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A LAW TO INCORPORATE THE PROTOCOL AMENDING THE INTERNATIONAL CONVENTION FOR THE PREVENTION OF POLLUTION FROM SHIPS, 1973, AS MODIFIED BY THE PROTOCOL OF 1978 RELATING THERETO, ADOPTED IN LONDON ON 26 SEPTEMBER 1997, INTO THE LAWS OF ARGENTINA

A Legislation Drafting Project submitted in partial fulfillment of the requirements for the award of the Degree of Master of Laws (LL.M.) in International Maritime Law at the IMO International Maritime Law Institute

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EXPLANATORY NOTE

1. Historical Background

It is said that the issue of marine pollution was first discussed at the United Nations Conference on the Human Environment held in Stockholm in 1972.[1] The Conference considered "the need for a common outlook and for common principles to inspire and guide the peoples of the world in the preservation and enhancement of the human environment,"[2] and adopted what is known as the "Declaration of Stockholm."

Following the Stockholm Conference, several international conventions concerning the protection of the marine environment were adopted, namely: the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972 (LC 72); the International Convention for the Prevention of Pollution from Ships 1973, and its Protocol of 1978 (MARPOL 73/78); and the International Convention on Oil Pollution Preparedness, Response and Co-operation, 1990 (OPCR 90).

In 1980, the International Union for Conservation of nature and natural Resources (IUCN) on the advice, cooperation and financial assistance of the United Nations Environment Programme (UNEP) and the World Wildlife Fund (WWF), and in collaboration with the Food and Agriculture Organization of the United Nations (FAO) and the United Nations Educational, Scientific and Cultural Organization (Unesco), prepared the World Conservation Strategy – Living Resource Conservation for Sustainable Development.

The aim of the World Conservation Strategy was to help advance the achievement of sustainable development through the conservation of living resources. Amongst its main aims, the Strategy:

1. Explains the contribution of living resource conservation to human survival and to sustainable development;

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[1] "History of MARPOL", International Maritime Organization (IMO), Online available: <http://www.imo.org/en/KnowledgeCentre/ReferencesAndArchives/HistoryofMARPOL/Pages/default.aspx > 17 January 2016.

[2] "Declaration of the United Nations Conference on the Human Environment", United Nations Environment Programme (UNEP), Online available: <http://www.unep.org/documents.multilingual/default.asp?documentid=97&articleid=1503>17 January 2016.

2. Identifies the priority conservation issues and the main requirements for dealing with them; and
3. Proposes effective ways for achieving the Strategy's aim.[3]

Moreover, it defines conservation as "the management of human use of the biosphere so that it may yield the greatest sustainable benefit to present generations while maintaining its potential to meet the needs and aspirations of future generations."[4]

The publication of the World Conservation Strategy marked a change of the traditional focus on cure rather than prevention. Therefore, a new approach was developed based on the belief that "development and sound environmental management were not incompatible, and that an assimilation of the aims of both was necessary to create a sustainable society."[5] Economic growth was seen as essential, provided that it was sustainable.[6]

Twelve years later, in 1992, the United Nations Conference on Environment and Development was held in Rio de Janeiro, known as the "Earth Summit". The main goal of the Conference was "to come to an understanding of "development" that would support socio-economic development and prevent the continued deterioration of the environment."[7]

Three major agreements aimed at changing the traditional approach to development were adopted in Rio, namely:

1. Agenda 21 - a comprehensive programme of action which emphasizes the fundamental commitment in sustainable development to "protecting and promoting human health."[8]

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[3] "World Conservation Strategy – Living Resource Conservation for Sustainable Development", International Union for Conservation of Nature and Natural Resources (IUCN), Online available: <https://portals.iucn.org/library/efiles/edocs/WCS-004.pdf> 17 January 2016.
[4] Ibid.
[5] McCormick, John; "The Origins of the World Conservation Strategy", Environmental Review: ER 10.3 (1986): 177-187; Online available: <http://www.jstor.org/stable/3984544?seq=1#page_scan_tab_contents> 17 January 2016.
[6] Ibid.
[7] "UN Conference on Development and Environment (1992)", Earth Summit, United Nations, Online available: <http://www.un.org/geninfo/bp/envirp2.html> 17 January 2016.
[8] "World Summit on Sustainable Development (WSSD)", World Health Organization, Online available: <http://www.who.int/trade/glossary/story097/en/>17 January 2016.

