MARPOL Annex VI – PSC for MARPOL Annex VI

National Workshop (virtual) on Ratification and Effective Implementation of MARPOL Annex VI for Egypt
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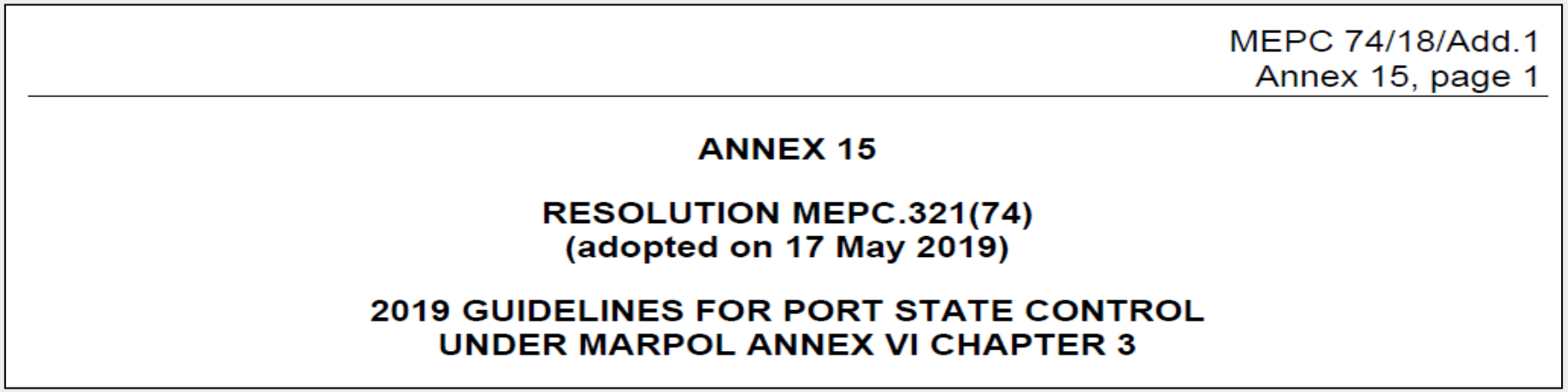
Process

- Initial inspection
- Clear grounds
- Detailed inspection
- Detainable deficiencies



MEPC 74/18/Add.1
Annex 15, page 1

ANNEX 15

RESOLUTION MEPC.321(74)
(adopted on 17 May 2019)

2019 GUIDELINES FOR PORT STATE CONTROL UNDER MARPOL ANNEX VI CHAPTER 3

https://wwwcdn.imo.org/localresources/en/OurWork/Environment/Documents/MEPC.321(74).pdf

Initial inspection

- It involves checking certificates and documents.
- Starting point could be the IAPP and IEE certificates plus their supplements
- PSCO will make sure that:
  - All equipment listed on the supplements are available
  - They have required certificates
  - Operational aspects are documented in various record books.
  - Personnel are familiar with their proper operation.
- If any clear ground, detail inspection could be initiated.

“Clear grounds” to conduct a more detailed inspection

1. Certificates missing or invalid
2. Supporting documents missing or invalid
3. Absence or malfunction of equipment or arrangements specified in certificates or documents
4. Presence of equipment not specified in certificates or documents
5. Serious deficiencies in certificates, documents, equipment or arrangements
6. Non-familiarity of master or crew
7. Substandard quality of fuel
8. Report or complaint informing about ship being substandard

Detailed inspection process

- Depends on what areas or aspect need to be inspected.
- For example, for NOx compliance, the process will be different as compared to sulphur compliance.
- Generally, the requirements of the regulation must be met.
- Therefore, the PSCO will carry out further investigation to find out if the prevailing regulations are met.

