

SUB-COMMITTEE ON POLLUTION
PREVENTION AND RESPONSE
10th session
Agenda item 12

PPR 10/12/3
3 March 2023
Original: ENGLISH
Pre-session public release:

REVISION OF MARPOL ANNEX IV AND ASSOCIATED GUIDELINES

Comments on the implementation of performance tests on existing ships provided by the Report of the Correspondence Group

Submitted by India, Japan, United Arab Emirates, ICS and BIMCO

SUMMARY

Executive summary: This document comments on document PPR 10/12 (Norway). The co-sponsors propose that performance testing should not be mandatory for existing ships and suggests effective measures through maintenance and operation of existing ships.

Strategic direction, if applicable: 1

Output: 1.26

Action to be taken: Paragraph 21

Related documents: PPR 10/12 and PPR 8/7/8

Introduction

1 This document is submitted in accordance with paragraph 6.12.5 of the *Organization and method of work of the Maritime Safety Committee and the Marine Environment Protection Committee and their subsidiary bodies* (MSC-MEPC.1/Circ.5/Rev.4) and provides comments on document PPR 10/12 (Norway).

2 The Sub-Committee, at its ninth session in April 2022, re-established the Corresponding Group on Amendments to MARPOL Annex IV and Associated Guidelines under the coordination of Norway. The co-sponsors highly appreciate the work of the Correspondence Group and generally agree with document PPR 10/12. The co-sponsors provide comments on the implementation of performance tests on existing ships, which is one of the issues requiring further consideration.

Discussion

Avoiding undue penalties on ships

3 As mentioned in paragraph 34 of document PPR 10/12, it is to be discussed whether to require performance tests for existing ships at the renewal survey. The co-sponsors believe that performance tests should not be mandatory for existing ships. The reasons are described below.

4 STPs installed on existing ships are approved in accordance with resolutions MEPC.227(64) and MEPC.159(55), etc. Under these type approval standards, the only effluent standards that existed were those in place at the time of type approval, and there were no effluent standards after entering into service. Therefore, the manufacturers of STPs did not develop the STPs based on the assumption that they would need to comply with the standards that would take effect after the STPs entered into service.

5 Therefore, it would not be fair to take sampling to determine compliance with the standard for STPs developed in accordance with resolutions MEPC.227(64) and MEPC.159(55), etc., and would violate the principle that "ships should not be unduly penalized" as stipulated in the term of reference 5.1 of the Correspondence Group.

6 In addition, by requiring installed STPs to comply with the standards which did not exist when the STPs were type approved, it is expected that a number of ships equipped with STPs designed and manufactured in accordance with resolutions MEPC.227(64) and MEPC.159(55), etc. will have to be replaced with new STPs. This could be seen as practically equivalent to mandating the replacement of existing equipment and could conflict with the principles of the grandfathering clause (article 16(6) of the MARPOL Convention).

7 Based on the above discussion, it is not appropriate to judge whether existing ships comply with the standards, and therefore, the co-sponsors cannot support requiring performance testing during renewal surveys. Furthermore, since performance tests are not implemented, there is no need to mandate the installation of a sampling point either.

Measures through operation and maintenance

8 Japan conducted sampling and laboratory tests of treated sewage during the actual operation of the ship. As a result, it was confirmed that by operating the STPs in a manner similar to the method explained in the operation and maintenance manuals (OMM) provided by the STP manufacturer, the performance of the STPs could be maintained at a high level, leading to improved quality of treated sewage (see paragraphs 15 to 21).

9 The results indicate that it is important to utilize a framework to ensure that operations and maintenance are being performed properly in order to improve the water quality of treated sewage discharged from existing ships.

10 The implementation method and implementation status of operation and maintenance can be confirmed by the Sewage Management Plan (SMP) and the Sewage Record Book (SRB). Since it has already been agreed in the Correspondence Group that SMP and SRB would be mandatory for existing ships, a framework is already in place to ensure that operations and maintenance are being performed properly, and it is important that this be done properly, rather than establishing a new framework.

11 However, it was found that the OMM of some STP manufacturers lack aspects that may affect the performance of STPs, such as the supply of dilution water in the case of vacuum toilets and the fact that the water initially filled in the STP after cleaning, toilet flush water and water for cleaning inside the STP are not unified among fresh water and sea water.

12 Also, indicative monitoring can be a means for confirming whether the device is operating normally. However, as with the discussion on performance testing, requiring indicative monitoring on existing ships would be inappropriate because it would require something that was not considered when the STP was designed. Therefore, indicative monitoring for existing ships should be conducted on a voluntary basis.