2. The Rio Declaration on Environment and Development - a series of principles defining the rights and responsibilities of States; and
3. The Statement of Forest Principles - a set of principles to underlie the sustainable management of forests worldwide.

In addition, two legally binding Conventions were opened for signature:

1. The United Nations Framework Convention on Climate Change, aimed at preventing global climate change; and
2. The Convention on Biological Diversity, aimed at eradicating the diversity of biological species.[9]

Ten years after the 1992 Earth Summit, the 2002 World Summit on Sustainable Development (WWSD) was held in Johannesburg. At the 2002 Summit, known as Rio+10, sustainable development was reaffirmed as a central issue of the international agenda.

The major outcomes of the WWSD include a negotiated Plan of Implementation, a Political Declaration and a number of implementation partnerships and initiatives. Among the most significant achievements of the Summit in relation to this proposed Law was a "new target to use and produce chemicals in ways that minimize significant adverse effects on human health and the environment, taking into account the precautionary principle."[10]

Precaution is referred to as a strategy for addressing risk, which entails taking anticipatory action to avoid uncertain future risks. In order to do so, it is necessary "to identify hazards and opportunities, to forecast scenarios and their associated outcomes, and to take anticipatory measures to manage causes before adverse outcomes occur."[11] The precautionary principle is an attempt to codify the concept of precaution in law. It is said that it is the most innovative, pervasive, and significant new concept in international environmental law over the past quarter century.[12]

In the Plan of Implementation of the World Summit on Sustainable Development protecting and managing the natural resources base of economic and social development

[9] "UN Conference on Development and Environment (1992)"; *loc. cit.*
[10] "World Summit on Sustainable Development (WSSD)"; *loc. cit.*
[11] Bodansky, Daniel; International Environmental law, Oxford University Press, Oxford, 2007, p. 598.
[12] Ibid, p. 599.

was considered as an overarching objective of, and essential requirement for, sustainable development. In this regard, the following points of the Plan should be considered:

> • Oceans, seas, islands and coastal areas form an integrated and essential component of the Earth's ecosystem are critical for global food security and for sustaining economic prosperity and the well-being of many national economies, particularly in developing countries. Ensuring the sustainable development of the oceans requires effective coordination and cooperation, including at the global and regional levels, between relevant bodies, and actions at all levels to:
>
> (a) Invite States to ratify or accede to and implement the United Nations Convention on the Law of the Sea of 1982 [...];
>
> (b) Promote the implementation of Chapter 17 of Agenda 21, which provides the programme of action for achieving the sustainable development of oceans, coastal areas and seas through its programme areas of integrated management and sustainable development of coastal areas, including exclusive economic zones; marine environmental protection; sustainable use and conservation of marine living resources; addressing critical uncertainties for the management of the marine environment and climate change; [...]
>
> • Enhance maritime safety and protection of the marine environment from pollution by actions at all levels [*and*] invite States to ratify or accede to and implement the conventions and protocols and other relevant instruments of the International Maritime Organization relating to the enhancement of maritime safety and protection of the marine environment from marine pollution and environmental damage caused by ships [...] and urge the International Maritime Organization (IMO) to consider stronger mechanisms to secure the implementation of IMO instruments by flag States; [...]
>
> • Enhance cooperation at the international, regional and national levels to reduce air pollution, including transboundary air pollution, acid deposition and ozone depletion, bearing in mind the Rio principles, including, inter alia, the principle that, in view of the different contributions to global environmental degradation, States have common but differentiated responsibilities, with actions at all levels to:
>
> (a) Strengthen capacities of developing countries and countries with economies in transition to measure, reduce and assess the impacts of air pollution, including health impacts, and provide financial and technical support for these activities;
>
> (b) Facilitate implementation of the Montreal Protocol on Substances that Deplete the Ozone Layer by ensuring adequate replenishment of its fund by 2003/2005;

(c) Further support the effective regime for the protection of the ozone layer established in the Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol, including its compliance mechanism;

(d) Improve access by developing countries to affordable, accessible, cost effective, safe and environmentally sound alternatives to ozone-depleting substances by 2010, and assist them in complying with the phase-out schedule under the Montreal Protocol , bearing in mind that ozone depletion and climate change are scientifically and technically interrelated;

(e) Take measures to address illegal traffic in ozone-depleting substances...[13]

2. The International Convention for the Prevention of Pollution from Ships (MARPOL)

The International Convention for the Prevention of Pollution from Ships (MARPOL) is the main international convention covering prevention of pollution of the marine environment by ships. It addresses pollution form ships by oil, by noxious liquid substances carried in bulk, by harmful substances carried by sea in packaged form, by sewage and garbage from ships, and the prevention of air pollution from ships.[14]

The carriage by sea of oil and other dangerous substances poses threats to the marine environment. In 1967, the *Torrey Canyon* ran aground and spilled her entire cargo of crude oil into the sea. This resulted in the major oil pollution incident ever recorded up to that time.[15] The international community reacted quickly in order to address clean-up measures and the future prevention of such accidents.[16] The incident triggered the events that led to the adoption of MARPOL.