Possible detainable deficiencies for MARPOL Annex VI

- Absence of valid certificates or documents.
- A marine diesel engine on-board that does not comply with regulations.
- The sulphur content of any fuel used or found on board exceeds 0.5% m/m (or 0.1% while in ECA-SOx).
- The master or crew are not familiar with essential procedures of operation of air pollution prevention equipment (e.g. incinerators, fuel change over system, scrubber, etc.).
- ……..
- ……..

Port State Control for ODS (Regulation 12)

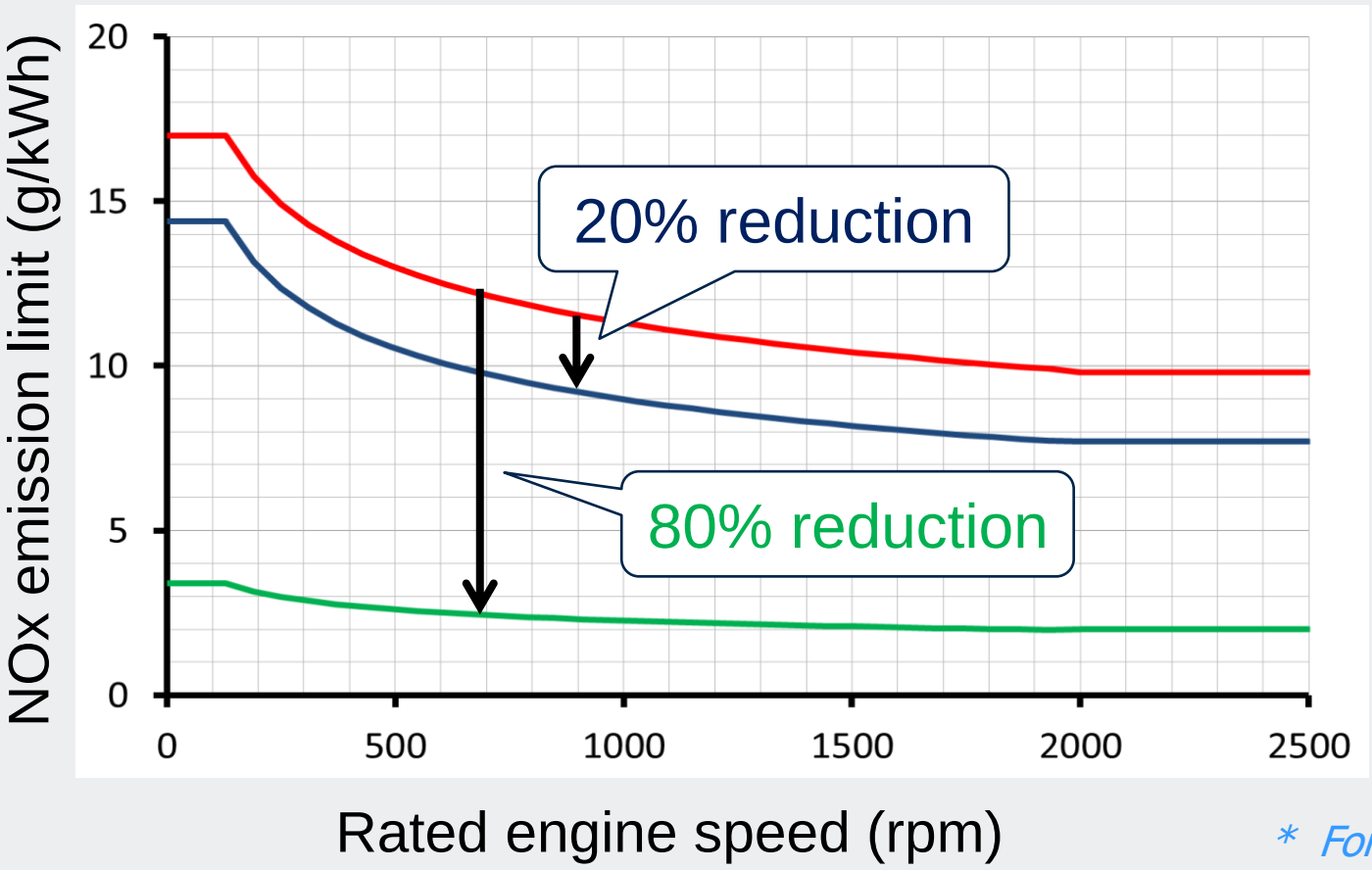
PSC on Ozone-Depleting Substances (ODS)

