
MARINE EXHAUST GAS SCRUBBER MEPC Correspondence Group on Wash Water Discharge Criteria

GENERAL COMMENTS

We agree with Finland that in any general discussions we should use a wording like “exhaust gas scrubbing” or “SOx-scrubbing” or “EGCS-SOx”. This is because “sea water scrubbing” is only one type of potential systems, “fresh water scrubbing” another type etc.

The shipping industry is presently facing a clear introduction dilemma of exhaust gas scrubbing technology. The main reason for this appears to be the uncertainty of compliance with wash water regulations, in combination with high price and technical challenges of this technology. Until now no ships have been made SECA Compliant with scrubbers, and such equipment have not even been ordered. SOx-scrubbing has been tested onboard ships, but apparently there is presently only one unit in operation in the whole world. In land-based power plants corresponding technology has been used for years, also in combination with diesel engines.

The ability of exhaust gas scrubbing systems to reduce SOx is clear. In the prevailing situation this opportunity will continue to be lost unless an appropriate way to handle the introduction is found. In doing some studies about the environmental impact of the wash water the present chicken-and-egg situation has become obvious. It is difficult to find data of the wash water because potential suppliers are still very rare, and experience is very limited. Instead, suppliers expect the legislator to clarify the situation, to obtain design targets. The only way to open this locked situation is to get such equipment onboard and permit research.

Therefore we agree with France that this target is achieved by a gradual introduction of wash water discharge criteria based on the following principles:

- The first set of criteria (**Tier I**) should be reasonably easy to achieve, and applicable for ships constructed before [1.1.2013].
- This period will allow some R&D to take place on newbuildings starting maybe 2010 (and hopefully some retrofits before that), and wash water discharge criteria to be updated by IMO in 2011 and 2012.
- Updated criteria (**Tier II**) should not be applied on ships constructed before this date, as OCIMF correctly points out. Shipowners volunteering to invest early in pioneering technology should not later be punished by having to modify the equipment. Without this confidence potential pioneers will not invest and the introduction dilemma will continue.

During Tier I the amount of pioneering ships will remain low, and the environmental impact of the wash water will therefore remain insignificant regardless of the requirement. The number of such ships will remain significantly smaller than the number of tankers regularly discharging similar wash water from their inert gas scrubbers while lying stationary in oil terminals discharging their cargo.

This stepwise approach would also allow a logical way forward for potential equipment designers. In contrast, the present situation or future ambitious wash water requirements will encourage designers to specify scrubbing principles with a minimum reduction of particles, to keep the wash water as clean as possible, and any treatment plant as cheap as possible. While such principles would be a prerequisite for commercial success for equipment vendors, particles will continue to be emitted into the atmosphere. A variety of scrubbing technologies exist, some good in reducing gaseous SOx, but less efficient in reducing particles, and legislation will dictate the choice. As long as particles and hydrocarbons are permitted to be

emitted from any ship to the atmosphere and distributed over land and sea, any potential of SO_x-scrubbers to reduce such emissions will remain hypothetical as long as the use is perceived too challenging by the industry.

As long as legislation is perceived controversial, designers do not have logical design targets, and even the design work of the scrubbing unit itself, in addition to the wash water treatment plant, cannot really start.

We agree with OCIMF, Finland and Norway on the following issue: Recent reports from Norway and Finland highlight the need for different legislation with “enclosed ports, harbours and estuaries” for two significantly different categories of equipment as well as ship operating modes:

1. Ship moving and propeller rotating.
 - This mode is relevant for all HFO combustion units, including main engines.
 - In this mode effluent dilution is efficient, and there is no obvious need for regulations.
2. Alongside, ship stationary and propeller not rotating.
 - This mode is relevant for generator engines and oil-fired boilers.
 - In this mode effluent dilution is less efficient, and some regulations could be considered.

QUESTION #1

Below is a short comment on some scrubber wash water parameters.