MARPOL Convention was adopted on 2 November 1973 following the International Conference on Marine Pollution, 1973. Its adoption was a significant move and as the London-based Oil Companies International Marine Forum (OCIMF) stated:

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[13] "Plan of Implementation of the World Summit on Sustainable Development", United Nations Sustainable Development Knowledge Platform, Online available: <http://www.un.org/esa/sustdev/documents/WSSD_POI_PD/English/WSSD_PlanImpl.pdf> 17 January 2016.
[14] International Maritime Organization (IMO), International Convention for the Prevention of Pollution from Ships (MARPOL), Online available: <http://www.imo.org/en/About/Conventions/ListOfConventions/Pages/International-Convention-for-the-Prevention-of-Pollution-from-Ships-(MARPOL).aspx> 21 January 2016.
[15] "MARPOL – 25 Years", International Maritime Organization (IMO), Online available: <http://www.imo.org/en/KnowledgeCentre/ReferencesAndArchives/FocusOnIMO(Archives)/Documents/Focus%20on%20IMO%20-%20MARPOL%20-%2025%20years%20(October%201998).pdf> 21 January 2016.
[16] Bodansky, Daniel; *op. cit.*, p. 342.

> The 1973 Convention represents an historic and major step forward in the prevention of pollution from ships. It extends the existing restrictions upon operational pollution by oil and requires both equipment and design features in tankers and other ships, while also introducing controls against other forms of pollution from ship.[17]

The Protocol of 1978 relating to the 1973 International Convention for the Prevention of Pollution from Ships (1978 MARPOL Protocol) was adopted in response to a spate of tanker accidents in 1976-1977.

Considering that the 1973 MARPOL Convention had not yet entered into force, the 1978 MARPOL Protocol was included as an integral part of the parent Convention. The combined instrument is nowadays referred to as the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78) and it finally entered into force on 2 October 1983 (for Annexes I and II).[18]

The Convention includes regulations aimed at preventing and minimizing pollution from ships - both accidental pollution and that from routine operations - and currently includes six technical Annexes:

1. Annex I - Regulations for the Prevention of Pollution by Oil (entered into force 2 October 1983).[19] It covers prevention of pollution by oil from operational measures as well as from accidental discharges.

2. Annex II - Regulations for the Control of Pollution by Noxious Liquid Substances in Bulk (entered into force 2 October 1983).[20] This Annex details the discharge criteria and measures for the control of pollution by noxious liquid substances carried in bulk.

3. Annex III - Prevention of Pollution by Harmful Substances Carried by Sea in Packaged Form (entered into force 1 July 1992).[21] Annex III contains general requirements for the issuing of detailed standards on packing, marking, labelling, documentation, stowage, quantity limitations, exceptions and notifications.

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[17] "MARPOL – 25 Years"; *loc. cit.*
[18] Ibid.
[19] "History of MARPOL"; *loc. cit.*
[20] Ibid.
[21] Ibid.

4. Annex IV- Prevention of Pollution by Sewage from Ships (entered into force 27 September 2003).[22] It contains requirements to control pollution of the sea by sewage.

5. Annex V - Prevention of Pollution by Garbage from Ships (entered into force 31 December 1988).[23] Annex V deals with different types of garbage and specifies the distances from land and the manner in which they may be disposed of.

6. Annex VI - Prevention of Air Pollution from Ships (entered into force 19 May 2005).[24] Annex VI sets limits on sulphur oxide and nitrogen oxide emissions from ship exhausts and prohibits deliberate emissions of ozone depleting substances. Designated emission control areas set more stringent standards for SOx, NOx. This Annex also covers mandatory technical and operational energy efficiency measures aimed at reducing greenhouse gas emissions from ships.[25]

3. Air Pollution

The issue of controlling air pollution from ships was discussed in the lead up to the adoption of MARPOL Convention. However, regulations in relation to this matter were not included at the time.

