# TÜRK LOYDU

## TL-I MPC

# Interpretations of the International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978 relating thereto and its Annexes

## January 2020

These interpretations are prepared by embedding related IACS Unified Interpretations. In order to have consistency, the numbering of the interpretations are kept as the same with related IACS Unified Interpretations.

Unless otherwise specified, these Rules apply according to the implementation dates as defined in each interpretation. See Rule Change Summary on TL website for revision details.

This latest edition incorporates all rule changes.

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# TL- I MPC6 Calculation of the aggregate capacity of SBT

**(Regulation 19.3.4)**

*19.3.4 The aggregate capacity of ballast tanks*

*On crude oil tankers of 20,000 tonnes deadweight and above and product carriers of 30,000 tonnes deadweight and above, the aggregate capacity of wing tanks, double bottom tanks, forepeak tanks and after peak tanks shall not be less than the capacity of segregated ballast tanks necessary to meet the requirements of regulation 18 of this Annex. Wing tanks or spaces and double bottom tanks used to meet the requirements of regulation 18 shall be located as uniformly as practicable along the cargo tank length. Additional segregated ballast capacity provided for reducing longitudinal hull girder bending stress, trim, etc. may be located anywhere within the ship.*

**Interpretation**

1. Any ballast carried in localized inboard extensions, indentations or recesses of the double hull, such as bulkhead stools, should be excess ballast above the minimum requirement for segregated ballast capacity according to regulation 18.

2. In calculating the aggregate capacity under regulation 19.3.4, the following should be taken into account:

2.1 the capacity of engine-room ballast tanks should be excluded from the aggregate capacity of ballast tanks;

2.2 the capacity of ballast tank located inboard of double hull should be excluded from the aggregate capacity of ballast tanks (see figure 1).

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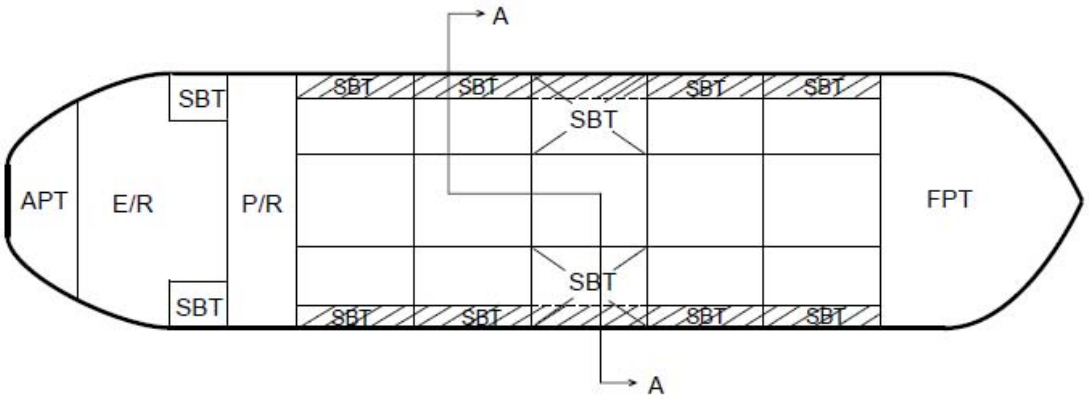
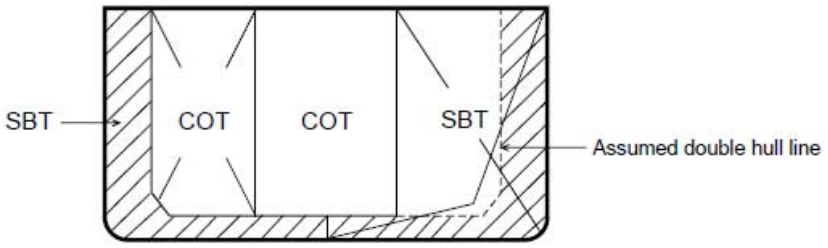
Notes:

1. This interpretation is implemented for ships contracted for construction on or after 1 July 2016.

2. The “contracted for construction” date means the date on which the contract to build the vessel is signed between the prospective owner and the shipbuilder. For further details regarding the date of “contract for construction”, refer to TL- PR 29.




SECTION A-A

Fig. 1

2.3 spaces such as void spaces located in the double hull within the cargo tank length should be included in the aggregate capacity of ballast tanks (see figure 2).

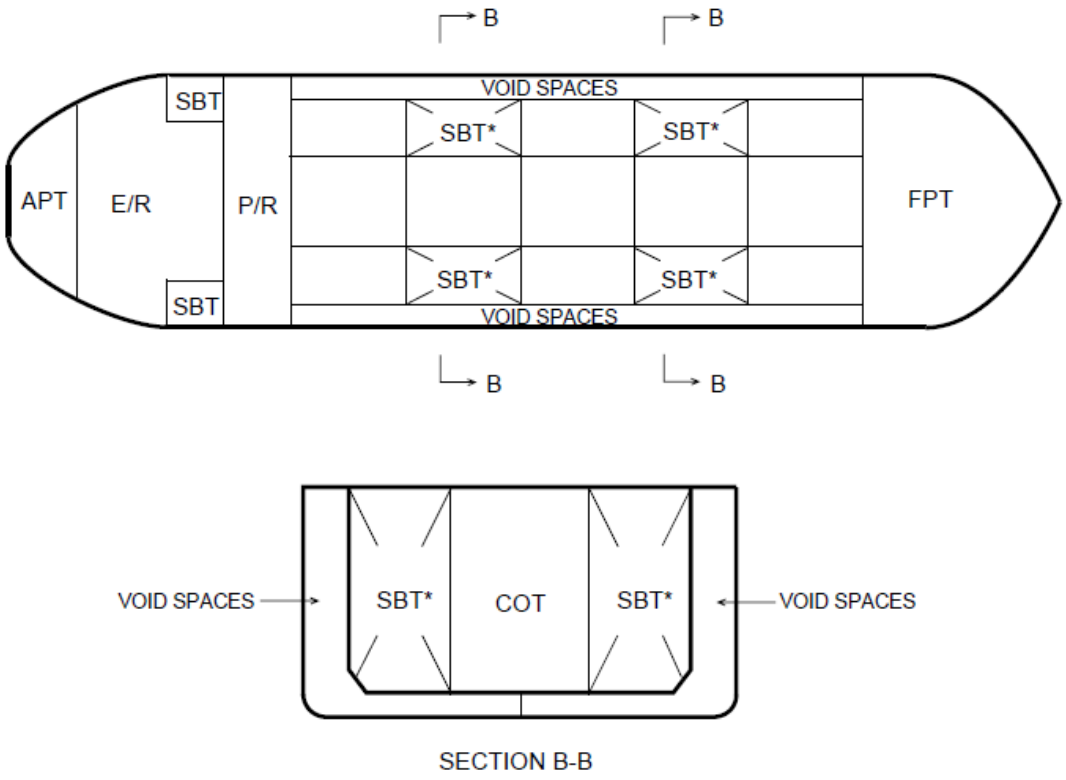



Fig. 2

**TL- I**
**MPC11**

# Interpretation to MARPOL I/27

**Regulation 27**

***Intact stability***

*1 Every oil tanker of 5,000 tonnes deadweight and above delivered on or after 1 February 2002, as defined in regulation 1.28.7, shall comply with the intact stability criteria specified in paragraphs 1.1 and 1.2 of this regulation, as appropriate, for any operating draught under the worst possible conditions of cargo and ballast loading, consistent with good operational practice, including intermediate stages of liquid transfer operations. Under all conditions the ballast tanks shall be assumed slack.*