- **Initial inspection:**
  - Check IAPP certificate and supplement to find out if ODS is on-board
  - Check if ODS Record Book is on-board and is up to date
  - Check if the master or crew are familiar with the procedures to prevent emissions of ODS;
  - Examine relevant machinery for its operational / maintenance records

- **Detailed inspection:** When clear grounds exist:
  - More detailed check of certificates
  - More detailed check of record books
  - More detailed check of equipment operation and maintenance records
  - More detailed discussion with the crew.

Port State Control for Nitrogen Oxides (NOx) (Regulation 13)

Regulation 13 - NOx emission limits



Tier I
- Constructed on or after 1 Jan. 2000

Tier II
- Constructed on or after 1 Jan. 2011

Tier III*
- Constructed on or after 1 Jan. 2016
- Applied in ECAs
- Tier II applied outside of ECAs

** For a ship operating within North American ECA and US Caribbean Sea Area ECA*

All engines > 130 kW

How a ship could demonstrate compliance?

PSC: Initial inspection on NO_x

Ascertain the existence of the following documents:

- IAPP certificate and its supplement with details of all applicable engines
- EIAPP certificate
- NOx Technical File
- Record Book of Engine Parameters
- Record Book for Tier II or III information on ECA-NOx changeovers of settings
- Approved Method file for post-1990: Pre-2000 ships.

At the same time, ascertain that the crew are familiar with the above requirements

NO_x : Detailed inspection

- **Deeper examination of the EIAPP Certificates, NOx Technical Files , Record Book of Engine Parameters, maintenance records:**
  - Purpose is to confirm that they are accurate
  - If the engine is used with correct settings / part / etc.
  - If crew are familiar with how to operate the engine.
- **Questions to be clarified (examples):**
  - Has there been any major conversion?
  - Has emergency diesel engine used for non emergency?
  - Are there any additional engines on board?
  - Are main components such as injectors, turbochargers are conforming to NOx Technical File?
  - Has ECA-NOx switching recorded properly?
  - Etc.

NO_x detainable deficiencies

1. Absence of valid EIAPP Certificates or NOx Technical Files;

2. Existence of NOx-applicable engines on-board that have undergone major conversion but does not comply with requirements.

3. Existence of a diesel engine with Approved Method on a ship constructed on or after 1 January 1990 but prior to 1 January 2000, that has no **Approved Method installed.**