Meanwhile, air was being considered in other arenas. The 1972 Stockholm Conference registered the start of international cooperation in combating acid rain. Between 1972 and 1977, numerous studies confirmed that air pollutants could travel several thousand kilometres before deposition and damage occurred.

In 1979, after a meeting on the protection of the environment held in Geneva, the Convention on Long range Transboundary Air Pollution was adopted by 34 governments and the European Community. This was the first international legally binding instrument to deal with air pollution on a broad regional basis. The Convention was then amended by several Protocols aimed at reducing sulphur emissions (1985); controlling emissions of nitrogen oxides (1988); controlling emissions of volatile organic compounds (1991) and reducing sulphur emissions (1994).

[22] Ibid.
[23] Ibid.
[24] Ibid.
[25] Ibid.

During the 1980s, concern over air pollution continued to grow. Global warming and the depleting of the ozone layer were the main concerns. In 1987, under the auspices of the United Nations, the Montreal Protocol on Substances that Deplete the Ozone Layer was signed. Under this international environmental treaty, nations agree to cut consumption and production of ozone-depleting substances, including chlorofluorocarbons (CFCs) and halons in order to protect the ozone layer. The original Protocol was first amended in 1990 to set the year 2000 as the target completion date for phasing out of halons and ozone-depleting CFCs. A second Protocol was adopted in 1992 aimed at cutting short the use of transitional substances and the introduction of phase-out dates for hydrochlorofluorocarbons (HCFCs) and methyl bromide.[26]

As regards the work of IMO on air pollution, the Marine Environment Protection Committee (MEPC) agreed in 1989 to include the prevention of air pollution from ships as part of the committee's long-term work programme. In 1990, Norway submitted an overview on the issue to MEPC, noting as follows:

1. Sulphur emissions from ships' exhausts were estimated at 4.5 to 6.5 million tons per year - about 4% of total global sulphur emissions. Emissions over open seas are spread out and effects moderate, but on certain routes, the emissions create environmental problems. Those routes include the English Channel, South China Sea, and Strait of Malacca.

2. Nitrogen oxide emissions from ships were put at around 5 million tons per year - about 7% of total global emissions. Nitrogen oxide emissions cause or add to regional problems including acid rain and health problems in local areas such as harbours.

3. Emissions of CFCs from the world shipping fleet were estimated at 3,000 - 6,000 tons - approximately 1% to 3% of yearly global emissions. Halon emissions from shipping were put at 300 to 400 tons, or around 10% of world total.[27]

Discussions and drafting works in MEPC led to the adoption in 1991, of an IMO

[26] "Prevention of Air Pollution from Ships", International Maritime Organization (IMO), Online available: <http://www.imo.org/en/OurWork/Environment/PollutionPrevention/AirPollution/Pages/Air-Pollution.aspx> 19 January 2016.
[27] Ibid.

Assembly Resolution A.719 (17) on Prevention of Air Pollution from Ships. Based on such Resolution, MEPC prepared a new draft Annex to MARPOL on prevention of air pollution, which was developed over six years and was finally adopted at a Conference in London on 26 September 1997. It was agreed to adopt the new Annex by adding a Protocol to the MARPOL Convention. This enabled specific entry into force conditions to be set out.[28]

4. The Protocol of 1997 (MARPOL Annex VI)

4.1 Scope of application

The Protocol of 1997 (MARPOL Annex VI) entered into force on 19 May 2005, twelve months after being ratified by Samoa as the fifteenth contracting State. At that date, the combined merchant fleets constituted 54.57 per cent of the gross tonnage of the world's merchant shipping. Nowadays, the number of contracting States is 86, which constitutes 95.34 per cent of the world's merchant shipping tonnage.[29]

In contrast to other MARPOL Annexes, Annex VI controls a range of different pollutant streams together with certain aspects relating to ship operation, which can themselves result in air pollution.