*.1 In port, the initial metacentric height $GM_o$, corrected for the free surface measured at 0° heel, shall be not less than 0.15 m;*

*.2 At sea, the following criteria shall be applicable:*

*.2.1 the area under the righting lever curve (GZ curve) shall be not less than 0.055 m.rad up to $\theta$ = 30° angle of heel and not less than 0.09 m.rad up to $\theta$ = 40° or other angle of flooding $\theta_f$ * if this angle is less than 40°. Additionally, the area under the righting lever curve (GZ curve) between the angles of heel of 30° and 40° or between 30° and $\theta_f$ , if this angle is less than 40°, shall be not less than 0.03 m.rad;*

*.2.2 the righting lever GZ shall be at least 0.20 m at an angle of heel equal to or greater than 30°;*

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Note:

1. This interpretation is implemented on ships contracted for construction on or after 1 January 2017.

2. The damage stability requirements in MARPOL I/28 shall not apply for the purpose of demonstrating compliance with MARPOL Reg. I/27.

3. The “contracted for construction” date means the date on which the contract to build the vessel is signed between the prospective owner and the shipbuilder. For further details regarding the date of “contract for construction”, refer to TL- PR 29.

*.2.3 the maximum righting arm shall occur at an angle of heel preferably exceeding 30° but not less than 25°; and*

*.2.4 the initial metacentric height $GM_o$, corrected for free surface measured at 0° heel, shall be not less than 0.15 m.*

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** $\theta_f$ is the angle of heel at which openings in the hull superstructures or deckhouses which cannot be closed weathertight immerse. In applying this criterion, small openings through which progressive flooding cannot take place need not be considered as open.*

*2 The requirements of paragraph 1 of this regulation shall be met through design measures. For combination carriers simple supplementary operational procedures may be allowed.*

*3 Simple supplementary operational procedures for liquid transfer operations referred to in paragraph 2 of this regulation shall mean written procedures made available to the master which:*

*.1 are approved by the Administration;*

*.2 indicate those cargo and ballast tanks which may, under any specific condition of liquid transfer and possible range of cargo densities, be slack and still allow the stability criteria to be met. The slack tanks may vary during the liquid transfer operations and be of any combination provided they satisfy the criteria;*

*.3 will be readily understandable to the officer-in-charge of liquid transfer operations;*

*.4 provide for planned sequences of cargo/ballast transfer operations;*

*.5 allow comparisons of attained and required stability using stability performance criteria in graphical or tabular form;*

*.6 require no extensive mathematical calculations by the officer-in-charge;*

*.7 provide for corrective actions to be taken by the officer-in-charge in case of departure from recommended values and in case of emergency situations; and*

*.8 are prominently displayed in the approved trim and stability booklet and at the cargo/ballast transfer control station and in any computer software by which stability calculations are performed.*

**Interpretation**

For proving compliance with Reg. I/27, either paragraph 1 or 2, below, shall be applied.

1. The vessel shall be loaded with all cargo tanks filled to a level corresponding to the maximum combined total of vertical moment of volume plus free surface inertia moment at 0° heel, for each individual tank. Cargo density shall correspond to the available cargo deadweight at the displacement at which transverse KM reaches a minimum value, assuming full departure consumables and 1% of the total water ballast capacity. The maximum free surface moment shall be assumed in all ballast conditions. For the purpose of calculating GMo, liquid free surface corrections shall be based on the appropriate upright free surface

inertia moment. The righting lever curve may be corrected on the basis of liquid transfer moments.

2. An extensive analysis covering all possible combinations of cargo and ballast tank loading is to be carried out. For such extensive analysis conditions it is considered that:

(a) Weight, centre of gravity co-ordinates and free surface moment for all tanks are to be according to the actual content considered in the calculations.

(b) The extensive calculations are to be carried out in accordance with the following:

1. The draughts are to be varied between light ballast and scantling draught.

2. Consumables including but not restricted to fuel oil, diesel oil and fresh water corresponding to 97%, 50% and 10% content are to be considered.

3. For each draught and variation of consumables, the available deadweight is to comprise ballast water and cargo, such that combinations between maximum ballast and minimum cargo and vice-versa, are covered. In all cases the number of ballast and cargo tanks loaded is to be chosen to reflect the worst combination of VCG and free surface effects. Operational limits on the number of tanks considered to be simultaneously slack and exclusion of specific tanks are not permitted. All ballast tanks are to have at least 1% content.

4. Cargo densities between the lowest and highest intended to be carried are to be considered.

5. Sufficient steps between all limits are to be examined to ensure that the worst conditions are identified. A minimum of 20 steps for the range of cargo and ballast content, between 1% and 99% of total capacity, are to be examined. More closely spaced steps near critical parts of the range may be necessary.

At every stage the criteria described in MARPOL Reg. I/27 paragraphs 1.1 and 1.2 are to be met.

3. In applying $\theta_f$, openings which “cannot be closed weathertight” include ventilators (complying with ILLC 19(4)) that for operational reasons have to remain open to supply air to the engine room or emergency generator room (if the same is considered buoyant in the stability calculation or protecting openings leading below) for the effective operation of the ship.

# TL- I MPC12 Annex VI of MARPOL 73/78

**Regulation 1**

*Application*

Regulation 1 reads as follows:

*The provisions of this Annex shall apply to all ships, except where expressly provided otherwise in regulations 3, 5, 6, 13, 15, 16, 18, 19, 20, 21, 22 and 22A of this Annex.*

**Interpretation**

For application of this regulation the term “all ships” shall be interpreted as applicable to all ships as defined by MARPOL 73 Article 2 (4).

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Note:

1. This interpretation is implemented 1 January 2020.

**TL- I MPC14**

# Annex VI of MARPOL 73/78

**Regulation 1 / Regulation 5.2**

*Application /Surveys and Inspections*

*Regulation 1 reads as follows:*

*The provisions of this Annex shall apply to all ships, except where expressly provided otherwise in regulations 3, 5, 6, 13, 15, 16, 18, 19, 20, 21, 22 and 22A of this Annex.*

*Regulation 5.2 reads as follows:*

*In the case of ships of less than 400 gross tonnage, the Administration may establish appropriate measures in order to ensure that the applicable provisions of chapter 3 are complied with.*

**Interpretation**

It shall be interpreted that all marine diesel engines over 130 kW except those exempted by Regulation 3 or Regulation 13 are to comply with the Regulation 13 limit regardless of the gross tonnage of the ship onto which the engine is installed. In this context such engines must have an approved Technical File and must be issued with an EIAPP certificate in accordance with the $NO_x$ Technical Code in all cases.

However the application of the ship surveys as given in Regulation 5.2 to ships under 400 GT would be at the discretion of the relevant Administration.

