies Deutschland GmbH, submitted by Norway.	Disinfection with Active Substance sodium hypochlorite by in situ electrolysis. Filtration is used as pre-treatment and neutralization as post-treatment. This system requires the storage of the neutralizer sodium thiosulfate on board.	Basic Approval granted, May 2019.	The Flag State Administration was invited to ensure that the recommendations provided in annex 5 of the report of the GESAMP-BWWG 37 meeting were fully addressed before submission for Final Approval. The recommendations mainly relate to effectivity of the control scheme for TRO measurements and to apply an overdose for the neutralization process. In addition, some PEC/PNEC ratios determined above 1 would need special attention during the further development of the BWMS.
3. Microfade II BWMS Kuraray CO, Ltd, Japan, submitted by The Netherlands.	Disinfection with Active Substance sodium hypochlorite by using the preparation NaDCC (sodium dichloroisocyanurate). Filtration is	Final Approval granted, May 2019.	The Flag State Administration was invited to ensure that the recommendations provided in annex 6 of the report of the

Name of the System/Manufacturer	Brief description of the System	Date of Approval	Specifications
	used as pre-treatment and neutralization as post-treatment. This system requires the storage of the Preparation and the neutralizer sodium thiosulfate on board.		GESAMP-BWWG 37 meeting were fully addressed before issuing the Type Approval certificate. The recommendations mainly relate to the installation of a venting system for chlorine gas to a suitable safe location and the environmental acceptability of a new algae toxicity test.
4. Purimar BWMS Samsung Heavy Industries Co., Ltd, Republic of Korea, submitted by the Republic of Korea for freshwater.	Disinfection with Active Substance sodium hypochlorite by in situ electrochlorination. Filtration is used as pre-treatment and neutralization is used as post-treatment. This system requires the storage of the neutralizer sodium thiosulfate on board.	Final Approval granted for application in freshwater as an extension to an earlier FA for marine and brackish water, May 2019.	No recommendations to be taken into account before issuing a Type Approval certificate were identified by WG 34.
5. JFE BallastAce, making use of NEO-CHLOR MARINE JFE Engineering Corporation, Japan, submitted by Japan.	Disinfection with Active Substance sodium hypochlorite by using the preparation NaDCC (sodium dichloroisocyanurate). Filtration is used as pre-treatment and neutralization as post-treatment. This system requires the storage of the Preparation and the neutralizer sodium thiosulfate on board.	Final Approval not granted, May 2019.	The Flag State Administration was invited to ensure that the recommendations provided in annex 4 of the report of the GESAMP-BWWG 38 meeting were fully addressed before a resubmission for Final Approval. The recommendations mainly relate to the TRO measurements for the MADC at discharge. Further relevant data were missing for non-neutralized water making the evaluation of human health risks not possible. In addition, relatively high ecotoxicity for algae was found in the WET tests.
6. FlowSafe BWMS Flow Water	Disinfection with Active Substance sodium hypochlorite by in situ	Basic Approval granted, May 2019.	The Flag State Administration was invited to ensure that

Name of the System/Manufacturer	Brief description of the System	Date of Approval	Specifications
Technologies Ltd, Cyprus, submitted by Cyprus.	electrolysis. Neutralization is used as post-treatment. This system requires the storage of the neutralizer sodium thiosulfate on board.		the recommendations provided in annex 5 of the report of the GESAMP-BWWG 38 meeting were fully addressed before submission for Final Approval. The recommendations mainly relate to a clearly stated application dose and an effective control scheme for TRO measurements for the dose and the MADC. In addition, some PEC/PNEC ratios determined above 1 would need special attention during the further development of the BWMS.