



RULES FOR STATUTORY SURVEY OF SEA-GOING SHIPS

PART IX ENVIRONMENTAL PROTECTION

November
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GDAŃSK

Part IX – Environmental Protection – November 2024, of the *Rules for Statutory Survey of Sea-going Ships* was approved by PRS Executive Board on 30 October 2024 and enters into force on 1 November 2024.

The requirements of *Part IX – Environmental Protection – November 2024*, of the *Rules for Statutory Survey of Sea-going Ships* apply to all sea-going ships flying the Polish flag on which PRS performs survey and statutory services as recognized organization on behalf of Flag Administrations. The requirements of *Part IX*, however, do not apply to motor boats and sea-going yachts of less than 24 m in length which are not subject to *Annex IV* and *Annex V* to *MARPOL 73/78 Convention*.

This part of the *Rules* also applies to ships which are subject to statutory survey and fly other than Polish flags and are classed with PRS.

The requirements of *Part IX – Environmental Protection – November 2024* are extended and supplemented by the following publications:

Publication No. 78/P – *Guidelines for Exhaust Gas SO_x-Cleaning Systems*;

Publication No. 98/P – *Guidelines Regarding the Requirements for Marine Diesel Engines Fitted with NO_x Selective Catalytic Reduction (SCR) Systems*;

Publication No. 103/P – *Guidelines for Energy Efficiency of Ships*;

Publication No. 105/P – *Rules for Construction and Survey of Fixed Offshore Platforms*;

Publication No. 106/P – *ECO Class Rules*.

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CONTENTS

	Page
1 General	5
1.1 Application and Rules' Contents.....	5
1.2 Definitions	7
1.3 Scope of Survey	14
2 Prevention of Sea Pollution by Oil	15
2.1 Technical Requirements for Ship Construction and Equipment – Prevention of Oil Pollution from Machinery Spaces of All Ships	15
2.2 Technical Requirements for Ship Construction and Equipment – Prevention of Sea Pollution from Cargo Spaces of Tankers	20
2.3 Requirements for Operational Documentation	24
2.4 The exemption of UNSP barges from survey and certification requirements under MARPOL.....	29
2.5 Prohibition on the use and carriage for use as fuel of heavy fuel oil by ships in Arctic waters	29
3 Prevention of Sea Pollution by Noxious Liquid Substances in Bulk	30
3.1 Technical Requirements for Ship Construction and Equipment.....	30
3.2 Requirements for Operational Documentation	31
4 Prevention of Sea Pollution by Sewage	33
4.1 Technical Requirements for Ship Construction and Equipment.....	33
4.2 Requirements for Operational Documentation	38
4.3 The exemption of UNSP barges from survey and certification requirements under MARPOL Annex IV	38
5 prevention of Marine Pollution by Garbage from Ships	38
5.1 Technical Requirements for Ship Construction and Equipment.....	38
5.2 Criteria for the classification of solid bulk cargoes as harmful to the marine environment	42
5.3 Requirements for Operation Documentation.....	42
6 Prevention of Air Pollution by Ships	43
6.1 Requirements in the Scope of Prevention of Ozone Depleting Substances Emission.....	43
6.2 Nitrogen Oxides (NOX)	45
6.3 Sulphur Oxides (SO _x) and Particulate Matter (PM)	51
6.4 Volatile Organic Compounds (VOCs).....	54
6.5 Shipboard Incineration.....	55
6.6 Fuel Oil Quality	57
6.7 The exemption of UNSP barges from survey and certification requirements under MARPOL Annex VI	62
7 Requirements for Floating Platforms and Drilling Units	62
7.1 Requirements for Prevention of Sea Pollution by Oil.....	62
7.2 Requirements for Prevention of Sea Pollution by Sewage.....	62
7.3 Requirements for Prevention of Sea Pollution by Garbage	63
7.4 Requirements for Prevention of Air Pollution	63
8 Prevention of Sea Pollution by Harmful Substances Carried in Packaged Form	63
8.1 Application and Definitions	63
8.2 Packing.....	63
8.3 Marking and Labelling.....	63
8.4 Documents.....	63
8.5 Stowage.....	64
8.6 Quantity Limitations	64

9	Requirements on Energy Efficiency for Ships	64
9.1	Definitions Additionally Applicable to Chapter 9	64
9.2	Application	69
9.3	Waiver from Energy Efficiency Requirements Granted by Flag State Administration	69
9.4	Energy Efficiency Requirements for New Ships	70
9.5	Requirements for Energy Efficiency for New and Existing Ships	75
9.6	Owner’s Actions for Fleet Energy Efficiency Improvement, Ship Energy Efficiency Management Plan Part I (SEEMP PART I)	75
9.7	Implementation of the IMO Ship Fuel Oil Consumption Data Collection System, Part II of Ship Energy Efficiency Management Plan and Ship Fuel Oil Consumption Annual Reporting ...	77
9.8	Attained Energy Efficiency Existing Ship Index (attained EEXI).....	80
9.9	Required Energy Efficiency Existing Ship Index (required EEXI)	81
9.10	The Ship Energy Efficiency Management Plan Part III (SEEMP III).....	82
9.11	Carbon Intensity Indicator CII	83
10	Requirements on Monitoring, Reporting and Verification of Carbon Dioxide Emissions from Maritime Transport	84
10.1	EU MRV Regulation.....	84
10.2	The Key Goal.....	85
10.3	Definitions	85
10.4	Scope.....	85
10.5	Requirements.....	85
11	Ballast Water and Sediments Management Systems	86
11.1	Definitions	86
11.2	Basic Requirements.....	86
11.3	Ballast Water Management System.....	88
11.4	Sediments Treatment and Disposal	90
11.5	Requirements for Operational Documentation	91
11.6	Installation and commissioning test.....	91
11.7	BWM related guidelines and instructions.....	92

1 GENERAL

1.1 Application and Rules' Contents

1.1.1 *Part IX – Environmental Protection* of the *Rules for Statutory Survey of Sea-going Ships*, hereinafter referred to as the *Rules*, contains technical requirements for construction and equipment of ships as well as the requirements concerning the operating requirements resulting from the current provisions of Annexes I, II, IV, V and VI to *MARPOL 1973* as amended by the *Protocol of 1978*, and *Protocol of 1997* hereinafter referred to as the *Convention*.

1.1.2 The requirements specified in *Part IX* apply to:

- .1 sea-going ships flying the Polish flag, irrespective of being subject to statutory survey or not, classed with PRS;
- .2 sea-going ships flying the Polish flag, irrespective of being subject to statutory survey or not, classed with other classification societies not being duly authorized by the Polish Administration;
- .3 ships flying other than Polish flag and classed with PRS which are subject to statutory survey – within powers granted by the flag State Administration to PRS;
- .4 sea-going yachts having a length $L^1 = 24$ m or more – in accordance with the provisions of Annex I of the *Convention*;
- .5 motor boats and sea-going yachts, with no limitation to their dimensions, certified to carry 16 persons or more – in accordance with the provisions of Annex IV of the *Convention* and those certified to carry 15 persons or more – in accordance with the provisions of Annex V of the *Convention*;
- .6 motor boats and sea-going yachts, with no limitation to their dimensions, to I.C. engines – in accordance with the provisions of Annex VI.

1.1.3 For ships flying the Polish flag, the requirements specified in this part of the *Rules* are subject to enforcement by PRS within the statutory survey under the authority given by the Polish Administration.

1.1.4 For ships flying other than Polish flag, the requirements specified in this part of the *Rules* are subject to enforcement, by PRS under the authority given by the flag state Administration, for compliance with the requirements of the *Convention* in respect of construction and equipment of ships as well as conducting surveys and issuing documents to confirm compliance with the *Convention* requirements.

1.1.5 The requirements specified in sub-chapters 6.1 ÷ 6.6 concerning prevention of emission of ozone depleting and noxious substances (nitrogen oxides – NO_x, sulphur oxides – SO_x, particulate matter – PM and volatile organic compounds – VOC) from ships to air do not apply to:

- .1 any emission necessary for the purpose of securing the safety of ship or saving life at sea; or
- .2 any emission resulting from damage to a ship or her equipment:
 - (a) provided that all reasonable precautions have been taken after the occurrence of the damage or discovery of the emission for the purpose of preventing or minimizing the emissions; and
 - (b) except if the owner or the master acted either with intent to cause damage, or recklessly and with knowledge that damage would probably result.

¹ Length, *L*, determined in accordance with 1.2.2 in *Part III – Equipment and Stability*, of the *Rules for the Classification and Construction of Sea-going Yachts*.

1.1.6 Trials for Ship Emission Reduction and Control Technology Research

- .1** The Administration of a Party to Convention may, in co-operation with other Administrations as appropriate, issue an exemption from specific provisions of Annex VI to the *Convention* or the revised *NO_x Technical Code, 2008, as amended* for a ship to conduct trials for the development of ship emission reduction and control technologies and engine design programmes.
- .2** A permit for such an exemption shall only be granted to the minimum number of ships necessary and be subject to the following provisions:
 - (a) for marine diesel engines with a per cylinder displacement up to 30 litres, the duration of the sea trial shall not exceed 18 months. If additional time is required, a permitting Administration or Administrations may permit a renewal for one additional 18-month period; or
 - (b) for marine diesel engines with a per cylinder displacement above 30 litres, the duration of the ship trial shall not exceed 5 years and shall require a progress review by the permitting Administration or Administrations at each intermediate survey. A permit may be withdrawn based on this review if the testing has not adhered to the conditions of the permit or if it is determined that the technology or programme is not likely to produce effective results in the reduction and control of ship emissions. If the reviewing Administration or Administrations determine that additional time is required to conduct a test of a particular technology or programme, a permit may be renewed for an additional time period not to exceed five years.

1.1.7 Emissions from Sea-bed Mineral Activities

- .1** Emissions directly arising from the exploration, exploitation and associated offshore processing of sea-bed mineral resources are, in accordance with Chapter 6, exempt from the provisions concerning the reduction of emissions. Such emissions include the following:
 - (a) emissions resulting from the incineration of substances that are solely and directly the result of exploration, exploitation and associated offshore processing of sea-bed mineral resources, including but not limited to flaring of hydrocarbons and burning of cuttings, muds, and/or stimulation fluids during well completion and testing operations, and flaring arising from upset conditions;
 - (b) the release of gases and volatile compounds entrained in drilling fluids and cuttings;
 - (c) emissions associated solely and directly with the treatment, handling, or storage of sea-bed minerals; and
 - (d) emissions from marine diesel engines that are solely dedicated to the exploration, exploitation and associated offshore processing of sea-bed mineral resources.
- .2** The requirements specified in sub-chapter 6.6 shall not apply to the use on site as fuel, when approved by the Administration.

1.1.8 Equivalents

- .1** In the case of action under the authority of the Administration of a Party, they may allow any alternative fitting, material, appliance or apparatus to be fitted in a ship or other procedures, alternative fuel oils, or compliance methods used if such fitting, material, appliance or apparatus or other procedures, alternative fuel oils, or compliance methods are at least as effective in terms of emissions reductions as those required by Annex VI to the *Convention*.

- .2 The Administration of a Party which allows equivalents specified in 1.1.8.1 shall communicate particulars thereof to IMO for circulation to the Parties for their information and appropriate action, if any.
- .3 The Administration of a Party shall take into account any relevant guidelines developed by IMO pertaining to the equivalents provided for.
- .4 The Administration of a Party which allows the use of an equivalent as specified in 1.1.8.1 shall endeavour not to impair or damage its environment, human health, property, or resources or those of other States.

1.2 Definitions

General terminology definitions used in the *Rules* are provided in *Part I – Survey Regulations*. For the purposes of *Part IX* the following additional definitions apply:

1.2.1 *Convention* – International Convention for the Prevention of Pollution from Ships, 1973, as amended by the Protocol of 1978 and Protocol 1997, also referred to as MARPOL 73/78/97.

1.2.2 *Ship* – vessel of any type whatsoever operating in the marine environment, including hydrofoil boats, air-cushion vehicles, submersibles, floating craft and fixed or floating platforms.

1.2.3 *Sea-going ship* – every ship engaged on international voyages in sea areas and entered in the ship register kept by the competent authorities of the flag State Administration.

1.2.4 *New ship* – ship as defined as a “new ship” in the relevant annex to the *Convention*.

1.2.5 *Existing ship* – means a ship which is not a new ship.

1.2.6 *Convention ship* – means:

- .1 in respect of the prevention of sea pollution by oil – every oil tanker of 150 gross tonnage and above, and every other ship of 400 gross tonnage and above;
- .2 in respect of the prevention of sea pollution by noxious liquid substances – every ship carrying such substances in bulk;
- .3 in respect of the prevention of sea pollution by sewage – every ship of 400 gross tonnage and above and every ship of less than 400 gross tonnage certified to carry more than 15 persons;
- .4 in respect of the prevention of sea pollution by garbage:
 - .1 every ship of 100 gross tonnage and above and every ship of less than 100 gross tonnage certified to carry more than 15 persons – in respect of the requirements of the *Garbage Record Book*;
 - .2 every ship of 100 gross tonnage and above and every ship of less than 100 gross tonnage certified to carry more than 15 persons as well as every fixed or floating platform – in respect of the requirements of the *Garbage Record Book*.
- .5 in respect of the prevention of pollution of the air from ships – every ship of 400 gross tonnage and above. In that case, gross tonnage shall be determined in accordance with the requirements specified in Annex 1 to the *International Convention on Tonnage Measurement of Ships, 1969*, as further amended.

1.2.7 *Non-convention ship* – every ship which is not a convention ship as defined in 1.2.6.

1.2.8 *Oil tanker* – ship constructed primarily to carry oil in bulk and any combination carrier, chemical tanker or gas carrier when is carrying oil in bulk.

1.2.9 Tanker as defined in the provisions on the prevention of sea by noxious liquid substances means:

1.2.9.1 *Chemical tanker* – cargo ship constructed or adapted to carry any liquid cargo defined as a noxious liquid substance of category X, Y, or Z in chapter 17 of the *International Code for Chemical Tankers*.

1.2.9.2 *NLS tanker* – ship constructed or adapted to carry a cargo of noxious liquid substances in bulk and includes an oil tanker as defined in Annex I to the *Convention* that is certified to carry a cargo or part cargo of noxious liquid substances in bulk.

1.2.10 *Code for Chemical Tankers* – means the Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk adopted by IMO resolution MEPC.20(22), as may be amended, (abbr.: BCH Code).

1.2.11 *International Code for Chemical Tankers* – means the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk adopted by IMO resolution MEPC.19(22), as may be amended, (abbr.: IBC Code).

1.2.12 *Length of ship, L [m]* – means 96% of the total length of hull measured on the waterline at 85% of the least moulded depth measured from the top of the keel, or the length from the fore side of the stem to the axis of the rudder stock on that waterline, whichever is greater. In ships designed with a rake of keel, the waterline on which this length is measured shall be parallel to the designed waterline.

1.2.13 *Overall length of ship, L_c [m]* – distance measured from the foremost part of the stem to the aftermost part of the stern including any fixed projections extending beyond the stem and stern, measured parallel to the design waterline.

1.2.14 *Marine diesel engine* – means any reciprocating internal combustion engine operating on liquid or dual fuel, to which regulation 13 of Annex VI to *MARPOL Convention* applies, including booster/compound systems if applied. In addition, a gas fuelled engine installed on a ship constructed on or after 1 March 2016 or a gas fuelled additional or non-identical replacement engine installed on or after that date is also considered as a marine diesel engine (IMO MEPC.258(67)).

1.2.15 *Oil* – means petroleum in any form including crude oil, fuel oil, sludge, oil refuse and refined products (other than petrochemicals which are subject to provisions of Annex II to *MARPOL Convention*) and, without limiting the generality of the foregoing, includes the substances listed in the Appendix I to the Annex I *MARPOL Convention*. (Animal and vegetable oils are not oils for the purpose of the present definition).

1.2.16 *Fuel oil* – means any fuel delivered to and intended for use on board a ship.

1.2.17 *Gas fuel* – means a fuel oil with a vapour pressure exceeding 0.28 MPa absolute at a temperature of 37.8°C.²

1.2.18 *Oil residue (sludge)* – oil residues generated during the normal operation of the ship, such as:

- .1 sludge from the main engine and auxiliary engine fuel oil or lubricating oil separators, or

² Refer to paragraph 2.2.18 of the *International Code of Safety for Ships using Gases or other Low-flashpoint Fuels (IGF Code)*

- .2 waste oil from bilge water separators and oil filtering equipment, or
- .3 waste oil from drip trays as well as used hydraulic and lubricating oils.

Note: This definition does not cover oily waste originating from cargo area of oil tankers.

1.2.19 *Oily bilge water* – means oil contaminated water due to any leakage or maintenance operations in the machinery spaces. Any liquid penetrating into the bilge system including bilge wells, bilge water piping and bilge water tanks as well as liquid dripping from tops of the tanks are also considered as bilge water.

Note: This definition does not cover oily water originating from cargo tanks, slop tanks or cargo pump-rooms in oil tankers.

1.2.20 *Oily mixture* – mixture of oil and water of any oil content.

1.2.21 *Noxious liquid substance* – any substance indicated in Pollution Category column of Chapter 17 or 18 of the *International Code for Chemical Tankers* or provisionally assessed under the provisions of Regulation 6.3 of Annex II to the *Convention* as falling into Category X, Y or Z.

1.2.22 *Sewage (black water)* – means:

- .1 liquid and other waste from lavatories and urinals;
- .2 drainage from medical premises (dispensary, sick bay, etc.) via wash basins, bathtubs, wash tubes and scuppers located in such premises;
- .3 drainage from spaces containing living animals;
- .4 other drainage water mixed with the above mentioned sewage.

Note: Other sanitary drainage (grey water) – from scuppers in other accommodations than those listed in 1, 2, and 3, from wash basins, wash tubes as well as from laundries and galleys as not presenting any danger to the marine environment are not covered by the requirements of this part of the *Rules*.

1.2.23 *Grey water* – drainage from dishwasher, shower, laundry, bath and washbasin drains. It does not include drainage from toilets, urinals, hospitals, and animal spaces, as defined in 1.2.19, and it does not include drainage from cargo spaces.

1.2.24 *NOX Technical Code, 2008* – the Technical Code on Control of Emissions of Nitrogen Oxides from Marine Diesel Engines adopted by IMO resolution MEPC.177(58), as amended.

1.2.25 *Ozone depleting substances* – controlled substances defined in paragraph (4) of article 1 of the *Montreal Protocol on Substances that Deplete the Ozone Layer*, 1987, listed in Annexes A, B, C or E to the said Protocol in force at the time of application or interpretation of Annex VI to *Convention*. Ozone depleting substances that may be found on board ship include, but are not limited to:

Halon 1211	bromochlorodifluoromethane
Halon 1301	bromotrifluoromethane
Halon 2402	1,2-dibromo-1,1,2,2-tetrafluoroethane (also known as Halon 114B2)
CFC-11	trichlorofluoromethane
CFC-12	dichlorodifluoromethane
CFC-113	1,1,2-trichloro-1,2,2-trifluoroethane
CFC-114	1,2-dichloro-1,1,2,2-tetrafluoroethane
CFC-115	chloropentafluoroethane

1.2.26 *Major conversion of a marine diesel engine* – modification on or after 1 January 2000 of a marine diesel engine that has not already been certified to the standards specified in Regulation 13 of Annex VI to the *Convention* where:

- .1 the engine has been replaced by a marine diesel engine or an additional marine diesel engine has been installed, or

- .2 any substantial modification, as defined in the revised *NO_x Technical Code 2008*, has been made to the engine, or
- .3 the maximum continuous rating of the engine has increased by more than 10% compared to the maximum continuous rating of the original certification of the engine.

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 of the engine shall apply.

In light of Regulation 13 of Annex VI, the installation of a marine diesel engine replacing a steam system shall be considered a replacement engine. In the case of replacement engines only, if it is not possible for such a replacement engine to meet the standards set forth in paragraph 6.2.2.1.3 (Tier III, as applicable), then that replacement engine shall meet the standards set forth in paragraph 4 of this regulation (Tier II), taking into account the guidelines developed by the Organization³. PRS shall notify the Administration in those instances where a Tier II rather than a Tier III replacement engine has been installed on or after 1 August 2025 in accordance with the provisions of this paragraph.

Interpretation IACS MPC 20

The definition of major conversion contained in point 1.2.25, according to IACS Unified Interpretation MPC 20 shall be interpreted, in respect of engines installed on or after 1 January 2000 but before 1 July 2010 (according to IACS Unified Interpretation MPC 98) and on the basis of regulation 13(2)(a)(i) of Annex VI to the *Convention*, 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 this 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 this 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.

1.2.27 Emission Control Area – sea area, including ports, where special mandatory measures for emissions from ships are required to prevent, reduce and control emissions of nitrogen oxides (NO_x), sulphur oxides (SO_x) and particulate matter (PM) or all three types of emissions and their attendant adverse impacts on human health and the environment. Emission Control Areas include those specified in, or designated under, regulations 13 and 14 of the *Convention* Annex VI.

1.2.27.1 SO_x and PM Emission Control Area

For the purposes of SO_x and PM emission control, the following areas have been designated:

- (a) the Baltic Sea area as defined in Regulation 1.11.2 of Annex I to the *Convention*,
- (b) the North Sea area as defined in Regulation 1.14.6 of Annex V to the *Convention*, and
- (c) the North American area as described in appendix VII to Annex VI to the *Convention*, and
- (d) the United States Caribbean Sea area as described in appendix VII to Annex VI to the *Convention*.

³ Refer to the 2024 Guidelines as required by regulation 13.2.2 of MARPOL Annex VI in respect of non-identical replacement engines not required to meet the Tier III limit (resolution MEPC.386(81)).

1.2.27.2 NO_x Emission Control Area

For the purposes of NO_x emission control, the following areas have been designated:

- (a) the North American area as described in appendix VII to Annex VI to the *Convention*,
- (b) the United States Caribbean Sea as described in appendix VII to Annex VI to the *Convention*,
- (c) the Baltic Sea area as defined in Regulation 1.11.2 of Annex I to the *Convention*,
- (d) the North Sea area as defined in Regulation 1.14.6 of Annex V to the *Convention*

1.2.28 *MED Conformity* – conformity with the Council Directive 2014/90/EU of 23 July 2014 on Marine Equipment, as further amended by Commission Delegated Regulation (EU) 2020/411 of 19 November 2019 replacing Annexes I to III.

1.2.29 EU – European Union

1.2.30 Substantial modification of a marine diesel engine means:

- .1 For engines installed on ships constructed on or after 1 January 2000, substantial modification means any modification to an engine that could potentially cause the engine to exceed the applicable emission limit specified in Regulation 13 of Annex VI to the *Convention*. Routine replacement of engine components by parts specified in the *Technical File* that do not alter emission characteristics shall not be considered a “substantial modification” regardless of whether one part or many parts are replaced.
- .2 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 *NO_x Technical Code, 2008*, in excess of the allowances specified in thereto. 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). Installation of a certified Approved Method in accordance with Regulation 13.7.1.1 or certification in accordance with Regulation 13.7.1.2 is not considered to be a substantial modification for the purpose of the application of Regulation 13.2 of Annex VI to the *Convention*.

1.2.31 Tank for oil residues (sludge) – tank to receive oil residues (sludge) and subsequently:

- (a) discharged directly to the shore reception facilities through the standard discharge connection, or
- (b) incinerated in the shipboard incinerators, or
- (c) used for incineration in boilers, marine engines, or
- (d) used in other acceptable means which shall be noted in item 3.2 of the *Supplement* (Form A or Form B) to the *International Oil Pollution Prevention Certificate (IOPP Certificate)*.

1.2.32 *Oily water holding tank* – tank in which oily bilge water is retained before its discharge to reception facilities, transfer or purification.

1.2.33 *Existing engine* – engine with a power output of more than 5000 kW and a per cylinder displacement of 90 litres and above installed on board the ship between 1 January 1990 and 1 January 2000.

1.2.34 *Approved Method* – method for an existing engine which, when applied to the engine, will ensure that the engine complies with level I of the emissions limit in accordance with regulation 13.7.4 of the amended Annex VI to the *Convention*.

1.2.35 *Special area* – according to Annex IV to the *Convention*, for the purposes of Chapter 4 means:

- .1 the Baltic Sea as defined in regulation 1.11.2 of Annex I to the *Convention*, and
- .2 another area designated by the Organization in accordance with criteria and procedures for designation of special areas with respect to prevention of pollution by sewage from ships⁴.

1.2.36 *Passenger* – according to Annex IV to the *Convention*, for the purposes of Chapter 4 means a person which is not:

- .1 the master and the members of the crew or other persons employed or engaged in any capacity on board a ship on the business of that ship; and
- .2 a child under one year of age.

1.2.37 *Passenger ship* – according to Annex IV to the *Convention*, for the purposes of Chapter 4 means a ship which carries more than twelve passengers.

For the application of regulation 11.3 according to Annex IV to the *Convention* and for the purposes of Chapter 4, *new passenger ship* means a passenger ship:

- .1 for which the building contract is placed, or in the absence of a building contract, the keel of which is laid, or which is in similar stage of construction, on or after 1 June 2019; or
- .2 the delivery of which is on or after 1 June 2021.

Existing passenger ship is a passenger ship which is not a new passenger ship.

1.2.38 *Garbage* – all kinds of food wastes, domestic wastes and operational wastes, all plastics, cargo residues, cooking oil, fishing gear, and animal carcasses generated during the normal operation of the ship and liable to be disposed of continuously or periodically except those substances which are defined or listed in other Annexes to this *Convention*.

Garbage does not include fresh fish and parts thereof generated as a result of fishing activities undertaken during the voyage, or as a result of aquaculture activities which involve the transport of fish including shellfish for placement in the aquaculture facility and the transport of harvested fish including shellfish from such facilities to shore for processing.

1.2.39 *Domestic wastes* – all types of wastes not covered by other Annexes to the *Convention* that are generated in the accommodation spaces on board the ship. Domestic wastes does not include grey water.

1.2.40 *Operational wastes* – all solid wastes (including slurries) not covered by other Annexes that are collected on board during normal maintenance or operations of a ship, or used for cargo stowage and handling. Operational wastes also include cleaning agents and additives contained in cargo hold and external surfaces' wash water. Operational wastes does not include grey water, bilge water, or other similar discharges essential to the operation of a ship, taking into account the guidelines developed by IMO.

1.2.41 *Food wastes* – any spoiled or unspoiled food substances including fruits, vegetables, dairy products, poultry, meat products and food scraps generated aboard ship.

1.2.42 *Cooking oil* – any type of edible oil or animal fat used or intended to be used for the preparation or cooking of food, but does not include the food itself that is prepared using these oils.

⁴ Refer to Assembly resolution A.927(22), Guidelines for the designation of special areas under MARPOL 73/78 and guidelines for the identification and designation of particularly sensitive sea areas.

1.2.43 *Cargo residues* – remnants of any cargo which are not covered by other Annexes to the *Convention* and which remain on the deck or in holds following loading or unloading, including loading and unloading excess or spillage, whether in wet or dry condition or entrained in wash water but do not include cargo dust remaining on the deck after sweeping or dust on the external surfaces of the ship.

1.2.44 *Plastic* – a solid material which contains as an essential ingredient one or more high molecular mass polymers and which is formed (shaped) during either manufacture of the polymer or the fabrication into a finished product by heat and/or pressure. Plastics have material properties ranging from hard and brittle to soft and elastic. For the purposes of this Annex, "all plastics" means all garbage that consists of or includes plastic in any form, including synthetic ropes, synthetic fishing nets, plastic garbage bags and incinerator ashes from plastic products.

1.2.45 *Fishing gear* – any physical device or part thereof or combination of items that may be placed on or in the water or on the sea-bed with the intended purpose of capturing, or controlling for subsequent capture or harvesting, marine or fresh water organisms.

1.2.46 *Incinerator ashes* – ash and clinkers resulting from shipboard incinerators used for the incineration of garbage.

1.2.47 *Animal carcasses* – bodies of any animals that are carried on board as cargo and that die or are euthanized during the voyage.

1.2.48 *En route* means that the ship is underway at sea on a course or courses, including deviation from the shortest direct route, which as far as practicable for navigational purposes, will cause any discharge to be spread over as great an area of the sea as is reasonable and practicable.

1.2.49 *Fixed or floating platforms* – fixed or floating structures located at sea which are engaged in the exploration, exploitation or associated offshore processing of sea-bed mineral resources.

1.2.50 *E-waste* means electrical and electronic equipment used for the normal operation of the ship or in the accommodation spaces, including all components, subassemblies and consumables, which are part of the equipment at the time of discarding, with the presence of material potentially hazardous to human health and/or the environment.

1.2.51 *Energy-rich fuels* – fuels which are wholly or partly derived from non-petroleum feedstock and can be produced either without blending as such or by blending with petroleum products.

1.2.52 *Bleed-off water* means water to be discharged directly, or via a holding tank, to the sea from an Exhaust Gas Recirculation (EGR) water treatment system.

1.2.53 *Electronic Record Book* – means an Administration approved appliance or system, used instead of paper record book, for electronic recording required entries concerning discharges, transfers and other operations.

1.2.54 *Persistent floater* – means a slick forming substance with the following properties:

- Density: \leq sea water (1025 kg/m^3 at 20°C);
- Vapour pressure: $\leq 0.3 \text{ kPa}$;
- Solubility: $\leq 0.1\%$ (for liquids) $\leq 10\%$ (for solids); and Kinematic viscosity: $> 10 \text{ cSt}$ at 20°C .

1.2.55 *Sulphur content of fuel oil* – means the concentration of sulphur in a fuel oil, measured in % m/m as tested in accordance with a standard acceptable to the Organization⁵.

1.2.56 *Low-flashpoint fuel* – means gaseous or liquid fuel oil having a flashpoint lower than otherwise permitted under paragraph 2.1.1 of regulation 4 of chapter II-2 of the International Convention for the Safety of Life at Sea (SOLAS), 1974, as amended.

1.2.57 *MARPOL delivered sample means* – the sample of fuel oil delivered in accordance with regulation 18.8.1 of Annex VI to Convention.

1.2.58 *In-use sample* – means a sample of fuel oil in use on a ship.

1.2.59 *On board sample* – means a sample of fuel oil intended to be used or carried for use on board that ship.

1.3 Scope of Survey

1.3.1 Convention ships flying the Polish flag engaged on international voyages as well as convention ships flying flags of other states being the Parties to the specific annexes to the *Convention* which duly authorized PRS in accordance with the requirements specified in this part of the *Rules* are subject to periodical surveys in respect of the marine environment protection in accordance with the particular annexes at the dates specified in *Part I – Classification Regulations* for classification surveys for each particular ship. Where the Flag State of the particular ship is not a Party to the specific annex to the *Convention*, PRS performs surveys upon the Owner's request.

1.3.2 Non-convention ships flying the Polish flag as well as ships not engaged on international voyages are subject to periodical surveys in respect of the marine environment protection in accordance with the particular annexes at the dates specified in *Part I – Classification Regulations* for classification surveys for each particular ship.

