



## **SCOPING ACTIVITIES AND TASK TEAMS**

### **Report of the Task Team on Exhaust Gas Cleaning Systems**

#### **Introduction**

1 The Task Team on Exhaust Gas Cleaning Systems (TT on EGCS) was convened on a request of the Marine Environmental Protection Committee (MEPC) to GESAMP to give an opinion on the potential environmental and public health effects of EGCS effluents. According to its Terms of Reference (ToR), the Task Team assessed the available evidence relating to the environmental impact of EGCS taking into account the information provided in several background documents and other information made available or accessed by the Task Team. The ToR of the TT on EGCS is resented in annex 1 to this report.

2 GESAMP may recall that the ToR have been discussed and agreed during GESAMP 46 in New York during its annual meeting taking place from 9 to 12 September 2019.

3 The composition of the TT on EGCS was as follows:

- Eric Adams (United States) with expertise in fluid dynamics, mathematical modelling;
- Brigitte Behrends (Germany) with expertise in marine and environmental chemistry;
- Annette Dock (Sweden) with expertise in human toxicology and human health risk assessment;
- Shinichi Hanayama (Japan) with expertise on ecotoxicology, ocean chemistry;
- Jan Linders (The Netherlands, Chair) with expertise in general risk assessment, mathematical modelling;
- Richard Luit (The Netherlands) with expertise in environmental risk assessment;
- Claude Rouleau (Canada) with expertise in chemistry; and
- Jacek Tronczynski (France) with expertise in environmental marine biogeochemistry, oceanography.

4 The Task Team met three times, two times by teleconference (1 October 2019 and 21 November) and one time in person during a workshop at IMO Headquarters from 29 October to 1 November 2019). By early December the draft report had been sent to GESAMP for peer review, and on 16 December 2019 the report was ready to be sent to PPR 7 that was held from 17 to 21 February 2020.

#### **Exhaust Gas Cleaning Systems**

5 EGCS are exactly what the name contains: the exhaust gases are cleaned from SO<sub>x</sub> by a counter flow of (sea)water. The water containing the washed out contaminants is then discharged

to the water. The number of EGCS built into ships has increased significantly due to the discharged limits and each further restriction caused an increase in the usage of these systems.

6 Due to new standards that entered into force on 1 January 2020, the sulphur fuel limit was further reduced to 0.50% m m<sup>-1</sup> sulphur contents in the fuel. In so-called SECAs (SO<sub>x</sub> emission control areas) the sulphur limit was already reduced to 0.10% m m<sup>-1</sup> per 1 January 2015. It was recognized that this reduction would result in change of the discharge of SO<sub>x</sub> from the air compartment to the water compartment. Several Administrations and port States were not satisfied with this 'solution'. So, although the new standard would be in favour of climate change measures, they were certainly not favourable for the aquatic environment.

7 Several organizations, Member States, industries and non-governmental organizations, performed estimations and the results varied from the discharge of EGCS has no effects via limited effects to severe effects to the aquatic environment. Therefore, MEPC requested GESAMP for its views.

### **The report of the Task Team on EGCS**

8 The Task Team on EGCS made an inventory of the diversity of contaminants in exhaust gases, their potential amount on a concentration basis, the potential hazards related to these contaminants for the aquatic ecosystem and humans as well as the possibilities of estimating current and future concentrations based on mathematical modelling techniques.

9 The Task Team on EGCS identified many gaps in the scientific data of many contaminants related to physico-chemical characteristics and (eco-)toxicological data. The Task Team is of the opinion that additional data of the relevant chemicals on these topics would not be very likely. Therefore, different methods, like extrapolation, application of assessment factors and (quantitative) structure activity relations could be helpful to complete to dataset to a level that risk assessment would be possible.

10 The Task Team on EGCS formulated a long list of recommendations to fulfill the conditions for a scientifically sound risk assessment for the contaminants in exhaust gas discharges. One of the main important recommendations concerned the development of a database of the most relevant contaminants in the EGCS discharge. It was suggested to build the database on the already existing database for the evaluation of disinfection by-products of ballast water management systems.

11 The Chair of the Task Team was available at PPR 7 to answer and clarify potential questions and to discuss the report in general and to define a way forward. The report was received quite well at PPR 7 although there were remarks that some background documents were insufficiently taken into account.

12 PPR 7 concluded finally to report this as an urgent matter to MEPC 75, advising MEPC to "request the Secretariat to explore the possibility of involving GESAMP in the development of different parts of the agreed scope for scientific advice, as appropriate" (document MEPC 75/10, paragraph 2.22).

13 The general structure of the scope as referred to paragraph 12 above contained the following items:

- Part 1a: Risk assessment;
- Part 1b: Impact assessment;
- Part 2: Delivery of EGCS residues;
- Part 3: Regulatory matters; and
- Part 4: Database of substances.

## **Planning ahead**

14 MEPC 75 was originally scheduled in the week of 31 March 2020. Due to the COVID-19 pandemic the meeting had been cancelled and postponed to a later date. No final date for this meeting has been set yet but surely it will take place after GESAMP 47.

15 For the realization of the report of the TT on EGCS, IMO received donations from Member States, but the total budget was not yet completely depleted. Currently, the possibilities are explored by IMO to develop the recommended database further using external consultancy.

## **Acknowledgement**

16 The TT on EGCS is very thankful to all the members of GESAMP that took the time to critically review the report on EGCS. The quality of the work has been improved as a result of this peer review process. It provided a good basis for the discussion at PPR 7 in February 2020.

17 The Task Team is of the opinion that it has fulfilled its ToR.

## **Action requested of GESAMP**

18 GESAMP is invited to review this document and to comment, as it deems appropriate and in particular to discharge the Task Team on EGCS from its ToR.

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## ANNEX 1

### TERMS OF REFERENCE FOR THE TAST TEAM ON EXHAUST GAS CLEANING SYSTEMS

1. The Terms of Reference for the Task Team on Exhaust Gas Cleaning Systems was agreed at the annual meeting of GESAMP held in New York from 9 to 12 September 2019 and was formulated as follows:

- .1 To assess the available evidence relating to the environmental impact of exhaust gas cleaning system effluents taking into account the information provided in several background documents and other information made available or accessed by the Task Team;
- .2 To assess the results of available simulations for predicting the environmental concentrations of target substances;
- .3 To provide information on whether there was a need for more scientific research with respect to the environmental impacts of EGCS washwater discharges; and
- .4 To report its findings, as an information document, to PPR 7.

2. It should be noted that the Task Team had not been requested to carry out a risk assessment following its review of the available evidence. With respect to the possibilities of a risk assessment the Task Team could decide to consider three options:

- .1 to carry out a preliminary risk assessment;
- .2 to recommend that a risk assessment should be carried out (by GESAMP or another entity); and
- .3 to request that further studies are undertaken to provide sufficient evidence to carry out a risk assessment.

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