



**MARINA ADVISORY NO. 2023-20**

Series of 2023

**TO : ALL SHIPOWNERS, SHIP OPERATORS, MASTERS AND OFFICERS OF PHILIPPINE REGISTERED SHIPS ENGAGED IN THE OVERSEAS TRADE, RECOGNIZED ORGANIZATIONS, SHIPBUILDERS, SHIP DESIGNERS, AS WELL AS OTHER RELATED MARITIME ENTITIES**

**SUBJECT : REGULATIONS UNDER THE TECHNICAL CODE ON CONTROL OF EMISSION OF NITROGEN OXIDES FROM MARINE DIESEL ENGINES (NOx TECHNICAL CODE 2008), AS AMENDED**

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Pursuant to the Presidential Decree No. 474, Presidential Decree No. 1059, and its implementing Rules and Regulations, Executive Order Nos. 125/125-A, Republic Act 9295, Republic Act 9729 and its Implementing Rules and Regulation, and in compliance with Annex VI of MARPOL 73/78, as amended, notice is hereby given to all concerned regarding the adoption of the requirements under the Technical Code on Control of Emission of Nitrogen Oxides from Marine Engines (NOx Technical Code, 2008), as amended.

**I. INTRODUCTION**

Under the provisions of Annex VI - Regulations for the Prevention of Air Pollution from Ships, of MARPOL 73/78, and subsequent to the entry into force of Annex VI, each marine diesel engine to which Regulation 13 of that annex applies, must comply with the provisions of the NOx Technical Code.

The purpose of this Code is to establish mandatory procedures for the testing, survey and certification of marine diesel engines to ensure that all applicable marine diesel engines comply with the relevant limiting emission values of NOx as specified within regulation 13 of Annex VI.

The control of diesel engine NOx emissions is achieved through the survey and certification requirements leading to the issue of an Engine International Air Pollution Prevention (EIAPP) Certificate and the subsequent demonstration of in service compliance in accordance with the mandatory under the Code's regulations 13.8 and 5.3.2 respectively (see attached Annex).

## II. NO<sub>x</sub> EMISSION STANDARDS

This Code applies to all diesel engines with a power output of more than 130 kW which are installed, or are designed and intended for installation, on board any ship subject to Annex VI and to which regulation 13 applies. Regarding the requirements for survey and certification under regulation 5, this Code addresses only those requirements applicable to an engine's compliance with the applicable NO<sub>x</sub> emission limit.

Under Regulation 13 of MARPOL Annex VI, three (3) tiers of Nitrogen Oxide (NO<sub>x</sub>) emission limits are set for diesel engines with a power output higher than 130 kW, i.e., IMO Tier I, Tier II and Tier III. Each Tier limits the NO<sub>x</sub> emission to a specific value based on the rated engine speed.

Tier	Ship Construction date on or after	Total weighted cycle emission limit (g/kWh) n = engine's rated speed (rpm)			Relative Reduction from Tier I
		n < 130	n = 130 - 1999	n ≥ 2000	
I	1 January 2000	17.0	$45 * n^{(-0.2)}$ (e.g., 720 rpm – 12.1)	9.8	0%
II	1 January 2011	14.4	$44 * n^{(-0.23)}$ e.g., 720 rpm – 9.7	7.7	15.5% - 21.8%
III	1 January 2016	3.4	$9 * n^{(-0.2)}$ e.g., 720 rpm – 2.4	2.0	80%

The Tier III controls apply only to the specified ships while operating in Emission Control Areas (ECA) established to limit NO<sub>x</sub> emissions, outside such areas the Tier II controls apply. In accordance with regulation 13.5.2, certain small ships would not be required to install Tier III engines.

A marine diesel engine that is installed on a ship constructed on or after the following dates and operating in the following ECAs shall comply with the Tier III NO<sub>x</sub> standard:

1. 1 January 2016 and operating in the North American ECA and the United States Caribbean Sea ECA; or
2. 1 January 2021 and operating in the Baltic Sea ECA or the North Sea ECA.

## III. APPROVAL

An engine may be certified on an individual, Engine Family or Engine Group basis in accordance with the Code and any applicable IMO guidelines. The issuance of Engine International Air Pollution Prevention (EIAPP) Certificate and the approval of the associated member engine Technical File are being enacted by a class



society in its role as a Recognized Organization (RO) on behalf of the flag Administration of the ship as part of the following statutory approval stages:

- Pre-certification survey
- Initial certification survey
- Annual, intermediate and renewal survey; and
- On-board engine undergone major conversion

Flow charts for survey and certification of marine diesel engines are given in the Appendix II of the Code (Annex VI).

