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

July 2020

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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.

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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:

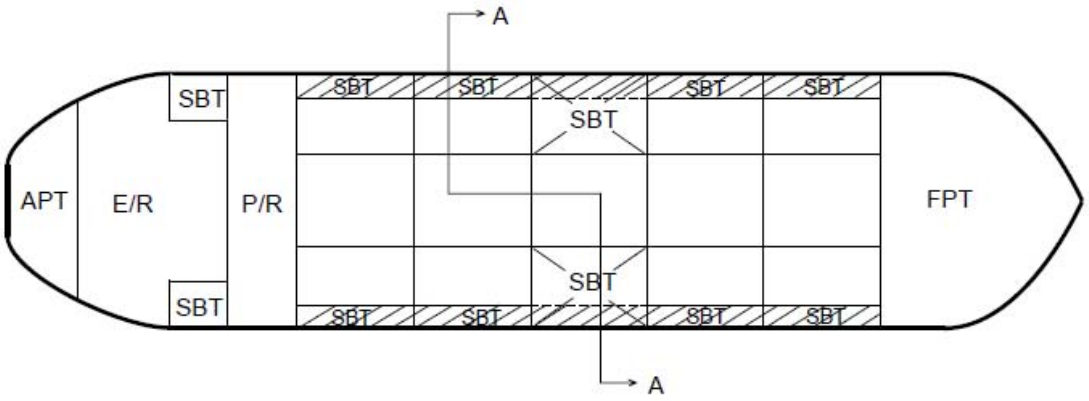
2.1 the capacity of engine-room ballast tanks should be excluded from the aggregate capacity of ballast tanks;

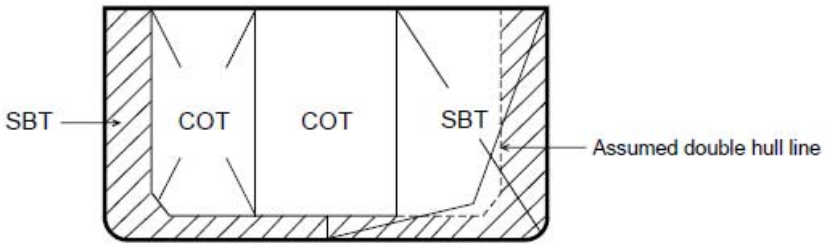
2.2 the capacity of ballast tank located inboard of double hull should be excluded from the aggregate capacity of ballast tanks (see figure 1).

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).