……

……

……

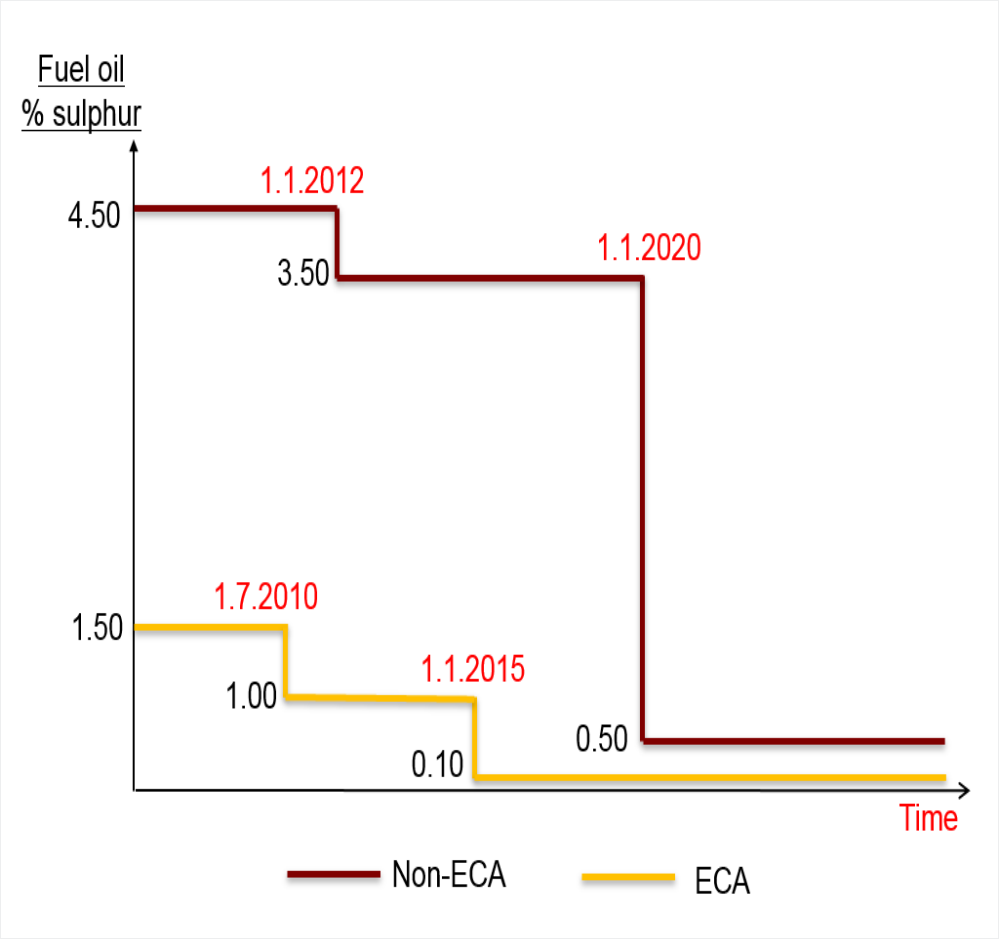
PSC for SOx and sulphur compliance (Regulations 14 and 18)

Regulatory drivers for change
Reg. 14 Sulphur Oxides & Particular Matter (SOx & PM)

- Fuel sulphur limits are set for Global and ECA regions.

Compliance options:

1. LNG
2. Use compliant fuel oil (e.g. two fuel system)
3. SOx scrubbers



PSC: Initial inspection of documents/certificates

- Written changeover procedure & **record of change over events** (Reg 14.6):
- Documentation related to exhaust gas cleaning systems (scrubbers), if applicable.
- Bunker Delivery Note and bunker samples (Reg. 18)
- In case of non-availability of fuel oil: Record of actions (Reg 18.2.1.1) ➔ FONAR
- ……

PSC initial inspection for sulphur: Examination of fuel samples?

- Physical examination of fuel:
  - Take sample and usual visual examination such as colour, etc.
  - Use hand held testing devices such as XRF (**X-ray fluorescence** spectroscopy).