For each NO<sub>x</sub> certified diesel engine there must be onboard an approved Technical File, NO<sub>x</sub> Technical Code 2008, regulation 2.3.4, which both defines the engine as approved and provides the applicable survey regime together with any relevant approved amendment documentation.

#### **IV. PROCEDURES FOR NO<sub>x</sub> EMISSION MEASUREMENT**

This procedure shall be applied to every initial approval testing of a marine diesel engine regardless of the location of that testing. Many of the procedures applied are detailed accounts of laboratory methods, wherein the results obtained depend as much on the process of performing the measurements as they depend on the engine and test method. The following are the enumerated procedures set forth in the Code for the NO<sub>x</sub> Emission Measurement, to wit:

1. Test conditions
2. Test Fuels
3. Measurement equipment
4. Determination of exhaust gas flow
5. Permissible deviations of instruments for engine related parameters and other essential parameters
6. Analysers for determination of the gaseous components
7. Calibration of the analytical instruments
8. Test run
9. Test report
10. Data evaluation for gaseous emissions
11. Calculation of the gaseous emissions

#### **V. COMPLIANCE WITH NO<sub>x</sub> EMISSION LIMITS ONBOARD**

After installation of a pre-certificated engine on board a ship, every marine diesel engine shall have on-board verification surveys conducted to verify that the engines continue to comply with the NO<sub>x</sub> emission limits contained in regulation 13 of Annex VI.

Such verification of compliance shall be determined by using one of the following methods:

1. Engine parameter check method to verify that an engine's component, settings and operating values have not deviated from the specifications in the engine's Technical File;
2. Simplified measurement method; or
3. The direct measurement and monitoring method

## **VI. CERTIFICATION OF AN EXISTING ENGINE**

1. Where an Existing Engine is to comply with NOx Technical Code under regulation 13.7, then the entity responsible for obtaining emissions certification shall apply to the approving Recognized Organization or the Administration for certification.
2. Where an application for Approved Method approval includes gaseous emission measurements and calculations, those are to be in accordance with chapter 5 of the Code. Emission and performance data obtained from one engine may be shown to apply to a range of engines.
3. The Approved Method for achieving compliance with regulation 13.7 shall include a copy of the Approved Method File which is required to accompany the engine throughout its life on board ship.
4. A description of the engine's onboard verification procedure shall be included in the Approved Method File.
5. After installation of the Approved Method, a survey shall be conducted in accordance with the Approved Method File. If this survey confirms compliance, the Recognized Organization or the Administration shall amend the ship's IAPP Certificate accordingly.

## **VII. SPECIFIC GUIDELINES**

For specific guidelines, please refer to MARPOL Annex VI and the NTC Code 2008, as amended, IMO Circulars and the following Marine Environment Protection Committee (MEPC) Resolutions that were developed and adopted during their sessions:

- **MEPC.1/Circ.795/Rev.7** - UNIFIED INTERPRETATIONS TO MARPOL ANNEX VI (16 December 2022)
- **MEPC.1/Circ.895/Rev.1** - UNITED INTERPRETATIONS TO THE NOX TECHNICAL CODE 2008, AS AMENDED (10 June 2022)



- **Resolution MEPC.317(74)** - AMENDMENTS TO THE NOX TECHNICAL CODE 2008(ELECTRONIC RECORD BOOKS AND CERTIFICATION REQUIREMENTS FOR SCR SYSTEMS) (01 October 2020)
- **Resolution MEPC.272(69)**- AMENDMENTS TO THE NOX TECHNICAL CODE 2008(TESTING OF GAS-FUELLED AND DUAL FUEL ENGINES) (01 September 2017)
- **Resolution MEPC.251(66)** - AMENDMENTS TO MARPOL ANNEX VI AND THE NOX TECHNICAL CODE 2008 (AMENDMENTS TO REGULATIONS 2, 13, 19, 20 AND 21 AND THE SUPPLEMENT TO THE IAPP CERTIFICATE UNDER MARPOL ANNEX VI AND CERTIFICATION OF DUAL-FUEL ENGINES UNDER THE NOX TECHNICAL CODE 2008) (01 September 2015)
- **Resolution MEPC.177(58)** - AMENDMENTS TO THE TECHNICAL CODE ON CONTROL OF EMISSION OF NITROGEN OXIDES FROM MARINE DIESEL ENGINES (NOX TECHNICAL CODE 2008) (01 July 2010)

#### VIII. REFERENCES

Copies of the IMO Circulars / Resolutions and other references may be downloaded from [www.imo.org](http://www.imo.org).

For information and guidance of all concerned.

