ANNEX 4

DRAFT AMENDMENTS TO MARPOL ANNEX VI

**(Use of multiple engine operational profiles for a marine diesel engine
including clarifying engine test cycles and clarification of entries in data reporting
required by regulations 27 and 28)**

Regulation 2
Definitions

1   Paragraph 2.1.19 is replaced by the following:

".19   *Irrational emission control strategy* means any strategy or measure that, when a marine diesel engine is operated under normal conditions of use, reduces the effectiveness of an emission control system to a level below that expected from the applicable emission test procedures."

Appendix I
Form of International Air Pollution Prevention (IAPP) Certificate (regulation 8)

Supplement to the International Air Pollution Prevention Certificate (IAPP Certificate)

2   New rows are to be added to the table in section 2.2.1 as follows:

For Tier I (below 13.7.1.2) enter new row:

"

9f	Tier I	NTC 8 (Multiple Engine Operational Profiles)	☐	☐	☐	☐	☐

"

For Tier II (below 13.7.1.2) enter new row:

"

10g	Tier II	NTC 8 (Multiple Engine Operational Profiles)	☐	☐	☐	☐	☐

"

For Tier III (below 13.7.1.2) enter new row:

"

11e	Tier III	NTC 8 (Multiple Engine Operational Profiles)	☐	☐	☐	☐	☐

"

Appendix II
Test cycles and weighting factors (regulation 13)

3   The full text of appendix II is replaced by the following:

"The following test cycles and weighting factors shall be applied for verification of compliance of marine diesel engines with the applicable NO_x limit in accordance with regulation 13 of this annex using the test procedure and calculation method as specified in the revised NO_x Technical Code 2008.

> .1   For a fixed pitch propeller propulsion engine or a propeller-law operated non-propulsion engine, test cycle E3 shall be applied in accordance with table 1.
>
> .2   For a propulsion engine that does not operate with a fixed pitch propeller, including an engine fitted as part of a diesel-electric installation or an engine operated with a controllable-pitch propeller, test cycle E2 shall be applied in accordance with table 2.
>
> .3   For a non-propulsion engine that is a constant-speed engine, test cycle D2 shall be applied in accordance with table 3.
>
> .4   For a non-propulsion engine that operates as a variable-speed engine, not included above, test cycle C1 shall be applied in accordance with table 4.

Table 1 – Test cycle for a marine diesel engine as given by .1 above propeller-law-operated main and propeller-law-operated auxiliary engine application

Test cycle E3	Speed	100%	91%	80%	63%
	Power	100%	75%	50%	25%
	Weighting factor	0.2	0.5	0.15	0.15

Table 2 – Test cycle for a *marine diesel engine as given by .2 above constant-speed main propulsion* application (including diesel-electric drive and all controllable-pitch propeller installations)

Test cycle E2	Speed	100%	100%	100%	100%
	Power	100%	75%	50%	25%
	Weighting factor	0.2	0.5	0.15	0.15

Table 3 – Test cycle for a marine diesel engine as given by .3 above

Test cycle D2	Speed	100%	100%	100%	100%	100%
	Power	100%	75%	50%	25%	10%
	Weighting factor	0.05	0.25	0.3	0.3	0.1

Table 4 – Test cycle for a marine diesel engine as given by .4 above

Test cycle C1	Speed	Rated				Intermediate			Idle
	Torque	100%	75%	50%	10%	100%	75%	50%	0%
	Weighting factor	0.15	0.15	0.15	0.1	0.1	0.1	0.1	0.15

In the case of marine diesel engine to be certified in accordance with paragraph 5.1.1 of regulation 13, the specific emission at each individual mode point shall not exceed the applicable NO_x emission limit value by more than 50% except as follows:

.1   The 10% mode point in the D2 test cycle.

.2   The 10% mode point in the C1 test cycle.

.3   The idle mode point in the C1 test cycle. "

Appendix IX
Information to be submitted to the IMO Ship Fuel Oil Consumption Database (regulation 27)

4   The section of "identity of the ship" is replaced as follows:

"**Identity of the ship**

IMO Number ....

Period of calendar year for which the data is submitted ....

For the purpose of regulation 27:

Start date (dd/mm/yyyy) ....

End date (dd/mm/yyyy) ....

For the purpose of regulation 28:

Start date (dd/mm/yyyy) ....

End date (dd/mm/yyyy) .... "

5   In the section on "Fuel oil consumption data", the term "Oil-fired Boiler(s)" is replaced by "Fired Boiler(s)".

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