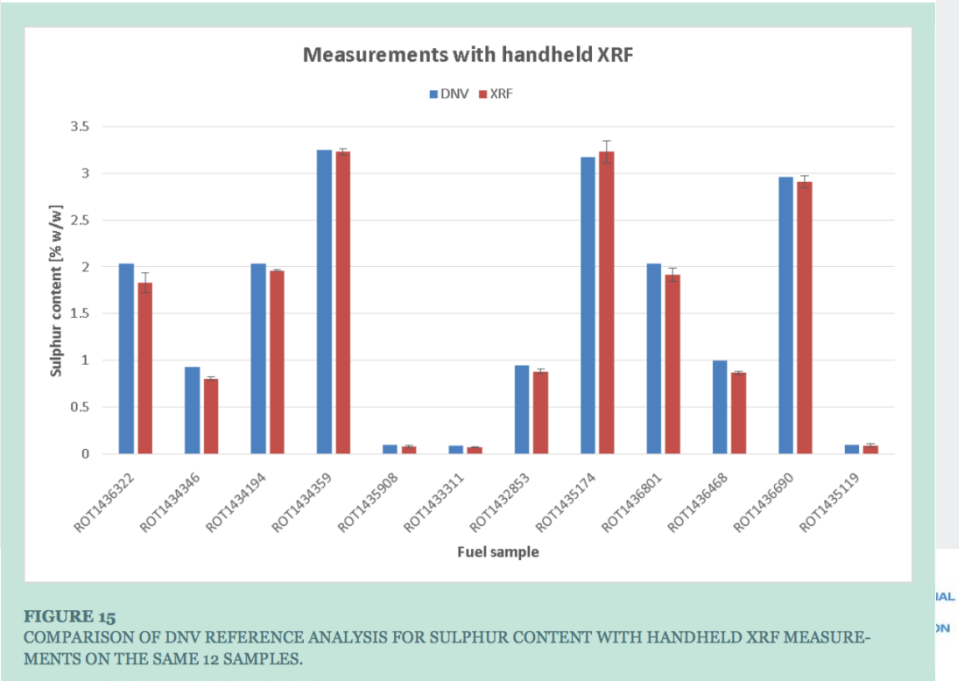
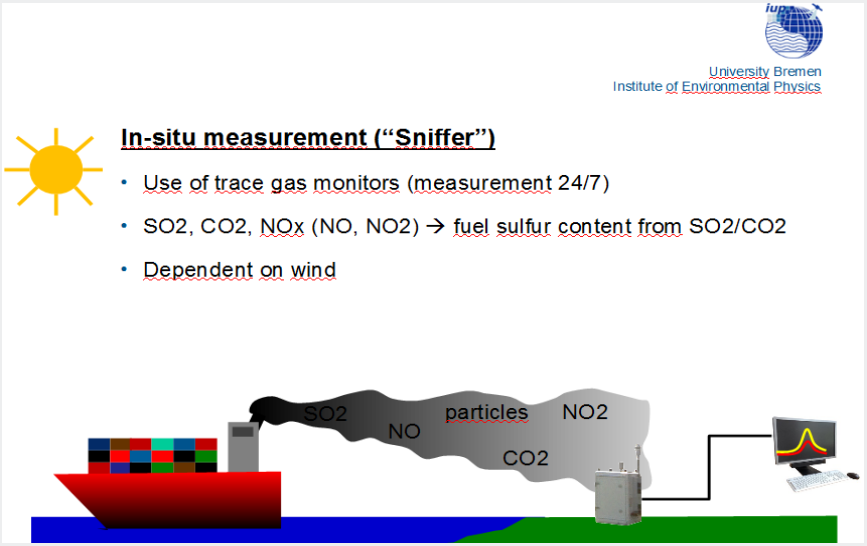


FIGURE 15
COMPARISON OF DNV REFERENCE ANALYSIS FOR SULPHUR CONTENT WITH HANDHELD XRF MEASUREMENTS ON THE SAME 12 SAMPLES.

PSC initial inspection for sulphur: Examination of exhaust gas?

- Examination of exhaust gas:
  - Use of sniffers along the shipping routes
  - Use of drones or planes
  - Generally not accurate enough and costly



Source: https://www.theexplorer.no/solutions/using-drones-to-monitor-sulphur-emissions-from-ships/

PSC: More detailed inspections

- Detailed check of documents:
  - Oil record book
  - Fuel changeover plan
  - FONAR, if applicable
  - BDNs etc.
  - Check with other flag
  - Check with fuel supplier
- **Sampling of fuel** and analysis for sulphur content

Detailed inspection, Changeover etc.