Proposals

13 On the basis of the discussion presented in the paragraphs above, the co-sponsors recommend the following:

- .1 performance tests should not be mandatory for existing ships;
- .2 the Administration or the recognized organization (RO) should check SMP and SRB to ensure that the implementation method and implementation status of maintenance and operation are appropriate;
- .3 the STP manufacturers should take appropriate measures, such as revising OMM, considering the possibility of affecting the performance of the STP; and
- .4 indicative monitoring for existing ships should be voluntary.

Others (survey results)

14 Japan sampled and analysed treated sewage discharged from ships in operation from 2022 to 2023 in order to confirm that proper maintenance and operation of STPs can improve the performance of STPs and also the quality of treated sewage.

15 The survey was conducted with three ships, and basic information on each ship and its installed STP is listed in table 1.

Table 1: Basic information on each ship and STP

	Ship A	Ship B	Ship C
Ship type	Bulker, approx. 50,000GT	LNG, approx. 120,000GT	Bulker, approx. 110,000GT
Year built	2015	2012	2019
STP type	UV sterilization, chlorine sterilization	UV sterilization, chlorine sterilization	UV sterilization, chlorine sterilization
Type approval	MEPC.159(55)	MEPC.159(55)	MEPC.227(64)
Toilet method	Gravity toilet	Vacuum toilet	Vacuum toilet

16 The status of STP maintenance and operation for those ships is listed in table 2. No ship can be said to operate completely in accordance with the operation and maintenance manuals (OMM) prepared by the STP manufacturer.

17 However, ship A is operated almost in accordance with the OMM, although the toilet flush water and the water initially filled in the STP after cleaning (fresh water) is different from the water for cleaning inside the STP (sea water) and the amount of disinfectants used is larger than the amount specified in the OMM. On the other hand, ship B and ship C do not operate in accordance with the OMM in important points such as the frequency of STP cleaning and the use of dilution water in the case of vacuum toilets.

Table 2: How to perform maintenance and operations of STPs

	Ship A	Ship B	Ship C
Cleaning frequency of STP	1 month	4 months (1 month)	1 month
Toilet flush water	Fresh water	Fresh water	Fresh water
STP cleaning water	Sea water (Same as toilet flush water)	Sea water (Same as toilet flush water)	Fresh water
Water initially filled in STP after cleaning	Fresh water	Seawater (Same as toilet flush water)	Fresh water
Operation beyond 12 nautical miles from shore	STP always used, no STP bypass	STP always used, no STP bypass	STP always used, no STP bypass
Use of disinfectants	5-6 tablets (2 tablets)	5-6 tablets (4 tablets)	3 tablets
UV lamp frequency	1 year	2 years (1 year)	1 year
Dilution water	Not required	None (required)	None (required)

Note: For items that deviate from the STP manufacturer's OMM, the appropriate method of implementation is noted in brackets.

18 The treated sewage was sampled from the sampling point of the STP while these ships in service were at the port, and water quality analysis was conducted in the laboratory. Sampling and analysis methods were conducted in accordance with the relevant ISO standards. In addition, in order to improve the reliability of the analysis results as much as possible, the treated sewage was sampled and analysed on multiple anchorage occasions, and the averaged values are listed in table 3.

19 The results show that ship A has relatively better values for each item compared to ship B and ship C. This suggests that by operating close to the OMM the performance of the STP can be maintained at a high level and the quality of treated sewage can be improved.

20 It should be noted that in some cases, the factors that may have affected water quality, such as the supply of dilution water in the case of vacuum toilets and the fact that the water initially filled in STP after cleaning, water for cleaning inside STP and toilet flush water are not unified, were not necessarily written in the OMM provided by some STP manufacturers.

Table 3: Sampling results for each ship

Item	Unit	Ship A	Ship B	Ship C	MEPC.159 standard	MEPC.227 standard
Thermotolerant coliform count	cfu/100ml	14.3	39,063.7	448.1	100	100
pH		8.3	7.9	7.1	6-8.5	6-8.5
TSS	mg/l	25.6	147.1	15.4	35	35
COD	mg/l	186.3	728.4	694.7	125	125
BOD	mg/l	65.2	118.6	106.8	25	25
Turbidity	FAU	49.8	246.5	64.7	-	-
TRO	mg/l	below 1	0.7	0.5	0.5	0.5

Action requested of the Sub-Committee

21 The Sub-Committee is invited to consider the comments above, especially the proposals in paragraph 13, and take action as appropriate.