1.3.3 Subject to survey are: the construction, equipment and operation documentation covered by the requirements specified in this part of the *Rules* resulting from *MARPOL 73/78* Annexes I, II, IV, V and VI. The condition for confirmation that the ship and her equipment fulfil the requirements specified in this part of the *Rules* is survey during which the ship and her equipment have been found to be properly maintained and operated.

1.3.4 Fulfilment of the requirements mentioned in 1.3.3 by convention ships flying the Polish flag and engaged on international voyages as well as ships flying flags of other states being the Parties to the specific annexes to the *Convention* is confirmed by the relevant international certificates (i.e. regarding the prevention of sea pollution of by oil, prevention of sea pollution by noxious liquid substances, prevention of sea pollution by black water and prevention of pollution of the air from ships) or certificates (e.g. the *Garbage Pollution Prevention Certificate of Compliance*). The certificates are being issued for the 5-year period and remain valid subject to their annual confirmation, except for the certificate of prevention of sea pollution by black water which needs not an annual confirmation to remain valid for 5 years. The *Garbage Pollution Prevention Certificate of Compliance* is being issued as valid until the next periodical survey of the particular ship.

1.3.5 Where the Flag State of the particular ship is not a Party to the specific annex to the *Convention*, fulfilment of the requirements mentioned in 1.3.3 by convention ships flying other

⁵ Refer to ISO 8754:2003 Petroleum products – Determination of sulphur content – Energy-dispersive X-ray fluorescence spectrometry.

than the Polish flag is confirmed by the relevant certificates of compliance (i.e. regarding the prevention of sea pollution of by oil, prevention of sea pollution by noxious liquid substances, prevention of sea pollution by black water, garbage pollution prevention and prevention of pollution of the air from ships). The certificates are being issued for the 5-year period and remain valid subject to their annual confirmation, except for the certificate of prevention of sea pollution by black water which needs not an annual confirmation to remain valid for 5 years. The *Garbage Pollution Prevention Certificate of Compliance* is being issued as valid until the next periodical survey of the particular ship.

1.3.6 Fulfilment of the requirements mentioned in 1.3.3 by non-convention ships flying the Polish flag as well as convention ships not engaged on international voyages is confirmed by the *Certificate of Compliance* issued by PRS on Form 48. For convention oil tankers not engaged on international voyages, the *Certificate of Compliance* is supplemented by Form B. The *Certificate of Compliance* is being issued as valid until the next periodical survey of the particular ship.

2 PREVENTION OF SEA POLLUTION BY OIL

2.1 Technical Requirements for Ship Construction and Equipment – Prevention of Oil Pollution from Machinery Spaces of All Ships

2.1.1 Construction and equipment of convention ships shall fully comply with the requirements of *MARPOL 73/78* Annex I. Engine room bilge water and oil residue systems of new convention oil tankers of gross tonnage less than 400 shall comply with the requirements referred to in paragraphs from 2.1.2 to 2.1.9.

2.1.2 Any ship of 400 gross tonnage and above but less than 10 000 gross tonnage shall be fitted with oil filtering equipment in accordance with the requirements specified in paragraph 2.1.6.

2.1.3 Any ship of 400 gross tonnage and above engaged on voyages solely within special areas and any ship of gross tonnage 10 000 and above shall be fitted with oil filtering equipment as well as a bilge alarm and stopping device which will ensure that the discharge is automatically stopped when the oil content in the oily mixture exceeds 15 ppm in accordance with the requirements specified in paragraph 2.1.7.

2.1.4 In new ships, other than oil tankers, of 400 gross tonnage and above and new oil tankers of gross tonnage 150 and above, no ballast water shall be carried in any fuel oil tank. If it is necessary to carry ballast water in any fuel oil tank, due to the ship service conditions, then such dirty ballast water shall be discharged to the shore reception facility or to the sea using the equipment mentioned in either 2.1.2 or 2.1.3.

2.1.5 Administration may, upon the Owner's request, waive the requirements specified in 2.1.3 based on the provisions of Regulation 14.5 of Annex I to the *Convention*, if the ship is engaged solely on voyages within special areas or Arctic waters and is fitted with holding tanks of a capacity sufficient, at the discretion of the Administration, to hold all the oily bilge water collected on board the ship during the voyages between ports where such water may be discharged to the shore reception facilities. By the issue of a *Supplement* (Form A or Form B) to the *International Oil Pollution Prevention Certificate (IOPP Certificate)*, PRS confirms, based on the Administration-issued exemption, that the ship is engaged on voyages solely within special areas or Arctic waters.

2.1.6 Oil filtering equipment mentioned in 2.1.2 shall be of a design approved by the Administration and shall ensure that that oil content in any oily mixture without dilution will not exceed 15 ppm.

2.1.7 Oil filtering equipment mentioned in 2.1.3 shall be of a design approved by the Administration and shall ensure that that oil content in any oily mixture without dilution will not exceed 15 ppm. The oil filtering equipment shall be fitted with visual and audible alarm giving warning when the oil content in the oily mixture exceeds 15 ppm. The system shall also be fitted with an arrangement for automatically stopping any discharge of the oily mixture then. Stopping the discharge overboard of the effluent shall be achieved by way of switch-over of the valve (valves), i.e. by closing the discharge valve and opening the return valve to the oily bilge water holding tank or to the bilges. Other arrangements are subject to PRS consideration in each particular case.

2.1.7.1 Such equipment installed on board the ship:

- before 30 April 1994 shall be approved in accordance with IMO resolutions A.233(VII) and A.444(XI) or A.393(X);
- on or after 30 April 1994 shall be approved in accordance with IMO resolution MEPC.60(33);
- on or after 1 January 2005 shall be approved in accordance with IMO resolution MEPC.107(49), as amended by MEPC.285(70).

2.1.7.2 Additional Requirements for MEPC.60(33) – compliant Oil Filtering Equipment and Oil Content Meters

- .1 Installation of an oil content meter approved in accordance with IMO resolution MEPC.60(33) is permitted provided that it is a replacement of the arrangement used on shipboard before that date.
- .2 Considering the guidelines specified in IMO resolution MEPC.205(62), add-on equipment is recommended for optional upgrading resolution MEPC.60(33)-compliant oil filtering equipment for treating emulsified oil contained in oily bilge water.

2.1.7.3 To fulfil the requirement for the effluent from oily water separator systems not to be diluted, as specified in 2.1.6, the system used for cleaning and filling of the oily water separator and zero adjusting of 15 ppm shall be designed taking account of the equipment manufacturer's recommendations and the revised guidelines for pollution prevention for machinery bilges specified in chapter 4.2.10.2 of IMO resolution MEPC.107(49), as amended by MEPC.285(70).

2.1.7.4 Additional Requirements Oil Filtering Equipment

- .1 The accuracy of the 15ppm bilge alarms should be checked out at IOPP Certificate renewal surveys according to the manufacturer's instructions. Alternatively the unit may be replaced by a calibrated 15 ppm bilge alarm. The calibration certificate for the 15 ppm bilge alarm, certifying date of last calibration check, should be retained onboard for inspection purposes. The accuracy checks can only be done by the manufacturer or persons authorized by the manufacturer, in accordance with MEPC.107(49), as amended by MEPC.285(70).
- .2 If the calibrated 15 ppm bilge alarm will be used, PRS surveyor should check if it has been calibrated by the manufacturer or person authorized by the manufacturer and that a valid calibration certificate is available on board.
- .3 The validity of calibration certificate should be checked at IOPP annual/ intermediate/ renewal surveys.
- .4 The accuracy of 15 ppm bilge alarms is to be checked by calibration and testing of the equipment conducted by a manufacturer or persons authorized by the manufacturer and should be done at intervals not exceeding five years or within the term specified in the manufacturer's instructions, whichever is shorter.

2.1.8 Oil filtering equipment and oil content meters mentioned in 2.1.6 and 2.1.7 installed in new ships, like the new equipment installed in existing ships flying the Polish flag or the flag of another EU member state shall be certified for compliance with MED. For ships flying other flags than those specified above, oil filtering equipment and oil content meters installed in new ships, like the new equipment installed in existing ships shall be approved by the flag Administration. Oil filtering equipment and oil content meters on existing ships shall be of a type approved by the Administration or by a recognized organization.

2.1.9 Oily Bilge Water and Oil Residue (Sludge) Handling System Oil residue (sludge) tanks

2.1.9.1 Oil residues (sludge) tanks

2.1.9.1.1 Any ship of 400 gross tonnage and above shall be fitted with tank or tanks of sufficient capacity taking account of her machinery type and voyage duration, for holding oil residues (sludge) generated by treating oily water, fuel oil and lubricating oil purification as well as leakage oil from the equipment and machinery installed in the machinery spaces and drainage of oil tanks or exhausted oil change in accordance with guidelines contained in the IMO Circular MEPC.1/Circ.642 of 12 November 2008, introducing the revised guidelines for systems for handling oily wastes in machinery spaces of ships.

2.1.9.1.2 Oil residue (sludge) tank:

- .1** shall be of adequate capacity, having regard to the type of machinery and length of voyage, to receive the oil residues (sludge) which cannot be dealt with otherwise in accordance with the requirements of this definition,
- .2** shall be provided with a designated pump that is capable of taking suction from the oil residue (sludge) tank for disposal of oil residue (sludge), and to incinerate them on board or to discharge by the standard discharge connection described in 2.1.9.11.
- .3** shall have no discharge connections to the bilge system, oily bilge water holding tank(s), tank top or oily water separators, except that:
 - .1** 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 discharge piping system; and
 - .2** the sludge tank discharge piping and bilge-water piping may be connected to a common piping leading to the standard discharge connection referred to in regulation 13 of Annex I to the *Convention*; the connection of both systems to the possible common piping leading to the standard discharge connection referred to in regulation 13 of Annex I to the *Convention* shall not allow for the transfer of sludge to the bilge system;
- .4** shall not be arranged with any piping that has direct connection overboard, other than the standard discharge connection referred to in regulation 13 of Annex I to the *Convention*; and
- .5** shall be designed and constructed so as to facilitate their cleaning and the discharge of residues to reception facilities.

2.1.9.2 Applicability of 2.1.9.1 requirements

Ships constructed on and after 1 January 2017 shall be arranged to comply with 2.1.9.1 requirements from the date of construction, and existing ships constructed before 1 January 2017 not later than on the first renewal survey carried out after this date.

2.1.9.3 System for handling of oily bilge water and oil residues (sludge) shall fulfill the requirements of Annex I to the *Convention* and as provided in IMO circulars MEPC.1/Circ.641 and MEPC.1/Circ.642⁶.

2.1.9.4 In order to prevent oily residues from discharging to the oil bilge system, oily bilge water holding tanks, machinery bilges or oily water separators, screw-down non-return valves shall be installed in oily residues pipelines connecting to the common discharge piping referred to in 2.1.9.1.2.3.2, leading to a standard connection. The common discharge pipe may serve one purpose only: either connection of the discharge lines of the bilge and sludge pumps to the standard discharge connection or any other approved means of disposal.

2.1.9.5 No part of the engine-room bilge water system shall form a part of any direct operational bilge water discharge system, such as cargo hold bilge discharge or anchor chain locker discharge.

2.1.9.6 It is recommended that, in addition to the equipment mentioned in 2.1.2 and 2.1.3, new ships of gross tonnage 400 and above, irrespective of their operating area, as well as all existing ships of gross tonnage 400 and above engaged on international voyages be fitted with:

- .1 integral or independent holding tank for oily bilge water generated in the machinery spaces from which, among others, a filtering equipment will be supplied. The minimum recommended capacity of a holding tank in ships with a main I.C. engine of rated power not exceeding 1000 kW is not less than 1.5 m³. In ships with a main engine of rated power above 1000 kW, this capacity shall be increased by subsequent 0.5 m³ per each additional 1000 kW or a part thereof. In justified cases, PRS may consider the possibility for reduction of that capacity. The capacity of holding tanks in existing ships is subject to PRS consideration in each particular case. If practicable, it is recommended that the holding tank be deep enough to facilitate gravitational separation of oil from water and be fitted with at least three oil drain funnels situated at different levels of upper part to enable drainage of the separated oil to the oil residue tank. For oil tankers, instead of the required holding tank, a system enabling the transfer of bilge oily water from the machinery spaces to the tank of oil residues (sludge) or a cargo tank designated for this purpose is permitted. Such an oily bilge water transfer system shall be so arranged as to preclude penetration of the cargo or its vapours to the machinery spaces;
- .2 piping system including a pump to transfer the oily bilge water to the holding tank and emptying such a tank through the standard discharge connection fitted on the deck in accordance with 2.1.9.11.

Such a system in ships constructed on or after 1 January 1991, shall not be connected to any overboard discharge valve or to the bilge water system required by *SOLAS*. The possibility for using the oil residue transfer pump as an oily bilge water transfer pump mentioned in sub-chapter 2.1.9.2 is subject to PRS consideration in each particular case.

2.1.9.7 Existing ships of gross tonnage 400 and above not engaged on international voyages, all ships of gross tonnage less than 400 as well as sea-going yachts of length, *L*, exceeding 24 m, irrespective of their operating area, unless they are fitted with oil filtering equipment mentioned in either 2.1.2 or 2.1.3, the tanks mentioned 2.1.9.1 and 2.1.9.6.1 may be arranged as common tanks and their total capacity shall not be less than the combined capacity required for all particular tanks. The system including a pump for filling and emptying the tank through the

⁶ IMO Circulars: MEPC.1/Circ.641 dated 11 November 2008, introducing supplementary guidelines for approval systems of handling oily bilge water and oily residues in machinery spaces of ships;
IMO Circulars: MEPC.1/Circ.642 dated 12 November 2008, introducing the revised guidelines for systems handling oily residues in machinery spaces of ships.

standard discharge connection shall not be connected to any overboard discharge valve nor to the bilge water system required by *SOLAS*.

2.1.9.8 In all ships of gross tonnage less than 400 not engaged on international voyages, oily water and oil residues (sludge) may be collected in drums or other portable containers located on the open deck which may be filled with hand pump. Such containers shall be provided with tight closing appliances and be effectively secured to the ship construction and their purpose shall be clearly marked.

2.1.9.9 In new ships and in existing ships of gross tonnage less than 400 engaged on voyages solely on the Polish sea areas as well as in sea-going yachts of length, *L*, exceeding 24 m, irrespective of their operating area, oily water may be collected in the machinery space bilges if the bottom construction allows it – subject to PRS consideration in each particular case. From such ships, bilge water from the machinery spaces may be discharged overboard with pump whose suction from bilge is fitted with an oil separator drum shown in Fig. 2.1.9.9. Each approval of such equipment for operation shall be preceded by its effectiveness trials. A hand pump shall be provided to extract oil residues from the machinery space bilge.

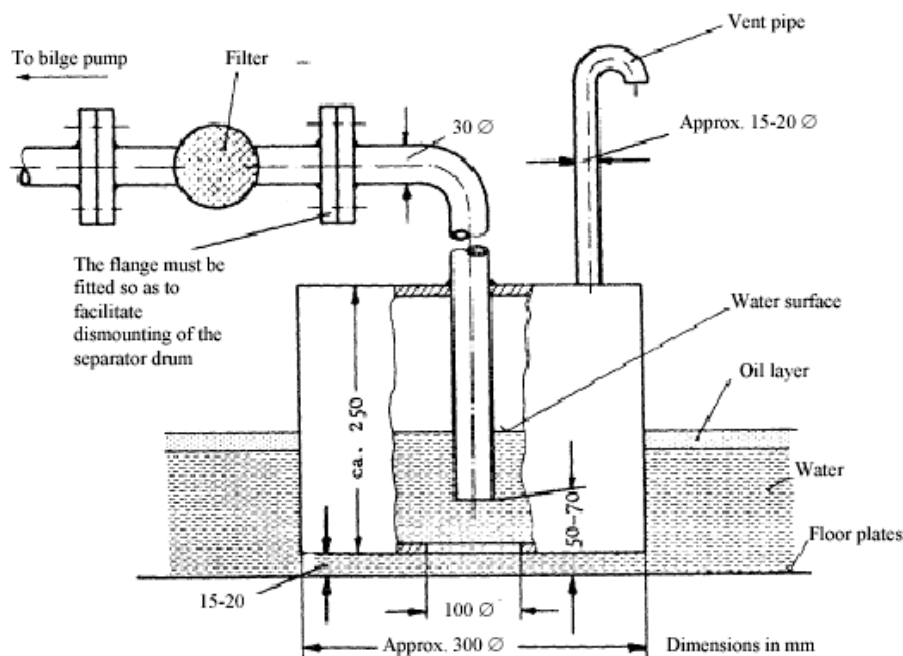


Fig. 2.1.9.9. Oil separator drum

2.1.9.10 In all ships not engaged on international voyages, a connection different from the standard discharge connection may be used at port for the discharge of oily bilge water and oil residues mentioned in 2.1.9.11. In such ships, shore pumps and shore hoses may be used for the discharge of oily bilge water and oil residues held both in tanks and machinery space bilges. In such cases, a suction pipeline shall be fitted as close to the tank bottom as practicable and also fitted with a connection enabling the tank to be emptied by the shore pump.

2.1.9.11 Standard connection for the discharge of oily bilge water and oil residues (sludge) shall be located in the readily available position on the deck on each side of the ship and its end shall be fitted with the flange arranged in accordance with Table 2.1.9.11 and Fig. 2.1.9.11. Such a connection shall also have a blank flange installed and the placard which reads ***Bilge water or Oil residues (sludge)***. The connection flange shall be made of steel or an equivalent material and shall have flat face.

The flange, together with a seal made of an oil-resistant material, shall be of design pressure of 0.6 MPa. The flange shall be suitable for pipes of the outside diameter of 125 mm.

Table 2.1.9.11
Standard connection for discharge of oily water and oil residues (sludge)

Description	Dimensions/quantity
Outside diameter	215 mm
Inside diameter	suitable for pipe outside diameter
Bolt circle diameter	183 mm
Flange slots	6 holes of 22 mm in diameter located evenly on the bolt circle and slotted as far as to the flange cylindrical surface; the slot width of 22 mm
Flange thickness	20 mm
Bolts and nuts	6 sets, bolts of 20 mm in diameter and suitable length

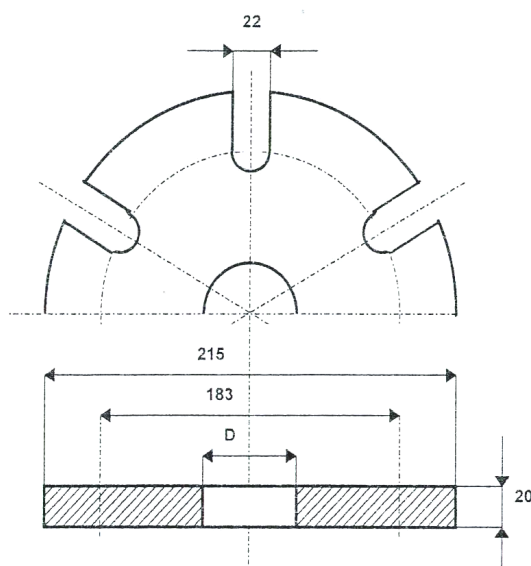


Fig. 2.1.9.11. Standard connection flange for discharge of oily water and oil residues (sludge)

2.1.9.12 On each ship at the side valve through which in emergency oily water from machinery spaces may be discharged, a durable and readily visible placard shall be placed to read: ***Discharge overboard of oily bilge water in normal operational conditions of the ship is prohibited.***

2.2 Technical Requirements for Ship Construction and Equipment – Prevention of Sea Pollution from Cargo Spaces of Tankers

2.2.1 Convention oil tankers shall, in respect of their construction and equipment, fully comply with the relevant requirements of *MARPOL 73/78* Annex I. All convention oil tankers of gross tonnage 400 and above shall, in respect of their cargo piping systems and ballast piping systems, fulfil the relevant requirements specified in paragraphs 2.2.3 to 2.2.8 and 2.2.10 to 2.2.12. New convention oil tankers of gross tonnage less than 400 shall fulfil the requirements specified by PRS in each particular case.

2.2.2 Oil tankers of gross tonnage less than 150 shall be capable of collecting oily mixtures for the purpose of their further discharge to the shore reception facilities.

2.2.3 Oil tankers of gross tonnage 150 and above shall be provided with suitable arrangements for cleaning cargo tanks as well as the system for the transfer of washing residues from cargo tanks to slop tanks.

2.2.4 Oil tankers of gross tonnage 150 and above shall be provided with at least one slop tank of the capacity sufficient to collect all the washings, cargo residues and dirty ballast residues whereas tankers of deadweight above 70 000 t shall be fitted with at least two slop tanks. The capacity of slop tanks shall be at least 3% of the oil cargo capacity. Less capacity of the slop tanks may be accepted in the cases specified in regulations 29.2.3.1 to .3 of Annex I to the Convention.

2.2.5 In oil tankers whose ballast tanks are used as cargo tanks, the ballast water discharge system shall be capable of discharging to the shore reception facilities. Similarly, the bilge system of cargo pump-room and the system for the discharge of oily mixtures and water from slop tanks shall be capable of discharging to the shore reception facilities. The discharge pipelines shall be led to the open deck on both sides of the ship.

2.2.6 In oil tankers where oily water from machinery spaces is discharged into the sea, the oily water discharge system shall be fitted with an oil discharge monitoring and control equipment. Such monitoring and control equipment shall:

- .1 enable continuous keeping records of the amount of the discharged oil (in litres per nautical mile of the distance covered) and the total amount of the discharged oil or instantaneous content of oil in outflowing mixture including the flow rate;
- .2 enable identification of the records mentioned in .1 as a function of time;
- .3 activate when each operation of oily water discharge to the sea starts;
- .4 automatically stop the discharge when the amount of the discharged oil exceeds the value of 30 l per nautical mile of the distance covered or reaches 1/30 000 of the total quantity of the specific cargo whose residues formed this fraction;
- .5 automatically stop the discharge in case of any damage to the monitoring and control equipment;
- .6 be provided with an audible and visual alarm giving warning in the cases mentioned in .4 and .5;
- .7 enable its manual operation in case of damage to the monitoring and control equipment.

2.2.7 Oil Discharge Monitoring and Control Equipment on Oil Tankers

2.2.7.1 Oil discharge monitoring and control equipment installed on board the new oil tankers flying the Polish flag or a flag of another EU member state as well as new monitoring and control equipment installed on board the existing oil tankers flying the Polish flag or a flag of another EU member state shall be certified for MED conformity. Oil discharge monitoring and control equipment installed in new oil tankers flying other flags as well as new monitoring and control equipment installed in existing oil tankers flying other flags shall be approved by the Flag State Administration or by another recognized organization (RO) duly authorized by the Administration.

2.2.7.2 In accordance with MEPC.1/Circ.858, when the oil content meter (OCM) is a part of Oil Discharge Monitoring Equipment (ODME) and has been approved in accordance with resolution MEPC.108(49) before 17 May 2013, the form of type approval certificate (TAC), as provided in resolution MEPC.108(49), as amended, may be used:

- for OCMs installed on ships not carrying biofuel blends; or
- for OCMs installed on ships carrying biofuel blends until 1 January 2016 (on the condition that the tank residues and washings are pumped ashore).

When the OCM has been tested and submitted for approval (or re-approval in the case of OCMs that have undergone modifications but were originally approved in accordance with resolution MEPC.108(49)) on or after 17 May 2013, regardless of whether the OCM is intended for monitoring biofuel blends, the form of TAC should be amended in accordance with resolution MEPC.240(65).

2.2.7.3 Such equipment installed on board the ship:

- before 2 October 1986 shall be approved for compliance with the requirements and recommendations specified in IMO resolutions A.393(X), A.496(XII), MEPC.13(19) or A.586(14);
- on or after 2 October 1986 but before 1 January 2005 shall be approved for compliance with the requirements and recommendations specified in IMO resolution A.586(14);
- on or after 1 January 2005 shall be approved in accordance with the requirements specified in IMO resolution MEPC.108(49), as amended.
- on or after 1 January 2016 shall be approved in accordance with the requirements specified in IMO resolution MEPC.240(65) – in case of carriage of biodiesel fuel, etc.

2.2.8 Carriage of Blend of Petroleum Oil and Biofuels on Oil Tankers

2.2.8.1 Blends of petroleum oil and biofuels shall be carried onboard ships in accordance with requirements contained in IMO Circular IMO MSC-MEPC.2/Circ.17 of 4 July 2019, *2019 Guidelines for the Carriage of Blends of Biofuels and MARPOL Annex I Cargoes* and resolution MEPC.240(65) concerning guidelines and specifications for oil discharge control and monitoring systems (ODM) for oil tankers.

2.2.8.2 The scope of guidelines for biofuel blends containing 75% or more of petroleum oil, being in accordance with MSC-MEPC.2/Circ.17, has been covered by 3.2.6.

2.2.8.3 Resolution MEPC.240(65) specifies amendments on type approval testing of oil discharge monitoring equipment (ODME) and contains a new form of *Type Approval Certificate* for oil content meter.

2.2.9 Carriage of Energy-Rich Fuels and Their Blends

2.2.9.1 Energy-rich fuels and their blends shall be carried onboard ships in accordance with requirements contained in IMO Circular IMO MEPC.1/Circ.879 of 15 November 2018, *Guidelines for the Carriage of Energy-Rich Fuels and Their Blends*.

2.2.9.2 When carrying energy-rich fuels listed in annex 12 of the MEPC.2/Circular, the requirements of Annex I of MARPOL should apply and the Oil Discharge Monitoring Equipment (ODME) shall be in compliance with regulation 31 of Annex I of MARPOL

2.2.10 In slop tanks and other tanks where the process of oil separation from the discharged water may take place, detectors of boundary layer oil/water shall be provided. Such detectors installed on board the new ships flying the Polish flag or a flag of another EU member state as well as new detectors installed on board the existing ships flying the Polish flag or a flag of another EU member state shall be certified for MED conformity. Such detectors installed on board the new ships flying other flags as well as new detectors installed on board the existing ships flying other flags shall be approved by the Flag State Administration or by another recognized organization (RO) duly authorized by the Administration. Such equipment shall be approved in accordance with the requirements and guidelines specified in IMO resolution MEPC.5(XIII).

2.2.11 The Flag Administration Waivers

2.2.11.1 Administration may, upon the Owner's request and based on the provisions regulation 3.4 of Annex I to the *Convention*, waive the requirements specified in paragraphs 2.2.4 and 2.2.6 above for each oil tanker engaged on voyages of a duration not exceeding 72 hours within the distance off the closest shore not exceeding 50 nm between ports or harbours located within the boundaries of the country being a Party to the *Convention* if the oil tanker is considered by the Administration to be capable of retaining all the oily mixtures onboard to further discharge them to the shore reception facilities. By the issue of the *Supplement* (Form B) to the *International Oil Pollution Prevention Certificate (IOPP Certificate)*, PRS confirms, based on the Administration-issued exemption, that the ship is engaged solely on voyages specified in this paragraph.

2.2.11.2 Administration may, upon the Owner's request and based on the provisions regulation 3.5.1 of Annex I to the *Convention*, waive the requirements specified in paragraph 2.2.6 for an existing oil tanker of gross tonnage 40 000 and above engaged solely on voyages between ports or harbours located within the boundaries of the country being a Party to the *Convention* or engaged on voyages between ports or harbours located within the boundaries of the countries being Parties to Annex I to the *Convention* where the voyage is within special areas or Arctic waters and the Administration has reached an agreement with the governments of the above mentioned states if the oil tanker is considered by the Administration to be capable of retaining all the oily mixtures onboard to further discharge them to the shore reception facilities. By the issue of the *Supplement* (Form B) to the *International Oil Pollution Prevention Certificate (IOPP Certificate)*, PRS confirms, based on the Administration-issued exemption, that the ship is engaged solely on voyages specified in this paragraph.

2.2.11.3 Administration may, upon the Owner's request and based on the provisions regulation 3.5.2 of Annex I to the *Convention*, waive the requirements specified in paragraph 2.2.6 for each existing oil tanker engaged solely on voyages within special areas or Arctic waters or on voyages outside special areas within the distance off the closest shore not exceeding 50 nm:

- (a) of a duration not exceeding 72 hours, or
- (b) between sea ports or harbours located within the boundaries of the country being a Party to the *Convention*,
- (c) if the tanker is considered by the Administration to be capable of retaining all the oily mixtures onboard to further discharge them to the shore reception facilities. By the issue of the *Supplement* (Form B) to the *International Oil Pollution Prevention Certificate (IOPP Certificate)*, PRS confirms, based on the Administration-issued exemption, that the ship is engaged solely on voyages specified in this paragraph.

2.2.12 Pipelines used for the overboard discharge of the ballast water or oily ballast water from the cargo spaces shall be led to the open deck or to the side above the uppermost waterline for the ballast voyage. The following exceptions to the above rule are permitted:

- (a) segregated ballast and clean ballast may be discharged below the waterline while at sea port or harbour or gravitationally while at sea provided that the ballast water surface has been tested just before the discharge to ensure its not contaminated with oil;
- (b) dirty ballast water or oil contaminated water from the cargo tank areas (except for slop tanks) may be discharged gravitationally to the sea below the waterline provided that the ballast water surface has been tested by oil/water interface detector just before the discharge to ensure that the ballast water is not contaminated with oil and it was found that the boundary layer position is such that the ballast water discharge will not cause any hazard to the environment. Pipelines used for the discharge of oil contaminated water from the slop tanks shall be led to open deck or to the side above the uppermost waterline for the ballast voyage.

2.2.13 In existing oil tankers whose construction or major conversion was complete on or before 31 December 1979, the following may be discharged below the waterline:

- (a) ballast water from the separated ballast tanks, provided that the ballast water surface has been tested just before the discharge to ensure that the ballast water is not contaminated with oil,
- (b) ballast water from designated clean ballast tanks, provided that the water discharge is under control in accordance with 2.2.6.

2.2.14 Existing oil tankers whose construction or major conversion was completed on or before 31 December 1979 may, instead of using the method mentioned in 2.2.12, discharge dirty ballast water or oil contaminated water from cargo tank areas below the waterline, provided that a part flow system for control of overboard discharges is used. The system shall be approved by the Flag State Administration or by another organization duly authorized by the Administration and shall be arranged in accordance with the requirements specified in Supplement 4 to *Unified Interpretations* of Annex I to the *Convention*.

2.3 Requirements for Operational Documentation

2.3.1 Shipboard Oil Pollution Emergency Plan (SOPEP)

2.3.1.1 Each convention ship shall carry on board the *Shipboard Oil Pollution Emergency Plan (SOPEP)* approved by the Flag State Administration or by another recognized organization (RO) duly authorized by the Administration. Such a plan, drawn in the language used by the ship master and officers, shall be made in accordance with the guidelines specified in IMO resolution MEPC.54(32) as amended by resolution MEPC.86(44).

To ensure immediate availability of the relevant information necessary in emergency cases, the plans and drawings such as:

- General Arrangement Plan,
- Pumping Plan,
- Plan of Tanks or Capacity Plan,
- Diagram of transfer and service of fuel oil and lubrication oil,
- Filling /sounding and air pipes diagram,
- Approved by PRS Flow Diagram of Oily Bilge Water and Oil Residues (Sludge) Handling System mentioned in 2.3.7 should be attached to the plan.