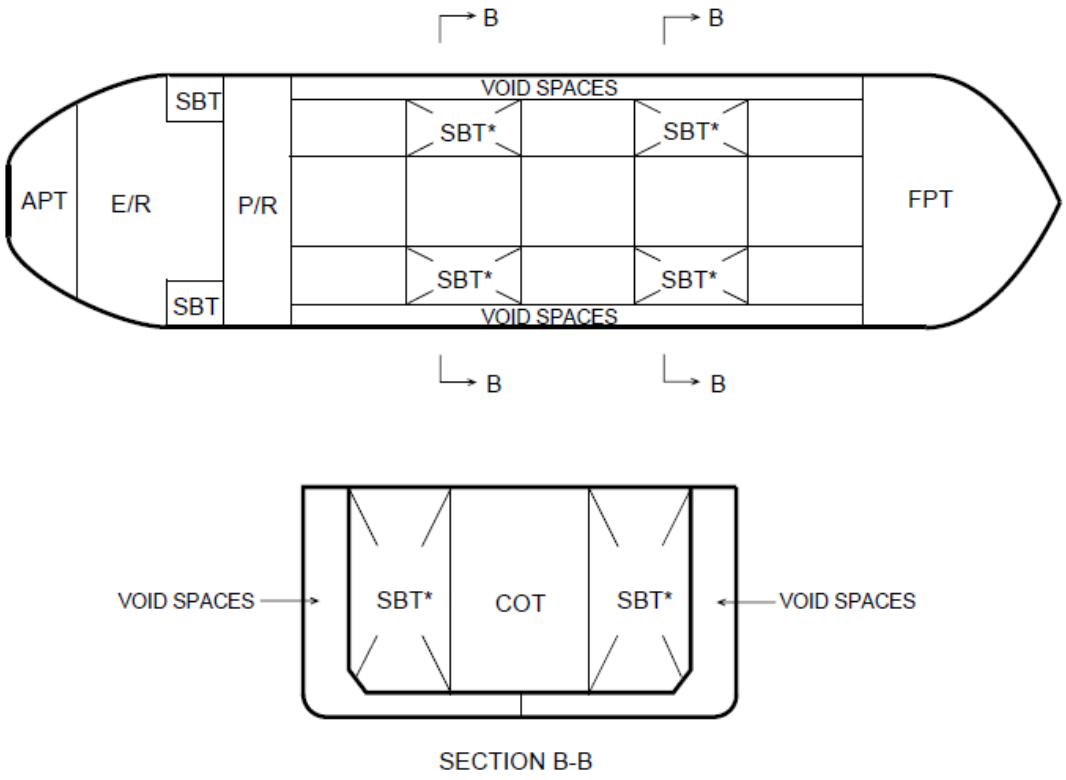


Fig. 2

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 θ = 30° angle of heel and not less than 0.09 m.rad up to θ = 40° or other angle of flooding θ_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 θ_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°;

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.

** θ_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 θ_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).

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.

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

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.

Note:

1. This interpretation is implemented from 1 January 2015.

TL-I MPC30 Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines

(NO_X Technical Code 2008, Table 3 – Symbols and subscripts for terms and variables)

Table 3 – Symbols and subscripts for terms and variables (refer to chapter 5, chapter 6, appendix 4 and appendix 6 of this Code)

Table 3 gives:

Symbol	Term	Unit
T_a	Intake air temperature determined at the engine intake	K

Interpretation

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

Note:

1. This interpretation is implemented from 19 May 2005.

2. Revision 1 of this interpretation is implemented from 1 July 2020.

TL-I MPC32 Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines

(NO_X Technical Code 2008, Chapter 1, Paragraph 1.3.2.2)

Paragraph 1.3.2.2, Chapter 1 of the NO_X Technical Code (NTC) 2008 reads:

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). The installation of a certified Approved Method pursuant to regulation 13.7.1.1 or certification pursuant to regulation 13.7.1.2 is not considered to be a substantial modification for the purpose of the application of regulation 13.2 of the Annex.

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 NOx 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.

Note:

1. This interpretation is implemented from 19 May 2005.

2. Rev 1 of this interpretation is implemented from 1 July 2020.

TL-I MPC33 Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines

(NO_X Technical Code 2008, Chapter 2, Paragraph 2.2.4.1)

Paragraph 2.2.4.1, Chapter 2 of the NO_X Technical Code (NTC) 2008 reads:

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 shipbuilder shall make application to the Administration requesting an onboard test (see 2.1.2.2). The applicant must demonstrate to the Administration that the onboard test fully meets all of the requirements of a test-bed procedure as specified in chapter 5 of this Code. In no case shall an allowance be granted for possible deviations of measurements if an initial survey is carried out on board a ship without any valid pre-certification test. For engines undergoing an on-board certification test, in order to be issued with an EIAPP Certificate, the same procedures apply as if the engine had been pre-certified on a test-bed, subject to the limitations given in paragraph 2.2.4.2.

Interpretation

Engines undergoing an onboard certification test shall have a preliminary approved Technical File, pending the results of the emission test.

If the result of the emission test does not comply with the applicable NOx regulation, the engines are to be re-adjusted to the compliance condition originally approved, if any, or the applicant is to apply to the Flag Administration for acceptance of further testing.

Note:

1. This interpretation is implemented from 19 May 2005.
2. Revision 1 of this interpretation is implemented from 1 July 2006.
3. Revision 2 of this interpretation is implemented from 1 July 2020.