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Note:

1. This interpretation is implemented from 1 January 2020

# TL- I MPC20 Annex VI of MARPOL 73/78

**Regulation 13.2.1.1 and 13.2.2**

*Application*

Regulation 13.2.1.1 reads as follows:

For the purpose of this regulation, *major conversion* means a modification on or after 1 January 2000 of a marine diesel engine that has not already been certified to the standards set forth in paragraph 3, 4, or 5.1.1 of this regulation where:

.1 the engine is replaced by a marine diesel engine or an additional marine diesel engine is installed, or ….

Regulation 13.2.2 reads as follows:

For a major conversion involving the replacement of a marine diesel engine with a non-identical marine diesel engine or the installation of an additional marine diesel engine, the standards in force at the time of the replacement or addition shall apply.

**Interpretation**

This section shall be interpreted, in respect of engines installed on or after 1 January 2000 but before 1 July 2010*, on the basis of regulation 13(2)(a)(i) which applied at that time in which it was given that “For the purpose of this regulation, *major conversion*, means a modification of an engine where the engine is replaced by a new engine built on or after 1 January 2000.” as follows:

(a) For application of regulation 13(2)(a)(i) the term “replaced” shall be interpreted as being applicable to an engine installed either as a direct replacement for an existing engine or one installed as an addition to the original engine complement as at 1 January 2000 to meet revised ship requirements; and,

(b) For application of regulation 13(2)(a)(i) the term “new” shall be interpreted as applying to engines that left the manufacturer’s works for the first time on or after 1 January 2000.

* For interpretation of “date of installation” see TL- I MPC 98

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Note:

1. This interpretation is implemented from 1 January 2015.

**TL- I MPC29**

# Annex VI of MARPOL 73/78

**Regulations 18.5 and 18.6**

*Application*

Regulation 18.5 reads as follows:

For each ship subject to regulations 5 and 6 of this Annex, details of fuel oil for combustion purposes delivered to and used on board shall be recorded by means of a bunker delivery note that shall contain at least the information specified in appendix V to this Annex.

Regulation 18.6 reads as follows:

The bunker delivery note shall be kept on board the ship in such a place as to be readily available for inspection at all reasonable times. It shall be retained for a period of three years after the fuel oil has been delivered on board.

**Interpretation**

For application of these regulations it shall be interpreted as applicable to all ships of 400 gross tonnage or above and, at the Administration's discretion, for ships of less than 400 gross tonnage.

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Note:

1. This interpretation is implemented from 1 January 2015.

**TL- I**
**MPC30**

# Resolution 2 of the 1997 MARPOL Conference Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines

**Table 3 – Symbols and subscripts for terms and variables used in the formulae for the test-bed measurement methods**

Table 3 gives:

| Symbol | Term | Dimension |
|---|---|---|
| $p_a$ | Saturation vapour pressure of the engine intake air (in ISO 3046-1, 1995: $p_{sy}$ = PSY, test ambient vapour pressure) | kPa |
| $p_B$ | Total barometric pressure (in ISO 3046-1, 1995: $p_x$ = PX, site ambient total pressure; py = PY, test ambient total pressure) | kPa |
| $p_s$ | Dry atmospheric pressure | kPa |
| $R_a$ | Relative humidity of the intake air | % |
| $T_a$ | Absolute temperature of the intake air | K |

Interpretation:

For application of the term "$p_S$" it shall be interpreted that the dry atmospheric pressure is determined in accordance with the following formula:

$$p_S = p_B - \frac{R_a \bullet p_a}{100}$$

It shall also be interpreted that the $p_a$ term be determined using a temperature value for the intake air measured at the same physical location as the measurements for $p_B$ and $R_a$.

Interpretation:

For application of the term "$T_a$" it shall be interpreted that the temperature of the intake air temperature is that determined at the engine / turbocharger intake suction filter.

Note:
This interpretation is implemented from 19 May 2005.

**TL- I**
**MPC32**

# Resolution 2 of the 1997 MARPOL Conference Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines

**Chapter 1.3.2.2**

Chapter 1.3 Definitions

Chapter 1.3.2.2 reads as follows:

For engines installed on ships constructed before 1 January 2000, *substantial modification* means any modification made to an engine which increases its existing emission characteristics established by the simplified measurement method as described in 6.3 in excess of the allowances set out in 6.3.11. These changes include, but are not limited to, changes in its operations or in its technical parameters (e.g., changing camshafts, fuel injection systems, air systems, combustion chamber configuration, or timing calibration of the engine).

Interpretation:

For application of this section it shall be interpreted that an increase in "emission characteristics" relates to an increase in the application average cycle weighted $NO_x$ emission value.

Furthermore it shall also be interpreted that any modification made on or after 1 January 2000 to such an engine involving alternative duty cycle, rating, components or settings that were available, but not necessarily utilised, prior to 1 January 2000 shall not be considered as representing a "substantial modification" to that engine.

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Note:
This interpretation is implemented from 19 May 2005.

TL- I
MPC33

# Resolution 2 of the 1997 MARPOL Conference Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines

**Chapter 2.2.4**

Chapter 2.2 Procedures for pre-certification of an Engine Group

Chapter 2.2.4 reads as follows:

There are engines which, due to their size, construction and delivery schedule, cannot be pre-certified on a test-bed. In such cases, the engine manufacturer, shipowner or ship builder shall make application to the Administration requesting an on-board test (see 2.1.2.2). The applicant must demonstrate to the Administration that the on-board test fully meets all of the requirements of a test-bed procedure as specified in chapter 5 of this Code. Such a survey may be accepted for one engine or for an engine group represented by the parent engine only, but it shall not be accepted for an engine family certification. In no case shall an allowance be granted for possible deviations of measurements if an initial survey is carried on board a ship without any valid pre-certification test.

**Interpretation:**

For engines undergoing an on-board certification test, to be issued with an EIAPP Certificate, the same procedure apply as if the engine had been pre-certified on a test-bed:

(a) the survey on-board meets the pre-certification survey requirements; and

(b) the on-board test fully meets all of the requirements of a test-bed procedure as specified in chapter 5 of the $NO_x$ Technical Code; and

(c) the application average weighted $NO_x$ emission value meets the requirements of Regulation 13 of Annex VI;and

(d) the engine has an approved Technical File.

(MEPC/Circ. 473)

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Note:

1. This interpretation is implemented from 1 July 2006.

**TL- I**
**MPC40**

# Resolution 2 of the 1997 MARPOL Conference Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines

**Chapter 2.3.11**

Chapter 2.3 Procedures for certification of an engine

Chapter 2.3.11 reads as follows:

If any adjustment or modification is made which is outside the approved limits documented in the technical file, the IAPP Certificate may be issued only if the overall $NO_x$ emission performance is verified to be within the required limits by: a direct on-board $NO_x$ monitoring, as approved by the Administration; a simplified on-board $NO_x$ measurement; or, reference to the test-bed testing for the relevant engine group approval showing that the adjustments or modifications do not exceed the $NO_x$ emission limits.

Interpretation:

This section shall be interpreted as follows:

(a) Verification by the direct on-board $NO_x$ monitoring method is only applicable to the re-issue of IAPP Certificates at periodical surveys or their endorsement at intermediate / annual surveys.