2.3.2 Concise Oil Pollution Emergency Plan

2.3.2.1 Each classified by PRS:

- non-convention ship of 24 m or more in length, other than oil tanker,
- non-convention oil tanker having less than of 150 gross tonnage, as well as
- sea-going yacht of a length, *L*, exceeding 24 m,

shall carry on board the *Concise Oil Pollution Emergency Plan* approved by PRS.

2.3.2.2 The *Concise Oil Pollution Emergency Plan* shall be prepared taking account of the guidelines specified in IMO resolution MEPC.54(32) as amended by resolution MEPC.86(44).

2.3.2.3 The *Concise Oil Pollution Emergency Plan* shall contain as a necessary minimum the information mentioned below and shall be customized to the actual ship's possibilities with regard to preventive measures, control of oil spill and reporting.

The required minimum information shall contain:

- general data of the ship,
- purpose of the plan,

- oil spill definitions and typical situations when oil spills may occur,
- situations when the spill reporting is necessary,
- reporting method, information required, report recipient,
- general guidelines on actions to be taken by the ship staff in case of oil spill including their responsibilities,
- ship owner's or operator's contact addresses,
- contact addresses of port authorities and maritime administration national contact points of in the ship operating area.

2.3.3 Oil Record Book (ORB)

2.3.3.1 Each convention ship shall be provided with the *Oil Record Book (ORB)* in the form developed by IMO. Records shall be kept in accordance with the requirements specified in *MARPOL 73/78* Annex I regulation 17. The Oil Record Book may have hard copy or electronic format⁷.

2.3.3.2 On each non-convention ship classified by PRS records shall be kept in the *Logbook* or *Deck Logbook* or other dedicated document concerning such operations as bunkering of fuel oil and lubricating oil as well as discharge of oil residues (sludge) and oily water. On oil tankers records concerning cargo handling and ballasting operations shall also be entered.

2.3.4 Crude Oil Washing (COW) systems and COW Manual

2.3.4.1 Each crude oil tanker of 20000 tones deadweight and above delivered after 1 June 1982, as defined in regulation 1.28.4 of Annex I to the Convention, shall be fitted with a cargo tank cleaning system using Crude Oil Washing (COW). Crude oil washing installation and associated equipment and arrangements shall comply with the requirements specified in IMO resolution A.446(XI) and amended by the res. A.497(XII) and as further amended by res. A.897(21).

2.3.4.2 Each crude oil tanker fitted with the *COW* system for tanks shall be provided with the *Operations and Equipment Manual* detailing the system and equipment and specifying operational procedures.

2.3.4.3 The manual shall be prepared in accordance with the guidelines specified in IMO resolution MEPC.3(XII), as amended by MEPC.81(43) and approved by the Flag State Administration or by another recognized organization (RO) duly authorized by the Administration.

2.3.5 Equipment Operation Manuals

2.3.5.1 Each oil tanker fitted with oil discharge monitoring and control equipment for discharge of oil from cargo areas shall be provided with an operation manual for such equipment approved by the Flag State Administration or by another organization (RO) duly authorized by the Administration.

Interpretation MPC2

For compliance with Regulation 31.4 of MARPOL – Annex I and Resolution MEPC.108(49) as amended by Resolution MEPC.240(65), the *Oil Discharge Monitoring and Control System Operational Manual* shall contain all the details necessary to operate and maintain the system and should include at least the following information. The information may be grouped as indicated, or in an equivalent manner.

⁷ Guidelines for the use of Electronic Record Books under MARPOL, adopted by Resolution MEPC.312(74).

Introduction: Particulars of the ship, together with the date on which the system was/is to be installed and index to remainder of manual.

Text of Regulations 31 and 34 to be quoted in full.

Section 1: Manufacturer's equipment manuals for major components of the system. These may include installation, commissioning, operating and fault finding procedures for the oil content monitor.

Section 2: Operations manual comprising a description of the ship's cargo ballast systems, designated overboard discharges with sampling points, normal operational procedures, automatic inputs, manual inputs (as applicable), starting interlock and discharge valve control (as applicable), override system, audible and visual alarms, outputs recorded and, where required for manual input, flow rate when discharging by gravity and when pumping ballast overboard. It should also include instructions for the discharge of oily water following mal-function of the equipment.

The above information shall be supported by copies of relevant approved diagrams.

Reference may be made to Section 1, where applicable.

Section 3: Technical manual comprising fault finding schedules, maintenance record and electrical, pneumatic and hydraulic schematic diagrams and descriptions of the complete system.

Reference may be made to Section 1, where applicable.

Section 4: Test and check-out procedures to include a functional test at installation and guidance notes for the Surveyors performing initial and in-service surveys.

Reference may be made to Section 1, where applicable.

Appendix I: Technical installation specification including location and mounting of components, arrangements for maintaining integrity of 'safe' zones, safety requirements for electrical equipment installed in hazardous zones supported by copies of approved drawings, sample piping layout and sample delay calculations, design and arrangements of sampling probes, flushing arrangements and zero setting.

Reference may be made to Section 1, where applicable.

Appendix II: *Copy of Type Approval Certificate* and *Workshop Certificates* for major components.

2.3.5.2 Each ship fitted with oily bilge water filtering equipment shall be provided with an operation manual for such equipment. The operation manual shall also contain information whether the equipment may be used within special areas or Arctic waters as well as definitions or a map indicating special areas in accordance with regulation 1.11 of Annex I to the *Convention*.

2.3.6 Requirements for other Operational Documentation to be Carried on Oil Tankers

2.3.6.1 Each oil tanker shall carry on board the following current (i.e. fully reflecting all the actual arrangement on shipboard) drawings approved by PRS:

- .1 cargo system diagram;
- .2 stripping system diagram;
- .3 diagram of the system for tank washing and transfer of washing residues, and
- .4 ballast system diagram.

2.3.6.2 For new constructions of tankers, the diagrams mentioned in 2.3.6.1 shall be submitted to PRS for approval at the stage of design.

2.3.7 Flow Diagram of Oily Bilge Water and Oil Residues (Sludge) Handling System

2.3.7.1 Each convention ship and non-convention ship flying the Polish flag shall carry on board a current (i.e. fully reflecting all the actual arrangement on shipboard) flow diagram, of oily bilge water and oil residues (sludge) handling system, approved by PRS, hereinafter referred to as the handling system diagram.

2.3.7.2 For new constructions of both convention and non-convention ships, the handling system diagram shall be submitted to PRS for approval at the stage of design.

2.3.7.3 The handling system should mainly ensure the compliance of daily operation of the engine room with the requirements specified in Annex I to the Convention and contained in IMO circular MEPC.1/Circ.641.

2.3.7.4 In the handling system there shall be no operational limits which might cause obstruction with the crew to deal with the bilge system and/or the oil residue system in accordance with the requirements specified in Annex 1 to the *Convention*.

2.3.7.5 The handling system diagram shall show the system integrity with the system for the overboard discharge of oil and oily mixtures in emergency situations in accordance with regulation 4 of *MARPOL 73/78 Annex I* and regulation 21 in chapter II-1 of *SOLAS Convention*.

2.3.7.6 The handling system diagram shall confirm the existence on board the ship of the holding tank for oily bilge water and oil residues (sludge) identified and listed in the *Supplement to the International Oil Pollution Prevention Certificate (IOPP Certificate)* or in the *List of Equipment for the Statement of Compliance* with the provisions of this Part of the Rules.

2.3.7.7 The handling system diagram shall be verified on board during the surveys for the issue or endorsing of the *International Oil Pollution Prevention Certificate (IOPP Certificate)* or the *Statement of Compliance* with the provisions of this Part of the Rules for compliance with the technical and operational requirements specified in sub-chapter 2.1.9.

2.3.8 Material Safety Data Sheets (MSDSs)

2.3.8.1 From 1 January 2011, each ship engaged in the carriage of oil as cargo specified in Appendix I to Annex I to the *Convention* as well as oil fuels to be used on board shall be, prior to loading or bunkering of such oils, provided with the *Material Safety Data Sheets (MSDSs)* based on the guidelines contained in resolution MSC.286(86) "*Recommendations for Material Safety Data Sheets for MARPOL 73/78 Annex I Oil Cargo and Oil Fuel*".

2.3.9 Prevention of Pollution During Transfer of Oil Cargo Between Oil Tankers at Sea

2.3.9.1 Each oil tanker of 150 gross tonnage and above engaged in the transfer of oil cargo at sea from ship to ship (*Ship to Ship operations* or *STS operations*) shall carry onboard the *STS Operations Plan*, prescribing how to conduct STS operations and containing guidance for the prevention of oil pollution during such operations, no later than the date of the first periodical survey of the ship to be performed on or after 1 January 2011.

2.3.9.2 The requirements concerning the *STS operations* do not apply to:

- .1 bunkering operations;
- .2 oil transfer operations associated with fixed or floating platforms, including drilling rigs; floating production, storage and offloading facilities (FPSOs) used for the offshore production and storage of oil; and floating storage units (FSUs) used for the offshore storage of produced oil;

- .3 STS operations necessary for the purpose of securing the safety of a ship or saving life at sea, or
- .4 for combating specific pollution incidents in order to minimize the damage from pollution; and
- .5 STS operations where either of the ships involved is a warship, naval auxiliary or other ship owned or operated by a party to Convention and used, for the time being, only on government non-commercial service.

2.3.9.3 Each oil tanker subject to the regulation described in 2.3.9.1, that plans STS operations within the territorial sea, or the Exclusive Economic Zone of a Party to Convention, shall notify the relevant coastal state Party not less than 48 hours in advance of the scheduled STS operation.

2.3.9.4 STS Operations Plan

2.3.9.4.1 *STS Operations Plan* mentioned in 2.3.9.1 shall be approved by the Flag State Administration or by another recognized organization not later than the date of the first annual, intermediate or renewal survey of the ship to be performed on or after 1 January 2011.

2.3.9.4.2 It is recommended that after approval of the *STS Operations Plan* for the particular oil tanker, operations conducted on the vessel before 1 April 2012, shall be in accordance with the *STS Operations Plan* as far as possible.

2.3.9.4.3 After the 1 April 2012, STS operations shall comply with the approved plan.

2.3.9.4.4 The *STS Operations Plan* is to be written in the working language of the ship's crew and, if the working language of the crew is not English, shall include a translation into English. The *Plan* shall be developed taking into account the information contained in the best practice guidelines for STS operations identified by IMO such as:

- .1 IMO's "Manual on Oil Pollution, Section I, Prevention" as amended,
- .2 ICS and OCIMF "Ship-to-ship Transfer Guide, Petroleum", fourth edition, 2005, references (d) and (e), respectively.

2.3.9.4.5 Records of STS operations in the oil tanker Oil Record Book shall be retained onboard for a period of not less than three years from each operation.

2.3.10 Special requirements for the use or carriage of oils in the Antarctic Area

2.3.10.1 In accordance with Annex I to the *Convention*, requirements for the use or carriage of oils in the Antarctic Area are specified in IMO MEPC.189(60), amended by IMO MEPC.256(67) and enter into force on 1 March 2016.

2.3.10.2 With the exception of vessels engaged in securing the safety of ships or in a search and rescue operation, the carriage in bulk of cargo used as ballast or carriage and use as fuel of the following:

- .1 crude oils having a density at 15°C higher than 900 kg/m³;
- .2 oils, other than crude oils, having a density At 15°C higher than 900 kg/m³ or a kinematic viscosity at 50°C higher than 180 mm²/s; or
- .3 bitumen, tar and their emulsions,

shall be prohibited in the Antarctic area, as defined in Annex I, regulation 1.11.7.

When prior operations have included the carriage or use of oils listed in paragraphs 2.3.10.2.1 to 2.3.10.2.3 of this requirement, the cleaning or flushing of tanks or pipelines is not required.

2.4 The exemption of UNSP barges from survey and certification requirements under MARPOL

2.4.1 The exemption may be granted after an initial survey to ensure there is no source of pollution on board the barge and the exemption certificate may be issued for a period not exceeding 5 years.

2.4.2 A condition of the exemption certificate is an obligation on the shipowner or operator to notify the flag Administration and port State if the UNSP barge becomes non-compliant. Any such exemption certificate will cease to be valid whenever the UNSP barge does not continue to meet the definition of a UNSP barge as contained in the three MARPOL Annexes regardless of whether the owner or operator informs the Administration and/or the port State.

2.4.3 Application: A UNSP barge is defined as a barge that:

- .1** Is not propelled by mechanical means; and
- .2** Has neither persons nor living animals on board during navigation; and
- .3** Carries no oil; has no fuel oil tank, lubricating oil and bilge oil residues tank and has no machinery fitted that may use oil or generate oil residues (Annex I); and/or
- .4** Is not used for holding sewage during transport or have any arrangements that could produce sewage (Annex IV); and/or
- .5** Has no system, equipment and/or machinery fitted that may generate emissions (Annex VI).

2.4.4 For related guidelines see IMO MEPC.1/Circ.892 – “Guidelines for the exemption of UNSP barges from certain survey and certification requirements under the MARPOL Convention”.

2.5 Prohibition on the use and carriage for use as fuel of heavy fuel oil by ships in Arctic waters

2.5.1 With the exception of ships engaged in securing the safety of ships or in search and rescue operations, and ships dedicated to oil spill preparedness and response, the use and carriage of oils listed in the new MARPOL Annex I regulation 43.1.2 as fuel by ships is prohibited in Arctic waters on or after 1 July 2024.

2.5.2 The use and carriage of oils listed in regulation 43.1.2 of MARPOL Annex I as fuel by ships with oil fuel tanks within their double hull which comply with regulation 12A of MARPOL Annex 1 or regulation 1.2.1 of Chapter 1, Part II-A of the Polar Code shall be prohibited in Arctic waters on and after 1 July 2029.

2.5.3 When prior operations have included the use and carriage of oils listed in regulation 43.1.2 of MARPOL Annex I as fuel, the cleaning or flushing of tanks or pipelines is not required.

2.5.4 Notwithstanding the provisions of paragraphs 2.5.1 and 2.5.2 of this regulation, the Administration of a Party to the present Convention the coastline of which borders on Arctic waters may temporarily waive the requirements of paragraph 1 of this regulation for ships flying the flag of that Party while operating in waters subject to the sovereignty or jurisdiction of that Party. No waivers issued under this paragraph shall apply on or after 1 July 2029.

2.5.5 The Administration of a Party to the present Convention which allows application of paragraph 2.5.4 of this regulation shall communicate to the Organization for circulation to the Parties particulars of the waiver thereof, for their information and appropriate action, if any.

3 PREVENTION OF SEA POLLUTION BY NOXIOUS LIQUID SUBSTANCES IN BULK

3.1 Technical Requirements for Ship Construction and Equipment

3.1.1 Ships constructed as chemical tankers or converted into chemical tankers before 1 July 1986 shall fully comply with the requirements of the *Code for Chemical Tankers (BCH Code)* in respect of their construction and equipment.

3.1.2 Ships constructed as chemical tankers or converted into chemical tankers on or after 1 July 1986 shall fully comply with the requirements of the *International Code for Chemical Tankers (IBC Code)* in respect of their construction and equipment.

3.1.3 Substances falling into Category X, Y or Z listed in Chapter 17 of the *IBC Code* may be carried only by chemical tankers complying with requirements specified in paragraph 3.1.1 or 3.1.2. Other substances falling into Category Z listed in Chapter 18 of the *IBC Code* or “other substances” (OS) defined in regulation 6.1.4 in Annex II to the *Convention* may also be carried by ships other than chemical tankers complying with the requirements contained in Annex II to the *Convention*, e.g. NLS tankers defined in 1.2.9.2. The conditions for the carriage of vegetable oils falling into categories Y and Z are specified in independent tanks specially designed for the carriage of such vegetable oils in general dry cargo ships are specified in the IMO guidelines contained in resolution MEPC.148(54).

3.1.4 Each tank intended for the carriage of substance falling into Category X, Y or Z, irrespective of the location where the water contained in such a tank after washing will be transferred, shall be provided with pumping and piping arrangements to discharge the washings to the shore reception facilities.

3.1.5 Each tank designated for the carriage of substances falling into Category X or Y shall be provided with pumping and piping arrangements to ensure, through testing, that in the immediate vicinity of the tank’s suction point and in the tank’s associated piping does not retain an amount of residues in excess of 100 l for ships constructed on or after 1 July 1986 but before 1 January 2007, and 300 l for ships constructed before 1 July 1986.

3.1.6 Each tank designated for the carriage of substances falling into Category Z shall be provided with pumping and piping arrangements to ensure, through testing, that in the immediate vicinity of the tank’s suction point and in the tank’s associated piping does not retain an amount of residues in excess of 300 l for ships constructed on or after 1 July 1986 but before 1 January 2007, and 900 l for ships constructed before 1 July 1986.

3.1.7 Each tank designated for the carriage of substances falling into Category X, Y or Z shall be provided with pumping and piping arrangements to ensure, through testing, that in the immediate vicinity of the tank’s suction point and in the tank’s associated piping does not retain an amount of residues in excess of 75 l for ships constructed on or after 1 January 2007.

3.1.8 For ships other than chemical tankers constructed before 1 January 2007 and certified to carry substances falling into Category Z and/or OS covered by the provisions of Chapter 18 of the *IBC Code*, no quantity requirements apply with respect to the amount of residue in the immediate vicinity of the tank’s suction point and in the tank’s associated piping.

3.1.9 Pumping conditions during the tests referred to in paragraphs 3.1.5 to 3.1.7 shall comply with Appendix I to Annex II to the *Convention* containing the principles for assessment of residue quantities in cargo tanks, pumps and piping.

3.1.10 Chemical tankers certified to carry substances of Category X, Y or Z shall have an underwater discharge outlet for residues/water mixtures. The minimum diameter of the discharge outlet shall be determined in accordance with the following formula:

$$d = \frac{Q_d}{5L_d} \quad (3.1.10)$$

where:

d – minimum internal diameter of discharge outlet, [m]

L_d – distance from the forward perpendicular to the discharge outlet, [m]

Q_d – maximum rate selected at which the ship may discharge a residue/water mixture through the outlet, [m³/h].

Where the discharge is directed at an angle to the shell plating, the above formula shall be modified by substituting for Q_d the component of Q_d which is normal to the shell plating.

The underwater outlet shall be located within the cargo area in the vicinity of the turn of the bilge and shall be so arranged as to avoid the re-intake of residues/water mixtures by the ship's seawater intakes.

3.1.11 Ships constructed before 1 January 2007 and certified solely for the carriage of substances in Category Z and/or OS need not be provided with an underwater discharge outlet.

3.1.12 Carrying of substances that are persistent floaters

For substances that are persistent floaters defined in 1.2.53 assigned to category Y as identified by '16.2.7' in column 'o' of chapter 17 of the *IBC Code* (and '5.2.7' in column 'm' of chapter VI of the *BCH Code*), in the areas: North West European waters, Baltic Sea area, Western European waters, Norwegian Sea the following requirements shall apply:

3.1.12.1 Application of a prewash procedure as specified in appendix VI to Annex II to the *Convention*;

3.1.12.2 The residue/water mixture generated during the prewash shall be discharged to a reception facility at the port of unloading until the tank is empty; and

3.1.12.3 Any water subsequently introduced into the tank may be discharged into the sea in accordance with the discharge standards in regulation 13.2. Annex II to the *Convention*.

3.1.13 On board ships carrying bulk liquids prone to H₂S formation Hydrogen sulphide (H₂S) detection equipment shall be provided.

3.2 Requirements for Operational Documentation

3.2.1 Each convention ship shall carry on board the *Shipboard Marine Pollution Emergency Plan for Noxious Liquid Substances (SMPEP for NLS)* approved by the Flag State Administration or by another organization duly authorized by the Administration. The plan shall be written in the working language of the master and ship's officers, and developed in accordance with guidelines specified in IMO resolution MEPC.85(44). In ships to which the requirement specified in 2.3.1 also applies, such a plan may be combined with the *Shipboard Oil Pollution Emergency Plan (SOPEP)* to be referred to as the *Shipboard Marine Pollution Emergency Plan (SMPEP)* then.

3.2.2 Each convention ship shall carry on board the *Procedures and Arrangements Manual (P&A Manual)* developed in accordance with the guidelines contained in Appendix 4 to Annex II to the *Convention – Standard Format for the Procedures and Arrangements Manual* and approved by the Flag State Administration or by another organization duly authorized by the Administration.

3.2.3 Each chemical tanker shall carry on board the *Cargo Record Book (CRB)* in the form developed by IMO. Entries in the *Cargo Record Book* shall be made in accordance with the requirements specified in Appendix 2 to Annex II to the *Convention*. The Cargo Record Book may have hard copy or electronic format⁸.

3.2.4 Each chemical tanker shall carry on board the following current (i.e. fully reflecting all the actual arrangement on shipboard) drawings approved by PRS:

- .1 cargo system diagram;
- .2 stripping system diagram;
- .3 diagram of the system for tank washing and transfer of washing residues, and
- .4 ballast system diagram.

3.2.5 For new constructions, the above mentioned diagrams shall be submitted to PRS for approval at the stage of design.

3.2.6 Carriage of Blends of Petroleum Oil and Bio-fuels

Carriage of blends of petroleum oil and bio-fuels shall be performed in accordance with the guidelines contained in IMO circular IMO MSC-MEPC.2/Circ.17 of 4 July 2019, *2019 Guidelines for the Carriage of Blends of Biofuels and MARPOL Annex I Cargoes*.

3.2.6.1 For biofuel blends containing at least 75% of petroleum oil it is required that:

3.2.6.1.1 When carrying such biofuel blends, Oil Discharge Monitoring Equipment (ODME – see resolution MEPC.108(49), as amended) shall be in compliance with regulation 31 of Annex I to the *Convention* and should be approved for the mixture being transported.

3.2.6.1.2 Until 1 January 2016 biofuel blends may be carried when the ship's ODME is not in compliance with paragraph 3.2.6.1.1 above, provided that tank residues and all tank washings are pumped ashore.

Resolution MEPC.240(65) specifies amendments for type approval testing of ODME and contains amended form of *Type Approval Certificate* (PRS Forms: 263 – *Certificate of Type Approval for Oil Content Meter* and 263.1 – *Appendix to Certificate of Type Approval for Oil Content Meter*).

3.2.6.2 Compliance with the requirements of the above IMO resolutions shall be met as follows:

3.2.6.2.1 On and after 1 January 2016, for all vessels carrying biofuel blends containing at least 75% of petroleum oil, the ODM system installed onboard shall be in compliance with the requirements of resolution MEPC.108(49), as amended by resolution MEPC.240(65). Otherwise, modification of ODM system or its replacement may be required.

3.2.6.2.2 Until 1 January 2016 biofuel blends may be carried when the ship's ODME is not approved for the carried mixture, provided that tank residues and all tank washings are pumped ashore.

3.2.7 Carriage of Energy-Rich Fuels and Their Blends

3.2.7.1 Carriage of energy-rich fuels and their blends shall be performed in accordance with the guidelines contained in IMO circular MEPC.1/Circ.879 of 15 November 2018, *Guidelines for the Carriage of Energy-Rich Fuels and Their Blends*.

⁸ *Guidelines for the use of Electronic Record Books under MARPOL*, adopted by Resolution MEPC.312(74).

3.2.7.2 For biofuel blends containing 75% or more of energy-rich fuel it is required that:

- .1 when containing 75% or more of energy-rich fuel, the blend is subject to Annex I of MARPOL.
- .2 when carrying such biofuel blends, ODME shall be in compliance with regulation 31 of Annex I of MARPOL and should be approved for the mixture being transported.
- .3 When considering the deck fire-fighting system requirements of SOLAS chapter II-2, regulations 1.6.1 and 1.6.2, when carrying biofuel blends containing ethyl alcohol, then alcohol resistant foams should be used.

3.2.7.3 For biofuel blends containing less than 75% of energy-rich fuel it is required that:

- .1 when containing less than 75% of energy-rich fuel, the biofuel blends are subject to Annex II of MARPOL.
- .2 with respect to biofuels identified as falling under the scope of IMO circular MEPC.1/Circ.879, carriage requirements for specific biofuel/energy-rich fuel blends to be shipped as MARPOL Annex II cargoes will be incorporated into list 1 of the MEPC.2/ Circular, as appropriate.

4 PREVENTION OF SEA POLLUTION BY SEWAGE

4.1 Technical Requirements for Ship Construction and Equipment

4.1.1 Convention ships as well as motor boats and sea-going yachts, irrespective of their dimensions, certified to carry 16 persons or more shall fulfil the requirements specified in *MARPOL 73/78* Annex IV and chapter 4 of part II-A of the *Polar Code* in respect of their construction and equipment.

4.1.2 Non-convention ships of 12 m or more in length, *L*, shall fulfil the requirements specified in paragraphs 4.1.4 to 4.1.8 taking account of further limitations specified thereto.

4.1.3 Each convention ship shall be fitted with a sewage treatment plant. Sewage treatment plants installed on ships flying the Polish flag of another EU member state flag shall be certified for compliance with MED, whereas sewage treatment plants installed on ships flying the flag of other state than an EU member state shall be type-approved by the body acting on behalf of the Flag State Administration. The approved sewage treatment plants shall fulfil the requirements specified in IMO resolutions regarding, among others, the standards of effluent discharged overboard:

- .1 installed before 1 January 2010 on ships other than passenger ship operated on special areas – MEPC.2(VI), or
- .2 installed on or after 1 January 2010 and before 1 January 2016 on ships other than passenger ship operated on special areas – MEPC.227(64)⁹.
- .3 installed on or after 1 January 2016 on new passenger ship operated on special areas – MEPC.274(69)¹⁰ dated 22 April 2016, amendments to *2012 Guidelines on implementation of effluent standards and performance tests for sewage treatment plants*.

⁹ The above mentioned requirements shall be fulfilled by new ships whose keel was laid, or which were at the similar stage of construction, on or after 1 January 2010 and before 1 January 2016 and by existing ships on which new sewage treatment plant was installed on or after 1 January 2010 and before 1 January 2016 and the date of installation has been specified in the agreement with the shipyard, and in the case where such a date has not been specified – by ships on whom the actual installation of the sewage treatment station took place on or after 1 January 2010 and before 1 January 2016.

¹⁰ Installed on or after 1 January 2016 means:

4.1.3.1 A sewage treatment plant installed on a passenger ship intending to discharge sewage effluent in special areas should additionally meet the following effluent standards when tested for its Certificate of Type Approval by the Administration:

- .1** Nitrogen and phosphorus removal standard. The geometric mean of the total nitrogen and phosphorus content of the samples of effluent taken during the test period should not exceed:
 - total nitrogen¹¹: 20 Qi/Qe mg/l or at least 70 per cent reduction⁷;
 - total phosphorus: 1.0 Qi/Qe mg/l or at least 80 per cent reduction¹²
- .2** Method of testing should be:
 - ISO 29441:2010 for total nitrogen; and
 - ISO 6878:2004 for total phosphorus; or
 - other internationally accepted equivalent test standard.

4.1.3.2 The requirements of these Guidelines, with the exception of the requirements in section 4.1.3.1, will apply to sewage treatment plants installed on or after 1 January 2016 on¹³:

- .1** ships, other than passenger ships, in all areas; and
- .2** passenger ships outside MARPOL Annex IV special areas.

4.1.3.3 The requirements of these Guidelines, including those in section 4.1.3.1, will apply to sewage treatment plants installed on:

- .1** new passenger ships when operating in a MARPOL Annex IV special area and intending to discharge treated sewage effluent into the sea on or after 1 January 2016; and
- .2** existing passenger ships when operating in a MARPOL Annex IV special area and intending to discharge treated sewage effluent into the sea on or after 1 January 2018.

Installation of sewage treatment plants on motor boats and sea-going yachts certified to carry 16 persons or more is recommended where practicable. Sewage treatment plant shall be fitted with the pipeline for the discharge to the shore reception facilities through the standard discharge connection described in 4.1.7.

4.1.4 Sewage Holding Tanks in Sea-going Ships

4.1.4.1 Instead of the sewage treatment plant mentioned in 4.1.3, all convention ships may be provided with:

- (a) an integral or independent holding tank to which the sewage piping, or sewage and other waste water piping, is led ensuring the possibility for the content of such a tank to be discharged to both the shore reception facilities and overboard outside the zone of waters

-
- a) Installations on board ships the keels of which are laid or which are at the similar stage of construction on or after 1 January 2016,
 - b) For other ships, installations with a contractual delivery date to the ship on or after 1 January 2016 or, in the absence of a contractual delivery date, the actual delivery of the equipment to the ship on or after 1 January 2016.

¹¹ Total nitrogen means the sum of total Kjeldahl nitrogen (organic and ammoniacal nitrogen) nitrate-nitrogen and nitrite-nitrogen.

¹² Reduction in relation to the load of the influent.

¹³ Installed on or after 1 January 2016 means:

- a) Installations on board ships the keels of which are laid or which are at the similar stage of construction on or after 1 January 2016,
- b) For other ships, installations with a contractual delivery date to the ship on or after 1 January 2016 or, in the absence of a contractual delivery date, the actual delivery of the equipment to the ship on or after 1 January 2016.

- covering the area up to 12 nautical miles off shore in accordance with the requirements specified in regulation 11.1.1 of Annex IV to the *Convention*; or
- (b) an integral or independent holding tank fitted with the devices for comminution and disinfection of sewage ensuring the possibility for the content of such a tank to be discharged to both the shore reception facilities and overboard outside the zone of waters covering the area up to 3 nautical miles off shore in accordance with the requirements specified in regulation 11.1.1 of Annex IV to the *Convention*. The construction of such a device installed on new and existing ships is subject to PRS agreement in each particular case.

4.1.4.2 Capacity, V , of holding tanks in every ship, except convention motor boats and sea-going yachts shall be calculated using the following formula:

$$V = 0.001 qnt \quad [\text{m}^3] \quad (4.1.4)$$

where:

- q – quantity of sanitary drainage in litres per person a day. The value of q shall be taken as 70 l/person a day for sewage, or 230 l/person a day – for sewage mixed with other sanitary waste (grey water). In the case of vacuum systems: 25 l/person a day or 185 l/person a day respectively shall be taken unless otherwise specified by the system manufacturer;
- n – the maximum number of persons the ship is certified to carry;
- t – time in days of the ship stay in port and/or in the area where sewage cannot be discharged in accordance with Annex IV to the *Convention*. Normally, it should not be assumed shorter than three days. If the ship is provided with a sewage treatment plant, in addition to the holding tank, then time $t = 2$ days shall be taken to calculate the tank capacity.

For passenger ship engaged on voyages up to four-hour duration, the tank capacity may be reduced to 30% of the value calculated in accordance with the above formula, whereas for the voyage duration not exceeding two hours – up to 10%.

The holding tank shall be provided with the high level alarm device and water washing installation.