Officers checking fuel tank arrangement onboard ship

Further Guidelines and Information

Consistent implementation of 0.50% sulphur limit under MARPOL Annex VI

Summary of items on Consistent implementation:

- **Ship implementation planning guidance**
- **2019 Guidelines on consistent implementation of 0.50% sulphur limit** …
- Other Guidance issued to support consistent implementation of 0.50% sulphur limit
- Consequential regulatory amendments approved by MEPC 74 (May 2019)
- Enforcement of sulphur limits under regulation 14 of MARPOL Annex VI
- Enhance the implementation of regulation 18 of MARPOL Annex VI, …., including the enhancement of the GISIS to support data collection and analysis.
- Other industry guidance:
  - **Joint Industry Guidance** (OCIMF, IPIECA, IBIA et al.).
  - **Online training materials** on the subject

2019 Guidelines for consistent implementation of 0.50% sulphur limit under MARPOL Annex VI, MEPC.320(74)), May 2019

Guidelines intended for use by Administrations, port States, shipowners, shipbuilders and fuel oil suppliers. Main content:

1. **Definitions** (DM, RM, ULSFO, VLSFO, HSHFO)
2. **Ship implementation planning** for 2020 (referencing MEPC.1/Circ.878)
3. **Impact on fuel and machinery systems**: distillate fuels (including distillate fuel with FAME) / Residual fuels / Key technical considerations for shipowners and operators / ISO Standard for residual fuels / Cylinder lubrication
4. **Verification issues and control mechanism and actions**: Survey and certification by Administrations / Control measures by port States / Control on fuel oil suppliers / Information sharing related to non-compliances under MARPOL Annex VI
5. **Fuel oil non-availability**: Guidance and information sharing on fuel oil non-availability / Standard format for reporting fuel oil non-availability (FONAR) – Appendix 1
6. **Possible safety implications** relating to fuel oils meeting the 0.50% m/m sulphur limit – Appendix 2

Guidance on the development of a ship implementation plan

- **Guidance on the development of a ship implementation plan for consistent implementation of the 0.50% sulphur limit under MARPOL Annex VI (MEPC.1/Circ.878) –**
- **Issued November 2018**
  - This guidance includes an indicative plan that identifies the following key elements:

.1 risk assessment and mitigation plan aspetcs;

.2 fuel oil system modifications and tank cleaning aspects;

.3 fuel oil capacity and segregation capability;

.4 procurement of compliant fuel;

.5 fuel oil changeover plan; and

.6 documentation and reporting.

Guidance on FONAR

APPENDIX 1

FUEL OIL NON-AVAILABILITY REPORT (FONAR)

Note:

1 This report is to be sent to the flag Administration and to the competent authorities in the relevant port(s) of destination in accordance with regulation 18.2.4 of MARPOL Annex VI. The report shall be sent as soon as it is determined that the ship/operator will be unable to procure compliant fuel oil and preferably before the ship leaves the port/terminal where compliant fuel cannot be obtained. A copy of the FONAR should be kept on board for inspection for at least 36 months.

2 This report should be used to provide evidence if a ship is unable to obtain fuel oil compliant with the provisions stipulated in regulations 14.1 or 14.4 of MARPOL Annex VI.

3 Before filing a FONAR, the following should be observed by the ship/operator:

.1 A fuel oil non-availability report is not an exemption. According to regulation 18.2 of MARPOL Annex VI, it is the responsibility of the Party of the destination port, through its competent authority, to scrutinize the information provided and take action, as appropriate.