(b) The demonstration of compliance in accordance with either direct on-board $NO_x$ monitoring or simplified on-board $NO_x$ measurement does not establish a new Engine Group but does define the on-board verification procedure to be used thereafter to verify continuing compliance for that particular engine.

In these instances it shall be understood that the Parent Engine emission value, as given in the EIAPP Certificate, thereafter only relates to the condition of that engine at the Pre-certification Survey stage.

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Note:
This interpretation is implemented from 19 May 2005.

**TL- I**
**MPC45**

# Resolution 2 of the 1997 MARPOL Conference Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines

**Chapter 2.4.1.7**

Chapter 2.4 Technical file and on-board $NO_x$ verification procedures

Chapter 2.4.1.7 reads as follows:

To enable an Administration to perform the engine surveys described in 2.1, the technical file required by 2.3.6 shall, at a minimum, contain the specifications of those spare parts/components which, when used in the engine, according to those specifications, will result in continued compliance of the engine with the $NO_x$ emission limits.

Interpretation:

For application of this section the term “according to those specifications” shall be interpreted as follows:

(a) It is considered that in this context “specification” may be read as identification marking and as such the identification of a $NO_x$ influencing component by a manufacturer’s part number or specific marking scheme would be sufficient.

In such instances the identification marking would be tied to a particular drawing or other data defining the features of that component with regard to its influence on $NO_x$ formation in the combustion process. Those drawings or other data shall form part of the conformity of production procedures as required under Chapter 4.

(b) The “specification” need only address those aspects of the design of the component which directly affect its function as a $NO_x$ critical component. For some components it may be possible to define these components by means of an outline dimensioned drawing within the conformity of production procedures or as a drawing directly included within the Technical File.

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Note:
This interpretation is implemented from 19 May 2005.

# TL- I MPC51 Resolution 2 of the 1997 MARPOL Conference Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines

**Chapter 3.2.1**

Chapter 3.2 Test cycles and weighting factors to be applied

Chapter 3.2.1 reads as follows:

For every individual engine or parent engine of an engine group or family, one of the test cycles specified in 3.2.2 to 3.2.6 shall be applied for verification of compliance with the $NO_x$ emission limits in accordance with regulation 13 of Annex VI.

**Interpretation:**

For application of this section it shall be interpreted that:

(a) One of the test cycles specified in Chapters 3.2.2 to 3.2.6, applicable to the application, shall be applied.

(b) Where more than one test cycle is to be applied the average cycle weighted $NO_x$ emission value (in g/kWh) for each cycle is to be stated on the EIAPP Certificate 1.15, together with the corresponding limit value, 1.14.

(c) A Parent Engine test for a particular duty cycle is to follow the appropriate test cycle. A Parent Engine emission value shall not be 'constructed' by, for example, adding data from one test to emission values taken from another test.

(d) In those instances where a constant speed engine as installed can be used either solely for main propulsion or auxiliary purposes, then that engine should be certified to both the E2 and D2 cycles.

(e) Where a generator is also permanently fitted or coupled to main engine propulsion shafting then certification of that main engine using only the E2 or E3 cycle, as appropriate, is required.

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Note:

1. This interpretation is implemented from 19 May 2005.

**TL- I**
**MPC53**

# Resolution 2 of the 1997 MARPOL Conference Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines

**Chapter 4.1.1**
**Chapter 4.1.2**
**Chapter 4.1.3**
**Chapter 4.1.4**

Chapter 4 Approval for serially manufactured engines: engine family and engine group concepts

Chapter 4.1 General

Chapter 4.1.1 reads as follows:
To avoid certification testing of every engine for compliance with the $NO_x$ emission limits, one of two approval concepts may be adopted, namely the engine family or the engine group concept.

Chapter 4.1.2 reads as follows:
The engine family concept may be applied to any series-produced engines which, through their design, are proven to have similar $NO_x$ emission characteristics, are used as produced, and, during installation on board, require no adjustments or modifications which could adversely affect the $NO_x$ emissions.

Chapter 4.1.3 reads as follows:
The engine group concept may be applied to a smaller series of engines produced for similar engine application and which require minor adjustments and modifications during installation or in service on board. These engines are normally large power engines for main propulsion.

Chapter 4.1.4 reads as follows:
Initially the engine manufacturer may, at its discretion, determine whether engines should be covered by the engine family or engine group concept. In general, the type of application shall be based on whether the engines will be modified, and to what extent, after testing on a test-bed.

Interpretation:

The Engine Family concept shall be interpreted as applicable to mass produced small bore engines (generally high speed) that may, for design purposes, include adjustable features but are generally dispatched with the intent that no ‘installation’ or ‘in service’ setting modifications are undertaken.

For marine engine applications the Engine Group concept shall be interpreted as applicable to any engine intended for main propulsion or auxiliary duties, where adjustment and modification following installation (and through the service life of the engine) is considered routine.

For application of the Engine Family or Engine Group concepts it shall be interpreted that engines within an Engine Family may have different cylinder bore and stroke dimensions (within the defined limits - see Chapter 4.3.8.2.3) and that engines within an Engine Group concept effectively have identical bore and stroke dimensions as a result of only one of the parameters defined under Chapter 4.4.5.2 being permitted to vary within the defined engine group.

An Onboard $NO_x$ Verification Procedure shall be included within the Technical Files of all engines irrespective of whether they are included within an Engine Family or Engine Group.

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Note:
This interpretation is implemented from 19 May 2005.

**TL- I**
**MPC54**

# Resolution 2 of the 1997 MARPOL Conference Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines

**Chapter 4.3.1**
**Chapter 4.4.1**

Chapter 4.3 Application of the engine family concept

Chapter 4.3.1 reads as follows:

The engine family concept provides the possibility of reducing the number of engines which must be submitted for approval testing, while providing safeguards that all engines within the family comply with the approval requirements. In the engine family concept, engines with similar emission characteristics and design are represented by a parent engine within the family.

Chapter 4.4 Application of the engine group concept

Chapter 4.4.1 reads as follows:

These are engines used primarily for main propulsion. They normally require adjustment or modification to suit the on-board operating conditions but which should not result in $NO_x$ emissions exceeding the limits in 3.1 of this Code.

Interpretation:

For application of these sections it shall be interpreted that where the measured performance of a Member Engine to an Engine Family or Engine Group is fundamental to the verification that that member engine is operating within the parameters defined by the approved engine family or group, then that performance data (emissions, engine performance, ambient conditions) and other necessary data shall have been obtained in accordance with NOx Technical Code Chapter 5.

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Note:
This interpretation is implemented from 19 May 2005.

**TL- I**
**MPC58**

# Resolution 2 of the 1997 MARPOL Conference Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines

**Chapter 4.3.10.2**
**Chapter 4.3.10.3**

Chapter 4.3 Application of the engine family concept

Chapter 4.3.10 Certification of an engine family

Chapter 4.3.10.2 reads as follows:

A pre-certificate, or EIAPP Certificate, should be issued for a member engine of an entire family in accordance with this Code which certifies that the parent engine meets the $NO_x$ levels specified in regulation 13 of Annex VI.

Chapter 4.3.10.3 reads as follows:

When the parent engine of an engine family is tested/measured under the most adverse conditions specified within this Code and confirmed as complying with the maximum allowable emission limits (see 3.1), the results of the test and $NO_x$ measurement shall be recorded in the EIAPP Certificate issued for the particular parent engine and for all member engines of the engine family.