TL-I MPC40 Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines

(NO_x Technical Code 2008, Chapter 2, Paragraph 2.3.9)

Paragraph 2.3.9, Chapter 2 of the NO_x Technical Code (NTC) 2008 reads:

2.3.9 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 NOx emission performance is verified to be within the required limits by: onboard Simplified Measurement in accordance with 6.3; or, reference to the test-bed testing for the relevant Engine Group approval showing that the adjustments or modifications do not exceed the applicable NOx emission limit. At surveys after the initial engine survey, the Direct Measurement and Monitoring method in accordance with 6.4, as approved by the Administration, may alternatively be used.

Interpretation

The demonstration of compliance in accordance with either direct measurement and monitoring method or on-board simplified NOx 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 Precertification Survey stage.

Note:

1. This interpretation is implemented from 19 May 2005.
2. Rev.1 of this interpretation is implemented from 1 July 2020.

TL-I MPC45 Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines

(NOx Technical Code 2008, Chapter 2, Paragraph 2.4.1.7)

Paragraph 2.4.1.7, Chapter 2 of the NO_x Technical Code (NTC) 2008 reads:

2.4.1 To enable an Administration to perform the engine surveys described in 2.1, the Technical File required by 2.3.4 shall, at a minimum, contain the following information:

.7 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 applicable NOx emission limit; and

Interpretation

(a) It is considered that in this context "specification" shall be read as identification marking and as such the identification of a NOx 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 NOx 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 NOx critical component. For some components it shall 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.

Note:

1. This interpretation is implemented from 19 May 2005.
2. Rev.1 of this interpretation is implemented from 1 July 2020.

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.

Note:

1. This TL-I is to be uniformly implemented from 19 May 2005.

TL-I MPC53 Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines

(NOx Technical Code 2008, Chapter 4, Paragraphs 4.1.1 to 4.1.4)

Paragraph 4.1.1
Paragraph 4.1.2
Paragraph 4.1.3
Paragraph 4.1.4

Chapter 4 Approval for serially manufactured engines: Engine Family and Engine Group concepts

Section 4.1 General

Paragraph 4.1.1 reads as follows:

To avoid certification testing of every engine for compliance with the NOx emission limits, one of two approval concepts may be adopted, namely the Engine Family or the Engine Group concept.

Paragraph 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 NOx emission characteristics, are used as produced, and, during installation on board, require no adjustments or modifications which could adversely affect the NOx emissions.

Paragraph 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.

Paragraph 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.

Note:

1. This interpretation is implemented from 19 May 2005.

2. Rev.1 of this interpretation is implemented when an application for certification of an engine is dated on or after 1 July 2020.

TL-I MPC54 Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines

(NOx Technical Code 2008, Chapter 4, Paragraphs 4.3.1 and 4.4.1)

Paragraph 4.3.1, Chapter 4 of the NO_X Technical Code (NTC) 2008 reads:

4.3.1 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 Engine Family comply with the approval requirements. In the Engine Family concept, engines with similar emission characteristics and design are represented by a Parent Engine.

Paragraph 4.4.1, Chapter 4 of the NO_X Technical Code (NTC) 2008 reads:

4.4.1 Engine Group engines normally require adjustment or modification to suit the onboard operating conditions but these adjustments or modifications shall not result in NOx emissions exceeding the limits in regulation 13.

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.

Note:

1. This interpretation is implemented from 19 May 2005.
2. Rev.1 of this interpretation is implemented from 1 July 2020.

TL-I MPC58 Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines

(NO_X Technical Code 2008, Chapter 4, Paragraphs 4.3.10.2 and 4.3.10.3)

Paragraph **4.3.10.2**
Paragraph **4.3.10.3**

Paragraph 4.3.10.2, Chapter 4 of the NO_X Technical Code (NTC) 2008 reads:

4.3.10.2 A pre-certificate, or EIAPP Certificate, should *be issued for a Member Engine of an Engine Family in accordance with this Code which certifies that the Parent Engine meets the applicable NOx limit specified in regulation 13. Where Member Engine pre-certification requires the measurement of some performance values, the calibration of the equipment used for those measurements shall be in accordance with the requirements of 1.3 of appendix 4 of this Code.*

Paragraph 4.3.10.3, Chapter 4 of the NO_X Technical Code (NTC) 2008 reads:

4.3.10.3 When the Parent Engine of an Engine Family is tested and gaseous emissions measured under the most adverse conditions specified within this Code and confirmed as complying with the applicable maximum allowable emission limits as given in 3.1, the results of the test and NOx measurement shall be recorded in the EIAPP Certificate issued for the particular Parent Engine and for all Member Engines of the Engine Family.