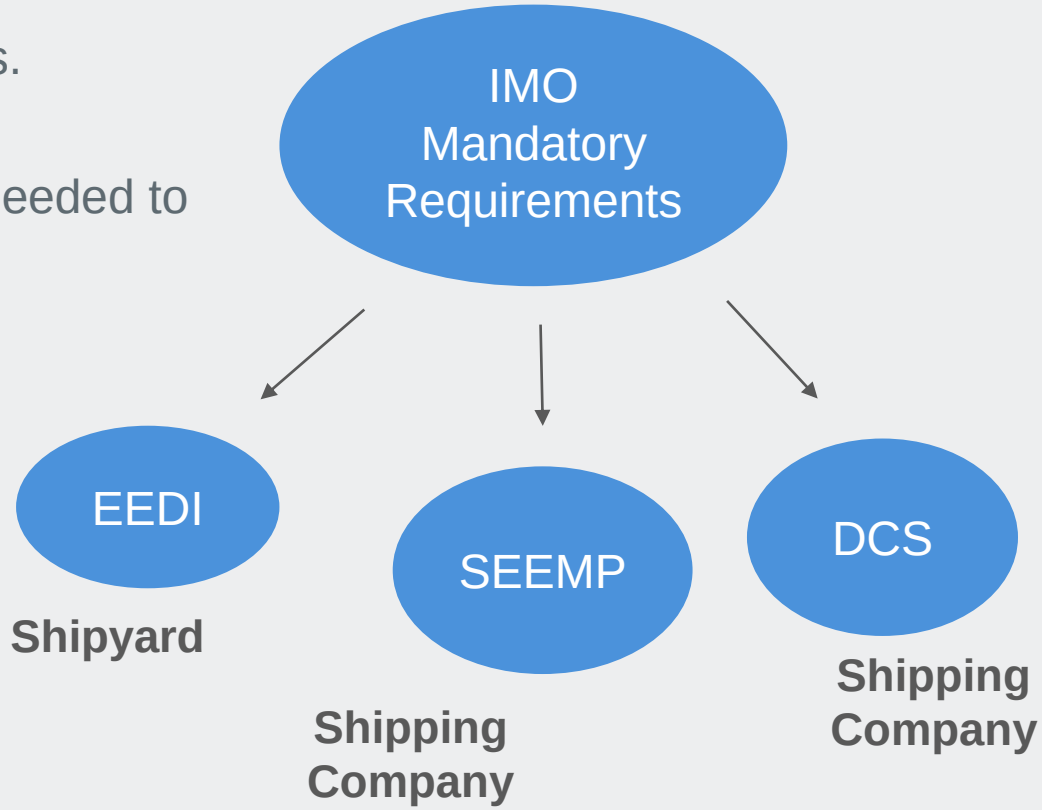
3.2 In the case of insufficiently supported and/or repeated claims of non-availability, the Party may require additional documentation and substantiation of fuel oil non-availability claims. The ship/operator may also be subject to more extensive inspections or examinations while in port.

3.3 Ships/operators are expected to take into account logistical conditions and/or terminal/port policies when planning bunkering, including but not limited to having to change berth or anchor within a port or terminal in order to obtain compliant fuel.

Port State Control for Energy Efficiency

IMO initiatives for GHG emissions control from ships

- Discuss the specific requirements.
- Identify the relevant documents needed to demonstrate compliance



General checklist for Chapter 4 PSC

- **For Initial inspection:** Check if the following exists and are valid:
  - IEE certificate
  - Ship Record of Construction (annexed to IEE Certificate).
  - EEDI Technical File, its contents and validity
  - Existence of SEEMP on-board plus approved Data Collection Plan as part II of SEEMP.
  - “Statement of Compliance” for IMO Data Collection System for Fuel Oil Consumption (from 2019 onwards).
  - Also ascertain that ship master and crew are familiar with relevant documents and activities.
- **For detailed inspections:** Examine the contents of the above documents and also the ship related equipment/systems to ensure that documents are valid and existing equipment/systems are compatible with the documents.

Some aspects of detailed inspections:

- In-depth review of content of “Ship Record of Construction for Energy Efficiency” and related documented.
- Review of on-board fuel data collection process and disaggregate data and if complies with data collection plan
- General review of the ship to find out if any changes made that may be a “major conversion”.
- ……

Ship record of construction for energy efficiency (1)

1. Particulars of ship

2. Propulsion system

Supplement to the International Energy Efficiency Certificate (IEE Certificate)

RECORD OF CONSTRUCTION RELATING TO ENERGY EFFICIENCY

Notes:

1 This Record shall be permanently attached to the IEE Certificate. The IEE Certificate 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 Party is also used, this shall prevail in case of a dispute or discrepancy.