Interpretation:

In 4.3.10.2 the word ‘entire’ shall be read as ‘engine’.

For application of these sections it shall be interpreted that the determined Parent Engine $NO_x$ emission value shall be given under 1.15 of the Supplement to EIAPP Certificate for Parent Engine(s) and all subsequent Member Engines within the Engine Family or Engine Group as established from that Parent Engine test.

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Note:
This interpretation is implemented from 19 May 2005.

**TL- I**
**MPC59**

# Resolution 2 of the 1997 MARPOL Conference Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines

**Chapter 4.4.5.2**
**Chapter 4.4.5.3**

Chapter 4.4 Application of the engine group concept
Chapter 4.4.5 Guidelines for the selection of an engine group
Chapter 4.4.5.2 reads as follows:

The following parameters and specifications must be common to engines within an engine group:

.1 bore and stroke dimensions;

.2 method and design features of pressure charging and exhaust gas system;
- constant pressure
- pulsating system

.3 method of charge air cooling system;
- with/without charge air cooler

.4 design features of the combustion chamber that effect $NO_x$ emission;

.5 design features of the fuel injection system, plunger and injection cam which may profile basic characteristics that effect $NO_x$ emission; and

.6 maximum rated power per cylinder at maximum rated speed. The permitted range of derating within the engine group shall be declared by the manufacturer and approved by the Administration.

Chapter 4.4.5.3 reads as follows:

Generally, if the parameters required by 4.4.5.2 are not common to all engines within a prospective engine group, then those engines may not be considered as an engine group. However, an engine group may be accepted if only one of those parameters or specifications is not common for all of the engines within a prospective engine group provided the engine manufacturer or the shipowner can, within the technical file, prove to the Administration that such a transgression of that one parameter or specification would still result in all engines within the engine group complying with the $NO_x$ emission limits.

Interpretation:

For application of these sections it shall be interpreted that rated power per cylinder at rated speed is one parameter. Derating and uprating, in terms of power per cylinder and rated speed, outside the approved power or speed ranges shall be interpreted as deviations according to chapter 4.4.5.3.

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Note:
This interpretation is implemented from 19 May 2005.

**TL- I**
**MPC74**

# Resolution 2 of the 1997 MARPOL Conference Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines

**Chapter 5.10.1**

Chapter 5.10 Test report

Chapter 5.10.1 reads as follows:

For every engine tested for pre-certification or for initial certification on board without pre-certification, the engine manufacturer shall prepare a test report which shall contain, as a minimum, the data as set out in appendix 5 of this Code. The original of the test report shall be maintained on file with the engine manufacturer and a certified true copy shall be maintained on file by the Administration.

Interpretation:

For application of this section the term "as a minimum" shall be interpreted as incorporating the necessary data to fully define the engine performance and enable calculation of the gaseous emissions, in accordance with 5.12, from the raw data units to the cycle weighed $NO_x$ emission value in g/kWh. The data set given under Appendix 5 should not be considered definitive and any other test data (i.e. engine performance or setting data, description of control devices, etc.) relevant to the approval of a specific engine design and/or on-board $NO_x$ verification procedures must also be given.

With reference to appendix 5 of the Code it shall be further interpreted that:

(a) The term "Deviation" as given under "Sheet 3/5, Measurement equipment, Calibration" refers to the deviation of the analyser calibration and not the deviation of the span gas concentration.

(b) The fuel properties as given under "Sheet 3/5, Fuel characteristics, Fuel properties" shall, in those cases where a 'DM' grade fuel is used, include sufficient data to justify the ISO 8217 grade (i.e. DMA, DMB or DMC) as given on EIAPP Certificate Supplement 1.12 and hence as a minimum shall give the analysis results for water content (ISO 37733), carbon residue (ISO 10370) - full or 10% sample and, in the case of the DMA / DMB grades, Cetane Number / Index (ISO 4264).

Note:
This interpretation is implemented from 19 May 2005.

**TL- I**
**MPC77**

# Resolution 2 of the 1997 MARPOL Conference Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines

**Chapter 6.2.1.2**

Chapter 6.2 Engine parameter check method

Chapter 6.2.1 General

Chapter 6.2.1.2 reads as follows:

An engine parameter check method shall be conducted on engines, subject to 6.2.1.1, whenever there is a change of components and/or adjustable features of the engine that affect $NO_x$ emission levels. This method shall be used to confirm compliance with the $NO_x$ emission limits. Engines installed in ships shall be designed in advance for an easy check of components, adjustable features and engine parameters that affect $NO_x$ emission levels.

Interpretation:

It shall be interpreted that a survey would additionally be required where the component or adjustable feature change was outside that already approved for the Engine Group or Engine Family and as given in the engine's Technical File. In such cases the change would need to be documented in accordance with 6.2.3.2.2.

It shall be further interpreted that, in the case of the Engine Parameter Check Method, that the change is to be such that the Engine Group / Engine Family Parent Engine emission value was not exceeded.

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Note:
This interpretation is implemented from 19 May 2005.

**TL- I MPC87**

# Annex I of MARPOL 73/78 Regulation 12A as amended by Resolution MEPC.141(54)

**Regulation 12A.9, as amended by Resolution MEPC.141(54), reads:**

*"Lines of oil fuel piping located at a distance from the ship's bottom of less than h, as defined in paragraph 6, or from the ship's side less than w, as defined in paragraphs 7 and 8 shall be fitted with valves or similar closing devices within or immediately adjacent to the oil fuel tank. These valves shall be capable of being brought into operation from a readily accessible enclosed space the location of which is accessible from the navigation bridge or propulsion machinery control position without traversing exposed freeboard or superstructure decks.*
*The valves shall close in case of remote control system failure (fail in a closed position) and shall be kept closed at sea at any time when the tank contains oil fuel except that they may be opened during oil fuel transfer operations."*

**Regulation 12A.10, as amended by Resolution MEPC.141(54), reads:**

*"Suction wells in oil fuel tanks may protrude into the double bottom below the boundary line defined by the distance h provided that such wells are as small as practicable and the distance between the well bottom and the bottom shell plating is not less than 0.5 h."*

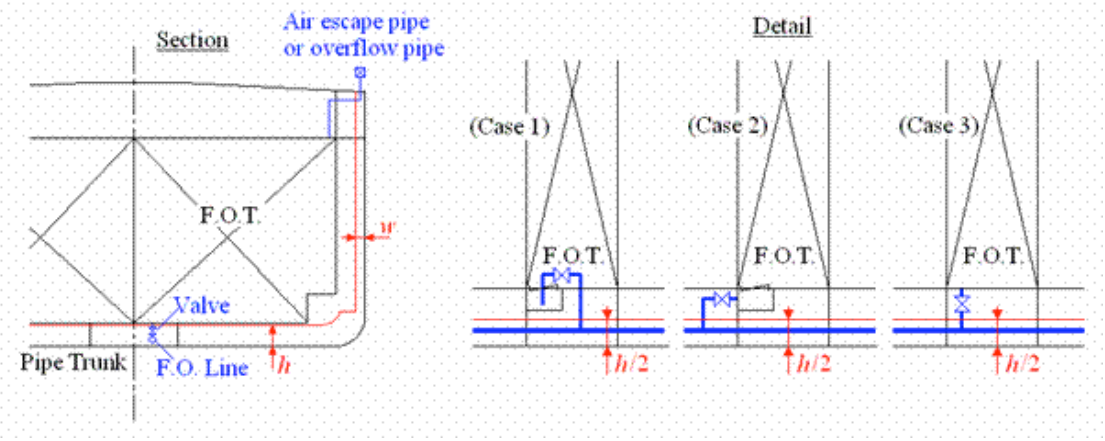
**Interpretation:**

1. Valves for oil fuel tanks located in accordance with the provisions of paragraphs 6, 7 and 8 of MARPOL regulation I/12A may be treated in a manner similar to the treatment of suction wells as per MARPOL regulation I/12A.10 and therefore arranged at a distance from the ship's bottom of not less than *h/2* (see the figure below).