4.1.5 Sewage Holding Tanks on Motor boats and Sea-going Yachts

4.1.5.1 If a convention motor boat or sea-going yacht certified to carry 16 or more persons has not been fitted with a sewage treatment plant mentioned in 4.1.3, then such a motor boat or sea-going yacht shall be provided with either a holding tank mentioned in 4.1.4.1(a) or a holding tank fitted with the devices for comminution and disinfection of sewage, mentioned in 4.1.4.1(b).

4.1.5.2 Capacity of holding tanks for sewage on convention motor boats and sea-going yachts shall be calculated in accordance with the formulae specified in:

- (a) for motor boats – paragraph 10.6.7 in *Part III – Equipment and Stability of the Rules for the Classification and Construction of Motor Boats*,
- (b) for sea-going yachts carrying 16 persons or more – paragraph 11.5 in *Part III – Equipment and Stability of the Rules for the Classification and Construction of Sea-going Yachts*.

4.1.6 Holding tanks mentioned in 4.1.4.1(a) and 4.1.4.1(b) shall be provided with the system for the discharge of their contents to the shore reception facilities, pump for emptying the tank as well as standard discharge connection, mentioned in 4.1.7, fitted on the deck. On ships, motor boats and yachts not engaged on international voyages, the requirement for the discharge pump need not be fulfilled on condition that the tank is fitted with the pipeline provided with the appropriate connection for emptying the tank using a shore pump considering that the discharge connection shall not be different from that mentioned in 4.1.7.

4.1.7 Standard shore connection for the discharge of sewage shall be situated on the deck in a position readily available from each side of the ship and its end shall be fitted with the flange arranged in accordance with Table 4.1.7 and Fig 4.1.7. Such a connection shall also be fitted with a blank flange and the notice which reads: **Sewage**. The connection flange shall be made of steel or an equivalent material and shall have flat face. The flange, together with a seal shall be of design pressure of 0.6 MPa. The flange shall be suitable for pipes of the outside diameter of 100 mm.

Table 4.1.7
Standard connection for discharge of sewage

Description	Dimensions/quantity
Outside diameter	210 mm
Inside diameter	suitable for pipe outside diameter
Bolt circle diameter	170 mm
Flange slots	4 holes of 18 mm in diameter located evenly on the bolt circle and slotted as far as to the flange cylindrical surface; the slot width of 18 mm
Flange thickness	16 mm
Bolts and nuts	4 sets, bolts of 16 mm in diameter and suitable length

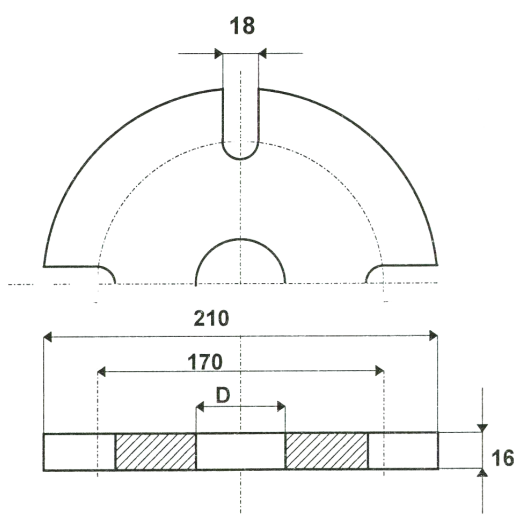


Fig. 4.1.7. Standard connection flange for discharge of sewage

4.1.8 If a system for the discharge of the holding tank contents overboard and/or the system for the direct discharge of sewage overboard is/are provided, a durable and readily visible placard shall be placed at the side discharge valve to read:

***Untreated sewage.
Discharge overboard at a distance of less than 12 nautical miles from
the nearest land is prohibited.***

4.1.9 For ships, motor boats and yachts certified for restricted voyages within 12 nautical miles off shore, overboard discharge of sewage is not permitted. On each ship, motor boat and yacht certified for voyages beyond 12 nautical miles off shore, a placard required in 4.1.8 shall be placed at the side discharge valve. Unless the discharge pipeline is fitted with a shut-off valve, such a placard shall be placed in the compartment from which the sewage is being drained.

4.1.10 On non-convention ships of length, *L*, less than 24 m, instead of the tank mentioned in 4.1.4.1 and 4.1.4.2, the following arrangements are permitted:

- .1 portable holding tanks of a capacity not exceeding 20 litres each, and made in accordance with ISO Standard 8099, or
- .2 portable chemical toilets of the size adequate to the number of persons on board the ship; the contents of such toilets shall be capable of being discharged to the sanitary shore reception facilities or overboard at the distance more than 12 nautical miles off shore. In the compartments where such toilets are located, notices mentioned in 4.1.8 shall be provided.

4.1.11 Application of portable holding tanks or portable chemical toilet on other ships is subject to PRS consideration in each particular case.

4.1.12 Technical Requirements for Construction and Equipment of Convention Passenger Ships Operating on Special Areas

4.1.12.1 Each convention passenger ship defined in 1.2.6.3 and 1.2.34 operating on special areas specified in 1.2.32 shall be fitted with:

- (a) sewage treatment plant approved by the Administration mentioned in 4.1.3.3, or
- (b) holding tank mentioned in 4.1.4.1(a) provided with an arrangement precluding its contents from being disposed into the sea in accordance with 4.1.13.2.

4.1.12.2 The sewage treatment plant defined in 4.1.12.1 (a) shall be installed by:

- (a) 31 December 2015 – on new passenger ships,
- (b) 31 December 2017 – on existing passenger ships.

4.1.13 Sewage Discharge

4.1.13.1 Discharge of sewage from ships other than passenger ships in all areas and discharge of sewage from passenger ships outside special areas

Discharge of sewage, as defined in paragraph 1.2.19, is permitted at a distance of more than 12 nautical miles from the nearest land provided that the sewage has been stored in holding tanks and is not discharged instantaneously but at a moderate rate¹⁴ when the ship is *en route* and proceeding at not less than 4 knots.

4.1.13.2 Discharge of sewage from passenger ships in special areas

Discharge of sewage as defined in 4.1.13.1 from passenger ships in the Baltic Sea special area is permitted only until¹⁵:

- (a) 1 June 2019 – for new passenger ships,
- (b) 1 June 2021 – for existing passenger ships other than those specified in (c); and
- (c) 1 June 2023 – for existing passenger ships en route directly to or from a port located outside Baltic Sea Special Area and to or from a port located east of longitude 28°10' E within the special area that do not make any other port calls within the special area and intending to discharge treated sewage effluent into the sea¹⁶.

¹⁴ The average rate of discharge shall be approved by the Flag State Administration or other recognised organisation based on resolution MEPC.157(55).

¹⁵ Resolution MEPC.275(69) Establishment of the date on which regulation 11.3 of MARPOL ANNEX IV in respect of the Baltic Sea Special Area shall take effect.

¹⁶ Resolution MEPC.284.(70) Amendments to the 2012 Guidelines on Implementation of Effluent standards and performance tests for sewage treatment plants (Resolution MEPC.227(64)).

After that date, the sewage discharge will be only permitted where:

- the sewage has been treated in an approved sewage treatment plant installed by the date specified in 4.1.12.2 which has been certified by the Administration to meet the operational requirements specified in 4.1.3, and
- the effluent does not produce visible floating solids nor cause discolouration of the surrounding water.

However, IMO encourages to comply immediately on a voluntary basis with the Special Area requirements for the Baltic Sea Special Area.

4.2 Requirements for Operational Documentation

4.2.1 Each convention ship shall carry on board a current (i.e. fully reflecting all the actual arrangement on shipboard) flow diagram, approved by PRS, of the sewage system. It is recommended that non-convention ships also carry on board such a diagram. In the case of new constructions of both convention and non-convention ships as well as motor boats and sea-going yachts, irrespective of their dimensions, certified to carry 16 or more persons, such a diagram shall be submitted to PRS for approval at the stage of design.

4.3 The exemption of UNSP barges from survey and certification requirements under MARPOL Annex IV

4.3.1 In the scope of prevention of sea pollution by sewage on UNSP barges see detailed provisions see detailed provisions specified in paragraph 2.4. as well as *Guidelines for exemption of unmanned non-self-propelled (UNSP) barges from the survey and certification requirements under the MARPOL Convention* (MEPC.1/Circ.892).

5 PREVENTION OF MARINE POLLUTION BY GARBAGE FROM SHIPS

5.1 Technical Requirements for Ship Construction and Equipment

5.1.1 Each convention and non-convention ship as well as motor boat and sea-going yacht, irrespective of their dimensions, certified to carry 15 or more persons shall be provided with means for the storage of garbage generated on board until it is disposed of to the shore reception facilities or discharged overboard in accordance with the requirements specified in Annex V to the *Convention*.

5.1.2 It is recommended that garbage be stored on board ships, motor boats and sea-going vessels in metal containers fitted with tight closures. The number and size of the containers shall be determined taking account of the vessel type, number of persons it is certified to carry, its operating area, voyage duration and the capability of its ports of call to receive segregated garbage. It is recommended that ships, motor boats and sea-going yachts of unrestricted service be provided with garbage receptacles taking account of the prohibition or conditions for the discharge of garbage into the sea in accordance with regulations 4, 5 and 6 of Annex V to the *Convention*. Recommended values of the minimum total capacity of garbage receptacles are specified in Table 5.1.2.

Table 5.1.2
Recommended minimum total capacity of receptacles

Receptacles [m ³] total	Register gross tonnage						Irrespective of tonnage
	Up to 400		400 to 1 600	1 600 to 4 000	4 000 to 10 000	10 000 and more	
	Up to 10 persons	Up to 50 persons	Ships certified to carry not more than 50 persons				Ships certified to carry more than 50 persons
0.1	0.5	0.4	1.2	2.5	5.0	1 m ³ per 100 persons/day	

5.1.3 Any receptacles on deck areas, poop decks or areas exposed to the weather shall be of durable construction and have lids that are tight as well as shall be securely fixed to the ship construction.

5.1.4 If different receptacles are provided for separated garbage types, such receptacles shall be clearly marked and distinguishable. Where the segregated garbage is being stored in container bags, storage positions of such bags containing specific forms of garbage shall also be clearly marked.

5.1.5 Where a ship is fitted with devices for garbage processing, e.g. pressing or comminution, the construction of such devices is subject to PRS agreement in each particular case.

5.1.6 Warning and Information Placards on Garbage Discharge into Sea

5.1.6.1 On each ship, including fishing vessel of 8 metres in length overall and above, motor boat or sea-going yacht of 12 metres in length overall and above as well as fixed or floating platforms, warning placards shall be fixed targeting crew and passengers and containing a summary declaration stating the prohibition for discharging garbage from ships (as shown in Tables 5.1.7.1 and 5.1.7.2 and additionally on passenger ships in Table 5.1.7.3) and restrictions for discharging garbage from ships (as shown in Table 5.1.8).

5.1.6.2 The declaration shall be placed on a placard at least 12.5 cm by 20 cm, made of durable material. The text on placards shall be printed in the working language of the crew, and ships which operate internationally shall also have placards printed in English, French or Spanish.

5.1.6.3 It is recommended that the placards be displayed at line of sight height and placed in prominent positions where crew will be working and living, and in areas where bins are placed for collection of garbage, especially in galley places, mess rooms, wardroom, bridge, main deck and other areas of the ship, as appropriate.

Where the ship carries passengers, additional placards (as shown in Table 5.1.7.3) shall also be placed in prominent places where passengers are accommodated and congregate. These include cabins, all deck areas for recreational purposes open to passengers.

5.1.6.4 Placards mentioned in 5.1.6.1 stating the prohibition for discharging garbage from ships shall regard:

- .1 crew responsibilities and procedures for all aspects of handling and storing garbage on board the ship,
- .2 fixed or floating platforms as well as supply ships operating within 500 m of such platforms – if applicable
- .3 passenger ships – if applicable

as shown below.

5.1.7 Warning Placards

5.1.7.1 Placard stating the prohibition for discharging garbage by any ship. Sample placard targeting crew and shipboard operations:

Discharge of all garbage into the sea is prohibited except provided otherwise.

The *MARPOL Convention* and domestic law prohibit the discharge of most garbage from ships. Only the following garbage types are allowed to be discharged and under the specified conditions.

Outside Special Areas designated under *MARPOL Annex V* and Arctic waters:

- Comminuted or ground food wastes (capable of passing through a screen with openings no larger than 25 millimetres) may be discharged not less than 3 nautical miles from the nearest land.
- Other food wastes may be discharged not less than 12 nautical miles from the nearest land.
- Cargo residues classified as not harmful to the marine environment may be discharged not less than 12 nautical miles from the nearest land.
- Cleaning agents or additives in cargo hold, deck and external surfaces washing water may be discharged only if they are not harmful to the marine environment.
- With the exception of discharging cleaning agents or additives that are not harmful to the marine environment and are contained in washing water, the ship must be en route and as far as practicable from the nearest land.

Within Special Areas designated under *MARPOL Annex V* and Arctic waters:

- More stringent discharge requirements apply for the discharges of food wastes and cargo residues; and
- Consult *MARPOL Annex V*, chapter 5 of part II-A of the *Polar Code* and the shipboard garbage management plan for details.

For all areas of the sea, ships carrying specialized cargoes such as live animals or solid bulk cargoes should consult Annex V and the associated Guidelines for the implementation of Annex V.

***Discharge of any type of garbage must be entered in the Garbage Record Book.
Violation of these requirements may result in penalties.***

5.1.7.2 Placard stating the prohibition for discharging garbage by fixed or floating platforms as well as supply ships operating within 500 m of such platforms:

Sample placard targeting fixed or floating platforms and ships operating within 500 metres of such platforms:

Discharge of all garbage into the sea is prohibited except provided otherwise.

The *MARPOL Convention* and domestic law prohibit the discharge of all garbage into the sea from fixed or floating platforms and from all other ships when alongside or within 500 metres of such platforms. Exception: Comminuted or ground food wastes may be discharge from fixed or floating platforms located more than 12 miles from the nearest land and from all other ships when alongside or within 500 metres of such platforms. Comminuted or ground food wastes must be capable of passing through a screen no larger than 25 millimetres.

***Discharge of any type of garbage must be entered in the Garbage Record Book.
Violation of these requirements may result in penalties.***

5.1.7.3 Placard stating the prohibition for discharging garbage by passengers. Sample placard targeting passengers:

Discharge of all garbage into the sea is prohibited except provided otherwise.

The *MARPOL Convention* and domestic law generally prohibit the discharge of most forms of garbage from ships into the sea.

***Violation of these requirements may result in penalties.
All garbage shall be retained on board and placed in the bins provided.***

5.1.8 Information Placard

Placard stating the conditions for the discharge of garbage into the sea mentioned in 5.1.6.1 shall contain the information specified in Table 5.1.8 and refer to the particular ship type and her operating area.

**Table 5.1.8
Summary of restrictions to the discharge of garbage into the sea under regulations 4, 5
and 6 of Annex V to MARPOL and chapter 5 of part II-A of the *Polar Code***

Garbage type ¹	All ships except platforms ⁴		Offshore platforms located more than 12 nm from nearest land and ships alongside or within 500 metres of such platforms ⁴ . Regulation 5
	<i>Outside special areas</i> Regulation 4 (distances are from the nearest land)	<i>Within special areas</i> Regulation 6 (distances are from the nearest land or nearest ice-shelf)	
Food waste comminuted or ground ²	≥ 3 nm, en route and as far as practicable	≥ 12 nm, en route and as far as practicable ³	Discharge permitted
Food waste not comminuted or ground	≥ 12 nm, en route and as far as practicable	discharge prohibited	Discharge prohibited
Cargo residues ^{5,6} , not contained in cargo hold washwater	≥ 12 nm, en route and as far as practicable	Discharge prohibited	Discharge prohibited
Cargo residues ^{5,6} , contained in cargo hold washwater	≥ 12 nm, en route and as far as practicable	≥ 12 nm, en route and as far as practicable (subject to conditions in Regulation 6.1.2 and paragraph 5.2.1.5 of part II-A of the <i>Polar Code</i>)	Discharge prohibited
Cleaning agents and additives ⁶ , contained in cargo hold washwater	Discharge permitted	≥ 12 nm, en route and as far as practicable (subject to conditions in Regulation 6.1.2 and paragraph 5.2.1.5 of part II-A of the <i>Polar Code</i>)	Discharge prohibited
Cleaning agents and additives ⁶ , contained in deck and external surfaces' washwater	Discharge permitted	Discharge permitted	Discharge prohibited
Animal carcasses (split or otherwise treated to ensure the carcasses will sink immediately)	Shall be en route and as far as practicable, i.e. > 100 nm and maximum water depth	Discharge prohibited	Discharge prohibited
Other garbage including plastics, synthetic ropes, fishing gear, plastic garbage bags, incinerator ashes, clinkers, cooking oil, floating dunnage, lining and packing materials, paper, rags, glass, metal, bottles, crockery and similar refuse	Discharge prohibited	Discharge prohibited	Discharge prohibited

- ¹ Where garbage is mixed with or contaminated by other harmful substances prohibited from discharge or having different discharge requirements, the more stringent requirements shall apply.
- ² Comminuted or ground food wastes shall be able to pass through a screen with mesh no larger than 25 × 25 mm.
- ³ The discharge of introduced avian products in the Arctic area is not permitted unless incinerated, autoclaved or otherwise treated to be made sterile.
- ⁴ Offshore platforms located more than 12 nm from the nearest land and associated ships include all fixed and floating platforms engaged in exploration or exploitation or associated processing of seabed mineral resources, and all ships alongside or within 500 m of such platforms.
- ⁵ Cargo residues means only those cargo residues that cannot be recovered using commonly available methods for unloading.
- ⁶ These substances must not be harmful to the marine environment.

5.2 Criteria for the classification of solid bulk cargoes as harmful to the marine environment

5.2.1 For the purpose of Annex V to the Convention, cargo residues are considered to be harmful to the marine environment (HME) if they are residues of solid bulk cargoes which are classified according to Appendix I of Annex V to the Convention.

5.2.2 Solid bulk cargoes, as defined in regulation VI/1-1.2 of the SOLAS Convention 1974, as amended, other than grain, shall be classified in accordance with Appendix I of MARPOL Annex V, and declared by the shipper as to whether or not they are harmful to the marine environment. For ships engaged on international voyages, such a declaration should be included in the information required in section 4.2.3 of the IMSBC Code.

5.3 Requirements for Operation Documentation

5.3.1 Every ship of 100 gross tonnage and above, and every ship, a motor boat or a sea-going yacht certified to carry 15 or more persons, and fixed and floating platforms are required to carry and implement the *Garbage Management Plan* which shall be printed in the working language of the crew and developed in accordance with the guidelines specified in IMO resolution MEPC.220(63). For ships flying the Polish flag, the *Garbage Management Plan* is subject to PRS verification. Such verification is also required where a ship flying other than the Polish flag requests the survey for the *Statement of compliance* with the requirements of Annex V to the Convention.

5.3.2 Every ship of 100 gross tonnage and above, every ship, a motor boat or a sea-going yacht certified to carry more than 15 persons and every fixed or floating platform shall be provided with the *Garbage Record Book* developed in accordance with IMO resolution MEPC.201(62) as amended by resolution MEPC.277(70). Entries in the *Garbage Record Book* shall be made in accordance with the requirements specified in Regulation 10 and the Appendix II to Annex V to the *Convention*.

5.3.2.1 *The Garbage Record Book* along with receipts obtained from reception facilities shall be kept on board the ship or the fixed or floating platform, and in such a place as to be readily available for inspection. This document shall be preserved for a period of at least two years from the date of the last entry made in it. The *Garbage Record Book* may have hard copy or electronic format¹⁷.

5.3.2.2 The Flag State Administration may waive the requirements for the *Garbage Record Book* for any ship engaged on voyages of one (1) hour or less in duration who is certified to carry 15 or more persons as well as fixed or floating platforms.

¹⁷ *Guidelines for the use of Electronic Record Books under MARPOL*, adopted by Resolution MEPC.312(74).

6 PREVENTION OF AIR POLLUTION BY SHIPS

6.1 Requirements in the Scope of Prevention of Ozone Depleting Substances Emission

Deliberate emission of ozone depleting substances by ships is prohibited. Deliberate emissions include emissions occurring in the course of maintaining, servicing, repairing or disposing of refrigerating and fire-fighting systems or equipment, except that deliberate emissions do not include minimal releases associated with the recapture or recycling of an ozone depleting substance.

The requirements specified in sub-chapter 6.1 apply to the shipborne refrigerating and fire-fighting systems containing 3 kg of ozone depleting substances or more.

These requirements do not apply to permanently sealed equipment where there are no refrigerant charging connections or potentially removable components containing ozone depleting substances.

6.1.1 Technical Requirements for Ship Equipment

6.1.1.1 Chlorofluorocarbons (CFCs)

Application of refrigerants containing chlorofluorocarbons (CFCs) in existing and new equipment and installations is prohibited¹⁸.

6.1.1.2 Hydrochlorofluorocarbons (HCFCs)

Application of refrigerants containing hydrochlorofluorocarbons (HCFCs), in existing and new equipment and installations is allowed until 1 January 2020, but the agreement does not apply to ships flying the European Union (EU) Member States flags.

On ships flying the European Union (EU) Member States flags is prohibited¹⁹:

- the use of refrigerants containing HCFCs in refrigeration and air conditioning installations produced after 31 December 2000;
- the use of the virgin (brand new, not regenerated and not recycled) substances containing HCFCs in the maintenance and servicing of existing air conditioning and refrigeration equipment after 31 December 2009;
- the use of virgin and recovered substances containing HCFCs in the maintenance and servicing of existing air conditioning and refrigeration equipment after 31 December 2014.

6.1.1.3 Halons

Application of halons in fire extinguishing systems on ships is prohibited.

6.1.1.4 Pipework of the refrigerating systems shall be so designed as to isolate particular pipeline segments and force the refrigerant flow into the dedicated tank to enable maintenance and repair to be performed without the necessity to release the refrigerant to the open air. Insignificant leakages inevitable during such operations are permitted.

6.1.1.5 To recover the refrigerant, the pipework shall be so designed as to force, by the compressor, the flow of all refrigerant contained in the refrigerating system into the dedicated tank.

¹⁸ New equipment and installations mean the equipment and systems including portable fire extinguishers, insulation and other materials installed on board the ship after 19 May 2005, exclusive of the repaired previously installed equipment, machinery, systems, insulation and other materials as well as recharged portable fire extinguishers.

¹⁹ Regulation (EC) No 2037/2000 of the European Parliament and of the Council of 29 June 2000 on substances that deplete the ozone layer.

6.1.1.6 For each ozone depleting substance, effective systems are recommended for continuous monitoring any leakages in the compartments where such leakage may occur. An alarm shall be provided to give warning to the continuously manned station when the allowable concentration of the controlled substance is exceeded.

6.1.2 Requirements for Operation Documentation

6.1.2.1 Procedures for the principles of the control of the loss, leakages, recharging and disposal of controlled substances shall be developed and implemented on convention ships by owner.

6.1.2.2 List of Equipment Containing Ozone Depleting Substances

Each convention ship engaged on international voyages and each ship flying the Polish flag which is subject to the requirements specified in 6.1 shall maintain a list of equipment and installations containing ozone depleting substances.

Such a list is required for the purposes of control of the ozone depleting substances and indication of the ship equipment and systems containing ozone depleting substances in the supplement to *International Air Pollution Prevention Certificate (IAPP Certificate)* or the *List of Equipment* (PRS Form 48W).

6.1.2.3 On ships flying the Polish flag, any equipment component or installation containing the ozone depleting substances placed on the market (also sold to or transferred to any third parties) by 1 July 2002 shall be marked in accordance with the Ordinance by the Minister of Economy and Labour of 16 August 2004 (Official Gazette No. 195, item 2007).

6.1.2.4 On ships flying the Polish flag, any equipment component or installation containing more than 3 kg of a refrigerant containing an ozone depleting substance shall be provided with the *Equipment Card* in accordance with the pattern indicated in the Ordinance by the Minister of Economy and Labour of 6 August 2004 (Official Gazette No. 184, item 1903).

6.1.2.5 Ozone Depleting Substances Record Book

Each convention ship engaged on international voyages where any equipment or installations containing ozone depleting substances are installed shall maintain the *Ozone Depleting Substances Record Book (ODS Record Book)*. This Record Book may form a part of an existing log-book or an electronic record book²⁰ as approved by the Flag State Administration.

6.1.2.6 Entries to Ozone Depleting Substances Record Book

Entries in the *Ozone Depleting Substances Record Book* shall be recorded in terms of mass (kg) of substance and shall be completed without delay on each occasion, in respect of the following:

- .1 recharge, full or partial, of equipment containing ozone depleting substances;
- .2 repair or maintenance of equipment containing ozone depleting substances;
- .3 discharge of ozone depleting substances to the atmosphere;
- .4 discharge of ozone depleting substances to land-based reception facilities; and
- .5 supply of ozone depleting substances to the ship.

²⁰ An electronic record book is considered as a system of electronic recording, provided that the system of electronic recording has been approved by Administration before the first renewal survey carried out for the issue of the International Air Pollution Prevention Certificate (IAPP), performed on or after 1 October 2020, however, not later than 1 October 2025, taking into account the *Guidelines for the use of Electronic Record Books under MARPOL*, adopted by Resolution MEPC.312(74).

6.1.2.7 Each convention ship not engaged on international voyages as well as each non-convention ship flying the Polish flag where any equipment and installations containing ozone depleting substances are installed which is subject to the requirements specified in 6.1 shall maintain records on the controlled substances. Such records shall be kept in every case mentioned in 6.1.2.6 and may be entered in the existing log-book or engineer's log book of the ship, or in a dedicated record book.

6.2 Nitrogen Oxides (NOX)

6.2.1 Application and Exemptions

.1 These requirements apply to:

- (a) each marine diesel engine with a power output of more than 130 kW installed on a ship; and
- (b) 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 that such engine is an identical replacement to the engine which it is replacing.

Interpretation IACS MPC 14

All marine diesel engines over 130 kW except those exempted by Regulation 3 or Regulation 13, Annex VI to the *Convention* shall 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 in accordance with requirement 6.2.3.2 and must be issued with an *EIAPP Certificate* in accordance with the *NO_x Technical Code* referred to in 6.2.3.1.

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.

IMO interpretation

An "identical engine" is, as compared to the engine being replaced²¹, an engine which is of the same:

- design and model;
- rated power;
- rated speed;
- use;
- number of cylinders; and
- fuel system type (including, if applicable, injection control software):
 - (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.

.2 These requirements **do not** apply to:

- (a) a marine diesel engine intended to be used solely for emergencies, or solely to power any device or equipment intended to be used solely for emergencies on the ship on which it is installed, or a marine diesel engine installed in lifeboats intended to be used solely for emergencies; and
- (b) a marine diesel engine installed on a ship solely engaged in domestic voyages provided that such engine is subject to an alternative NO_x control measure established by the Administration.

²¹ 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".

- .3 Notwithstanding the provisions specified in 6.2.1.1, application of the requirements concerning NO_x emissions may be waived, subject to the Administration consent, for any marine diesel engine which is installed on a ship constructed, or for any marine diesel engine which has undergone a major conversion, before 19 May 2005, provided that the ship on which the engine is installed is solely engaged on voyages to ports or offshore terminals within the State the flag of which the ship is entitled to fly.
- .4 Marine diesel engine major conversion, as defined in 1.2.26
- .1 (marine diesel engine major conversion in accordance with the requirements specified in regulation 13.2.2 of Annex VI to the *Convention*).
- .4.1 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 requirements of sub-chapter 6.2 being in force at the time of the engine replacement or addition of the engine shall apply.
- .4.2 The time of the engine replacement with a non-identical marine diesel engine or the installation of an additional marine diesel engine is taken as the date of:
- the contractual delivery date of the engine to the ship²²; or
 - in the absence of a contractual delivery date, the actual delivery date of the engine to the ship²³, provided that the date is confirmed by a delivery receipt; or
 - 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 of Annex VI to Convention, 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.
- .4.3 The entry of the date in .4.2 a), b) or c) is to be made in the item 8.a “Major conversion – According to Reg. 13.2.1.1 & 13.2.2” in Table 2.2.1 of the *IAPPC Supplement*.
- .4.4 If the engine has not been tested within six(6) months from the date specified in sub-paragraphs of regulation 13.5.1.2 of the Annex VI to Convention, 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.
- .5 On or after 1 January 2016, in the case of engines replacement only, if it is not possible for such an engine replacement to meet the emission standards of Tier III specified in 6.2.2.1.3, then that engine replacement shall meet the emission standards of Tier II specified in 6.2.2.1.2. **PRS shall notify the Administration in those instances where a Tier II rather than a Tier III replacement engine has been installed on or after 1 August 2025 in accordance with the provisions of this paragraph.**
- .6 Marine diesel engine mentioned in 1.2.23.2 or 1.2.23.3 shall fulfil the following requirements:
- for ships constructed before 1 January 2000, the standards specified in 6.2.2.1.1 shall apply;
 - for ships constructed on or after 1 January 2000, the standards in force at the time the ship was constructed shall apply.

²² The engine is to be fitted on board and tested for its intended purpose within six months after the date specified in sub-paragraphs of regulation 13.5.1.2 of Annex VI to the *Convention*, as appropriate.

²³ See footnote ¹⁵.

6.2.2 Technical Requirements for NO_x Emission Reduction

6.2.2.1 Requirements for Engines Constructed on or After 1 January 2000

Total, measured and calculated, weighted emission of NO_x rounded to one decimal place shall, in accordance with the *NO_x Technical Code, 2008* procedures, not exceed the corresponding value of calculated NO_x emission depending on the rated engine speed.

Each marine diesel engine of rated power above 130 kW which is installed or underwent major conversion on or after 1 January 2000, except the engines defined in 1.1.6 and 1.1.7, shall – depending on the date of their installation or major conversion – fulfil the requirements of the *NO_x Technical Code, 2008*, and the following NO_x emission tiers (calculated as the total weighted emission of NO₂):

.1 Tier I

Emission of NO_x by the engine installed on board the ship constructed on or after 1 January 2000 and before 1 January 2011 shall not exceed the corresponding value calculated for the rated engine speed and also fulfil the requirements for NO_x emission Tier I specified below:

- (a) 17.0 g/kWh, when n is less than 130 rpm;
 - (b) $45.0 \times n^{(-0.2)}$ g/kWh, when n is 130 or more but less than 2000 rpm;
 - (c) 9.8 g/kWh, when n is 2000 rpm or more,
- where n = rated engine speed (crankshaft revolutions per minute).

.2 Tier II

Emission of NO_x by the engine installed on board the ship constructed on or after 1 January 2011 shall not exceed the corresponding value calculated for the rated engine speed and also fulfil the requirements for NO_x emission Tier II specified below:

- (a) 14.4 g/kWh, when n is less than 130 rpm;
- (b) $44.0 \times n^{(-0.23)}$ g/kWh, when n is 130 or more but less than 2000 rpm;
- (c) 7.7 g/kWh, when n is 2000 rpm or more,

where n = rated engine speed (crankshaft revolutions per minute).