Interpretation

For application of these sections it shall be interpreted that the determined Parent Engine NOx emission value shall be given under 1.9.6 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.

Note:

1. This interpretation is implemented from 19 May 2005.

2. Rev.1 of this interpretation is implemented from 1 July 2020.

TL-I MPC59 Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines

(NO_X Technical Code 2008, Chapter 4, Paragraphs 4.4.6.2 and 4.4.6.3)

Paragraph 4.4.6.2
Paragraph 4.4.6.3

Paragraph 4.4.6.2, Chapter 4 of the NO_X Technical Code (NTC) 2008 reads:

4.4.6.2 The following parameters and specifications shall 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 NOx emission,

.5 design features of the fuel injection system, plunger and injection cam or gas valve which may profile basic characteristics that effect NOx emission, and

.6 rated power at rated speed. The permitted range of engine power (kW/cylinder) and/or rated speed are to be declared by the manufacturer and approved by the Administration.

Paragraph 4.4.6.3, Chapter 4 of the NO_X Technical Code (NTC) 2008 reads:

4.4.6.3 Generally, if the criteria required by 4.4.6.2 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 criteria is not common for all of the engines within a prospective Engine Group.

Interpretation

For application of these sections it shall be interpreted that rated power 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 4.4.6.3.

Note:
1. This interpretation is implemented from 19 May 2005.
2. Rev 1 of this interpretation is implemented from 1 July 2020.

TL-I MPC74 Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines

(NO_x Technical Code 2008, Chapter 5, Paragraph 5.10.1)

Paragraph 5.10.1, Chapter 5 of the NO_x Technical Code (NTC) 2008 reads:

5.10.1 For every Individual Engine or Parent Engine tested to establish an Engine Family or Engine Group, the engine manufacturer shall prepare a test report which shall contain the necessary data to fully define the engine performance and enable calculation of the gaseous emissions including the data as set out in section 1 of 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

The "necessary data to fully define the engine performance and enable calculation of the gaseous emissions" shall be incorporated, in accordance with 5.12, from the raw data units to the cycle weighted NOx 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) relevant to the approval of a specific engine design and/or on-board NOx verification procedures must also be given. For the engine fitted with SCR, under scheme A, the parameters listed in sub-paragraphs of paragraph 5.2.2 of IMO Resolution MEPC. 291(71) shall be measured and recorded in the engine test report. Under scheme B, the exhaust gas temperature at the intended inlet of the SCR chamber shall be determined and recorded in the test report. For Dual fuel engines, the ratio of liquid-to-gas, Gas fuel temperature and its measurement point position shall be recorded during the testing.

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 analyzer 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 include sufficient data to justify the ISO 8217:2017 grade (i.e. DMA, DMB etc.) as given on EIAPP Certificate Supplement 1.9.4 by considering other additional analysis results for the fuel oil characteristics, i.e. Cetane index (ISO 4264:2018), carbon residue (ISO 10370:2014).

Note:
1. This interpretation is implemented from 19 May 2005.

2. Rev. 1 of this interpretation is implemented from 1 July 2020.

TL-I MPC77 Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines

(NO_X Technical Code 2008, Chapter 6, Paragraph 6.2.1.2)

Paragraph 6.2.1.2, Chapter 6 of the NO_X Technical Code (NTC) 2008 reads:

6.2.1.2 When a marine diesel engine is designed to run within the applicable NOx emission limit, it is most likely that within the marine life of the engine, the NOx emission limit may be adhered to. The applicable NOx emission limit may, however, be contravened by adjustments or modification to the engine. Therefore, an Engine Parameter Check method shall be used to verify whether the engine is still within the applicable NOx emission limit.

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 6.2.2.7.

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 / Family Parent Engine emission value was not exceeded.

Note:

1. This interpretation is implemented from 19 May 2005.

2. Rev.1 of this interpretation is implemented from 1 July 2020.

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."