2. Valves for tanks which are permitted to be located at a distance from the ship's bottom or side at a distance less than *h* or *w*, respectively, in accordance with the accidental oil fuel outflow performance standard of MARPOL regulation I/12A.11 may be arranged at the distance less than *h* or *w*, respectively.

3. Fuel tank air escape pipes and overflow pipes are not considered as part of *'lines of fuel oil piping"* and therefore may be located at a distance from the ship's side of less than *w*.

Note:
This interpretation is applied on ships delivered on or after 1 August 2010 as defined in MARPOL regulation I/28.9.


Section
Air escape pipe
or overflow pipe
F.O.T.
w
Valve
Pipe Trunk
F.O. Line
h
Detail
(Case 1)
F.O.T.
h/2
(Case 2)
F.O.T.
h/2
(Case 3)
F.O.T.
h/2

**TL- I**

**MPC93**

# Annex I of MARPOL 73/78 Regulation 23 Accidental oil outflow performance, as amended by Resolution MEPC.117(52)

**Regulation 23.7.3.2, as amended by Resolution MEPC.117(52) reads:**

*"The cargo level after damage shall be calculated as follows:*

$h_c = \{(d_s + t_c - Z_1)(\rho_s) - (1000p)/g\}/\rho_n$"

where the overpressure *p* is defined as:

*"p = if an inert gas system is fitted, the normal overpressure, in kilopascals, to be taken as not less than 5 kPa; if an inert gas system is not fitted, the overpressure may be taken as 0."*

**Interpretation**

If an inert gas system is fitted, the normal overpressure, in KPa, is to be taken as 5 KPa.

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Note:

1. This interpretation is applied on ships subject to MARPOL I, regulation 23, as amended by Resolution MEPC.117(52), which are contracted for construction on or after 1 July 2017.

2. The "contracted for construction" date means the date on which the contract to build the vessel is signed between the prospective owner and the shipbuilder. For further details regarding the date of "contract for construction", refer to TL- PR 29.

# TL- I MPC97 Volatile Organic Compounds (VOCs) Management Plan

**MARPOL VI, Regulation 15.6 and 15.7**

*6 A tanker carrying crude oil shall have on board and implement a VOC Management Plan approved by the Administration. Such a plan shall be prepared taking into account the guidelines developed by the Organization. The plan shall be specific to each ship and shall at least:*

- *.1 provide written procedures for minimizing VOC emissions during the loading, sea passage and discharge of cargo;*
- *.2 give consideration to the additional VOC generated by crude oil washing;*
- *.3 identify a person responsible for implementing the plan; and*
- *.4 for ships on international voyages, be written in the working language of the master and officers and, if the working language of the master and officers is not English, French, or Spanish, include a translation into one of these languages.*

*7 This regulation shall also apply to gas carriers only if the type of loading and containment systems allow safe retention of non-methane VOCs on board or their safe return ashore.*

**Interpretation**

The requirement for a VOC Management Plan applies only to a tanker carrying crude oil.

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Note:

1. This interpretation is implemented from 1 August 2010.

# TL- I MPC98 “Time of the Replacement or Addition” for the Applicable Tier Standard For the Supplement to the IAPP Certificate

**MARPOL Annex VI Regulation**

*Reg 13.2.2 For a major conversion involving the replacement of a marine diesel engine with a non-identical marine diesel engine or the installation of an additional marine diesel engine, the standards in this regulation in force at the time of the replacement or addition of the engine shall apply.*

**Interpretation**

The "time of the replacement or addition" of the engine is to be taken as the date of:

a. the contractual delivery date of the engine to the ship*; or

b. in the absence of a contractual delivery date, the actual delivery date of the engine to the ship*, provided that the date is confirmed by a delivery receipt; or

c. in the event the engine is fitted onboard and tested for its intended purpose on or after six(6) months from the date specified in sub-paragraphs of regulation 13.5.1.2, as appropriate, the actual date that the engine is tested onboard for its intended purpose applies in determining the standards in this regulation in force at the time of the replacement or addition of the engine.

Entry of the date in a), b) or c), provided the conditions associated with those dates apply, is to be made in the item 8.a “Major conversion – According to Reg. 13.2.1.1 &13.2.2” of the IAPPC Supplement.

If the engine is not tested within six(6) months after the date specified in sub-paragraphs of regulation 13.5.1.2, as appropriate due to unforeseen circumstances beyond the control of the ship owner, then the provisions of “unforeseen delay in delivery” may be considered by the Administration in a manner similar to MARPOL Annex I UI4.

Footnote:

* The engine is to be fitted onboard and tested for its intended purpose within six(6) months after the date specified in sub-paragraphs of regulation 13.5.1.2, as appropriate.

Note

1. This interpretation is applied from 1 January 2020.

**TL- I**

**MPC99**

# Oil residue (sludge) tank discharge connections to the bilge system, oily bilge water holding tank(s), tank top or oily water separators (MARPOL 73/78 Annex I Regulation 12.2)

**MARPOL 73/78 Annex I (as amended by MEPC.187(59)) Regulation 12.2**

*2. Oil residue (sludge) may be disposed of directly from the oil residue (sludge) tank(s) through the standard discharge connection referred to in regulation 13, or any other approved means of disposal. The oil residue (sludge) tank(s):*

> *.2.* ***shall have no discharge connections to the bilge system, oily bilge water holding tank(s), tank top or oily water separators*** *except that the tank(s) may be fitted with drains, with manually operated self-closing valves and arrangements for subsequent visual monitoring of the settled water, that lead to an oily bilge water holding tank or bilge well, or an alternative arrangement, provided such arrangement does not connect directly to the bilge piping system.*

**MARPOL 73/78 Annex I Unified Interpretation to regulation 12.2.2 introduced by MEPC.1/Circ.753**

*2* ***There should be no interconnections between the sludge tank discharge piping and bilge-water piping*** *other than possible common piping leading to the standard discharge connection referred to in regulation 13.*

**Interpretation**

Screw-down non-return valves arranged in lines connecting to common piping leading to the standard discharge connection required by regulation 13, to prevent sludge from discharging to the bilge system, oily bilge water holding tank(s), tank top or oily water separators, provide a means equivalent to an arrangement that has “no interconnection” or “no discharge connections” as so specified in regulation 12.2 and Unified Interpretation thereto.