.3 Tier III

.1 A ship constructed on or after 1 January 2016 operating within the Emission Control Area

Emission by the engine installed on board the ship constructed on or after 1 January 2016 operating within the NO_x Emission Control Areas specified in 1.2.26.2 (a),(b) or constructed on or after 1 January 2021 operating within the NO_x Emission Control Areas specified in 1.2.26.2 (c), (d) shall not exceed the corresponding value calculated for the rated engine speed and also fulfil the requirements for NO_x emission Tier III specified below:

- (a) 3.4 g/kWh, when n is less than 130 rpm;
- (b) $9.0 \times n^{(-0.2)}$ g/kWh, when n is 130 or more but less than 2000 rpm, and
- (c) 2.0 g/kWh, when n is 2000 rpm or more,

where n = rated engine speed (crankshaft revolutions per minute).

The Tier and on/off status of marine diesel engines installed on board a ship to which paragraph 6.2.2.1.3 applies which are certified to both Tier II and Tier III or which are certified to Tier II only shall be recorded in such logbook as prescribed by the Administration or in an electronic record book²⁴ at entry into and exit from a NO_x Tier III emission control area, or when the on/off status changes within such an area, together with the date, time and position of the ship.

²⁴ Refer to the *Guidelines for the use of Electronic Record Books under MARPOL*, adopted by Resolution MEPC.312(74).

Interpretation IMO

For the application of this regulation:

- .1 "marine diesel engines installed on board a ship to which paragraph 6.2.2.1.3 applies" includes additional or replaced engines; installed on or after the relevant emission control area takes effect;
- .2 "certified to Tier II only" means a Tier II engine that is installed on board a ship which is constructed on or after the emission control area where the ship is operating takes effect;
- .3 Tier II engines stipulated under the Tier II requirement of regulation 6.2.2.1.2, i.e. Tier II engines installed on board a ship constructed before the entry into force of the emission control area where the ship is operating, are not considered to be a "Tier II only" engine in the context of record keeping. Such exclusion is extended to Tier II engines replaced after the entry into force of the relevant emission control areas on board ships of this category, if the replacement engines meet resolution MEPC.230(65);
- .4 if an engine installed on a ship constructed before the entry into force of the emission control area where the ship is operating has undergone a major conversion as described in regulation 13.2.1 of Annex VI to the Convention, those engines are to be Tier III engines; thus the above interpretation in .1 above applies; and
- .5 recording is required for the Tier II engine operation in a NECA under the exemption according to regulation 13.5.4 of Annex VI to the Convention.

.2 A ship constructed on or after 1 January 2016 operating outside the Emission Control Area

Emission of NO_x by the engine installed on board the ship constructed on or after 1 January 2016 operating outside the NO_x Emission Control Areas specified in 1.2.24.2 shall fulfil the requirements for NO_x emission Tier II specified in 6.2.2.1.2.

.3 The standards set forth in 6.2.2.1.3.1 shall not apply to:

- .1 a marine diesel engine installed on a ship with a length (*L*), as defined in 1.2.12, of less than 24 metres when it has been specifically designed, and is used solely, for recreational purposes; or
- .2 a marine diesel engine installed on a ship with a combined nameplate diesel engine propulsion power of less than 750 kW if it is demonstrated, to the satisfaction of the Administration, that the ship cannot comply with the standards set forth in 6.2.2.1.3.1 because of design or construction limitations of the ship; or
- .3 a marine diesel engine installed on a ship constructed prior to 1 January 2021 of less than 500 gross tonnage, with a length (*L*), as defined in 1.2.12, of 24 metres or over when it has been specifically designed, and is used solely, for recreational purposes.

6.2.2.2 Retroactive Requirements for Existing Engines Constructed on or after 1 January 1990 and before 1 January 2000

- .1 Emission of NO_x by an existing engine with a power output of more than 5000 kW and per cylinder displacement 90 litres and above installed on board the ship constructed on or after 1 January 1990 but before 1 January 2000 shall fulfil the requirements for NO_x emission Tier I specified in 6.2.2.1.1.

- .2 The above mentioned requirement is conditioned by the presence of the Approved Method (as defined in 1.2.31) certified by the Administration for the modification of the existing engine to reach the required NO_x emission tier.
- .3 *IAPP Certificate* issued for ship engine, as stated in Regulation 13/7.3, Chapter 3 of Annex VI to the *Convention* shall indicate one of the below elements:
 - (a) an approved method has been applied pursuant to paragraph 7.1.1 of this regulation;
 - (b) the engine has been certified pursuant to paragraph 7.1.2 of this regulation;
 - (c) an approved method is not yet commercially available as described in paragraph 7.2 of this regulation; or
 - (d) an approved method is not applicable.
- .4 Administration certifying Approved Method for the existing engine should:
 - notify IMO about conducted certification enclosing necessary information concerning approved method in accordance with guidelines of IMO contained in IMO Resolution MEPC.242(66);
 - follow the guidelines for the approval process of Approved Methods for NO_x reduction contained in IMO Resolution MEPC.243(66).
- .5 Compliance with the requirements specified in 6.2.2.2 may be achieved by:
 - (a) using the verification procedure specified in the *Approved Method File*, confirmation of such *Approved Method* through tests and entering a relevant record on the application of the *Approved Method* in the *IAPP Certificate*; or
 - (b) certification of the engine confirming that it operates within the limits specified in 6.2.2.1.1 for NO_x emission Tiers I, II or III and a relevant record on the engine certification entered in the *IAPP Certificate*.
- .6 The requirements specified in 6.2.2.2.1 shall be fulfilled no later than at the first class renewal survey that occurs 12 months or more after the notification mentioned in 6.2.2.2.3.
- .7 If the owner of a ship on which the *Approved Method* is to be installed can demonstrate that the *Approved Method* has not been commercially available despite his best efforts to obtain it, then the *Approved Method* shall be installed on the ship no later than the next annual survey of that ship that falls after the *Approved Method* is commercially available.

6.2.2.3 Certification of the *Approved Method* for Existing Engines

Certification of the *Approved Method* shall be in accordance with chapter 7 of the revised *NO_x Technical Code 2008* and shall include verification:

- .1 by the designer of the base marine diesel engine to which the *Approved Method* applies that the calculated effect of the *Approved Method* will not decrease engine rating by more than 1.0%, increase fuel consumption by more than 2.0% as measured according to the appropriate test cycle specified in the revised *NO_x Technical Code 2008*, or adversely affect engine durability or reliability; and
- .2 that the cost of the *Approved Method* is not excessive, which is determined by a comparison of the amount of NO_x reduced by the *Approved Method* to achieve the standard of Tier I specified in 6.2.2.1 and the cost of purchasing and installing such *Approved Method*.

6.2.2.4 Where a diesel engine mentioned in 6.2.2.1 does not fulfil the requirements for NO_x emissions, operation of such an engine is permitted if:

- .1 to reduce NO_x emissions at least to the limits specified in paragraphs 6.2.2.1, 6.2.2.2 and 6.2.2.3, a device or system for reduction of NO_x emissions approved by the Flag State Administration or by another organization duly authorized by the Flag State Administration in accordance with the *NO_x Technical Code* has been applied;

- .2 other equivalent methods approved by the Flag State Administration or by another organization duly authorized by the Flag State Administration have been implemented to reduce NO_x emissions at least to the limits specified in paragraphs 6.2.2.1, 6.2.2.2 and 6.2.2.3.

6.2.2.5 Exhaust Gas Recirculation

One method for reducing NO_x emissions, which will meet the requirements of the regulation, may be Exhaust Gas Recirculation (EGR), which is an internal engine process resulting in a NO_x reduction. By means of this process, condensate of exhaust gas will be generated and discharged as bleed-off water, which should be handled differently depending on the fuel oil sulphur content. EGR may also be used as a Tier II compliance option.

6.2.2.5.1 Discharge of EGR bleed-off water into the sea when using fuel oil not complying with the relevant limit value in regulation 6.3.1

- .1 The bleed-off water discharged to the sea from an EGR water treatment system may or may not be combined with the discharge water from an EGC system. In either case, this discharge to the sea should be documented, monitored and recorded, as appropriate, in accordance with the relevant requirements of the EGCS Guidelines. Upon request, the Administration should be provided with bleed-off water samples according to appendix 3 of PRS *Publication 78/P – Guidelines for Exhaust Gas SO_x-Cleaning Systems*, as applicable.
- .2 Bleed-off water which is retained onboard in a holding tank should not be discharged to the sea, except when:
 - (a) the ship is en route and outside polar waters, ports, harbours or estuaries; and
 - (b) the bleed-off water discharged meets the provisions of paragraph 6.2.2.5.1.1

6.2.2.5.2 Discharge of EGR bleed-off water into the sea when using fuel oil complying with the relevant limit value in regulation 6.3.1

- .1 In case the EGR system is in operation and the sulphur content of the fuel oil used for the engine complies with regulation 6.3.1, the discharge of bleed-off water should meet the requirements of paragraph 6.2.2.5.1.1, unless the following conditions are satisfied:
 - (a) the ship is en route, outside polar waters, ports, harbours or estuaries;
 - (b) the sulphur content of the fuel oil used for the engine when the EGR system is in operation complies with the relevant requirements of regulation 14 of MARPOL Annex VI;
 - (c) the oil content meter is type approved in accordance with the annex of resolution MEPC.107(49), as amended;
 - (d) the oil content of the bleed-off water discharge and 15 ppm alarm is continuously monitored and recorded; and
 - (e) the oil content of the discharge does not exceed 15 ppm.
- .2 When the EGR system is operated in polar waters, ports, harbours or estuaries, the discharge of bleed-off water to the sea should comply with section 6.2.2.5.1.
- .3 Bleed-off water which is retained on board in a holding tank should not be discharged to the sea, except when:
 - (a) the ship is en route and outside polar waters, ports, harbours or estuaries; and
 - (b) the bleed-off water discharged meets the provisions of paragraph 6.2.2.5.2.1.

6.2.2.5.3 Documentation

The following documents should be retained on board the ship as appropriate and should be available for surveys as required:

- .1 manual for EGR bleed-off discharge system;

- .2 certificates for type approval of oil content meters (15 ppm alarm);
- .3 operating and maintenance manuals of oil content meters (15 ppm alarm); and
- .4 EGR record book.

The EGR record book and manual for EGR bleed-off discharge system should be approved by the Administration.

6.2.2.6 For each engine mentioned in 6.2.2.1 provision shall be made for the direct NO_x emission measurement during the engine survey. NO_x emission measurements for the engines mentioned in 6.2.2.4 shall be performed at the outlet from the NO_x emission reduction device.

6.2.2.7 Devices for the direct NO_x emission measurement mentioned in 6.2.2.6 shall be type-approved in accordance with the requirements specified in Appendix 8 to the *NO_x Technical Code 2008*.

6.2.2.8 Certification of the dual fuel and gas-fuelled engines

According to guidance²⁵ developed by IMO dual fuel engines, installed on ships constructed on or after 1 March 2016 and also such engines installed as additional or non-identical replacement engines on or after that date, which use gas fuel in a pre-mix combustion process with the liquid fuel as the pilot ignition source shall be certified to the Tier III NO_x standards when operating in that arrangement and to the Tier II NO_x standards when operating on liquid fuel oil only.

In this case, the EIAPP Certificate shall be completed for both Tier II (liquid fuel only) and Tier III (gas fuel with pilot fuel), with a single Technical File giving two different modes of operation.

6.2.3 Requirements for Operation Documentation

6.2.3.1 Each diesel engine mentioned in 6.2.2.1 installed on board the ship engaged in international voyages flying the flag of a Party to Annex VI to the *Convention* shall be provided with the *Engine International Air Pollution Prevention Certificate (EIAPP Certificate)*.

6.2.3.2 Each diesel engine mentioned in 6.2.2.1 shall be provided with the *Technical File* in accordance with the requirements specified in sub-chapter 2.4 of the *NO_x Technical Code, 2008*. The *Technical File* made by the engine manufacturer shall be approved by the Administration who issued the *EIAPP Certificate* or by another organization duly authorized by the Administration.

6.2.3.3 Each diesel engine mentioned in 6.2.2.1 shall be provided with the *Engine Parameters Record Book* or an electronic record book²⁶, for records of changes of all the parameters including the engine components and settings which may affect the NO_x emissions.

6.2.3.4 Procedures for NO_x emission control shall be available on board the ship for each diesel engine mentioned in 6.2.2.1.

6.3 Sulphur Oxides (SO_x) and Particulate Matter (PM)

6.3.1 General Requirements

6.3.1.1 Requirements for Sulphur Content in Fuel Oil Used outside SOX and PM Emission Control Areas

²⁵ Refer to MEPC.1/Circ.854 Guidance on the application of Regulation 13 of MARPOL Annex VI Tier III requirements to dual fuel and gas-fuelled engines.

²⁶ Refer to the *Guidelines for the use of Electronic Record Books under MARPOL*, adopted by Resolution MEPC.312(74).

Sulphur content of fuel oil used or carried for use on board ships outside the emission control areas specified in 1.2.24.1 shall not exceed 0.50% m/m²⁷ on or after 1 January 2020²⁸.

Interpretation IMO

Regulation 6.3.1.1 for the prohibition on carriage of non-compliant fuel oil should be applied to the fuel oil of emergency equipment.

6.3.1.2 Requirements for Sulphur Content in Fuel Oil Used within Emission Control Areas

Sulphur content of fuel oil used on board ships within the emission control areas specified in 1.2.26.1 shall not exceed 0.10% m/m.

6.3.1.3 Sulphur content of fuel oil specified in 6.3.1.1.1 and 6.3.1.2 shall be documented by the supplier in accordance with 6.6.2.

6.3.2 Other Methods of SO_x Emission Reduction

6.3.2.1 Exemption from the requirement of using low-sulphur fuel oils within the Emission Control Areas specified in 6.3.1.2 may be granted to ships where:

- .1 exhaust gas cleaning-SO_x system²⁹, approved by the Administration or by another organization duly authorized by the Administration, has been implemented as an equivalent in accordance with 1.1.8;
- .2 other technological means have been provided to reduce SO_x emissions in accordance with 1.1.8. Such means shall be approved by the Flag State Administration or by another organization duly authorized by the Administration.

6.3.2.2 Wastes generated by the exhaust gas cleaning-SO_x system are not permitted to be disposed in closed ports, harbours, estuaries unless it is clearly demonstrated in the ship documents that such wastes do not have an adverse effect on ecosystems of such areas. This shall be demonstrated in accordance with the criteria communicated by the port State authority to IMO. The criteria for purity of the water washing the exhaust gas cleaning-SO_x system are specified in IMO guidelines contained in 6.3.2.1.

6.3.3 Requirements for Sulphur Content in Fuel Oil Used in European Community Area and Ports

6.3.3.1 Since 1 January 2010, sulphur content of marine fuel oils used in ships at berth³⁰ in EC ports shall not exceed 0.10% ³¹ in accordance with the requirements of Directive 1999/32/EC, as amended by Directives 2005/33/EC and 2009/30/EC.

6.3.3.2 The requirement specified in 6.3.3.1 applies to all types of marine fuel oil as well as all types of oil burning appliances on ship board (engines and boilers).

²⁷ % m/m represents percentage of mass fraction.

²⁸ MEPC.280(70), Effective date of implementation of the fuel oil standard in regulation 14.1.3 of MARPOL Annex VI.

²⁹ Resolution MEPC.259(68) *2015 Guidelines for exhaust gas cleaning systems*, as well as PRS PUB 78/P *Guidelines for Exhaust Gas SO_x-Cleaning Systems*.

³⁰ Ship at berth in an EC port means a ship in a sheltered position in an EC port which is secured at anchor, on moorings (including single buoy moorings) or alongside another ship for loading/unloading of cargo or embarking/disembarking passengers including intervals in the above mentioned operations.

³¹ The revised requirements of Directive 1999/32/EC were incorporated into the Polish law by the Ordinance by the Minister of Infrastructure of 25 March 2009 (Official Gazette No. 58, item 477).

6.3.3.3 The above stated sulphur content is not required during the ship manoeuvring, it shall, however, be complied with as soon as possible after the ship arrival and as late as possible prior to the departure.

6.3.3.4 The requirements specified in 6.3.3.1 do not apply to:

- (a) the ships who are, according to the published timetables, due to beat berth for less than two hours;
- (b) ships who switch off all engines and use shore-side electricity while at berth in ports.

6.3.3.5 The requirements specified in 6.3.3.1 apply to:

- (a) sea-going ships and inland waterways vessels at berth in EC ports; and
- (b) floating docks used on waters administered by Polish Maritime Offices, including the port and shipyard facilities.

6.3.3.6 As from 1 January 2020, in Member States not bordering Sulphur Emission Control Areas, the sulphur content of marine fuel oils used on ships shall not exceed 0.5% and will be checked by sampling or analysis or both.

6.3.3.6.1 The following means of sampling, analysis and inspection of marine fuel shall be used:

- (a) inspection of ships' log books and bunker delivery notes; and
- (b) as appropriate, the following means of sampling and analysis:
 - sampling of marine fuel intended for combustion on board during its delivered to the ship,
 - sampling and analysis of the sulphur content of marine fuel for on-board combustion contained in tanks, where technically and economically feasible, and in sealed bunker samples on board ships.

6.3.3.6.2 The marine fuel samples will be taken through a single or multiple spot sample at the location where a valve is fitted for the purpose of drawing a sample in the fuel transport system, as indicated on the ship's fuel piping system plan as approved by the Flag Administration or Recognised Organisation acting on its behalf.

6.3.3.6.3 The fuel sampling point shall fulfil all of the following conditions:

- (a) be easily and safely accessible;
- (b) take into account different fuel grades being used for the fuel-oil combustion machinery item;
- (c) be downstream of the fuel in use from the service tank;
- (d) be as close to the fuel inlet of the fuel-oil combustion machinery item as feasible and safely possible taking into account the type of fuels, flow-rate, temperature, and pressure behind the selected sampling point.

6.3.4 Risk Involved in Usage of Low-sulphur Fuel Oil

6.3.4.1 As a ship owner bears the sole responsibility for ensuring that the ship installations use low sulphur marine fuels required by the regulations specified by the EC (see Council Directive 1999/32/EC as further amended), IMO (*MARPOL 73/78* Annex VI) and by national regulations of other countries, it is recommended that – before commencement of operation of any auxiliary installations using such a fuel – ship owners should contact their manufacturer.

6.3.4.2 From the viewpoint of the ship operational safety, it is important that engines and boilers as well as lubricating oil systems and fuel oil systems be properly adjusted for handling and burning of low-sulphur marine fuels. Where modification of the installations are necessary due to the requirement to use such fuels, such modification shall have been previously approved

as a retrofit plan at the design stage and then subjected to the survey to demonstrate the possibility of their safe operation.

6.3.5 Requirements for Operational Documentation

.1 Procedures for Change-over to Low-sulphur Fuel Oil Operation

Those ships which use separate fuel oils to fulfil the requirements:

- specified in 6.3.1.2 when entering or leaving any SO_x and PM Emission Control Area or
- specified in 6.3.3.1 when entering or leaving any EC port,

shall carry a written procedure showing how the fuel oil change-over is to be performed allowing sufficient time for the fuel oil service system to be fully flushed of all fuel oils exceeding the applicable sulphur content specified in 6.3.1.2 applicable to a SO_x and PM Emission Control Area or specified in 6.3.3.1 applicable to a EC port.

.2 Records of Change-over to Low-sulphur Fuel Oil Operation of Ship Equipment

The volume of low sulphur fuel oils in each tank as well as the date, time, and position of the ship when any fuel-oil-change-over operation is completed prior to the entry into an Emission Control Area or commenced after exit from such an area, shall be recorded in such log-book as prescribed by the Administration or an electronic record book³². On ships flying the Polish flag, such records may be entered in the engineer's log book.

.3 Ship Implementation Plan

Considering the impact of the use of oil fuels with a sulphur content of 0.50% on the correct operation of machinery and machinery systems on the ship, Owners of all ships are encourage to develop an IMO-recommended *Ship Implementation Plan for the consistent implementation of the 0.50% sulphur limit under MARPOL Annex VI (Ship Implementation Plan)*.

The guidance which recommends to develop and keep on board Ship Implementation Plan has been issued as IMO Circular MEPC.1/Circ.878. The plan should be complemented with a record of actions taken by the ship in order to be compliant by the applicable date.

Ship Implementation Plan can be the subject of PRS verification in order to verify the ship's ability to meet the requirement of limiting the sulfur content of the fuel oil used on board ships to 0.50% from 1 January 2020.

6.4 Volatile Organic Compounds (VOCs)

6.4.1 Each tanker entering ports or terminals where the emission of volatile organic compounds (VOCs) is regulated shall be provided with a vapour emission collection system approved by the Flag State Administration taking into account the safety standards developed by IMO³³, and shall use this system during the loading of relevant cargoes.

6.4.2 The requirements for the control of emissions of volatile organic compounds (VOCs) apply to gas carriers if the type of loading and containment system allow for safe retention and disposal to the shore of non-methane VOCs.

Interpretation IMO

The requirement for a VOC management plan applies only to a tanker carrying crude oil.

³² Refer to the *Guidelines for the use of Electronic Record Books under MARPOL*, adopted by Resolution MEPC.312(74).

³³ MSC/Circ.585, *Standards for vapour emission control systems*.

6.4.3 Requirements for Operational Documentation

6.4.3.1 Each tanker carrying crude oil shall have on board an implemented *VOC Management Plan* approved by the Flag State Administration or by another organization duly authorized by the Administration.

6.4.3.2 *VOC Management Plan* shall be prepared taking into account the guidelines specified in IMO circular MEPC.1/Circ.680³⁴ and resolution MEPC.185(59)³⁵.

6.4.3.3 *VOC Management Plan* shall be specific to each ship and shall at least:

- (a) provide written procedures for minimizing VOC emissions during the loading, sea passage and discharge of cargo;
- (b) take into consideration the additional VOC generated by crude oil washing;
- (c) identify a person responsible for implementing the plan; and
- (d) for ships engaged 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.

6.5 Shipboard Incineration

6.5.1 Technical Requirements for Ship Equipment

6.5.1.1 Shipboard incineration is allowed only in a shipboard incinerator. Shipboard incineration of sewage sludge and sludge oil generated during normal operation of a ship may also take place in the main or auxiliary power plant or boilers, but in those cases, shall not take place inside ports, harbours and estuaries.

6.5.1.2 Statutory requirements for shipboard incinerators

- .1 Incinerator which is installed on board a ship before 1 January 2000 r., shall fulfil the requirements specified in IMO MEPC.59(33) resolution, as amended by resolution MEPC.92(45) and in IMO MEPC.59(33) resolution, as amended by resolution MEPC.93(45)³⁶.
- .2 Each incinerator on a ship constructed on or after 1 January 2000 or incinerator which is installed on board a ship on or after 1 January 2000 shall fulfil the requirements specified in Appendix IV to Annex VI to the *Convention*.
- .3 Each incinerator on a ship constructed on or after 1 January 2000 and before 4 April 2014 with capacities up to 1,500 kW shall be approved by the Administration taking into account the standard specification for shipboard incinerators specified in IMO MEPC.76(40) resolution, as amended by resolution MEPC.93(45)³⁷.
- .4 Each incinerator on a ship constructed on or after 4 April 2014 with capacities up to 4,000 kW shall be approved by the Administration taking into account the standard specification for shipboard incinerators specified in IMO MEPC.244(66) resolution. Resolution MEPC.244(66) introduces *Standard specification for shipboard incinerators, 2014*.

³⁴ IMO MEPC.1/Circ.680 containing technical information on systems and operation to facilitate development of the *Technical Information on Systems and Operation to Assist Development of VOC Management Plans*.

³⁵ IMO resolution MEPC.185(59) introducing the *Guidelines for the Development of a VOC Management Plan*.

³⁶ Resolution MEPC.76(40): *Standard specification for shipboard incinerators* introducing technical standards for shipboard incinerators and Resolution MEPC.93(45): *Amendments to standard specification for shipboard incinerators* introducing amendments to technical standards for shipboard incinerators.

³⁷ Resolution MEPC.76(40): *Standard specification for shipboard incinerators* and Resolution MEPC.93(45): *Amendments to standard specification for shipboard incinerators*.

6.5.1.3 Each incinerator mentioned in 6.5.1.2 installed on board the ship flying the Polish flag or the flag of another EU member state shall be certified for compliance with MED.

6.5.1.4 Each incinerator mentioned in 6.5.1.2 installed on board the ship flying other flag than those mentioned in 6.5.1.3 shall be approved by the Flag State Administration.

6.5.1.5 Administration may allow exclusion from the application of the requirements specified in paragraph 6.5.1.2 to any incinerator which is installed on board the ship before 19 May 2005, provided that the ship is solely engaged in voyages within waters subject to the sovereignty or jurisdiction of the State the flag of which the ship is entitled to fly.

6.5.1.6 Shipboard incineration of the following substances is prohibited:

- (a) residues of cargoes subject to Annex I, Annex II or Annex III to the *Convention* or related contaminated packing materials;
- (b) polychlorinated biphenyls (PCBs);
- (c) garbage, as defined in Annex V, containing more than traces of heavy metals;
- (d) refined petroleum products containing halogen compounds;
- (e) sewage sludge and sludge oil either of which are not generated on board the ship; and
- (f) residues originated from exhaust gases cleaning systems.

6.5.1.7 Shipboard incineration of polyvinyl chlorides (PVCs) shall be prohibited, except in shipboard incinerator which fulfils the requirements specified in paragraph 6.5.1.2.

6.5.1.8 For incinerators installed in accordance with the requirements specified in paragraph 6.5.1.2, the combustion chamber gas outlet temperature shall be monitored at all times the unit is in operation. Where that incinerator is of the continuous-feed type, waste shall not be fed into the unit when the combustion chamber gas outlet temperature is below 850°C. Where that incinerator is of the batch-loaded type, the unit shall be designed so that the combustion chamber gas outlet temperature reaches 600°C within five minutes after the start-up and will thereafter stabilize at a temperature not less than 850°C.

Interpretation IMO 1

The introduction of sludge oil, generated during normal operation of a ship, into a continuous-feed type incinerator during the warm-up process at combustion chamber temperatures above 500°C³⁸ in order to achieve the normal operation combustion chamber temperature of 850°C is allowed. The combustion chamber flue gas outlet temperature should reach 850°C within the period of time specified in the manufacturer's operations manual but it should not be more than five minutes.

Interpretation IMO 2

.1 The term "waste shall not be fed into the unit" should be interpreted as follows:

for continuous-feed incinerators solid waste shall not be fed into the unit when the combustion chamber flue gas outlet temperature is below 850°C. Sludge oil generated during normal operation of a ship should not be regarded as waste in connection with this regulation, and can be fed into the unit when the required preheat temperature of 650°C in the combustion chamber is achieved.

³⁸ For the introduction of sludge oil into the incinerator, two conditions need to be fulfilled to secure smokeless and complete combustion:

- .1 the combustion chamber flue gas outlet temperature has to be above 850°C as required by regulation 16.9 of MARPOL Annex VI to ensure smokeless combustion; and
- .2 the combustion chamber temperature (material temperature of the fire brickwork) has to be above 500°C to ensure a sufficient evaporation of the burnable components of the sludge oil.

- .2 The term "the unit shall be designed so that the combustion chamber gas outlet temperature shall reach 600°C within five minutes after start up" should be interpreted as follows:

batch loaded incinerators should be designed so that the temperature in the actual combustion space where the solid waste is combusted should reach 600°C within five minutes after start up.

6.5.2 Requirements for Operational Documentation

6.5.2.1 Incinerators installed in accordance with the requirements specified in paragraph 6.5.1.2 shall be provided with the manufacturer's operating manual which shall be retained with the unit and which shall specify how to operate the incinerator within the limits described in paragraph 2 of Appendix IV to MARPOL 73/78 Annex VI.

6.5.2.2 Personnel responsible for the operation of an incinerator shall be trained to implement the guidance provided in the manufacturer's operating manual.

6.6 Fuel Oil Quality

6.6.1 Requirements of regulation 18.3.4 of MARPOL Annex VI does not apply to coal in its solid form or nuclear fuels. Paragraphs 5.1, 8.1 and 8.2 of regulation 18.1 of MARPOL Annex VI do not apply to a low-flashpoint fuel or a gas fuel

6.6.2 Fuel oil delivered to and used on board a ship shall meet the following requirements:

Interpretation IMO

A fuel oil which is a blend of not more than 30% by volume of biofuel or synthetic fuel should meet the requirements of regulation 18.3.1 of MARPOL Annex VI. A fuel oil which is a blend of more than 30% by volume of biofuel or synthetic fuel should meet the requirements of regulation 18.3.2 of MARPOL Annex VI. For the purposes of this interpretation, a biofuel is a fuel oil which is derived from biomass and hence includes, but is not limited to, processed used cooking oils, fatty-acid-methyl-esters (FAME) or fatty-acid-ethyl-esters (FAEE), straight vegetable oils (SVO), hydrotreated vegetable oils (HVO), glycerol or other biomass to liquid (BTL) type products. For the purposes of this interpretation, a synthetic fuel is a fuel oil from synthetic or renewable sources similar in composition to petroleum distillate fuels. The Product Name, as entered onto the bunker delivery note, should be of sufficient detail to identify whether, and to what extent, a biofuel or a synthetic fuel is blended into the product as supplied.

- .1 except as provided in 6.6.1.2:
- .1.1 the fuel oil shall be blends of hydrocarbons derived from petroleum refining. This shall not preclude the incorporation of small amounts of additives intended to improve some aspects of performance;
 - .1.2 the fuel oil shall be free from inorganic acid; and
 - .1.3 the fuel oil shall not include any added substance or chemical waste which:
 - .1.3.1 jeopardizes the safety of ships or adversely affects the performance of the machinery, or
 - .1.3.2 is harmful to personnel, or
 - .1.3.3 contributes overall to additional air pollution.
- .2 fuel oil derived by methods other than petroleum refining shall not:
- .2.1 exceed the applicable sulphur content specified in regulation 14 of Annex VI to the *Convention*;
 - .2.2 cause an engine to exceed the applicable NO_x emission limit specified in paragraphs 6.2.2.1.1, 6.2.2.1.2, 6.2.2.1.3 and 6.2.2.2.1;

Interpretation IMO

A marine diesel engine certified in accordance with the requirements of regulation 13 of MARPOL Annex VI, which can operate on a biofuel or a synthetic fuel or blends containing these fuels without changes to its NO_x critical components or settings/operating values outside those as given by that engine's approved Technical File, should be permitted to use such a fuel oil without having to undertake the assessment as given by regulation 18.3.2.2 of MARPOL Annex VI. For the purposes of this interpretation, parent engine emissions tests undertaken on DM or RM grade fuels to the **ISO 8217:2024** standard, as required by paragraph 5.3.2 of the NO_x Technical Code, should be valid for all DM or RM grade fuels used in operation, or that the engine may be designed for, or capable of operation on, including those meeting the ISO 8217 standards superseding **ISO 8217:2024**.