Issued on 27th day of July 2023 at Manila, Philippines

  
**Atty. HERNANI N. FABIA**  
 Administrator

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Business Mirror

Date of Submission to ONAR:

*Annex*

**Form of EIAPP Certificate**  
(Refer to 2.2.10 of the NO<sub>x</sub> Technical Code)

**ENGINE INTERNATIONAL AIR POLLUTION PREVENTION CERTIFICATE**

Issued under the provisions of the Protocol of 1997, as amended by the resolution MEPC.xx(58) in 2008, to amend the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 related thereto (hereinafter referred to as "the Convention") under the authority of the Government of:

\_\_\_\_\_  
(full designation of the country)

by \_\_\_\_\_  
(full designation of the competent person or organization authorized under the provisions of the Convention)

Engine manufacturer	Model number	Serial number	Test cycle(s)	Rated power (kW) and speed (RPM)	Engine approval number

THIS IS TO CERTIFY:

1 That the above-mentioned marine diesel engine has been surveyed for pre-certification in accordance with the requirements of the revised Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines (2008) made mandatory by Annex VI of the Convention; and

2 That the pre-certification survey shows that the engine, its components, adjustable features, and Technical File, prior to the engine's installation and/or service on board a ship, fully comply with the applicable regulation 13 of Annex VI of the Convention.

This certificate is valid for the life of the engine subject to surveys in accordance with regulation 5 of Annex VI of the Convention, installed in ships under the authority of this Government.

Issued at.....

(Place of issue of certificate)

(dd/mm/yyyy).....  
(Date of issue)

.....  
(Signature of duly authorized official  
issuing the certificate)

(Seal or stamp of the authority, as appropriate)

# **SUPPLEMENT TO ENGINE INTERNATIONAL AIR POLLUTION PREVENTION CERTIFICATE (EIAPP CERTIFICATE)**

## **RECORD OF CONSTRUCTION, TECHNICAL FILE AND MEANS OF VERIFICATION**

### **Notes:**

- 1 This Record and its attachments shall be permanently attached to the **EIAPP** Certificate. The **EIAPP** Certificate shall accompany the engine throughout its life and shall be available on board the ship at all times.
- 2 The Record 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
- 3 Unless otherwise stated, regulations mentioned in this Record refer to regulations of Annex VI of the Convention and the requirements for an engine's Technical File and means of verifications refer to mandatory requirements from the Revised NOx Technical Code (2008).

### **1 Particulars of the engine**

- 1.1 Name and address of manufacturer \_\_\_\_\_
- 1.2 Place of engine build \_\_\_\_\_
- 1.3 Date of engine build \_\_\_\_\_
- 1.4 Place of pre-certification survey \_\_\_\_\_
- 1.5 Date of pre-certification survey \_\_\_\_\_
- 1.6 Engine type and model number \_\_\_\_\_
- 1.7 Engine serial number \_\_\_\_\_
- 1.8 If applicable, the engine is a parent engine? or a member engine of the following engine family ? or engine group? \_\_\_\_\_
- 1.9 Individual Engine or Engine Family/Engine Group details:
  - 1.9.1 Approval reference \_\_\_\_\_
  - 1.9.2 Rated power (kW) and rated speed (rpm) values or ranges \_\_\_\_\_
  - 1.9.3 Test cycle(s) \_\_\_\_\_
  - 1.9.4 Parent Engine(s) test fuel oil specification \_\_\_\_\_
  - 1.9.5 Applicable NOx emission limit (g/kWh), regulation 13.3, 13.4, or 13.5.1 (delete as appropriate) \_\_\_\_\_
  - 1.9.6 Parent Engine(s) emission value (g/kWh) \_\_\_\_\_

### **2 Particulars of the technical file**

The Technical File, as required by chapter 2 of the NO<sub>x</sub> Technical Code, is an essential part of the EIAPP Certificate and must always accompany an engine throughout its life and always be available on board a ship.

- 2.1 Technical File identification/approval number \_\_\_\_\_
- 2.2 Technical File approval date \_\_\_\_\_



### 3 Specifications for the on-board NO<sub>x</sub> verification procedures for the engine parameter survey

The specifications for the onboard NO<sub>x</sub> verification procedures, as required by chapter 6 of the NO<sub>x</sub> Technical Code, are an essential part of the EIAPP Certificate and must always accompany an engine through its life and always be available on board a ship.

#### 3.1 Engine Parameter Check method:

3.1.1 Identification/approval number.....

3.1.2 Approval date.....

#### 3.2 Direct Measurement and Monitoring method:

3.2.1 Identification/approval number.....

3.2.2 Approval date.....

Alternatively, the Simplified Measurement method in accordance with 6.3 of the NO<sub>x</sub> Technical Code may be utilized.

Issued at

.....  
...

*(Place of issue of certificate)*

(dd/mm/yyyy).....

....

*(Date of issue)*

*(Signature of duly authorized*

*official issuing the certificate)*

*(Seal or stamp of the authority, as appropriate)*