It is understood that the common piping may serve only one purpose and that is to connect the discharge lines of the bilge and sludge pumps to the standard discharge connection referred to in regulation 13, or any other approved means of disposal.

---

NOTE

1. This interpretation is implemented from 1 July 2012.

# TL- I MPC100 Date of Delivery under SOLAS and MARPOL Conventions

**Under certain provisions of the SOLAS and MARPOL Conventions, the application of regulations to a new ship is governed by the dates:**

1. for which the building contract is placed on or after dd/mm/yyyy; or
2. in the absence of a building contract, the keel of which is laid or which is at a similar stage of construction on or after dd/mm/yyyy; or
3. the delivery of which is on or after dd/mm/yyyy.

**Interpretation**

For the purpose of determining the application of mandatory requirements of the SOLAS and MARPOL Conventions to a new ship, the date of “delivery" means the completion date (day, month and year) of the survey on which the certificate is based (i.e. the initial survey before the ship is put into service and certificate issued for the first time) as entered on the relevant statutory certificates.

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Note:

This interpretation is implemented from 28 June 2012.

**TL- I MPC101**

# Supplement to the International Air Pollution Prevention (IAPP) Certificate – Section 2.3

**MARPOL Annex VI, Regulation 8**

*"The International Air Pollution Prevention Certificate shall be drawn up in a form corresponding to the model given in appendix I to this Annex and shall be at least in English, French or Spanish. If an official language of the issuing country is also used, this shall prevail in case of a dispute or discrepancy."*

**Revised form of Supplement to the IAPP Certificate as per MEPC.194(61)**

"2.3 Sulphur oxides ($SO_x$) and particulate matter (regulation 14)

2.3.1 When the ship operates outside of an Emission Control Area specified in regulation 14.3, the ship uses:

.1 fuel oil with a sulphur content as documented by bunker delivery notes that does not exceed the limit value of:

- 4.50% m/m (not applicable on or after 1 January 2012); or ☐
- 3.50% m/m (not applicable on or after 1 January 2020); or ☐
- 0.50% m/m, and/or ☐

.2 an equivalent arrangement approved in accordance with regulation 4.1 as listed in 2.6 that is at least as effective in terms of $SO_x$ emission reductions as compared to using a fuel oil with a sulphur content limit value of:

- 4.50% m/m (not applicable on or after 1 January 2012); or ☐
- 3.50% m/m (not applicable on or after 1 January 2020); or ☐
- 0.50% m/m ☐

2.3.2 When the ship operates inside an Emission Control Area specified in regulation 14.3, the ship uses:

.1 fuel oil with a sulphur content as documented by bunker delivery notes that does not exceed the limit value of:

- 1.00% m/m (not applicable on or after 1 January 2015); or ☐
- 0.10% m/m, and/or ☐

.2 an equivalent arrangement approved in accordance with regulation 4.1 as listed in 2.6 that is at least as effective in terms of $SO_x$ emission reductions as compared to using a fuel oil with a sulphur content limit value of:

- 1.00% m/m (not applicable on or after 1 January 2015); or ☐
- 0.10% m/m ☐

"

**Interpretation**

Section 2.3 of the Supplement ("as documented by bunker delivery notes") allows for an "x" to be entered in advance of the dates indicated in all of the relevant check boxes recognizing that the bunker delivery notes, required to be retained on board for a minimum period of three years, provide the subsequent means to check that a ship is actually operating in a manner consistent with the intent as given in section 2.3.

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Note: This interpretation is implemented not later than the first IAPP renewal survey carried on/after 1 January 2013.

# TL- I MPC103 Identical Replacement Engines MARPOL Annex VI Regulation 13)

**egulation**

**MARPOL Annex VI Regulation 13**

*13.1.1.2 each marine diesel engine with a power output of more than 130 kW which undergoes a major conversion on or after 1 January 2000 except when demonstrated to the satisfaction of the Administration that such engine is an identical replacement to the engine which it is replacing and is otherwise not covered under paragraph 1.1.1 of this regulation.*

*13.2.2 For a major conversion involving the replacement of a marine diesel engine with a non-identical marine diesel engine or the installation of an additional marine diesel engine, the standards in this regulation in force at the time of the replacement or addition of the engine shall apply. …..."*

**Interpretation**

In regulation 13.1.1.2 the term "identical" (and hence, by application of the converse, in regulation 13.2.2 the term "non-identical") as applied to engines under Regulation 13 is to be taken as:

An 'identical engine' is, as compared to the engine being replaced*, an engine which is of the same:

design and model;

rated power;

rated speed;

use;

number of cylinders;

fuel system type (including, if applicable, injection control software); and

(a) for engines without EIAPP certification, have the same $NO_x$ critical components and settings**; or
(b) for engines with EIAPP certification, belonging to the same Engine Group / Engine Family.

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NOTE:

1. This interpretation is implemented for ".. a time of the replacement .." of an engine, as interpreted by TL- I MPC 98, occurring on or after 1 January 2014.

* In those instances where the replaced engine will not be available to be directly compared with the replacing engine at the time of updating the Supplement to the IAPP Certificate reflecting that engine change it is to be ensured that the necessary records in respect of the replaced engine are available in order that it can be confirmed that the replacing engine represents “an identical engine”.

** For engines without EIAPP Certification there will not be the defining $NO_x$ critical component markings or setting values as usually given in the approved Technical File. Consequently in these instances the assessment of ‘... same $NO_x$ critical components and settings...’ shall be established on the basis that the following components and settings are the same:

Fuel system

(a) Fuel pump model and injection timing
(b) Injection nozzle model

Charge air

(a) Configuration and, if applicable, turbocharger model and auxiliary blower specification
(b) Cooling medium (seawater / freshwater)

# TL- I MPC106 Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines ($NO_x$ Technical Code 2008)

**This UI addresses the status of licensees relative to the conformity of production arrangements from the entity which proposed the Engine Family or Engine Group in the first instance. The interpreted paragraphs of the $NO_x$ Technical Code are as follows:**

**4.3 Application of the engine family concept**

4.3.7. Before granting an engine family approval, the Administration shall take the necessary measures to verify that adequate arrangements have been made to ensure effective control of the conformity of production.

**4.4 Application of the engine group concept**

4.4.5. Before granting an initial engine group approval for serially produced engines, the Administration shall take the necessary measures to verify that adequate arrangements have been made to ensure effective control of the conformity of production.

**Interpretation**

An Engine Family / Group approval, as applicable, is granted to the entity requesting to apply the Engine Family or Engine Group concept to serially produced marine diesel engines.

The conformity of production arrangements as required by 4.3.7 as proposed by the entity seeking Engine Family / Group approval and as accepted by the Administration are to cover those marine diesel engines within that particular Engine Family / Group as manufactured by that entity.

Additionally, where that entity has in place arrangements which extend, under their oversight and control, the accepted conformity of production arrangements to other engine manufacturers (i.e. licensees), then candidate marine diesel engines produced by those other parties may be included in the Engine Family / Group as established. In this circumstance the marine diesel engine selected, and accepted by the Administration as the Parent Engine, may be manufactured either by the entity which requested the Engine Family / Group certification or by one of the other parties as covered by the agreed conformity of production arrangements.