Where fuel oils are derived from methods other than petroleum refining, or fuel oil which is a blend of more than 30% by volume of biofuel or synthetic fuel and does not fall under 13.2 of this unified interpretation (i.e. above paragraph), or other fuels required to undertake the assessment as given by regulation 18.3.2.2 of MARPOL Annex VI and for which have not been specifically certified in accordance with the regulation 13 limits at test bed for that specific fuel and Engine Group/Family, the following is interpreted as an acceptable route to demonstrate compliance with regulation 18.3.2.2:

- the ship's IAPP Certificate may continue to be issued where the overall NO_x emissions performance has been verified to not cause the specified engine to exceed the applicable NO_x emissions limit when burning said fuels using the onboard simplified measurement method in accordance with 6.3 of the NO_x Technical Code 2008, or the direct measurement and monitoring method in accordance with 6.4 of the NO_x Technical Code 2008, or by reference to relevant test-bed testing. For the purposes of this interpretation and demonstration of compliance with regulation 18.3.2.2 of MARPOL Annex VI, and as applicable to possible deviations when undertaking measurements on board, an allowance of 10% of the applicable limit may be accepted.
- .2.3** contain inorganic acid; or
- .2.3.1** jeopardize the safety of ships or adversely affect the performance of the machinery, or
 - .2.3.2** be harmful to personnel, or
 - .2.3.3** contribute overall to additional air pollution.

6.6.3 For each ship, details of fuel oil delivered to and used on board that ship shall be recorded by means of a bunker delivery note (BDN) that shall contain at least the information specified in Appendix V to MARPOL Annex VI:

- .1** name and IMO number of the receiving ship;
- .2** port (delivery destination);
- .3** date of commencement of delivery;
- .4** name, address, and telephone number of marine fuel oil supplier;
- .5** product name(s);
- .6** quantity in metric tons;
- .7** density at 15°C (kg/m³);
- .8** sulphur content (% m/m).

A declaration signed and certified by the fuel oil supplier's representative that the fuel oil supplied is in compliance with the requirements specified in 6.3.1.1 or 6.3.1.2 and 6.6.1 shall be included in the bunker delivery note (BDN).

6.6.4 For each ship subject to regulations 5 (*Surveys*) and 6 (*Certificates and Statements of Compliance*) of MARPOL Annex VI, details of low-flashpoint fuel or gas fuel delivered to and used on board that ship shall be recorded by means of a bunker delivery note that shall include at least the information specified in items 6.6.2.1-6.6.2.6, the density as determined by a test method appropriate to the fuel type together with the associated temperature and a declaration signed and certified by the fuel oil supplier's representative that the fuel oil is in conformity with 6.6.1. In addition the sulphur content of a low-flashpoint fuel or a gas fuel delivered to a ship specifically for use on board that ship shall be documented on the bunker delivery note by the supplier in terms of either the actual value as determined by a test method appropriate to the fuel type or, with the agreement of the appropriate authority at the port of supply, a statement that the sulphur content, when tested by such a method, is less than 0.001% m/m.

6.6.5 Bunker delivery note (BDN) 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 3 years after the fuel oil has been delivered on board.

Interpretation IMO

Requirement described in 6.6.4 is applicable to all ships of 400 gross tonnage or above and ships of less than 400 gross tonnage, if the Administration so decides.

The Bunker Delivery Note (BDN) required by regulation 6.6.2 is acceptable in either hard copy or electronic format provided it contains at least the information specified in 6.6.2 and is retained and made available on board in accordance with regulation 6.6.4. In addition, an electronic BDN shall be protected from edits, modifications or revisions and authentication be possible by a verification method such as a tracking number, watermark, date and time stamp, QR code, GPS coordinates or other verification methods.

6.6.6 On convention ships, the bunker delivery note (BDN) shall be accompanied by a representative sample of fuel oil delivered taking into account the guidelines specified in IMO resolution MEPC.182(59)³⁹. The sampling device (fuel oil sampler) shall be of a type approved by the Flag State Administration or by other recognized organization. Parties should be sure that appropriate authorities designated by them require local suppliers to provide the BDN and sample as required by regulation 18.3.9.2, certified by the fuel oil supplier that the fuel oil meets the requirements of regulations 14 and 18 of MARPOL Annex VI.

6.6.7 Closed and sealed fuel oil samples shall be provided with dockets containing the following information:

- .1 location where the sample was taken and the sampling method used;
- .2 date of delivery commencement;
- .3 name of bunkering boat or fuel supply installation;
- .4 name and IMO number of the receiving ship;
- .5 names and signatures of the supplier's and ship's representatives;
- .6 information on the seal type;
- .7 fuel oil type.

6.6.8 Representative sample of the fuel oil delivered shall be retained on board the ship taking into account guidelines developed by IMO specified in 6.6.5. The sample shall be sealed and signed by the supplier's representative and the master or officer in charge of the bunker operation on completion of bunkering operations and retained under the ship's control until the fuel oil is

³⁹ Resolution MEPC.182(59): *Guidelines for the Sampling of Fuel Oil for Determination of Compliance with the Revised MARPOL Annex VI.*

substantially consumed, but in any case for a period of not less than 12 months from the time of delivery.

6.6.9 Fuel oil samples shall be retained on convention ships engaged on international voyages for at least 1 year, whereas on convention ships not engaged on international voyages – for at least 3 months.

6.6.10 Sampling for the Verification of the Sulphur Content of The Fuel Oil Used on Board

6.6.10.1 IMO MEPC.1/Circ.864/Rev.1, 2019 *Guidelines for Onboard Sampling for the Verification of the Sulphur Content of The Fuel Oil Used on Board Ships* gives the method for sampling to enable effective control and enforcement of liquid fuel oil being used on board ships under the provisions of MARPOL Annex VI.

6.6.10.2 The in-use representative sample or samples should be obtained from a designated sampling point or points. The number and location of designated fuel oil sampling points should be confirmed by the Administration following consideration of possible fuel oil cross-contamination and service tank arrangements. Fuel oil sampling points to be used should fulfil all of the following conditions:

- .1 be easily and safely accessible;
- .2 take into account different fuel oil grades being used for the fuel oil combustion machinery item;
- .3 be downstream of the in-use fuel oil service tank;
- .4 be as close to the fuel oil combustion machinery as safely feasible taking into account the type of fuel oil, flow-rate, temperature, and pressure behind the selected sampling point;
- .5 be clearly marked for easy identification and described in either the piping diagram or other relevant documents;
- .6 each sampling point should be located in a position shielded from any heated surface or electrical equipment and the shielding device or construction should be sturdy enough to endure leaks, splashes or spray under design pressure of the fuel oil supply line so as to preclude impingement of fuel oil onto such surface or equipment; and
- .7 the sampling arrangement should be provided with suitable drainage to the drain tank or other safe location.

Fuel oil samples may be taken at more than one location in the fuel oil service system to determine whether there is a possible fuel cross-contamination in the absence of fully segregated fuel service systems, or in case of multiple service tank arrangements.

6.6.10.3 The fuel oil sample should be taken when a steady flow is established in the fuel oil circulating system. The sampling connection⁴⁰ should be thoroughly flushed through with the fuel oil in use prior to drawing the sample. The sample or samples should be collected in a sampling container or containers and should be representative of the fuel oil being used. The sample bottles should be sealed by the inspector with a unique means of identification installed in the presence of the ship's representative. The ship should be given the option of retaining a sample.

The label should include the following information:

- .1 sampling point location where the sample was drawn
- .2 date and port of sampling
- .3 name and IMO number of the ship
- .4 details of seal identification; and

⁴⁰ The sampling connection is the valve and associated pipework designated for sample collection which is connected to the fuel oil service system.

.5 signatures and names of the inspector and the ship's representative.

6.6.11 On board sampling of fuel oil intended to be used or carried for use on board a ship

6.6.11.1 IMO MEPC.1/Circ.889, *2020 Guidelines for On board sampling of fuel oil intended to be used or carried for use on board a ship* gives the method for the sampling, from tanks, of liquid fuel oil intended to be used or carried for use on board a ship and thereby promoting the effective control and enforcement of the relevant provisions of MARPOL Annex VI.

6.6.11.1.1 For each ship subject to the requirements of this chapter, sampling point(s) shall be fitted or designated for the purpose of taking representative samples of the fuel oil being used on board the ship taking into account the guidelines defined in 6.6.9.1.

6.6.11.1.2 For a ship constructed before 1 April 2022, the sampling point(s) referred to in paragraph 6.6.9.1.1 shall be fitted or designated not later than the first renewal survey as identified in regulation 5.1.2 of Annex VI to Convention on or after 1 April 2023.

6.6.11.2 Sampling by use of the ship's fuel oil transfer system

When sampling by use of the ship's fuel oil transfer system it should preferably be set up to recirculate to the tank from which it is drawing. Close attention should be given to not mixing fuel oils from different consignments.

Sampling should be undertaken downstream of the pump using a suitable sampling connection drawing from the flowing fuel oil. That sampling connection should fulfil all the following conditions:

- .1 it should be easily and safely accessible;
- .2 the sampling connection point should be in a position shielded from heated surfaces or electrical equipment, and any necessary shielding device or construction should be sturdy enough to ensure that any leaks, splashes or spray, under transfer pump discharge pressure, do not impinge onto such surfaces or equipment; and
- .3 the sampling connection should be provided with suitable spill collection arrangements or drainage to the drain tank or other safe location.

Having established that the fuel oil transfer system is handling the fuel oil to be sampled, the sampling connection should be thoroughly flushed through and thereafter the required sample should be obtained.

6.6.11.3 Direct sampling from a tank

6.6.11.3.1 Sampling from tanks, such as settling or service tanks, should be sampled using Guidelines given in 6.6.8. Such tanks may be sampled directly only by means of tapping points mounted on the tank which should meet the requirements given in 6.6.9.2. Sampling from a tank should not be undertaken by means of removing an access plate or from the test drain connection.

6.6.11.3.2 Since a sample obtained is representative of the fuel oil at the level or point from where it was drawn, it will therefore not always be necessary to take samples from more than one level or point in a tank.

6.6.11.3.3 Sampling may alternatively be undertaken from the sounding pipe of a tank by means of a suitable sampling arrangement. When sampling from a sounding pipe, the design of that sounding pipe and the recent filling history of that tank should be considered to assess the relationship of the fuel oil in the sounding pipe to that in the associated tank.

6.6.11.4 Sample handling

The sample obtained should be collected into a suitable sample bottle. The sample bottle should be sealed by the inspector with a unique means of identification installed in the presence of the ship's representative. The ship should be given the option of retaining a duplicate sample. The label should include the following information:

- .1 sampling point location where the sample was drawn;
- .2 bunker delivery note details of the fuel oil sampled, as per information required by appendix V of MARPOL Annex VI;
- .3 date and port of sampling;
- .4 name and IMO number of the ship;
- .5 details of seal identification; and
- .6 signatures and names of the inspector and the ship's representative.

6.6.12 Requirements for Operational Documentation

Each convention ship flying the Polish flag shall carry on board a current (i.e. fully reflecting all the actual arrangement on shipboard) Fuel Oil Diagram with a designated fuel sampling point for control purposes for compliance with the requirements specified in the circular MEPC.1/Circ. 864 rev. 1.

Provision of such approved plan onboard EU flagged ships is consequent upon the provisions of the Commission Implementing Decision (EU) No. 2015/253, art. 6.1 ⁴¹.

6.7 The exemption of UNSP barges from survey and certification requirements under MARPOL Annex VI

6.7.1 In the scope of prevention of air pollution on UNSP barges see detailed provisions specified in paragraph 2.4. as well as *Guidelines for exemption of unmanned non-self-propelled (UNSP) barges from the survey and certification requirements under the MARPOL Convention* (MEPC.1/Circ.892).

7 REQUIREMENTS FOR FLOATING PLATFORMS AND DRILLING UNITS

7.1 Requirements for Prevention of Sea Pollution by Oil

7.1.1 The requirements specified in sub-chapter 7.1 apply to oil pollution originated from the machinery spaces of platforms and drilling units. Oil pollution associated with crude oil exploration and processing is subject to national regulation of the onshore state.

7.1.2 Oil tankers used as floating storage units (FSUs) or floating production storage and offloading facilities (FPSOs) are considered as “platforms” in respect of oil pollution.

7.1.3 Floating platforms and drilling units shall fulfil the requirements for oil pollution prevention specified in paragraphs 2.1.9.1 and 2.1.9.6.1 or, alternatively, those specified in paragraphs 2.1.9.7, 2.1.9.12, 2.3.1, 2.3.3 and 2.3.7 to the extent applicable to a convention ship.

7.2 Requirements for Prevention of Sea Pollution by Sewage

7.2.1 Floating platforms and drilling units shall fulfil the requirements for oil pollution prevention specified in paragraphs: 4.1.3, 4.1.4.1, 4.1.6, 4.1.7 and 4.2.1 to the extent applicable to a convention ship.

⁴¹ Commission Implementing Decision (EU) 2015/253 of 16 February 2015 laying down the rules concerning the sampling and reporting under Council Directive 1999/32/EC as regards the sulphur content of marine fuels.

7.3 Requirements for Prevention of Sea Pollution by Garbage

7.3.1 Floating platforms and drilling units shall fulfil the requirements specified in paragraphs: 5.1.1 (in compliance with the conditions specified in regulation 4 of Annex V to the *Convention*), 5.1.2 to 5.1.6, 5.2.1 and 5.2.2 to the extent applicable to a convention ship.

7.4 Requirements for Prevention of Air Pollution

7.4.1 Floating platforms as well as drilling units shall fulfil the requirements specified in paragraphs: 6.1, 6.1.1, 6.1.2, 6.2, 6.3, 6.5 and 6.6 to the extent applicable to a convention ship.

8 PREVENTION OF SEA POLLUTION BY HARMFUL SUBSTANCES CARRIED IN PACKAGED FORM

8.1 Application and Definitions

8.1.1 The requirements specified in this chapter apply to all ships carrying harmful substances in packaged form.

8.1.2 The term “harmful substances” means substances which are considered as sea pollutants in the *International Maritime Dangerous Goods Code (IMDG Code)*⁴², as well as substances which fulfil the criteria specified in the Appendix to Annex III to *MARPOL 73/78*.

8.1.3 The provisions of this chapter define the conditions whose fulfilment allows for the carriage of packed harmful substances on board the ship. These provisions refer directly to the requirements of the *IMDG Code*.

8.1.4 Empty packaging previously used for the carriage of harmful substances shall also be considered as harmful substances unless adequate precautions have been taken to ensure that they do not contain no residues of substances which pose a risk to the marine environment.

8.1.5 The requirements specified in this chapter do not apply to the ship’s stores and their equipment.

8.2 Packing

8.2.1 Packages of harmful substances shall minimise a risk to the marine environment taking into account the specificity of the particular substance in accordance with the requirements of the *IMDG Code*.

8.3 Marking and Labelling

8.3.1 Packages containing harmful substances shall be in accordance with the relevant provisions of the *IMDG Code* durably marked not only with the brand name but also with the actual technical name and shall be marked with a permanent mark or adhesive label indicating that the contents of such packages is a sea pollutant.

8.3.2 It is recommended that the marking be also supplemented, where possible, by the relevant substance code in accordance with the marking scheme of the United Nations (mark: UN Number).

8.4 Documents⁴³

⁴² *International Maritime Dangerous Goods Code (IMDG Code)* adopted by IMO through Resolution MSC.122(75) as further amended by the Maritime Safety Committee (MSC).

⁴³ Reference made to the “documents” in this sub-chapter does not preclude electronic data processing (EDP) and the electronic data interchange (EDI) to support the paper documentation.

8.4.1 In all documents associated with the carriage of harmful substances by sea, actual technical names of such substances shall be used (instead of the brand names), and the text "MARINE POLLUTANT" shall be placed next to the name of each noxious substance to indicate that this is a sea pollutant.

8.4.2 Letters of consignment issued by the shipper shall contain a signed certificate or declaration that the cargo is properly packed, marked and is provided with adhesive labels and that it is so prepared for the sea carriage that it poses a minimal risk to the marine environment.

8.4.3 Each ship carrying harmful substances shall have a special list, cargo manifest or stowage plan indicating, in accordance with the relevant provisions of the *IMDG Code*, the harmful substances on board and their location thereof. A copy of one of these documents shall be retained by the owner or his representative until the harmful substances have been unloaded.

8.4.4 If a ship is provided with a valid special list or manifest or detailed stowage arrangement plan, as required by *SOLAS 1974* (as further amended), the documents required for the carriage of dangerous cargoes while carrying packed harmful substances may be combined with the documents for dangerous goods. Such combined documents shall, however, allow for clear distinction between the dangerous goods and harmful substances which are subject to the requirements specified in Annex III to the *Convention*.

8.5 Stowage

8.5.1 Harmful substances shall be so stowed and secured as to minimize the hazards to the marine environment, as well as the safety of ship and persons on board the ship.

8.6 Quantity Limitations

8.6.1 For scientific and technical reasons, the carriage of some harmful substances are not permitted to be carried on board the ship or their allowable quantity should be limited. While determining the allowable quantity, special consideration shall be given to ship dimensions, construction and equipment, as well as the packaging type and natural properties of the substance.

9 REQUIREMENTS ON ENERGY EFFICIENCY FOR SHIPS

9.1 Definitions Additionally Applicable to Chapter 9

9.1.1 *Existing ship* – a ship which is not a new ship.

9.1.2 *New ship* – a ship:

- .1 for which the building contract is placed on or after 1 January 2013; 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 1 July 2013; or
- .3 the delivery of which is on or after 1 July 2015.

Interpretation IMO

For the application of the definition "new ship" as specified in regulation 9.1.2 to each phase specified in table 9.4.2.2, it should be interpreted as follows:

- .1 the date specified in regulation 9.1.2.1 should be replaced with the start date of each phase;
- .2 the date specified in regulation 9.1.2.2 should be replaced with the date six months after the start date of each phase; and
- .3 the date specified in regulation 9.1.2.3 should, for Phase 1, 2 and 3, be replaced with the date 48 months after the start date of each phase.

With the above interpretations, the required EEDI of each phase is applied to the following new ship which falls into one of the categories defined in regulations 9.1.5 to 9.1.11 and to which chapter 9 is applicable:

- .1** the required EEDI of Phase 0 is applied to the following new ship:
 - .1 the building contract of which is placed in Phase 0, and the delivery is before 1 January 2019; or
 - .2 the building contract of which is placed before Phase 0, and the delivery is on or after 1 July 2015 and before 1 January 2019; orin the absence of a building contract:
 - .3 the keel of which is laid or which is at a similar stage of construction on or after 1 July 2013 and before 1 July 2015, and the delivery is before 1 January 2019; or
 - .4 the keel of which is laid or which is at a similar stage of construction before 1 July 2013, and the delivery is on or after 1 July 2015 and before 1 January 2019.
- .2** the required EEDI of Phase 1 is applied to the following new ship:
 - .1 the building contract of which is placed in Phase 1, and the delivery is before 1 January 2024; or
 - .2 the building contract of which is placed before Phase 1, and the delivery is on or after 1 January 2019 and before 1 January 2024; orin the absence of a building contract:
 - .3 the keel of which is laid or which is at a similar stage of construction on or after 1 July 2015 and before 1 July 2020, and the delivery is before 1 January 2024; or
 - .4 the keel of which is laid or which is at a similar stage of construction before 1 July 2015, and the delivery is on or after 1 January 2019 and before 1 January 2024.
- .3** the required EEDI of Phase 2 is applied to the following new ship:
 - .1 for ship types where Phase 2 ends on 31 March 2022⁴⁴:
 - .1 the building contract of which is placed in Phase 2, and the delivery is before 1 April 2026; or
 - .2 the building contract of which is placed before Phase 2, and the delivery is on or after 1 January 2024 and before 1 April 2026; orin the absence of a building contract:
 - .3 the keel of which is laid or which is at a similar stage of construction on or after 1 July 2020 and before 1 October 2022, and the delivery is before 1 April 2026; or
 - .4 the keel of which is laid or which is at a similar stage of construction before 1 July 2020, and the delivery is on or after 1 January 2024 and before 1 April 2026.
 - .2 for ship types where Phase 2 ends on 31 December 2024:
 - .1 the building contract of which is placed in Phase 2, and the delivery is before 1 January 2029;
or
 - .2 the building contract of which is placed before Phase 2, and the delivery is on or after 1 January 2024 and before 1 January 2029; orin the absence of a building contract:

⁴⁴ Unified Interpretation is applicable when resolution MEPC.324(75) enters into force on 1 April 2022.

- .3 the keel of which is laid or which is at a similar stage of construction on or after 1 July 2020 and before 1 July 2025, and the delivery is before 1 January 2029; or
 - .4 the keel of which is laid or which is at a similar stage of construction before 1 July 2020, and the delivery is on or after 1 January 2024 and before 1 January 2029.
- .4 the required EEDI of Phase 3 is applied to the following new ship:
- .1 for ship types where Phase 3 commences with 1 April 2022 and onwards⁴⁵:
 - .1 the building of which contract is placed in Phase 3; or
 - .2 the building contract of which is placed before Phase 3, and the delivery is on or after 1 April 2026; or

in the absence of a building contract:

 - .3 the keel of which is laid or which is at a similar stage of construction on or after 1 October 2022; or
 - .4 the keel of which is laid or which is at a similar stage of construction before 1 October 2022, and the delivery is on or after 1 April 2026.
 - .2 for ship types where Phase 3 commences with 1 January 2025 and onwards:
 - .1 the building of which contract is placed in Phase 3; or
 - .2 the building contract of which is placed before Phase 3, and the delivery is on or after 1 January 2029; or

in the absence of a building contract:

 - .3 the keel of which is laid or which is at a similar stage of construction on or after 1 July 2025; or
 - .4 the keel of which is laid or which is at a similar stage of construction before 1 July 2025, and the delivery is on or after 1 January 2029.

9.1.3 Ship delivered on or after 1 September 2019 means a ship:

- .1 for which the building contract is placed on or after 1 September 2015; 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 1 March 2016; or
- .3 the delivery of which is on or after 1 September 2019.

9.1.4 *Major conversion* – a conversion of ship:

- .1 which substantially alters the dimensions, carrying capacity or engine power of the ship; or
- .2 which changes the type of the ship; or
- .3 the intent of which in the opinion of the Administration is substantially to prolong the life of the ship; or
- .4 which otherwise so alters the ship that, if it were a new ship, it would become subject to relevant provisions of the present *Convention* not applicable to it as an existing ship; or
- .5 which substantially alters the energy efficiency of the ship and includes any modifications that could cause the ship to exceed the applicable required EEDI as set out in regulation 24 or the applicable required EEXI as set out in regulation 25 of Annex VI to the *Convention*.

Interpretation IMO

- .1 For regulation 9.1.4.1, any substantial change in hull dimensions and/or capacity (e.g. change of length between perpendiculars (LPP) or change of assigned freeboard) should be

⁴⁵ Unified Interpretation is applicable when resolution MEPC.324(75) enters into force on 1 April 2022.

considered a major conversion. Any substantial increase of total engine power for propulsion (e.g. 5% or more) should be considered a major conversion. In any case, it is the Administration's authority to evaluate and decide whether an alteration should be considered as major conversion.

Note: Notwithstanding paragraph .1, assuming no alteration to the ship structure, both decrease of assigned freeboard and temporary increase of assigned freeboard due to the limitation of deadweight or draft at calling port should not be construed as a major conversion. However, an increase of assigned freeboard, except a temporary increase, should be construed as a major conversion.

- .2 Notwithstanding paragraph .1, for regulation 9.1.4.5, the effect on Attained EEDI as a result of any change of ships' parameters, particularly any increase in total engine power for propulsion, should be investigated. In any case, it is the Administration's authority to evaluate and decide whether an alteration should be considered as major conversion.
- .3 A company may, at any time, voluntarily request re-certification of the EEDI, with IEE Certificate reissuance, on the basis of any new improvements to the ships' efficiency that are not considered to be major conversions.
- .4 In regulation 9.1.4.4, the terms "new ship" and "existing ship" should be understood as they are used in MARPOL Annex I, regulation 1.9.1.4, rather than as the defined terms in regulations 9.1.1 and 9.1.2.

9.1.5 *Bulk carrier* – a ship which is intended primarily to carry dry cargo in bulk, including such types as ore carriers as defined in SOLAS Chapter XII, regulation 1, but excluding combination carriers.

9.1.6 *Gas carrier* – a cargo ship, other than an LNG carrier as defined in paragraph 9.1.16 constructed or adapted and used for the carriage in bulk of any liquefied gas.

9.1.7 *Tanker* – an oil tanker as defined in regulation 1 of Annex I to the *Convention*, or a chemical tanker or an NLS tanker as defined in regulation 1 of Annex II to the *Convention*.

9.1.8 *Container ship* – a ship designed exclusively for the carriage of containers in holds and on deck.

9.1.9 *General cargo ship* – a ship with a multi-deck or single deck hull designed primarily for the carriage of general cargo. This definition excludes specialized dry cargo ships, which are not included in the calculation of reference lines for general cargo ships, namely livestock carriers, barge carriers, heavy load carriers, yacht carriers, nuclear fuel carrier.

9.1.10 *Refrigerated cargo carrier* – a ship designed exclusively for the carriage of refrigerated cargoes in holds.

Interpretation IMO

Ships dedicated to the carriage of fruit juice in refrigerated cargo tanks should be categorized as refrigerated cargo carrier.

9.1.11 *Combination carrier* – a ship designed to load 100% deadweight with both liquid and dry cargo in bulk.

9.1.12 *Passenger ship* – a ship which carries more than 12 passengers.

9.1.13 *Ro-ro cargo ship (vehicle carrier)* – a multideck roll-on-roll-off cargo ship designed for the carriage of transportation units.

- 9.1.14** *Ro-ro cargo ship* – a ship designed for the carriage of roll-on-roll-off cargo transportation units.
- 9.1.15** *Ro-ro passenger ship* – a passenger ship with roll-on-roll-off cargo spaces.
- 9.1.16** *LNG carrier* – a cargo ship constructed or adapted and used for the carriage in bulk of liquefied natural gas (LNG).
- 9.1.17** *Cruise passenger ship* – passenger ship not having a cargo deck, designed exclusively for commercial transportation of passengers in overnight accommodations on a sea voyage.
- 9.1.18** *Conventional propulsion* – method of propulsion where a main reciprocating internal combustion engine(s) is the prime mover and coupled to a propulsion shaft either directly or through a gear box.
- 9.1.19** *Non-conventional propulsion* – method of propulsion, other than conventional propulsion, including diesel-electric propulsion, turbine propulsion, and hybrid propulsion systems.
- 9.1.20** *Attained EEDI* – the EEDI (*Energy Efficiency Design Index*) value achieved by an individual new ship in accordance with regulation 20 in chapter 4 of Annex VI to the *Convention*.
- 9.1.21** *Required EEDI* – the maximum value of attained EEDI that is allowed by regulation 21 in chapter 4 of Annex VI to the *Convention* for the specific new ship type and size.
- 9.1.22** *Ship Energy Efficiency Management Plan (SEEMP)* – a plan for ship energy efficiency management in accordance with the guidelines specified in regulation 26 of chapter 4 of Annex VI to the *Convention* and in Resolution MEPC.346(78)(70) applicable to all new and existing convention ships. There are three parts to a SEEMP. *Part I* provides a possible approach for monitoring ship and fleet efficiency performance over time. *Part II* provides the methodologies ships of 5,000 gross tonnage and above should use to collect the data required pursuant to regulation 27 of chapter 4 of Annex VI to the *Convention* and the processes that the ship should use to report the data to the ship's Administration/PRS. *Part III Ship Operational Carbon Intensity Plan* is a management system designed to support compliance with MARPOL Annex VI regulation 28 in accordance with the MEPC.346(78) mentioned in p. 9.1.25.2.
- 9.1.23** *Energy Efficiency Operational Indicator (EEOI)* – a voluntary means, developed by IMO, for the estimation of ship operational energy efficiency.
- 9.1.24** *International Energy Efficiency Certificate (IEEC)* – a certificate being issued for both new and existing ships to confirm that the ship fulfils the energy efficiency requirements specified in Annex VI to the *Convention*.
- 9.1.25** IMO Guidelines within the scope of energy efficiency (IMO Guidelines) mean the below listed guidelines contained in Publication No. 103/P:
- .1 *Guidelines on the method of calculation of the attained energy efficiency design index (EEDI) for new ships, 2014* – in accordance with Resolution MEPC.245(66), as amended by Resolution MEPC.263(68), MEPC.281(70), MEPC.308(73), MEPC.322(74),
 - .2 *Guidelines for the development of a Ship Energy Efficiency Management Plan (SEEMP), 2022* – in accordance with Resolution MEPC.346(78),
 - .3 *Guidelines on Survey and Certification of EEDI, 2012* – in accordance with Resolution MEPC.254(67), as amended by Resolution MEPC.261(68), MEPC.309(73), (consolidated periodically in MEPC.1/Circ.855)

- .4 *Guidelines for Calculation of Reference Lines for Use with EEDI, 2013* – in accordance with Resolution MEPC.231(65),
- .5 *Interim Guidelines for Determining Minimum Propulsion Power to Maintain the Maneuverability of Ships in Adverse Conditions* – in accordance with Resolution MEPC.232(65), as amended by Resolution MEPC.255(67), MEPC.262(68), (consolidated periodically in MEPC.1/Circ.850),
- .6 *Guidelines for Calculation of Reference Lines for use with the Energy Efficiency Design Index (EEDI) for Cruise Passenger Ships Having Non-conventional Propulsion, 2013* – in accordance with Resolution MEPC.233(65).
- .7 *Guidance on Treatment of Innovative Energy Efficiency Technologies for Calculation and Verification of the Attained EEDI, 2013* – in accordance with IMO Circular MEPC.1/Circ.815.

9.1.26 Industry Guidelines within the scope of energy efficiency (Industry Guidelines) mean First Industry Guidelines for Calculation and Verification of the Energy Efficiency Design Index (EEDI) contained in Publication No. 103/P, which in accordance with IACS Procedural Requirements PR 38, shall be applied in the process of calculation and verification of EEDI together with relevant IMO Guidelines.

9.2 Application

9.2.1 This sub-chapter applies to ships of 400 gross tonnage and above.

9.2.2 The requirements specified in this sub-chapter do not apply to ships:

- .1 engaged solely on domestic voyages within waters subject to the sovereignty or jurisdiction of the State the flag of which the ship is entitled to fly. The Flag State shall, however, ensure by applying adequate means that such ships will be so constructed and operated to fulfil the requirements of this sub-chapter as much as technically reasonable and practicable.
- .2 ships not propelled by mechanical means, and platforms including FPSOs and FSUs and drilling rigs, regardless of their propulsion.

9.2.3 The requirements regarding Attained EEDI and Required EEDI do not apply to ships which have non-conventional propulsion, except that requirements shall apply to cruise passenger ships having non-conventional propulsion and LNG carriers having conventional or non-conventional propulsion, delivered on or after 1 September 2019, as defined in paragraph 9.1.3. Requirements shall not apply to ships of category A defined in the Polar Code.