The provisions of MARPOL Annex VI apply to all ships, except where expressly provided otherwise in several regulations.[30] They do not apply to:

1. any emission necessary for the purpose of securing the safety of a ship or saving life at sea; or
2. any emission resulting from damage to a ship or its 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 emission; and

[28] International Maritime Organization (IMO), Air Pollution, Historic Background, Online available: <http://www.imo.org/en/OurWork/Environment/PollutionPrevention/AirPollution/Pages/Historic-Background-.aspx> 24 January 2016.
[29] International Maritime Organization (IMO), Status of IMO Conventions, Online available: <http://www.imo.org/en/About/Conventions/StatusOfConventions/Pages/Default.aspx> 24 January 2016.
[30] MARPOL Annex VI, Chapter I, Regulation 1 provides: "The provisions of this Annex shall apply to all ships, except where expressly provided otherwise in regulations 3, 5, 6, 13, 15, 16, 18, 19, 20, 21 and 22 of this Annex."

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.[31]

The controls within Annex VI cover:

- Ozone-depleting substances released from refrigeration and fire-fighting systems and equipment. Such substances are also contained in some types of insulation foams;
- Nitrogen oxides from diesel engine combustion;
- Sulphur oxides and particulate matter emissions from the combustion of fuel oils which contain sulphur;
- Volatile organic compounds, the hydrocarbon vapours displaced from tanker cargo spaces;
- Shipboard incineration;
- Fuel oil quality in so far as it relates to a number of air quality issues; and
- Energy efficiency for ships.[32]

4.2 Surveys and certification

Compliance with the relevant requirements of Annex VI is indicated by the issuance of an International Air Pollution Prevention (IAPP) Certificate for ships of 400 gross tonnage and above and for platforms and drilling rigs engaged in international voyages. Ships of 400 gross tonnage and above are required to be issued with an International Energy Efficiency (IEE) Certificate.[33]

The IAPP Certificate is required for all ships of 400 gross tonnage and above for which the flag State is a Party to Annex VI. In the case of ships constructed on or after the date of entry into force of the Annex, this is to be issued, following satisfactory completion of the initial survey and prior to entry into service. In the case of existing ships, the initial survey leading to the issue of an IAPP Certificate is to be undertaken no later than the first

[31] MARPOL Annex VI, Chapter I, Regulation 3.
[32] "MARPOL – How to do it", International Maritime Organization (IMO), 2013 Edition, London, 2013, p.85.
[33] Ibid.

scheduled dry-docking after the date of entry into force of the Annex for a particular Party but in no case later than three years after that date. In respect of existing ships, the relevant equipment and operational requirements apply whether or not the IAPP Certificate has been issued. Thereafter, annual/intermediate and renewal surveys are scheduled in accordance with the harmonized system of survey and certification together with any additional surveys which may be required following repairs, replacements or the installation of additional equipment.[34]

In addition to the above mentioned Certificate, every ship to which Chapter 4[35] applies shall have an International Energy Efficiency (IEE) Certificate. Prior to the issue of such Certificate additional surveys are required.

Moreover, the survey of marine diesel engines and equipment shall be conducted in accordance with the revised NOx Technical Code 2008.[36]

4.3 Port State control on operational requirements

According to the provisions of Annex VI, a ship, when in a port or an offshore terminal under the jurisdiction of another Party, is subject to inspection by officers duly authorized by such Party concerning operational requirements, where there are clear grounds for believing that the master or crew are not familiar with essential shipboard procedures relating to the prevention of air pollution from ships. Further, the Party shall take such steps as to ensure that the ship shall not sail until the situation has been brought to order pursuant to the requirements of the Annex.[37]

In relation to ships under chapter 4, any port State inspection shall be limited to verifying, when appropriate, that there is a valid International Energy Efficiency Certificate on board.[38]

4.4 Surveyors

The surveys of ships required under the Annex shall be carried out by officers duly

[34] Ibid.
[35] Chapter 4 applies mainly to new ships with the exception of the requirement of the Ship Energy Efficiency Management Plan (SEEMP).
[36] MARPOL Annex VI, Chapter I, Regulation 5.
[37] Ibid, Regulation 10.
[38] Ibid.

authorized by the Administration. Surveyors shall carry out inspections for the purpose of verifying compliance with the requirements of Annex VI.[39]

The Administration may, however, entrust the surveys either to surveyors nominated for the purpose or to organizations recognized by it. Such organizations shall comply with the guidelines adopted by the Organization.[40]

4.5 Violations and enforcement of the provisions of Annex VI

All ships to which Annex VI applies may, in any port or offshore terminal of a Party, be subject to inspection by officers appointed or authorized by that Party in order to verify whether the ship has emitted any of the substances covered by the Annex in violation of its provisions. If an inspection indicates a violation, a report shall be forwarded to the Administration for any appropriate action. In addition, Annex VI provides that Parties shall co-operate in the detection of violations and the enforcement of the provisions of the Annex, using all appropriate and practicable measures of detection and environmental monitoring, adequate procedures for reporting and accumulation of evidence.[41]

When a nominated surveyor or recognized organization determines that the condition of the equipment does not correspond substantially with the particulars of the certificate, it shall ensure that corrective action is taken and shall in due course notify the Administration. If such corrective action is not taken, the certificate shall be withdrawn by the Administration.