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Note:

1. This interpretation is applied when an application for first EIAPP certification for a marine diesel engine is dated on or after 1 July 2016.

In those instances where serially produced marine diesel engines are manufactured outside an accepted conformity of production arrangement then it is the responsibility of the manufacturer of those marine diesel engines themselves to request certification in accordance with the requirements of the $NO_x$ Technical Code 2008 from the relevant Administration including the establishment of the relevant Engine Family / Group, selection and testing of the Parent Engine and the development of the particular conformity of production arrangements which are to cover those marine diesel engines.

# TL- I MPC112 2011 Guidelines Addressing Additional Aspects to the $NO_x$ Technical Code 2008 with regard to Particular Requirements related to Marine Diesel Engines fitted with Selective Catalytic Reduction (SCR) Systems (Resolution MEPC.198(62), Section 3.2.1.8)

**MEPC.198(62), Section 3.2.1.8 reads:**

*3.2.1 In addition to the information supplied in paragraph 3.1.3 of these guidelines and items in section 2.4 of the NTC 2008, engine systems fitted with SCR should include the following information in its Technical File:*

> *.8 factors related to the deterioration rate of SCR performance, e.g., exchange condition for SCR blocks and recommended exchange time of SCR blocks;*

**Interpretation**

The engine technical file is to include details of factors related to the deterioration rate of SCR performance, e.g., exchange condition for SCR blocks and recommended exchange time of SCR blocks.

Where a feedback reductant control strategy is adopted utilising $NO_x$ monitoring then this is acceptable as a means of monitoring catalyst condition/degradation.

Where a feed forward control reductant control strategy is used then the applicant is to provide details of:

a) The expected deterioration curve under expected operating conditions
b) The life of catalyst under expected operating conditions
c) Factors which can influence catalyst condition
d) Guidance on how to assess catalyst condition and activity by spot checks, if applicable, should be provided. Records are to be kept for inspection during annual survey, intermediate and renewal surveys

SCR systems using a feed forward reductant control strategy may be fitted with $NO_x$ monitoring devices for the purposes of monitoring catalyst condition.

The technical file is to include guidance to assist the crew in recovering from SCR fouling and poisoning mechanisms where recovery from such fouling and poisoning can be achieved without exchanging catalyst blocks or applying specialised re-activation techniques.

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Note:

1. This interpretation is implemented not later than 1 July 2016.

**TL- I**
**MPC115**

# 2011 Guidelines Addressing Additional Aspects to the $NO_x$ Technical Code 2008 with regard to Particular Requirements related to Marine Diesel Engines fitted with Selective Catalytic Reduction (SCR) Systems (Resolution MEPC.198(62), Section 3.2.1.11)

**MEPC.198(62), Section 3.2.1.11 reads:**

*3.2.1 In addition to the information supplied in paragraph 3.1.3 of these guidelines and items in section 2.4 of the NTC 2008, engine systems fitted with SCR should include the following information in its Technical File:*

> *.11 parameter check method as the verification procedure: with regard to the application of the parameter check method, requirements given in paragraph 2.3.6 of the NTC 2008 and guidance given in appendix VII, paragraph 2 of the NTC 2008 should be taken into account in assessing the adequacy of a proposed procedure with analysers meeting or exceeding the requirements of appendix III of the NTC 2008;*

**Interpretation**

The engine technical file is to include details of the application of the parameter check method, requirements given in paragraph 2.3.6 of the NTC 2008 and guidance given in appendix VII, paragraph 2 of the NTC 2008 should be taken into account in assessing the adequacy of a proposed procedure with analysers meeting or exceeding the requirements of appendix III of the NTC 2008. Other systems or analysers may be accepted if they yield equivalent results, see paragraph 5.4.2 of the NTC 2008.

Where $NO_x$ monitoring is used to demonstrate compliance then measurement of the $NO_x$ reduction rate in accordance with chapter 7 of the guidelines is accepted as demonstrating compliance, analysers are to meet the requirements of appendix III of the NTC 2008.

Spot check may be taken as an on-board measurement of the $NO_x$ reduction rate in accordance with chapter 7 of the guidelines, alternatively, systems using a feed forward reductant control strategy may be fitted with $NO_x$ monitoring devices for the purposes of monitoring catalyst condition and SCR performance. Instrumentation used for spot checks, or alternatively monitoring, is to meet the requirements of Appendix III of the $NO_x$ Technical Code 2008.

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Note:

1. This interpretation is implemented ot later than 1 July 2016.

For systems using feed forward reductant controls without $NO_x$ monitoring the applicant is to provide details of the relationship between engine load and reductant consumption and the means of checking that reductant flow is appropriate. The Technical File is to include proposals for maintaining records of reductant consumption and also reductant composition and quality. Records of reductant composition and quality may be based on delivery notes where these delivery notes include reductant concentration and quality parameters.

Reductant delivery notes may also be accepted for the purposes of verifying that the system has been operated using reductant. In such cases the reductant delivery notes are to be made available at annual, intermediate and renewal surveys. Where it is proposed to produce aqueous reductant on-board then the recording system is to consider records of feedstock deliveries and quality.

# TL- I MPC116 2011 Guidelines Addressing Additional Aspects to the $NO_x$ Technical Code 2008 with regard to Particular Requirements related to Marine Diesel Engines fitted with Selective Catalytic Reduction (SCR) Systems (Resolution MEPC.198(62), Section 3.2.1.12)

**MEPC.198(62), Section 3.2.1.12 reads:**

*3.2.1 In addition to the information supplied in paragraph 3.1.3 of these guidelines and items in section 2.4 of the NTC 2008, engine systems fitted with SCR should include the following information in its Technical File:*

*.12 any other parameter(s) specified by the manufacturer.*

**Interpretation**

The applicant is responsible for ensuring any parameters which affect $NO_x$ emissions and which are not included within the scope of 3.2.1.1 - 3.2.1.11 are included within the Technical File.

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Note:

1. This interpretation is implemented not later than 1 July 2016.

# TL- I MPC125 Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines ($NO_x$ Technical Code 2008, Chapter 4, Paragraph 4.4.6.1)

**Paragraph 4.4.6.1, Chapter 4 of $NO_x$ Technical Code (NTC) 2008 reads:**

*4.4.6.1 The engine group may be defined by basic characteristics and specifications in addition to the parameters defined in 4.3.8 for an engine family.*

**Interpretation**

Paragraph 4.4.6.1 cross references 4.3.8 which provides guidance for selection of an engine family. For engines fitted with SCR system to reduce $NO_x$ emissions it is recognised that some of the parameters provided may not be common to all engines within a group, in particular 4.3.8.2.3 and 4.3.8.2.4 state that:

*.3 individual cylinder displacement:*

*- to be within a total spread of 15%*

*.4 number of cylinders and cylinder configuration:*

*- applicable in certain cases only, e.g., in combination with exhaust gas cleaning devices*

For engines fitted with SCR system to reduce $NO_x$ emissions the number and arrangement of cylinders may not be common to all members of the engine group. These parameters may be replaced with new parameters derived from the SCR chamber and catalyst blocks, such as the SCR space velocity (SV), catalyst block geometry and catalyst material.

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Note:

1. This interpretation is implemented not later than 1 July 2016.