9.3 Waiver from Energy Efficiency Requirements Granted by Flag State Administration

9.3.1 Notwithstanding the provisions of paragraph 9.2.1, the Flag State Administration may waive the requirement for a ship of 400 gross tonnage and above from complying with regulation 20 and regulation 21 in Annex VI to the *Convention*.

9.3.2 The provisions of paragraph 9.3.1 do not apply to ships of 400 gross tonnage and above:

- .1 for which the building contract has been placed on or after 1 January 2017; or
- .2 in the absence of a building contract, the keel of which has been laid or which have been at a similar stage of construction on or after 1 July 2017; or
- .3 the delivery of which is on or after 1 July 2019; or
- .4 in cases of a major conversion of a new or on existing ship, as defined in paragraph 9.1.3, on or after 1 January 2017, and in which regulation 5.4.2 and regulation 5.4.3 of chapter 2 in Annex VI to the *Convention* apply.

9.3.3 The Flag State Administration which grants waiver in accordance with paragraph 9.3.1, or suspends, withdraws or declines such a waiver to a ship entitled to fly its flag shall forthwith communicate to IMO for circulation to the Parties to the Convention particulars thereof, for their information.

9.4 Energy Efficiency Requirements for New Ships

9.4.1 Attained Energy Efficiency Design Index (Attained EEDI)

9.4.1.1 Attained EEDI shall be calculated for:

- .1** each new ship;
- .2** each new ship which has undergone a major conversion; and
- .3** each new or existing ship which has undergone a major conversion, that is so extensive that the ship is regarded by the Administration as a newly constructed ship which falls into one or more of the categories specified in paragraphs from 9.1.5 to 9.1.17.

9.4.1.2 The Attained EEDI shall be specific to each ship and shall indicate the estimated performance of the ship in terms of energy efficiency, and be accompanied by the *EEDI Technical File* that contains the information necessary for the calculation of the attained EEDI and that shows the process of calculation. The attained EEDI shall be verified, based on the *EEDI Technical File* by PRS in accordance with the diagram showing the basic flow of EEDI survey and certification process in Fig. 9.4.6.1.

9.4.1.3 The attained EEDI shall be calculated in accordance with the IMO Guidelines referred to in 9.1.25.1 and Industry Guidelines, Chapter II, referred to in 9.1.21.

9.4.1.4 The value of attained EEDI in the case of introducing innovative energy efficiency technologies onboard shall be calculated in accordance with IMO Guidelines referred to in 9.1.25.7.

9.4.1.5 For each ship subject to regulation 24 of MARPOL Annex VI, the Administration or any organization duly authorized by it shall report to the Organization the required and attained EEDI values and relevant information, taking into account the guidelines developed by the Organization, via electronic communication:

- .1** within seven months of completing the survey required under regulation 5.4 of this Annex; or
- .2** within seven months following 1 April 2022 for a ship delivered prior to 1 April 2022.

Interpretation IMO

For new ships that have completed the initial survey required in regulation 5.4.1 of MARPOL Annex VI on or after 1 April 2022, the EEDI data and relevant information shall be submitted within seven months after the completion date of the initial survey (in accordance with regulation 22.3.1).

For new ships that have completed the initial survey required in regulation 5.4.1 of MARPOL Annex VI prior to 1 April 2022:

- .1** if they have not undergone a major conversion specified in regulation 5.4.2 or 5.4.3, the EEDI data and relevant information shall be submitted within seven months after 1 April 2022 (in accordance with regulation 22.3.2);
- .2** if they have undergone a major conversion specified in regulation 5.4.2 or 5.4.3 on or after 1 April 2022, the EEDI data and relevant information of the major conversion shall be submitted within seven months after the completion date of general or partial survey

required in regulation 5.4.2 or the initial survey required in regulation 5.4.3 (in accordance with regulation 22.3.1); and

- .3 if they have completed a major conversion specified in regulation 5.4.2 or 5.4.3 prior to 1 April 2022, the EEDI data and relevant information of the major conversion shall be submitted within seven months after 1 April 2022 (in accordance with regulation 22.3.2).

For existing ships that have completed the initial survey required in regulation 5.4.3 of MARPOL Annex VI on or after 1 April 2022, the EEDI data and relevant information shall be submitted within seven months after the completion date of the initial survey (in accordance with regulation 22.3.1).

For existing ships that have completed the initial survey required in regulation 5.4.3 of MARPOL Annex VI prior to 1 April 2022, the EEDI data and relevant information shall be submitted within seven months after 1 April 2022 (in accordance with regulation 22.3.2).

For ships for which up-to-date EEDI data have already been reported to the Organization prior to 1 April 2022, the reporting of EEDI data and information shall not be required on or after 1 April 2022.

9.4.2 Required Energy Efficiency Design Index (Required EEDI)

9.4.2.1 For each:

- .1 new ship;
- .2 new ship which has undergone a major conversion; and
- .3 each new or existing ship which has undergone a major conversion, that is so extensive that the ship is regarded by the Administration as a newly constructed ship which falls into one or more of the categories specified in paragraphs from 9.1.5 to 9.1.11 and 9.1.13 to 9.1.17 and to which this Chapter is applicable, the attained EEDI shall be as follows:

$$\text{Attained EEDI} \leq \text{Required EEDI} = (1 - X/100) \times \text{Reference line value} \quad (9.4.2.1)$$

where X is the reduction factor specified in Table 9.4.2.2 for the required EEDI compared to EEDI reference line.

9.4.2.2 For each ship specified in paragraph 9.4.2.1, the Attained EEDI shall be calculated taking from Table 9.4.2.2 the applicable reduction factor corresponding to the ship type and size of the converted ship at the date of the contract of the conversion, or in the absence of a contract, the commencement date of the conversion.

Table 9.4.2.2
Reduction factors (in percentage) for the EEDI relative to the EEDI reference line

Ship size DWT	Phase 0 1 Jan 2013 – 31 Dec 2014	Phase 1 1 Jan 2015 – 31 Dec 2019	Phase 2 1 Jan 2020 – 31 Mar 2022	Phase 2 1 Jan 2020 – 31 Dec 2024	Phase 3 1 Apr 2022 and onwards	Phase 3 1 Jan 2025 and onwards
Ship type: bulk carrier						
20 000 and above	0	10		20		30
10 000÷20 000	n/a	0 ÷ 10*		0 ÷ 20*		0 ÷ 30*
Ship type: gas carrier						
15 000 and above	0	10	20		30	
10 000 ÷ 15 000	0	10		20		30
2 000 ÷ 10 000	n/a	0 ÷ 10*		0 ÷ 20*		0 ÷ 30*
Ship type: tanker						
20 000 and above	0	10		20		30
4 000 ÷ 20 000	n/a	0 ÷ 10*		0 ÷ 20*		0 ÷ 30*
Ship type: container ship						
200 000 and above	0	10	20		50	
120 000 ÷ 200 000	0	10	20		45	
80 000 ÷ 120 000	0	10	20		40	
40 000 ÷ 80 000	0	10	20		35	
15 000 ÷ 40 000	0	10	20		30	
10 000 ÷ 15 000	n/a	0 ÷ 10*	0 ÷ 20*		15 ÷ 30*	
Ship type: general cargo ship						
15 000 and above	0	10	15		30	
3 000 ÷ 15 000	n/a	0 ÷ 10*	0 ÷ 15*		0 ÷ 30*	
Ship type: refrigerated cargo carrier						
5 000 and above	0	10		15		30
3 000 ÷ 5 000	n/a	0 ÷ 10*		0 ÷ 15*		0 ÷ 30*
Ship type: combination carrier						
20 000 and above	0	10		20		30
4 000 ÷ 20 000	n/a	0 ÷ 10*		0 ÷ 20*		0 ÷ 30*
Ship type: LNG carrier***						
10 000 and above	n/a	10**	20		30	
Ship type: Ro-ro cargo ship (vehicle carrier)***						
10 000 and above	n/a	5**		15		30
Ship type: Ro-ro cargo ship***						
2 000 and above	n/a	5**		20		30
1 000 ÷ 2 000	n/a	0 ÷ 5***		0 ÷ 20*		0 ÷ 30*
Ship type: Ro-ro passenger ship***						
1 000 and above	n/a	5**		20		30
250 ÷ 1 000	n/a	0 ÷ 5***		0 ÷ 20*		0 ÷ 30*
Ship type: Cruise passenger ship*** having non-conventional propulsion						
85 000 and above	n/a	5**	20		30	
25 000 ÷ 85 000	n/a	0 ÷ 5***	0 ÷ 20*		0 ÷ 30*	

Notes:

- * Reduction factor to be linearly interpolated between the two values dependent upon the ship size. The lower value of the reduction factor shall be applied to the smaller ship size.
- ** Phase 1 commences for those ships on 1 September 2015.
- *** Reduction factor applies to those ships delivered on or after 1 September 2019, as defined in paragraph 9.1.3.
- n/a means that no required EEDI applies.

9.4.3 Reference Line Value

9.4.3.1 Reference line values shall be determined as follows:

$$\text{Reference line value} = a \times b^{-c} \quad (9.4.3.1)$$

where *a*, *b* and *c* are parameters specified in Table 9.4.3.1.

Table 9.4.3.1
Parameters for determination of reference line values for different ship types

Ship type defined in sub-chapter 9.1	<i>a</i>	<i>b</i>	<i>c</i>
9.1.5 Bulk carrier	961.79	DWT of the ship where DWT ≤ 279,000 279,000 where DWT > 279,000	0.477
9.1.6 Gas carrier	1120.00	DWT of the ship	0.456
9.1.7 Tanker	1218.80	DWT of the ship	0.488
9.1.8 Container ship	174.22	DWT of the ship	0.201
9.1.9 General cargo ship	107.48	DWT of the ship	0.216
9.1.10 Refrigerated cargo carrier	227.01	DWT of the ship	0.244
9.1.11 Combination ship	1219.00	DWT of the ship	0.488
9.1.13 Ro-ro cargo ship (vehicle carrier)	(DWT/GT) – 0,7· 780,36 where DWT/GT < 0,3 1812.63 where DWT/GT ≥ 0,3	DWT of the ship	0.471
9.1.14 Ro-ro cargo ship	1405.15	DWT of the ship	0.498
	1686,17*	DWT of the ship where DWT ≤ 17000* 17000 where DWT >17000*	
9.1.15 Ro-ro passenger ship	752.16	DWT of the ship	0.381
	902,59*	DWT of the ship where DWT ≤ 10000* 10000 where DWT >10000*	
9.1.16 LNG carrier	2253.7	DWT of the ship	0.474
9.1.17 Cruise passenger ship having non-conventional propulsion	170.84	GT of the ship	0.214

* to be used from phase 2 and thereafter.

9.4.3.2 At calculation of reference lines for new ships, IMO Guidelines referred to in 9.1.25.4 shall be followed.

9.4.3.3 At calculation of reference lines for new, cruise passenger ships having non-conventional propulsion, IMO Guidelines referred to in 9.1.25.6 shall be followed.

9.4.4 If the ship design allows it to fall into more than one of the above ship definitions, the required EEDI shall be the most stringent (the lowest) required EEDI.

9.4.5 For each new ship to which the requirement for EEDI applies, the installed propulsion power shall ensure maintaining the maneuverability of the ship under adverse conditions as defined in the IMO Guidelines referred to in 9.1.25.5.

9.4.6 Issuance of International Energy Efficiency Certificate (IEEC) for New Ship

- .1 IEEC shall be issued for new ships from 1 January 2013 following a satisfactory result of survey and verification that the ship fulfils the requirements in respect of:
 - design energy efficiency in accordance with regulations 20 and 21 of Annex VI to the *Convention*; and
 - operational energy efficiency of ship implemented on shipboard by means of *SEEMP Part I* in accordance with regulation 22 of Annex VI to the *Convention*.
- .2 Survey and certification of EEDI for a new ship shall be performed in accordance with the IMO Guidelines referred to in 9.1.25.3 as well as the Industry Guidelines, Chapter III, referred to in 9.1.26. In Fig. 9.4.6.2 is shown the basic flow of survey and certification process of the EEDI for a new ship in accordance with the above IMO Guidelines.

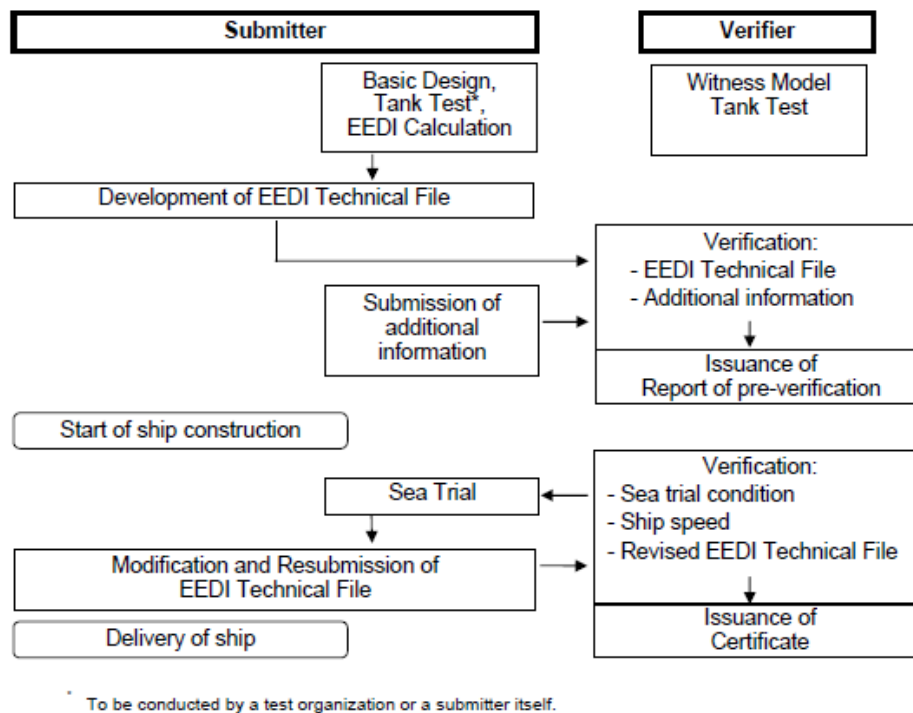


Fig. 9.4.6.2. Basic Flow of Survey and Certification Process

- .3 Shipbuilder is the applicant and submitter of the relevant documentation (engineering design, model tank test scope, EEDI calculations, EEDI Technical File, sea trials scope, additional information required by the verifier, revised *EEDI Technical File*), as shown in Fig. 9.4.6.1.
- .4 PRS is the survey and certification process performer and verifier under the authority of the Flag State Administration.
- .5 PRS within the period referred in 9.4.6.1, issues the International Energy Efficiency Certificate (IEEC) following the survey and certification of the EEDI and *SEEMP Part I* verification for compliance with the guidelines mentioned in 9.1.25.2 and in accordance with sub-paragraph .1 above.

9.5 Requirements for Energy Efficiency for New and Existing Ships

9.5.1 Ship Energy Efficiency Management Plan PART I (SEEMP I)

9.5.1.1 From 1 March 2018 each new and existing ship to which the requirements of this Chapter apply shall carry the *Ship Energy Efficiency Management Plan Part I* developed for this particular ship.

9.5.1.2 SEEMP Part I verification will be confirmed by the *Statement of Verification of SEEMP Part I* on PRS Form No. 88I for compliance with the IMO Guidelines referred to in 9.1.25.2.

9.5.2 Issuance of International Energy Efficiency Certificate (IEEC) for an Existing Ship

IEEC has been issued for existing ships from 1 January 2013, following a satisfactory result of survey and verification that the ship fulfils the requirements for ship energy efficiency operational management as specified in regulation 26 of Annex VI to the *Convention* to be implemented on board the ship and described in *SEEMP Part I*.

After verification of the *SEEMP Part I*, developed by the owner in accordance with requirements of resolution MEPC.346(78), and after check by PRS that the *SEEMP Part I* is available on board the existing ship by the time specified in resolution MEPC.346(78), PRS issues the IEEC.

9.6 Owner's Actions for Fleet Energy Efficiency Improvement, Ship Energy Efficiency Management Plan Part I (SEEMP PART I)

9.6.1 The *SEEMP Part I* of an individual ship shall include specific means of energy efficiency improvement and energy consumers identified by the owner.

9.6.2 The *SEEMP Part I* shall be regularly improved so as to assess the effect of measures taken in the ship operation and the owner's fleet and ensure that they are sufficient.

9.6.3 The *SEEMP Part I* is developed for an individual ship, although all such plans shall cover similar issues and the best seamanship with reference to the in-company energy management policy.

9.6.4 *SEEMP Part I* may form a part of the owner's Safety Management System (SMS) or Environmental Management System (EMS) in accordance with the requirements of standard ISO 14001.

9.6.5 There are four key processes of *SEEMP Part I* development which shall involve, describe and make up the process of continuous improvement of the activities as shown in Fig. 9.6. The key processes are: planning, implementation, monitoring, evaluation and improvement. Each of the processes complies with the guidelines mentioned in paragraph 9.4.1.3 and is described in the subsequent paragraphs.

9.6.6 After the SEEMP Part I has been implemented in the owner's Safety Management System (SMS), the processes mentioned in paragraph 9.6.5 shall be a part of both the company audit and the series of surveys for compliance with *ISM Code*.

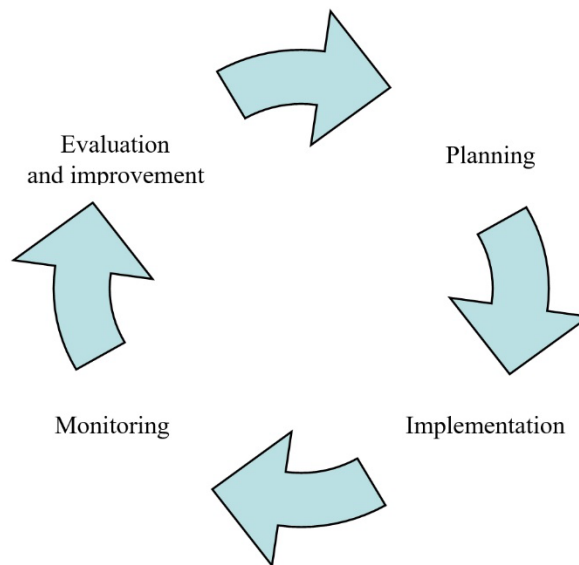


Fig. 9.6 Processes of SEEMP I planning, implementation, monitoring, evaluation and improvement

9.6.7 Planning

9.6.7.1 Ship owner is obliged to review current seamanship and energy consumption on board the ship so as to determine possible deficiencies or the areas which require the energy efficiency improvement.

9.6.7.2 These actions shall be the first step towards the effective Energy Efficiency Plan development which shall address:

- such means of ship energy efficiency as speed optimization, weather routing, hull maintenance methods and machinery operation modes;
- such means of energy efficiency to be achieved by the owner as better communication, an interaction with all the parties concerned, like charterers and agents, aiming for the feasibility assessment of “just-in-time” shipping operations or traffic management services in respect of berth availability, etc.;
- development of human resources, increased crew awareness and training courses which is a key task required for effectiveness of all measures taken;
- goal setting. Although this is optional, it facilitates incentives to be generated to increase commitment to improve energy efficiency at both ship and corporate levels. This aspect is not subject to any external audit.

9.6.8 Implementation

9.6.8.1 After the planning phase is complete, a system shall be run to determine how each means of reducing energy consumption should be developed.

9.6.8.2 The system development shall be considered at the planning phase and the tasks required for the achievement of each measure shall be determined including task assignment to the persons responsible for their implementation.

9.6.8.3 Implementation of the system shall be consistent with realisation process and should include also record-keeping system.

9.6.9 Monitoring

9.6.9.1 The only way to assess whether the energy improvement measures are working is quantitative monitoring of each one.

9.6.9.2 For the monitoring purposes, the owner may have existing systems in place to do this, although monitoring should be conducted using established methods, preferably by the *Energy Efficiency Operational Indicator* (EEOI).

9.6.9.3 EEOI has been adopted by IMO for the estimation of ship operational efficiency.

9.6.9.4 EEOI quantifies the energy efficiency of a ship in terms of CO₂ production per cargo tonne-nautical mile [g CO₂ / (t × NM)] and its use and calculation is specified in IMO circular IMO MEPC.1/Circ.684.

9.6.9.5 Moreover, IMO circular IMO MEPC.1/Circ.684 presents the calculation method for average EEOI in relation to a number of ship voyages which may be used by the owner for the monitoring of fuel consumption in the specific period.

9.6.10 Evaluation and Improvements

9.6.10.1 Evaluation and improvement are the final phases of the SEEMP development and is a means which enables assessment of any action and incorporation of its results in the planning phase of the subsequent improvement iteration.

9.6.10.2 Not only does evaluation and improvement indicate effectiveness of each action aiming to reduce the ship energy consumption, but also checks suitability of the associated process of their implementation and monitoring and suggests corrective actions, if necessary.

9.6.10.3 Each action taken at this phase shall be assessed individually at certain intervals and the results shall be used to determine the level and scope of corrective actions necessary for each ship.

9.7 Implementation of the IMO Ship Fuel Oil Consumption Data Collection System, Part II of Ship Energy Efficiency Management Plan and Ship Fuel Oil Consumption Annual Reporting

9.7.1 Ship Energy Efficiency Management Plan Part II (SEEMP II): Ship Fuel Oil Consumption Data Collection Plan

9.7.1.1 In the case of a ship of 5,000 gross tonnage and above, on or before 31 December 2018, the SEEMP shall include a description of the methodology that will be used to collect the data required by regulation 27 of MARPOL Annex VI and the processes that will be used to report the data to the ship's Administration. Such methodology and processes shall be contained in Part II of the SEEMP, the *Ship Fuel Oil Consumption Data Collection Plan (DCP)*.

Interpretation IMO

For ships that are delivered on or after 1 January 2019 should keep on board both a SEEMP that is in compliance with regulation 9.7.1.1 and confirmation of compliance as required by regulation 9.7.1.8.

9.7.1.2 *DCP* shall indicate method to collect, aggregate, and report ship data with regard to annual fuel oil consumption, distance travelled, hours underway and other data required by regulation 27 of MARPOL Annex VI, in compliance with 9.7.1.1.

9.7.1.3 Fuel oil consumption shall include all the fuel oil consumed on board including but not limited to the fuel oil consumed by the main engines, auxiliary engines, gas turbines, boilers and inert gas generator, for each type of fuel oil consumed, regardless of whether a ship is underway or not. Methods for collecting data on annual fuel oil consumption in metric tonnes include:

- method using bunker delivery notes,
- method using flow meters,
- method using bunker fuel oil tank monitoring on board.

9.7.1.4 Distance travelled over ground in nautical miles shall be recorded in the log-book in accordance with SOLAS regulation V/28.1 and shall be submitted in compliance with 9.7.1.1.

9.7.1.5 Hours underway as an aggregated duration while the ship is underway under its own propulsion shall be submitted in compliance with 9.7.1.1.

9.7.1.6 DCP shall include data quality control measures which should be incorporated into the existing shipboard safety management system. Additional measures to be considered could include:

- the procedure for identification of data gaps and correction thereof; and
- the procedure to address data gaps if monitoring data is missing, for example, flow meter malfunctions.

9.7.1.7 The direct CO₂ emissions measurement method is also acceptable.

9.7.1.8 SEEMP Part II verification will be confirmed for compliance with the IMO Guidelines referred to in 9.1.25. by the *Confirmation of Compliance of SEEMP Part II* on PRS Form No. 88II.

9.7.2 Ship Fuel Oil Consumption Data Collection

9.7.2.1 From 01.01.2019, crew of each ship of 5,000 gross tonnage and above shall collect the data specified in appendix IX to MARPOL Annex VI.

- identity of the ship,
- period of year for which the data is submitted,
- technical characteristics of the ship,
- fuel oil consumption, by fuel oil type in metric tonnes and methods used for collecting fuel oil consumption data,
- distance travelled,
- hours underway

for that and each subsequent year or portion thereof, as appropriate, according to the methodology included in the SEEMP Part II.

9.7.2.2 Secretary-General of the Organization, on the request of a company, shall grant access to the fuel oil consumption reports of the company's owned ship(s) in a non-anonymized form to the general public.

Interpretation IMO

For Data relating to Boil-off Gas (BOG) consumed on board the ship for propulsion or operation (e.g. BOG used for propulsion, operational needs such as in a boiler, or burnt in a Gas Combustion Unit (GCU) for cargo tank pressure control or other operational purposes) is required to be collected and reported as fuel as part of the Data Collection System for fuel oil consumption of ships.

9.7.2.3 Except as provided for in paragraphs 9.7.3.2, 9.7.3.3, 9.7.3.4, at the end of each year, the ship shall aggregate the data collected in that year or portion thereof, as appropriate.

Interpretation IMO

To maintain uniform data granularity throughout the collection and reporting process over a calendar year, the term 'portion thereof' in regulation 9.7.2.1 and 9.7.2.2 is to be applied in such a way that all data portions for the same calendar year are collected and reported at the same level of granularity.

Prior to collecting data specified in the Appendix IX (adopted by resolution MEPC.385(81) as amended) of MARPOL Annex VI, each ship to which 9.7.2 applies, must have their SEEMP revised to ensure compliance with regulation 9.7.1 taking into account the guidelines adopted by resolution MEPC.346(78), MEPC.388(81) as amended.

9.7.3 Ship Fuel Oil Consumption annual reporting and Operational Carbon Intensity rating

9.7.3.1 Except as provided for in paragraphs 9.7.3.2, 9.7.3.3, 9.7.3.4, within three months after the end of each year, the ship's crew shall report to Administration/PRS, the aggregated value for each datum specified in Appendix IX to Annex VI to MARPOL, via electronic communication and using a standardized format in resolution MEPC.346(78), see *PUB103/P*.

9.7.3.2 In the event of the transfer of a ship from one Administration to another, the ship's crew shall on the day of completion of the transfer or as close as practical thereto report to the losing Administration or any organization duly authorized by it, the aggregated data for the period of the year corresponding to that Administration, as specified in Appendix IX to MARPOL Annex VI and, upon prior request of that Administration, the disaggregated data.

9.7.3.3 In the event of a change from one Company to another, the ship's crew shall on the day of completion of the change or as close as practical thereto report to its Administration or any organization duly authorized by it, the aggregated data in compliance with 9.7.2, for the portion of the year corresponding to the Company, as specified in Appendix IX to MARPOL Annex VI and, upon request of its Administration/PRS, the disaggregated data.

9.7.3.4 In the event of change from one Administration to another and from one Company to another concurrently, paragraph 9.7.3.2 shall apply.

9.7.3.5 Except as provided for in paragraphs 9.7.3.2, 9.7.3.3, 9.7.3.4, the disaggregated data that underlies the reported data noted in Appendix IX to MARPOL Annex VI for the previous year shall be readily accessible for a period of not less than 12 months from the end of that year and be made available to the Administration/PRS upon request.

Interpretation IMO

The disaggregated data is not required to be kept onboard the ship provided that the disaggregated data can be made available by the Company.

9.7.3.6 To facilitate data verification, a ship should submit additional documentation along with its annual data report. Additional documentation of facilitate data verification may include the following, as well as other documentation that the Administration deems relevant:

- a copy of the ship's Data Collection Plan,
- summaries of bunker delivery notes (BDNs), in sufficient detail to show that all fuel oil consumed by the ship is accounted for (in a format specified in MEPC.348(78) Appendix I),
- summaries of disaggregated data of fuel oil consumption, distance travelled and hours underway (in a format specified in MEPC.348(78)), Appendix II),
- information to demonstrate that the ship followed the Data Collection Plan set out in its SEEMP II,

- copies of documents containing information on the amount of fuel oil consumption, distance travelled and hours underway for the ship's voyages during the reporting period (e.g. the ship's official logbook, oil record book, BDNs, arrival/noon/departure reports, etc.).

9.7.4 Statement of Compliance – Fuel Oil Consumption Reporting and Operational Carbon Intensity rating

9.7.4.1 Upon receipt of reported data pursuant to paragraph 9.7.3.1, PRS shall determine whether the data has been reported in accordance with regulation 22A of MARPOL Annex VI and, if so, issue a *Statement of Compliance on Fuel Oil Consumption Reporting* on PRS Form No. 88. The statement shall be issued no later than five months from the beginning of the year. In every case, the Administration assumes full responsibility for this *Statement of Compliance*.

9.7.4.2 The *Statement of Compliance* pursuant to paragraph 9.7.3.1 shall be valid for the year in which it is issued and for the first five months of the following year. The *Statement of Compliance* pursuant to paragraphs 9.7.3.2, 9.7.3.3, 9.7.3.4 shall be valid for the year in which it is issued, for the following year, and for the first five months of the subsequent year. All *Statements of Compliance* shall be kept on board for at least the period of their validity.

Interpretation IMO

The *Statement of Compliance* updated to include the attained annual operational CII and the rating for ships to which regulation 28 applies should be used from the entry into force date (1 November 2022); however the new parts for the attained CII and rating will not be populated until 2024 when the relevant values are available

9.8 Attained Energy Efficiency Existing Ship Index (attained EEXI)

9.8.1 The attained EEXI shall be calculated for:

- .1 each ship; and
- .2 each ship which has undergone a major conversion

which falls into one or more of the categories: bulk carrier, combination carrier, containership, cruise passenger ship, gas carrier, general cargo ship, LNG carrier, refrigerated cargo carrier, ro-ro cargo ship, ro-ro cargo ship (vehicle carrier) or tanker. The attained EEXI shall be specific to each ship and shall indicate the estimated performance of the ship in terms of energy efficiency, and be accompanied by the EEXI technical file which contains the information necessary for the calculation of the attained EEXI and which shows the process of the calculation. The attained EEXI shall be verified, based on the EEXI technical file, either by the Administration or by PRS.

9.8.2 The attained EEXI shall be calculated taking into account the *Guidelines on the method of calculation of the attained Energy Efficiency Existing Ship Index (EEXI)* resolution MEPC.350(78)– see Publication 103/P, chapter 2.

9.8.3 Notwithstanding paragraph 9.8.1, for each ship to which regulation 22 of MARPOL Annex VI applies (each new ship, each new ship which has undergone a major conversion and each new or existing ship which has undergone a major conversion that is so extensive that the ship is regarded by the Administration as a newly constructed ship), the attained EEDI verified by the Administration or by PRS may be taken as the attained EEXI if the value of the attained EEDI is equal to or less than that of the required EEXI required by regulation 25 of MARPOL Annex VI (see formula 9.4.2.1 and Table 9.4.2.2). In this case, the attained EEXI shall be verified based on the *EEDI technical file*.

9.9 Required Energy Efficiency Existing Ship Index (required EEXI)

9.9.1 For:

- .1 each ship; and
- .2 each ship which has undergone a major conversion

which falls into one of the categories: bulk carrier, combination carrier, containership, cruise passenger ship, gas carrier, general cargo ship, LNG carrier, refrigerated cargo carrier, ro-ro cargo ship, ro-ro cargo ship (vehicle carrier) or tanker and to which the regulations on the carbon intensity of international shipping is applicable, the attained EEXI shall be as follows:

$$\text{Attained EEXI} \leq \text{Required EEXI} = (1 - Y/100) \times \text{EEDI reference line value} \quad (9.9.1)$$

where *Y* is the reduction factor specified in the Table 9.9.1 below for the required EEXI compared to EEDI reference line.