Oil

- We agree with Finland that in exhaust gas scrubbing only a small fraction of the hydrocarbons is captured. Therefore the oil content of the scrubber wash water is not so critical for the environment. This is evident from two different trials made in the early 1990's.
- We support Finland and France with their proposed limit:
 - a. 15 ppm when ship is moving.
 - b. 5 ppm when ship is stationary.
 - c. An allowance for temporary excursions as described in the UK paper.

Heavy metals

- As OCIMF points out, the emission of PM to the atmosphere should be minimised, and the industry should not be encouraged to develop and specify equipment with clean effluent by minimising the particle reduction in the scrubber. Therefore it is proposed that no discharge limits for heavy metals are included in Tier I.
- Within IMO it has proved difficult to regulate emission of particles of diesel engines. Furthermore, when considering the additional difficulty in assessing particle reduction of the scrubbing unit, and cleaning performance of a possible wash water treatment plant, it is premature to regulate the metal content of wash water. As Japan points out, even fuel specification would have to be a part of the compliance scheme. In fact the whole chain of responsibilities (refinery - bunker supplier – charterer – owner – engine maker – fuel separator supplier – scrubber maker – wash water treatment supplier) would have to be clarified and contractually agreed upon, and the whole issue becomes impractical.

pH

- Sea water scrubbing: It is inevitable that the effluent has a lower pH than the water inlet. The higher the SO_x-reduction in the scrubbing unit, the lower is the effluent pH. However, as per the Norwegian report there are no environmental concerns.
- Fresh water scrubbing: The pH of the effluent is not drastically different from the inlet, and the flow is small, and there are no environmental concerns.
- To ensure the industry is not encouraged to develop, specify and operate sea water scrubbing equipment with a high effluent pH by minimising the SO_x reduction, and to avoid unnecessary technical complications and certification procedures, we agree with Norway that no discharge limits for pH should be included in Tier I.

Chemical Oxygen Demand (COD)

- Sea water scrubbing: No environmental concerns.
- Fresh water scrubbing: As per the Finnish report (page 21), any residual sulphite is rapidly converted into harmless sulphite under natural conditions, and therefore there are no major environmental concerns.
- As pointed out by France, the oxygen content of sea water is higher and natural oxidation occurs quickly in the area where the effluent is discharged, due to turbulence caused by propeller and sea waves.
- To avoid unnecessary technical complications and certification procedures, we agree with France that no discharge limits for COD are included in Tier I. The issue may deserve further consideration when preparing for Tier II.

EIA

In Tier I, it is not appropriate to require an EIA before issuing a SCC. We agree with Finland, Norway and France that requiring an EIA for individual equipment for specified ports is too complicated.

In preparation for Tier II, some EIA could be part of further R&D and legislation development. Such work will become possible when a small population of scrubbing systems are in operation.

QUESTION #2

It is proposed that the only permanent measurement required onboard is oil content. Even that is not really necessary in case of sea water scrubbers, as the actual values anyway will be below the proposed limits.

QUESTION #3

- We agree with Norway. In principle, requiring a treatment system is a too prescriptive regulation. Legislation should be goal-setting, setting certain standards, in this case discharge criteria.
- For fresh water scrubbing, criteria proposed under question #1 would in any case (indirectly) necessitate a treatment plant.

QUESTION #4

- Oil content monitoring as per IMO Resolution MEPC.107(49) (for 15 ppm Bilge Alarms) could be appropriate for fresh water scrubbing, but is not necessary for sea water scrubbing due to the low level.
- Monitoring of other parameters should not be required. Measuring heavy metals onboard is unrealistic.

QUESTION #5

One oil content limit for moving and another for stationary ships is sufficient.

QUESTION #6

Oil content monitoring is appropriate for fresh water scrubbing, but not necessary for sea water scrubbing due to the low level.

QUESTION #7

One oil content limit for moving and another for stationary ships is sufficient.

QUESTION #8

The most practical way would be to update the relevant Sections (at least 7, 8, 17 and 18) of MEPC.130(53) based on findings of this Correspondence Group, as these Sections anyway cannot be left as they are, to avoid obvious inconsistency. This even more so, as a revision of MEPC.130(53) anyway is on the agenda of BLG 11 regarding other issues than wash water.

2007-03-29 SchP