3 Entries in boxes shall be made by inserting either: a cross (x) for the answers "yes" and "applicable"; or a dash (-) for the answers "no" and "not applicable", as appropriate.

4 Unless otherwise stated, regulations mentioned in this Record refer to regulations in Annex VI of the Convention, and resolutions or circulars refer to those adopted by the International Maritime Organization.

1 Particulars of ship

1.1 Name of ship .....

1.2 IMO number .....

1.3 Date of building contract .....

1.4 Gross tonnage .....

1.5 Deadweight .....

1.6 Type of ship* .....

2 Propulsion system

2.1 Diesel propulsion ..... ☐

2.2 Diesel-electric propulsion ..... ☐

2.3 Turbine propulsion ..... ☐

2.4 Hybrid propulsion ..... ☐

2.5 Propulsion system other than any of the above ..... ☐

* Insert ship type in accordance with definitions specified in regulation 2. Ships falling into more than one of the ship types defined in regulation 2 should be considered as being the ship type with the most stringent (the lowest) required EEDI. If ship does not fall into the ship types defined in regulation 2, insert "Ship other than any of the ship type defined in regulation 2".

Ship record of construction for energy efficiency (2)

3. Attained EEDI

4. Required EEDI

5. SEEMP

6. EEDI Technical File

3 Attained Energy Efficiency Design Index (EEDI)

3.1 The Attained EEDI in accordance with regulation 20.1 is calculated based on the information contained in the EEDI technical file which also shows the process of calculating the Attained EEDI. .... ☐

The Attained EEDI is: ..... grams-CO_2/tonne-mile

3.2 The Attained EEDI is not calculated as:

3.2.1 the ship is exempt under regulation 20.1 as it is not a new ship as defined in regulation 2.23 ..... ☐

3.2.2 the type of propulsion system is exempt in accordance with regulation 19.3 ..... ☐

3.2.3 the requirement of regulation 20 is waived by the ship's Administration in accordance with regulation 19.4 ..... ☐

3.2.4 the type of ship is exempt in accordance with regulation 20.1 ..... ☐

4 Required EEDI

4.1 Required EEDI is: ..... grams-CO_2/tonne-mile

4.2 The required EEDI is not applicable as:

4.2.1 the ship is exempt under regulation 21.1 as it is not a new ship as defined in regulation 2.23 ..... ☐

4.2.2 the type of propulsion system is exempt in accordance with regulation 19.3 ..... ☐

4.2.3 the requirement of regulation 21 is waived by the ship's Administration in accordance with regulation 19.4 ..... ☐

4.2.4 the type of ship is exempt in accordance with regulation 21.1 ..... ☐

4.2.5 the ship's capacity is below the minimum capacity threshold in Table 1 of regulation 21.2 ..... ☐

5 Ship Energy Efficiency Management Plan

5.1 The ship is provided with a Ship Energy Efficiency Management Plan (SEEMP) in compliance with regulation 22 ..... ☐

6 EEDI technical file

6.1 The IEE Certificate is accompanied by the EEDI technical file in compliance with regulation 20.1 ..... ☐

6.2 The EEDI technical file identification/verification number .....

6.3 The EEDI technical file verification date .....

Self Assessment: True or False

- All ships more than 400 GT should have on-board an IEE Certificate?
- All ships more than 400 GT should have on-board a SEEMP?
- All ships more than 400 GT should have a Part II SEEMP that gives details of ship-board fuel oil consumption data collection method?
- All ships more than 400 GT should have on-board an EEDI Technical File?

REMPEC, an IMO / UNEP Centre assisting the Mediterranean coastal States in ratifying, transposing, implementing and enforcing international maritime conventions related to the protection of the marine environment

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Thank you

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