Table 9.9.1
Reduction factors (in percentage) for the EEXI relative to the EEDI reference line

Ship type	Size	Reduction factor
Bulk carrier	200,000 DWT and above	15
	20,000 and above but less than 200,000 DWT	20
	10,000 and above but less than 20,000 DWT	0-20*
Gas carrier	15,000 DWT and above	30
	10,000 and above but less than 15,000 DWT	20
	2,000 and above but less than 10,000 DWT	0-20*
Tanker	200,000 DWT and above	15
	20,000 and above but less than 200,000 DWT	20
	4,000 and above but less than 20,000 DWT	0-20*
Containership	200,000 DWT and above	50
	120,000 and above but less than 200,000 DWT	45
	80,000 and above but less than 120,000 DWT	35
	40,000 and above but less than 80,000 DWT	30
	15,000 and above but less than 40,000 DWT	20
	10,000 and above but less than 15,000 DWT	0-20*
General cargo ship	15,000 DWT and above	30
	3,000 and above but less than 15,000 DWT	0-30*
Refrigerated cargo carrier	5,000 DWT and above	15
	3,000 and above but less than 5,000 DWT	0-15*
Combination carrier	20,000 DWT and above	20
	4,000 and above but less than 20,000 DWT	0-20*
LNG carrier	10,000 DWT and above	30
Ro-ro cargo ship (vehicle carrier)	10,000 DWT and above	15
Ro-ro cargo ship	2,000 DWT and above	5
	1,000 and above but less than 2,000 DWT	0-5*

Ship type	Size	Reduction factor
Ro-ro passenger ship	1,000 DWT and above	5
	250 and above but less than 1,000 DWT	0-5*
Cruise passenger ship having non-conventional propulsion	85,000 GT and above	30
	25,000 and above but less than 85,000 GT	0-30*

* Reduction factor to be linearly interpolated between the two values dependent upon ship size. The lower value of the reduction factor is to be applied to the smaller ship size.

9.9.2 The EEDI reference line values shall be calculated in accordance with regulations 24.3 (see 9.4.3.1) and 24.4 (see 9.4.4) of MARPOL Annex VI. For ro-ro cargo ships and ro-ro passenger ships, the reference line value to be used from phase 2 and thereafter under regulation 24.3 of MARPOL Annex VI shall be referred to.

9.10 The Ship Energy Efficiency Management Plan Part III (SEEMP III)

9.10.1 On or before 1 January 2023 the SEEMP shall include:

- .1 a description of the methodology that will be used to calculate the ship's attained annual operational CII required by regulation 28 of MARPOL Annex VI (see 9.11) and the processes that will be used to report this value to the ship's Administration;
- .2 the required annual operational CII, as specified in regulation 28 of MARPOL Annex VI (see 9.11), for the next three years;
- .3 an implementation plan documenting how the required annual operational CII will be achieved during the next three years; and
- .4 a procedure for self-evaluation and improvement
- .5 a procedure for review and update of Part III SEEMP.

Interpretation IMO

A ship delivered after 1 January 2023 should comply with regulation 26.3.1 of MARPOL Annex VI at delivery. If delivered on 1 October or later, the following year will then be the first year of the three-year implementation plan and an inferior rating given, in accordance with regulation 28.6 of MARPOL Annex VI, for the remainder of the calendar year of delivery needs not to be counted in for the determination of whether the ship should develop a Corrective Action Plan required by regulation 26.3.2 of MARPOL Annex VI. Nothing in this interpretation relieves any ship of its reporting obligations under regulations 27 and 28 of MARPOL Annex VI.

A ship changing company, or changing from one Administration to another and from one company to another concurrently, after 1 January 2023 should comply with regulation 26.3.1 at change of company and a new SEEMP III will be required. The year of change should be the first year of the next three-year implementation plan.

In order to document how the required annual operational CII will be achieved during the next three years, the SEEMP Part III should be a rolling three-year plan, YYYY (first year of implementation plan), YYYY+1 and YYYY+2.

In the case of updating the SEEMP Part III on the elements in regulation 26.3.1 of MARPOL Annex VI, the original three-year plan may remain.

9.10.2 For a ship rated as D for three consecutive years or rated as E in accordance with regulation 28 of MARPOL Annex VI (see 9.11), the SEEMP III shall be reviewed in accordance with regulation-28.8 of MARPOL Annex VI (see 9.11.8) to include a plan of corrective actions to achieve the required annual operational CII.

9.10.3 The SEEMP III shall be subject to verification (PRS FORM 88III) and company audits, taking into account *Guidelines for the Verification and Company Audits by the Administration of Part III of the Ship Energy Efficiency Management Plan (SEEMP)* in MEPC.347(78)

9.11 Carbon Intensity Indicator CII

9.11.1 After the end of calendar year 2023 and after the end of each following calendar year, each ship of 5,000 gross tonnage and above which falls into one or more of the categories: bulk carrier, combination carrier, containership, cruise passenger ship, gas carrier, general cargo ship, LNG carrier, refrigerated cargo carrier, ro-ro cargo ship, ro-ro cargo ship (vehicle carrier) or tanker shall calculate the *attained annual operational CII* over a 12-month period from 1 January to 31 December for the preceding calendar year, using the data collected in accordance with Regulation 27 (see 9.7.3) of MARPOL Annex VI, taking into account the guidelines in MEPC.347(78) and MEPC.348(78).

9.11.2 Within three months after the end of each calendar year, the ship shall report to its Administration, or PRS, the *attained annual operational CII* via electronic communication and using a standardized format in MEPC.348(78).

9.11.3 Upon receipt of reported data required by MARPOL Annex VI regulation 27 and referred to in the Appendix IX (*Information to be submitted to the IMO Ship Fuel Oil Consumption Database*), and attained annual operational CII pursuant to regulation 28 of MARPOL Annex VI and satisfactory completion of the verification, the Statement of Compliance pursuant to MARPOL Annex VI Appendix X (*Form of Statement of Compliance – Fuel Oil Consumption Reporting and Operational Carbon Intensity rating*) should be issued by PRS or the ship's Administration.

9.11.4 Notwithstanding 9.11.1 and 9.11.2, in the event of any transfer of a ship (from one Administration to another, from one company to another or both) completed after 1 January 2023, a ship shall, after the end of the calendar year in which the transfer takes place, calculate and report the *attained annual operational CII* for the full 12-month period from 1 January to 31 December in the calendar year during which the transfer took place, in accordance with 9.11.1 and 9.11.2, for verification by PRS or ship's Administration. Nothing relieves any ship of its reporting obligations under Regulation 27 of MARPOL Annex VI or this para 9.11.

9.11.5 For each ship of 5,000 gross tonnage and above which falls into one or more of the categories: bulk carrier, combination carrier, containership, cruise passenger ship, gas carrier, general cargo ship, LNG carrier, refrigerated cargo carrier, ro-ro cargo ship, ro-ro cargo ship (vehicle carrier) or tanker, the *required annual operational CII* shall be determined as follows:

$$\text{Required annual operational CII} = (1 - Z/100) \times \text{CII}_R$$

where

Z is the annual reduction factor to ensure continuous improvement of the ship's operational carbon intensity within a specific rating level; and

CII_R is the reference value.

9.11.6 The annual reduction factor Z and the reference value CII_R shall be the values defined taking into account the guidelines in MEPC.338(76).

9.11.7 The *attained annual operational CII* shall be documented and verified against the *required annual operational CII* to determine *operational carbon intensity rating* A, B, C, D or E, indicating a major superior, minor superior, moderate, minor inferior, or inferior performance

level, either by the Administration or by PRS, taking into account guidelines in MEPC.354(78). The middle point of rating level C shall be the value equivalent to the required annual operational CII set out in paragraph 9.11.

9.11.8 A ship rated as D for three consecutive years or rated as E shall develop a plan of corrective actions to achieve *the required annual operational CII*.

Interpretation IMO

In case an inferior rating is given for data collected in calendar year YYYY, the revised SEEMP, including the plan of corrective actions, should be verified in year YYYY+1, and it should be developed to achieve the required annual operational CII for data collected in the calendar year YYYY+2.

This interpretation also applies to 9.11.10.

9.11.9 The SEEMP shall be reviewed to include the plan of corrective actions accordingly, taking into account the guidelines in MEPC.346(78). The revised SEEMP shall be submitted to the Administration or PRS, preferably together with, but in no case later than 1 month after reporting the *attained annual operational CII* in accordance with paragraph 9.11.2.

9.11.10 A ship rated as D for three consecutive years or rated as E shall duly undertake the planned corrective actions in accordance with the revised SEEMP.

9.11.11 IMO Guidelines related with requirements mentioned in paragraph 9.8 do 9.11 are as follow:

- Resolution MEPC.346(78) – 2022 Guidelines for the development of a Ship Energy Efficiency Management Plan (SEEMP)
- Resolution MEPC.350(78) – 2022 Guidelines on the method of calculation of the Attained Energy Efficiency Existing Ship Index (EEXI)
- Resolution MEPC.351(78) – 2022 Guidelines on survey and certification of the Energy Efficiency Existing Ship Index
- Resolution MEPC.335(76) – 2021 Guidelines on the Shaft/Engine Power Limitation System to comply with the EEXI requirements and use of a power reserve
- Resolution MEPC.352(78) – 2022 Guidelines on operation Carbon Intensity Indicators and the calculation methods (CII Guidelines, G1)
- Resolution MEPC.353(78) – 2022 Guidelines on the reference lines for use with operational Carbon Intensity Indicators (CII Reference Lines Guidelines, G2)
- Resolution MEPC.338(76) – 2021 Guidelines on the operational Carbon Intensity reduction factors relative to reference lines (CII Reduction Factors Guidelines, G3)
- Resolution MEPC.354(78) – 2022 Guidelines on the operational Carbon Intensity rating of ships (CII Rating Guidelines, G4)
- Resolution MEPC.355(78) – 2022 Interim guidelines on correction factors and voyage adjustments for CII calculations (CII Rating Guidelines, G5)

10 REQUIREMENTS ON MONITORING, REPORTING AND VERIFICATION OF CARBON DIOXIDE EMISSIONS FROM MARITIME TRANSPORT

10.1 EU MRV Regulation

Regulation (EU) 2015/757 of the European Parliament and of the Council of 29 April 2015 on the monitoring, reporting and verification of carbon dioxide emissions from maritime transport, and amending Directive 2009/16/EC entered into force on July 1, 2015. On 22 September 2016, the Regulation has been amended by Commission Delegated Regulation (EU) 2016/2071 as regards the methods for monitoring carbon dioxide emissions and the rules for monitoring other relevant information.

10.2 The Key Goal

The key goal of introducing the Resolution is to establish a European system for monitoring, reporting and verifying CO₂ emissions from ships (MRV) under the first multistage effort to reduce **greenhouse gas emissions**.

10.3 Definitions

Additionally, definitions applicable to Chapter 10 are included in Regulation 2015/757, Article 3.

10.4 Scope

10.4.1 The Resolution applies to ships of 5000 gross tonnage and above, in terms of CO₂ emissions from ships on course from the last port of departure to the port of arrival at a port under the jurisdiction of an EU Member State and voyages from the port of call under the jurisdiction of an EU Member State to the next port of call, as well as within ports of call under the jurisdiction of a Member State.

10.4.2 The Resolution requirements do not cover navy ships, naval auxiliaries, fish-catching or fish-processing ships, wooden ships of a primitive build, ships not propelled by mechanical means, or government ships used for non-commercial purposes.

10.5 Requirements

10.5.1 Monitoring Plan

By 31 August 2017 shipowners, other organizations or persons which has assumed the responsibility for the operation of the ship from the shipowner, shall submit to the verifiers a CO₂ emission Monitoring Plan for every ship, indicating which of the four monitoring methodologies:

- bunker fuel delivery notes,
- bunker fuel tank monitoring on board,
- flow meters for applicable combustion processes, or
- direct CO₂ emissions measurement,

are selected for monitoring and reporting CO₂ emission and providing other essential information relating to reduction of ship emissions.

10.5.2 CO₂ Emission Monitoring on ships

From January 1, 2018 shipowners, or other organisations responsible for ship operation, shall monitor CO₂ emission from every ship, in every journey and in annual intervals using the Monitoring Plan applying the relevant methodology for specifying CO₂ emission and calculating the emission level.

10.5.3 CO₂ Emissions Report

From 2019 shipowners, or other organizations responsible for ship operation, shall submit a CO₂ Emissions Report and other essential information, for the entire reporting period for every ship for which they are responsible, verified to the satisfaction of the verifiers, to the European Commission and relevant national Flag States by 30 April each year.

10.5.4 Document of Compliance

10.5.4.1 After positive verification of the CO₂ Emissions Report – on the basis of the verification report, verifier issues a document of compliance for the ship concerned. The document of compliance shall include the following information:

- a) identity of the ship (name, IMO identification number and port of registry or home port);

- b) name, address and principal place of business of the shipowner;
- c) identity of the verifier;
- d) date of issue of the document of compliance, its period of validity and the reporting period it refers to.

10.5.4.2 Documents of compliance shall be valid for the period of 18 months after the end of the reporting period.

10.5.4.3 The verifier shall inform the Commission and the authority of the flag State, without delay, of the issuance of any document of compliance. The verifier shall transmit the information referred to in 10.5.4.1 using automated systems and data exchange formats, including electronic templates.

11 BALLAST WATER AND SEDIMENTS MANAGEMENT SYSTEMS

11.1 Definitions

- .1 *Active substance* means a substance or organism, including a virus or a fungus, that has a general or specific action on or against harmful aquatic organisms and pathogens.
- .2 *Ballast water* means water with its suspended matter taken onboard to control trim, list, draught, stability or stresses of the ship.
- .3 *Ballast water capacity* means the total volumetric capacity of any tanks, spaces or compartments on a ship used for carrying, loading or discharging ballast water, including any multi-use tank, space or compartment designed to allow carriage of ballast water.
- .4 *Ballast water management* means mechanical, physical, chemical, and biological processes, either singularly or in combination, to remove, render harmless, or avoid the uptake or discharge of harmful aquatic organisms and pathogens within ballast water and sediments.
- .5 *Ballast Water Management System* (hereinafter referred to as “BWMS”) means any system which processes ballast water such that it meets or exceeds the ballast water performance standard in regulation D-2 of the BWM Convention. The BWMS includes ballast water management equipment, all associated control equipment, monitoring equipment and sampling facilities.
- .6 *International Ballast Water Convention* (hereinafter referred to as “BWM Convention”) means the International Convention for the Control and Management of Ships’ Ballast Water and Sediments.
- .7 *BWMS Code* – the Code for Approval of Ballast Water Management Systems, adopted by res. MEPC.300(72).

11.2 Basic Requirements

11.2.1 Application

11.2.1.1 Requirements of this chapter apply to ships:

- .1 entitled to fly the flag of a Party of BWM Convention; and
- .2 not entitled to fly the flag of a Party of BWM Convention but which operate under the authority of a Party to BWM Convention.

11.2.1.2 Requirements of that chapter do not apply to ships:

- .1 not designed or constructed to carry Ballast Water;
- .2 of a Party to BWM Convention which only operate in waters under the jurisdiction of that Party, unless the Party determines that the discharge of Ballast Water from such ships would impair or damage their environment, human health, property or resources, or those of adjacent or other States;

- .3 of a Party which only operate in waters under the jurisdiction of another Party, subject to the authorization of the latter Party for such exclusion. No Party shall grant such authorization if doing so would impair or damage their environment, human health, property or resources, or those of adjacent or other States. Any Party not granting such authorization shall notify the Administration of the ship concerned that this Convention applies to such ship;
- .4 which only operate in waters under the jurisdiction of one Party and on the high seas, except for ships not granted an authorization pursuant to sub-paragraph .3, unless such Party determines that the discharge of Ballast Water from such ships would impair or damage their environment, human health, property or resources, or those of adjacent of other States;
- .5 any warship, naval auxiliary or other ship owned or operated by a State and used, for the time being, only on government non-commercial service. However, each Party shall ensure, by the adoption of appropriate measures not impairing operations or operational capabilities of such ships owned or operated by it, that such ships act in a manner consistent, so far as is reasonable and practicable, with BWM Convention.

11.2.2 Issuance of International Ballast Water Management Certificate (BWMC)

BWMC shall be issued, following a satisfactory result of survey and verification that the ship of 400 gross tonnage and above to which this Convention applies, excluding floating platforms, FSUs and FPSOs, fulfils the requirements for ballast water management.

11.2.3 Ballast Water Exchange Standards

- .1 A ship shall conduct ballast water exchange to meet the standard in regulation D-1 and shall:
 - .1 whenever possible, conduct such ballast water exchange at least 200 nautical miles from the nearest land and in water at least 200 metres in depth, taking into account the *Guidelines* developed by IMO;
 - .2 in cases where the ship is unable to conduct ballast water exchange in accordance with paragraph 1.1, such ballast water exchange shall be conducted taking into account the guidelines described in paragraph 1.1 and as far from the nearest land as possible, and in all cases at least 50 nautical miles from the nearest land and in water at least 200 metres in depth.
- .2 In sea areas where the distance from the nearest land or the depth does not meet the parameters described in paragraph 1.1 or 1.2, the port State may designate areas, in consultation with adjacent or other States, as appropriate, where a ship may conduct ballast water exchange, taking into account the *Guidelines* described in paragraph 1.1.
- .3 A ship is not be required to deviate from its intended voyage, or delay the voyage, in order to comply with any particular requirement of paragraph 1.
- .4 A ship conducting ballast water exchange is not be required to comply with paragraphs 1 or 2, as appropriate, if the master reasonably decides that such exchange would threaten the safety or stability of the ship, its crew, or its passengers because of adverse weather, ship design or stress, equipment failure, or any other extraordinary condition.
- .5 When a ship is required to conduct ballast water exchange and does not do so in accordance with this regulation, the reasons shall be entered in the *Ballast Water Record Book*.

11.2.4 Ballast Water Exchange Standards

- .1 In accordance with Regulation D-1 ships performing ballast water exchange shall do so with an efficiency of at least 95 percent volumetric exchange of ballast water.
- .2 For ships exchanging ballast water by the pumping-through method, pumping through three times the volume of each ballast water tank shall be considered to meet the standard described in paragraph 1. Pumping through less than three times the volume may be accepted provided the ship can demonstrate that at least 95 percent volumetric exchange is met.
- .3 Accepted methods of ballast water exchange are:
 - .1 Flow-through method,
 - .2 Sequential method,
 - .3 Dilution method.

11.2.5 Ballast Water Management Standards

- .1 In accordance with BWM Convention Regulation D-2 ships conducting ballast water management shall discharge less than 10 viable organisms per cubic metre greater than or equal to 50 micrometres in minimum dimension and less than 10 viable organisms per millilitre less than 50 micrometres in minimum dimension and greater than or equal to 10 micrometres in minimum dimension; and discharge of the indicator microbes shall not exceed the specified concentrations given below.

Indicator microbes, as a human health standard, shall include:

- .1 Toxicogenic *Vibrio cholerae* (O1 and O139) with less than 1 colony forming unit (cfu) per 100 millilitres or less than 1 cfu per 1 gram (wet weight) zooplankton samples;
- .2 *Escherichia coli* less than 250 cfu per 100 millilitres;
- .3 Intestinal *Enterococci* less than 100 cfu per 100 milliliters.

11.3 Ballast Water Management System⁴⁶

- .1 Ballast Water Management System (BWMS):
 - installed on board the ship before 28 October 2020 should be in compliance with res. Nos. MEPC.125(53), MEPC.174(58) or MEPC.279(70),
 - installed on board the ship or on after 28 October 2020 should be in compliance with BWMS Code⁴⁷.

⁴⁶ In addition to the requirements contained in BWM Convention (2004), see requirements to be applied to the installation of Ballast Water Management Systems contained in IACS Unified Requirements UR M72 rev.2 *Ballast Water Management Systems* in conjunction with IACS UR F45 - *Installation of BWMS on-board ships*.

⁴⁷ In accordance with UI of Appendix I (Form of the International Ballast Water Management Certificate) of the BWM Convention – Circ. BWM.2/Circ.66/Rev.1, "date installed" in relation to "Method of ballast water management used", means:

1. the date when commissioning has been completed in accordance with section 8 of the BWMS Code (*IMO Resolution MEPC.300(72)*),
2. the contractual date of delivery of the ballast water management system to the ship. In the absence of such a date, the word "installed" means the actual date of delivery of the ballast water management system to the ship,

Finally, two dates can be used:

1. the contractual date of delivery or the actual date of delivery or
2. the date following commissioning and operation, may exist in relation to installing a ballast water management system.

11.3.1 Approval Requirements for Ballast Water Management Systems – BWM Convention Regulation D-3

- .1 Except as specified in subparagraph 11.4.1.2, ballast water management systems used to comply with *BWM Convention* shall be approved by PRS taking into account *Guidelines* developed by IMO.
- .2 BWMS which make use of active substances or preparations containing one or more active substances to comply with *BWM Convention* shall be approved by IMO, based on a procedure developed by IMO. This procedure shall describe the approval and withdrawal of approval of active substances and their proposed manner of application. At withdrawal of approval, the use of the relevant active substance or substances shall be prohibited within 1 year after the date of such withdrawal.
- .3 BWMS used to comply with *BWM Convention* shall be safe in terms of the ship, its equipment and the crew.

11.3.2 Prototype Ballast Water Treatment Technologies – BWM Convention Regulation D-4

- .1 If a ship that is not covered with standard in regulation D-2 participates in a programme approved by PRS to test and evaluate prototype ballast water treatment technologies, the standard in regulation D-2 shall not apply to that ship until five years from the date on which the ship would otherwise be required to comply with such standard.
- .2 If a ship that is covered with the standard in regulation D-2, participates in a programme approved by PRS, to test and evaluate prototype ballast water treatment technologies with the potential to result in treatment technologies achieving a standard higher than that in regulation D-2, the standard in regulation D-2 shall cease to apply to that ship for five years from the date of installation of such technology.
- .3 In establishing and conducting out any programme to test and evaluate prototype ballast water technologies, Parties shall:
 - .1 take into account *Guidelines* developed by IMO, and
 - .2 allow participation only by the minimum number of ships necessary to effectively test such technologies.
- .4 Throughout the test and evaluation period, the treatment system must be operated consistently and as designed.

11.3.3 Implementation Schedule of Ballast Water Management for Ships – BWM Convention Regulation B-3 (Res. MEPC.297(72))

- .1 A ship constructed before 2009:
 - .1 with a ballast water capacity of between 1,500 and 5,000 cubic metres, inclusive, shall conduct ballast water management that at least meets the standard described in regulation D-1 or regulation D-2 until the renewal survey described in paragraph 11.3.3.10, after which time it shall at least meet the standard described in regulation D-2;
 - .2 with a ballast water capacity of less than 1,500 or greater than 5,000 cubic metres shall conduct ballast water management that at least meets the standard described in regulation D-1 or regulation D-2 until the renewal survey described in paragraph 11.3.3.10, after which time it shall at least meet the standard described in regulation D-2.
- .2 A ship constructed in or after 2009 and before 8 September 2017 with a ballast water capacity of less than 5,000 cubic metres shall conduct ballast water management that at least meets the standard described in regulation D-2 from the date of the renewal survey described in paragraph 11.3.3.10.

- .3 A ship constructed in or after 2009, but before 2012, with a ballast water capacity of 5,000 cubic metres or more shall conduct ballast water management in accordance with paragraph 11.3.3.1.2.
- .4 A ship constructed in or after 2012 and before 8 September 2017 with a ballast water capacity of 5,000 cubic metres or more shall conduct ballast water management that at least meets the standard described in regulation D-2 from the date of the renewal survey described in paragraph 11.3.3.10.
- .5 A ship constructed on or after 8 September 2017 shall conduct ballast water management that at least meets the standard described in regulation D-2.
- .6 The requirements of this regulation do not apply to ships that discharge ballast water to a reception facility designed taking into account the Guidelines developed by the Organization for such facilities.
- .7 Other methods of ballast water management may also be accepted as alternatives to the requirements described in paragraphs 11.3.3.1 to 11.3.3.5 and paragraph 11.3.3.8, provided that such methods ensure at least the same level of protection to the environment, human health, property or resources, and are approved in principle by the Committee.
- .8 A ship constructed before 8 September 2017 to which the renewal survey described in paragraph 11.3.3.10 does not apply, shall conduct ballast water management that at least meets the standard described in regulation D-2 from the date decided by the Administration, but not later than 8 September 2024.
- .9 A ship subject to paragraphs 11.3.3.2, 11.3.3.4 or 11.3.3.8 will be required to comply with either regulation D-1 or regulation D-2, until such time as it is required to comply with regulation D-2.
- .10 Notwithstanding regulation E-1.1.2, the renewal survey referred to in paragraphs 1.1, 1.2, 2 and 4 is:
 - .1 the first renewal survey, as determined by the Committee ⁴⁸, on or after 8 September 2017 if:
 - .1 this survey is completed on or after 8 September 2019; or
 - .2 a renewal survey is completed on or after 8 September 2014 but prior to 8 September 2017; and
 - .2 the second renewal survey, as determined by the Committee, on or after 8 September 2017 if the first renewal survey on or after 8 September 2017 is completed prior to 8 September 2019, provided that the conditions of paragraph 11.3.3.10.1.2 are not met.

11.4 Sediments Treatment and Disposal

- .1 Ships shall remove and dispose of sediments from spaces designated to carry ballast water in accordance with BWM Convention and with the provisions of the ship's Ballast Water Management Plan.
- .2 Design guidance of ballast tanks and other design enhancements given in the Guidelines on design and construction to facilitate sediment control on ships, Resolution IMO MEPC.209(63) (G12), shall be adhered to as far as practicable.
- .3 There are also practical steps or procedures that can be implemented in the ballast water operation for sediment control. The recommendations given in the Resolution IMO MEPC.127(53) (G4), Part A, Section 1.3, shall be adhered to as far as practicable.

⁴⁸ Reference is made to resolution MEPC.298(72).

11.5 Requirements for Operational Documentation

11.5.1 Ballast Water Management Plan

- .1 Ballast Water Management Plan (BWMP), conforming with the requirements of Convention and the Guidelines of Resolution IMO MEPC.127(53) (G4), shall be approved by PRS and placed onboard ship.
- .2 The Ballast Water Management Plan shall be specific to each ship and shall at least:
 - .1 detail safety procedures for the ship and the crew associated with ballast water management as required by BWM Convention;
 - .2 provide a detailed description of the actions to be taken to implement the ballast water management requirements and supplemental ballast water management practices as set forth in BWM Convention;
 - .3 detail the procedures for the disposal of sediments:
 - .1 at sea; and
 - .2 to shore;
 - .4 include the procedures for coordinating shipboard ballast water management that involves discharge to the sea with the authorities of the state into whose waters such discharge will take place;
 - .5 designate the officer onboard in charge of ensuring that the plan is properly implemented;
 - .6 contain the reporting requirements for ships provided for under BWM convention;
 - .7 be written in the working language of the ship. If the language used is not English, French or Spanish, a translation into one of these languages shall be included.
- .3 The ballast water management plan may include contingency measures developed taking into account guidelines developed by IMO, contained in Circular BWM.2/Circ.62⁴⁹ taking into account the requirements of Resolution MEPC.306(73)⁵⁰.

11.5.2 Ballast Water Record Book

- .1 Each ship for which *BWM Convention* applies shall be provided with the *Ballast Water Record Book* (BWRB) in the form developed by IMO. Records shall be kept in accordance with the requirements specified in *BWM Convention* Regulation B-2.
- .2 Any exemption granted under Regulation A-4 of *BWM Convention* shall be recorded in the BWRB, Section 3.6.

11.6 Installation and commissioning test

11.6.1 From 1 June, 2022 an initial survey before the ship is put in service or before the Certificate required under regulation E-2 or E-3 is issued for the first time, shall verify that the Ballast Water Management Plan (BWMP) required by regulation B-1 and any associated structure, equipment, systems, fitting, arrangements and material or processes comply fully with the requirements of *BWM Convention*. This survey shall also confirm that a commissioning test has been conducted to validate the installation of any Ballast Water Management System (BWMS) by demonstrating that its mechanical, physical, chemical and biological processes are working properly, using as a reference the *2020 Guidance for the commissioning testing of ballast water management systems (BWM.2-Circ.70-Rev.1)*, as may be amended.

⁴⁹ Circular BWM.2/Circ.62 *Guidance on contingency measures under the BWM Convention*.

⁵⁰ Res. MEPC.306(73) *Amendments to the guidelines for ballast water management and development of ballast water management plans (G4) (resolution MEPC.127(53))*.

11.6.2 From 1 June, 2022 during each additional either general or partial survey, which shall be made after a change, replacement, or significant repair of the structure, equipment, systems, fittings, arrangements and material necessary to achieve full compliance with BWM Convention, commissioning test shall be made in accordance with Resolution MEPC.325(75).

11.6.3 Such survey shall confirm that a commissioning test has been conducted to validate the installation of the system by demonstrating that its mechanical, physical, chemical and biological processes are working properly through a sampling analysis using as a reference the *2020 Guidance for the commissioning testing of ballast water management systems (BWM.2-Circ.70-Rev.1)*, as may be amended.

11.6.4 In case that the indicative analysis testing will result as non-complying, then a detailed analysis should be conducted, using as reference to the *2020 Guidance on ballast water sampling and analysis for trial use in accordance with the BWM Convention and Guidelines (G2) (BWM.2-Circ.42-Rev.2)*, as may be amended.

11.6.5 Commissioning test should not apply to ships that had already a BWMS installed and certified for D-2 standard before 1 June 2022.

11.6.6 Requirements for service suppliers carrying out the commissioning testing of ballast water management systems (BWMS) as well as reports detailing the results of sampling and analysis of ballast water and assessment of self-monitoring parameters during commissioning testing along with the format acceptable by PRS shall be taken from PRS Publication 51/P – Procedural Requirements for Service Suppliers.

11.7 BWM related guidelines and instructions

11.7.1 The list of valid reference documents, issued and updated by IMO, is available at IMO website:

<http://www.imo.org/en/OurWork/Environment/BallastWaterManagement/Pages/Default.aspx>.

List of amendments effective as of 1 November 2024

<i>Item</i>	<i>Title/Subject</i>	<i>Source</i>
1.2.16	Fuel Oil	Res. MEPC.385(81)
1.2.17	Gas Fuel	
1.2.26 and 6.2	Major conversion, engine replacement, Administration notice	
6.6.1	None applicability of low-flashpoint fuel	
6.6.2	Information to be delivered by BDN	
6.6.3, 6.6.4	Details of low-flashpoint fuel	
6.6.6	Deliver by local suppliers BDN with a fuel oil sample	
9.7.2.2	Possibility to grand access to the FOCSR data for the owner	MPC131
9.7.2.3	Unified Interpretation on the application of the amendments to Appendix IX of MARPOL Annex VI adopted by MEPC.385(81)	