GESAMP
Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection

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Agenda item 4

**PLANNING OF GESAMP ACTIVITIES:
EVALUATION OF THE HAZARDS OF HARMFUL SUBSTANCES
CARRIED BY SHIPS**

Report of the Chair of Working Group 1

1 Since the last meeting of GESAMP, Working Group 1 has met once. The 54th session (EHS 54) was held in London from 22 to 26 May 2017. The full report has been published as EHS 54/9 and circulated as IMO circular PPR.1/Circ.4.

Main use of GESAMP/EHS outputs

2 As outlined in the previous report to GESAMP, the GESAMP Hazard Profiles (GHP) developed by Working Group 1:

.1 contain a unique fingerprint for each substance, providing information on fourteen separate human health, environmental and physico-chemical hazard criteria and consist of an alphanumerical notation designed to communicate the hazards;

.2 are published by IMO annually as the GESAMP Composite List (circulated together with the meeting report as a PPR.1/Circular), which are placed on the IMO website for the use of maritime Administrations, the shipping industry and chemical manufacturers; and

.3 provide the basis for the pollution categorization of over 900 substances. MARPOL Annex II and the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code) utilise these profiles to determine the pollution category, ship type and carriage conditions for each chemical, for the purposes of bulk carriage in ships.

3 The latest draft version of the Chapter 21 of the International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk (IBC Code) IBC Code) makes direct reference to GHP ratings for all carriage conditions including environmental protection, ship safety, and occupational health. It is expected that the amendments to the IBC Code, with these new references to the GESAMP hazard ratings, will be adopted next year and will enter into force by 2020. This regulatory background needs an enhanced and more detailed evaluation of hazards to human and environmental health by the Working Group.

The evolution of the Guidance on evaluation and hazard ratings

4 In 1982, almost ten years after work started on the assessment of the environmental hazards of substances carried by ships, GESAMP decided to publish the working procedures which had been written in different technical reports over the years as Reports & Studies No. 17 “The Evaluation of the Hazards of Harmful Substances Carried by Ships”. The evaluation was restricted to the effects of non-radioactive chemicals excluding mineral oils on the marine environment including the coastline. Effects of substances on either the vessel or its crew were excluded. At that time, the hazards were shown in hazard profiles (“fingerprints”) with 5 ratings in columns A to F. Column A referred to substances that could bioaccumulate either by biomagnification or bioaccumulation, in its strict sense. However, it also included aspects of

degradation of substances and tainting of marine organisms (“seafood”). Column B covered direct toxic effects to aquatic organisms only. Indirect effects (e.g. via deoxygenation of the water) had been evaluated before 1982. Columns C and D showed the hazards to human health including the ingestion of water containing the spilt substance (column C) and the risks created via skin exposure during swimming or inhalation created by aerosols after spillage (column D). Column E showed the reduction of amenities as a consequence of the presence of poisonous, irritant or foul-smelling substances. This included the long-term hazards to humans (e.g. carcinogenicity shown as an additional remark). Column F was used for remarks.

5 Seven years later, in 1989, GESAMP published a further report No.35 under the Reports & Studies series with more sophisticated criteria for ratings under the 5 columns. This report showed more detailed sets of criteria to be used for ratings and guidance on measuring taint in fish as well as a data submission format. This became necessary as the group was also tasked with the evaluation of substances transported in packaged form on ships (e.g. container) to assign a classification and labelling as Marine Pollutant.

6 The guidance and the rating system from 1989 was successfully used for nearly ten years. In the late 1990s the group was involved in the creation of a global approach to the hazard classification and labelling of chemicals and discussed the influence of biodegradation, the effects of floating substances (creating oil-like slicks) and a better inclusion of specific test data from the standardised studies introduced by OECD starting in the 1980s. The amendments to the GESAMP Hazard Evaluation Procedure were published in 2002 as “Revised GESAMP Hazard Evaluation Procedure for Chemical Substances Carried by Ships” (Reports & Studies No. 64). At that time, this guidance became a very important part of the revision of MARPOL Annex II and the IBC Code regulating the transport of bulk liquids.

7 A further ten years later, experience showed a need for very limited refinements of the system based on discussions concerning individual ratings but in particular the practise by maritime administrations and the industry to use the hazard profile for a number of carriage requirements. A 2nd edition of Reports & Studies No. 64 was published in 2014.