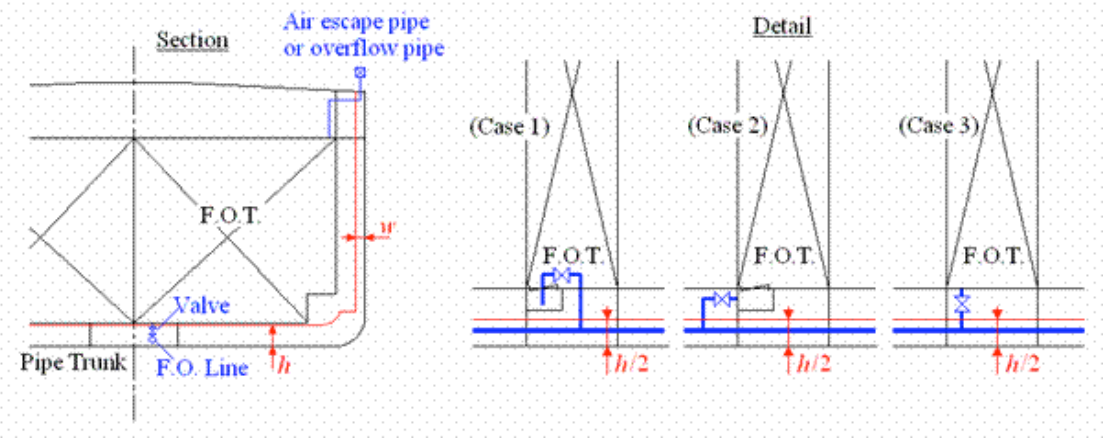
Interpretation:

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.

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.

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.

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.

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)

Regulation

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.

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.

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 2017 Guidelines Addressing Additional Aspects of 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. 291(71), Paragraph 3.2.8)

MEPC.291(71), Paragraph 3.2.8 reads:

3.2 Technical File and on board NOX verification procedures

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 Technical File:

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

.1 where a feedback or a feed forward reductant control strategy is incorporated with a NOX measurement device, this is acceptable as a means of monitoring catalyst condition/degradation. The exchange criteria of catalyst blocks against the reading of the NOX measurement device is to be specified by the applicant as well as the maintenance, service, and calibration requirements for the NOX measurement device;

.2 where a feed forward reductant control strategy is adopted without a NOX measurement device, the application is to provide the details of:

.1 the expected deterioration curve under expected operating conditions or the life of catalyst under expected operating conditions;

.2 factors which can influence catalyst NOX reduction efficiency; and

.3 guidance on how to assess catalyst NOX reduction efficiency based on periodical spot checks or monitoring as specified by the applicant, if applicable; records are to be kept for inspection during annual, intermediate and renewal surveys. The frequency of periodical spot checks is to be defined by the applicant considering the expected deterioration of the catalyst. The frequency for spot-checks should be at least after installation and once every 12 months; and

.3 other strategies on monitoring the catalyst condition/degradation are subject to the approval of the Administration;

Note:

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

2. Rev.1 of this interpretation is implemented from 1 July 2020.

TL-I MPC112

Interpretation

For application of 3.2.8.1:

1. A NOx measurement device, incorporated in a SCR feedback or feed forward reductant control system, is not required to be in compliance with appendix III of NOx Technical Code if the suitability of this NOx measurement device had been proven by the corresponding Parent Engine test.

   The suitability shall be verified by comparing the emission data of the NOx measurement device with the results of an analyzer complying with 3.4, Appendix III of NTC2008. The values obtained by the NOx measurement device shall not differ by more than ± 5 % from the readings of the analyzer during the parent engine test.

   The applicant shall specify the accuracy of the NOx measurement device based on a defined calibration procedure and/or exchange requirements for the device.

2. Irrespective of the reductant control strategy, the criteria for catalyst block exchange are to be specified by the applicant. The criteria shall ensure permanent compliance with the applicable NOx emission limit for the relevant Engine type, Engine Group or Engine Family, as applicable.

   Depending on the proposed onboard verification procedure for assessment of catalyst NOx reduction efficiency, allowances may be given according to NTC2008, 6.3.11.1 or Resolution MEPC.291(71) Section 7.5.

3. In case where feedback system is applied as a means of monitoring catalyst condition degradation, generating alarms or failure codes in case of non-compliance is to be provided and to be specified in the Technical File.

   For systems generating alarms or failure codes in case of non-compliance without access to the measured NOx values, the applicant is to provide details, not necessarily in the Technical File but at least in supportive documentation for approval, about the alarm strategy, failure codes and calculation algorithm. From the view point of the purpose of achieving NOx compliance, application of the feedback system with the alarms or failure codes is considered as fulfilling the requirements of NTC2008 2.3.6 (a means of monitoring the consumption of substances).

For application of 3.2.8.2.3:

The spot checks after installation shall be performed on board the vessel after installation of the complete Engine+SCR system in cases where they are specified as a method of assess catalyst NOx reduction efficiency by the applicant. In this case the record of this test including information on compliance of NOx measurement device and its calibration record shall be available for the initial survey. The spot checks do not need to be witnessed by the Administration.

In cases where spot checks are required, the checks are to be performed at least at 75% of the rated power.

The guidance on how to assess catalyst NOx reduction efficiency shall include, but not be limited to, the following items:

TL-I MPC112

a) Procedure for spot checks

- Preparation of calibration gas, if applicable
- Details of NOx measurement device including calibration requirements.
- Test condition (e.g. power and speed setting ranges as well as other applicable engine and SCR settings)
- Data to be recorded. It is recommended to include a test report template in the Technical File.
- Sampling probe position(s) for NOx measurement.
- Time duration for engine+SCR stabilisation and the NOx emission measurement

b) Criteria to assess catalyst NOx reduction efficiency

In case where the spot checks are conducted following the procedure specified in resolution MEPC.291(71) Section 7, the criteria specified in 7.5 of the resolution MEPC.291(71) shall be applied.

Otherwise, the criteria shall be determined based on applicable NOx emission limits corresponding to the rated engine speed of the subject engine rather than the parent engine emission value. Also, allowance of the criteria may be given according NTC2008, 6.3.11.1 or Resolution MEPC.291 (71) Section 7.5.

For application of 3.2.8.3:

Other monitoring strategies may only be accepted if the entire SCR chamber with all catalyst blocks installed is covered. Testing of single catalyst blocks after removing them from the SCR chamber is not considered as representative for the entire SCR system.

TL-I MPC115 2017 Guidelines Addressing Additional Aspects of the NOx Technical Code 2008 with regard to Particular Requirements related to Marine Diesel Engines Fitted With Selective Catalytic Reduction (SCR) Systems

(Resolution MEPC.291(71), Paragraph 3.2.11)

MEPC.291(71), Paragraph 3.2.11 reads

3.2 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 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 and guidance given in paragraph 2 of appendix VII 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; and*

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 NOx monitoring is used to demonstrate compliance then measurement of the NOx 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 NOx reduction rate in accordance with chapter 7 of the guidelines, alternatively, systems using a feed forward reductant control strategy may be fitted with NOx 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 NOx Technical Code 2008 or are to be demonstrated as equivalent as permitted by 5.4.2 of the NTC 2008. Other systems or analysers may be accepted according to MPC112.

Note:

1. This TL-I is to be uniformly implemented from 1 July 2020.

For systems using feed forward reductant controls without NOx 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 2017 Guidelines Addressing Additional Aspects of the NOx Technical Code 2008 with regard to Particular Requirements related to Marine Diesel Engines Fitted With Selective Catalytic Reduction (SCR) Systems

(Resolution MEPC.291(71), Paragraph 3.2.12)

MEPC.291(71), Paragraph 3.2.12 reads:

3.2 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 Technical File:

.12 any other parameter(s) specified by the applicant.

Interpretation

The applicant is responsible for ensuring any parameters which affect NOx emissions and which are not included within the scope of 3.2.1 - 3.2.11 are included within the Technical File.

Note:

1. This interpretation is implemented not later than 1 July 2016.
2. Rev.1 of this interpretation is implemented from 1 July 2020.

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.

Note:

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