8 The ongoing work on revising Chapter 21 of the IBC Code, which updates the hazard classification criteria used for assigning carriage requirements, presents new challenges for the GESAMP Hazard Evaluation Procedure. The new Code of Safe Practice for the Carriage of Cargoes and Persons by Offshore Supply Vessels (OSV Code), which will become a mandatory requirement, includes direct reference to the IBC Code, including the GESAMP Hazard Profile. Whereas the IBC Code asks for a more sophisticated evaluation of the inhalation hazard, the offshore supply regulation relies heavily on a realistic scientific evaluation of mineral slurries.

9 It was noted that a scientific evaluation of the flammability and explosion hazard with the assignment of a rating within the GESAMP Hazard Profile would be a useful addition for use by the IMO Working Group on the Evaluation of Safety and Pollution Hazards of Chemicals (ESPH). Although the GESAMP/EHS Working Group evaluates the scientific data, no rating for flammability is currently included as part of the GESAMP Hazard Profile.

A revised Guidance on evaluation and hazard ratings

10 Extended and more sophisticated guidance for the evaluation and the hazard ratings is now needed, after more than 15 years of work based on the guidance published in 2002 as Reports & Studies No. 64. This future procedure will include a more detailed evaluation of the vapour inhalation hazard, the flammability hazard, and will eliminate the rating for tainting (which is now considered obsolete) and will revise the procedure for the assessment of hazards for inorganic substances. The revision of the guidance had already been agreed in principle by GESAMP in 2016.

11 The group initiated discussions on possible future amendments to the existing guidance during the 53rd session in 2016, developed first drafts intersessionally and finalized draft texts and rationales during the 54th session in 2017 (shown as annexes 4, 5 and 6 of the report EHS 54/9).

12 The Group reconfirmed its intention to initiate a revision of the second edition of Reports and Studies No.64 for finalization and publication to coincide with the 50th anniversary of GESAMP in late 2019.

Evaluation of substances

13 The main work carried out at that session concerned the evaluation of substances, as per the usual practice. Data on 13 new substances were evaluated and full GESAMP Hazard Profiles assigned, accordingly. Based on correspondence with industry, 33 additional substances were submitted for re-evaluation. The GESAMP hazard profiles (GHPs) for 9 substances were either modified or reconfirmed, based on consideration of new data.

14 Industry submitted information about inhalation toxicity for 24 chemicals which, in most cases, was insufficient for any final assessment. However, guidance was provided for industry for better submissions, e.g. if data are based on read across or by analogy, a clear rationale and explanation would be needed. This work is a direct result of the new policy under the IBC Code including a direct reference to GESAMP ratings. As many of the 900 chemicals evaluated during the last decades are less toxic via vapour than via mist (aerosol) exposure, a revised rating could lower the standards for carriage requirements leading to significantly lower transport costs.

15 Together with the Group's consideration of the submissions for a number of new products, the situation led to a general discussion regarding the quality of submissions, in particular, with regard to the format for submission of test studies and supporting technical data. To this end, the Group agreed that guidance was needed that clearly set out the type and format of information to be submitted for both new products and re-assessments and requested the Secretariat to develop this intersessionally for review at EHS 55.

16 An important issue concerned the evaluation of hydrocarbon waxes including paraffin-like products which are washing up on beaches along European coasts. Based on the information considered at EHS 53, the Group concluded that there were four possible groupings for paraffins and agreed to further refine these and develop appropriate names and profiles at EHS 54. Taking into consideration the background documentation prepared by the Chair intersessionally noting that no information had been received from industry, further to the request made by IMO bodies (ESPH 22 and PPR 4), the Group agreed to revised entries for paraffins and hydrocarbon waxes in the Composite List.

Membership issues

17 The Group invited Dr. Bette Meek to formally join GESAMP/EHS as a standing member of the expert group, further to her initial participation as a first time expert at GESAMP/EHS 53, and welcomed her important contribution to the Group's work going forward. The Group also noted that this would be the last session of Mr. Derek James and expressed its deep appreciation for his long and dedicated service to the work of the Group.

Funding issues

18 The funding of Working Group 1 is based on a fixed fee which is charged for each new product evaluation. It was noted, however, that to date no fees were applied for cases where requests from industry for a revised hazard evaluation were submitted. As reported following discussions at GESAMP 42, GESAMP noted that the level of effort involved in these re-evaluations was considerable and increasing and, as a consequence, that consideration should be given to the introduction a fee for this service, as is done for the full assessments. The responsible IMO bodies agreed to request the GESAMP/EHS Working Group to continue

monitoring this issue and report back, as appropriate. It should be noted in this respect that GESAMP/EHS 54 considered an exceptionally large number of submissions for re-evaluation in particular of the acute inhalation hazard.

Action requested of GESAMP

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