If the ship is in a port of another Party, the appropriate authorities of the port State shall also be notified immediately. Upon notification, the Government of the port State concerned shall give the surveyor or recognized organization any necessary assistance to carry out their obligations.[42]

Additionally, under Annex VI, any Party shall furnish to the Administration evidence, if any, that a ship has emitted any of the substances covered by the Annex in violation of its provisions. If it is practicable to do so, the competent authority shall notify

[39] Ibid, Regulations 10 and 5.
[40] Ibid, Regulation 5.
[41] Ibid, Regulation 11.
[42] Ibid, Regulation 5.

the master of the ship of the alleged violation. Upon receiving such evidence, the Administration shall investigate the matter, and may request the other Party to furnish further evidence of the alleged contravention. If satisfied that there is sufficient evidence, the Administration shall cause proceeding to be brought in accordance with its law as soon as possible, and shall promptly inform the Party that has reported the alleged violation, as well as the Organization, of the action taken.[43]

4.6 Requirements for control of emissions from ships

Chapter III of Annex VI deals with the requirements for control of emissions from ships and includes provisions relating to ozone-depleting substances, nitrogen oxides, sulphur oxides and particular matter, volatile organic compounds, shipboard incineration, and fuel oil quality and availability.

4.6.1 *Ozone-depleting substances (ODSs)*

Included within the definition of ODSs are the chlorofluorocarbons (CFCs) and halons used respectively in older refrigeration and fire-fighting systems and portable equipment. Hydrochlorofluorocarbons (HCFCs) were introduced as an intermediate replacement for CFCs but are themselves still classed as ODSs.[44]

No CFCs or halon-containing system or equipment is permitted to be installed on ships constructed after 19 May 2005, and no new installation of the same is permitted on or after that date on existing ships. Similarly, no HCFC-containing system or equipment is permitted to be installed on ships constructed after 1 January 2020, and no new installation of the same is permitted on or after that date on existing ships.[45]

Existing systems and equipment are permitted to continue in service and may be recharged as necessary. However, the deliberate discharge of ODSs to the atmosphere is prohibited. When servicing or decommissioning systems or equipment containing ODSs the gases are to be duly collected in a controlled manner and, if not to be reused on board, are to be landed to appropriate reception facilities for baking or destruction. Any redundant equipment or material containing ODSs is to be landed ashore for appropriate

[43] Ibid, Regulation 10.
[44] "MARPOL – How to do it"; *op. cit.*, p. 86.
[45] Ibid.

decommissioning or disposal. The latter also applies when a ship is dismantled at the end of its service life.[46]

Additionally, for ships with systems or equipment containing ODSs and which are required to have an IAPP Certificate, an ODSs Record Book is to be maintained in which is recorded any related supply, recharging, repair, discharge operations.[47]

4.6.2 *Nitrogen oxides (NO_x)*

Under Annex VI, the control of diesel engine NO_x emissions is achieved through the survey and certification requirements leading to the issue of an Engine International Air Pollution Prevention (EIAPP) Certificate.[48]

The NO_x control requirements of Annex VI apply to installed marine diesel engines of over 130 kW output power other than those used solely for emergency purposes, irrespective of the tonnage of the ship onto which such engines are installed. Different levels (Tiers) of control apply based on the ship construction date. Within any particular Tier the limit value is determined based on the engine's rated speed. The following table contains the standards for emissions of NO_x by marine diesel engines, by Tier:[49]

Tier	**Ship construction date (on or after)**	**Total weighted cycle emission limit 8g/KWh) n= engine's rated speed (rpm)**		
		n < 130	**n = 130- 1,999**	**n ≥ 2,000**
I	1 January 2000	17.0	$45 - n^{-0.2}$	9.8
II	1 January 2011	14.4	$44 - n^{-0.23}$	7.7
III	1 January 2016	3.4	$9 - n^{-0.2}$	2.0

[46] Ibid.
[47] Ibid.
[48] Ibid.
[49] Ibid, p. 87.

4.6.3 *Sulphur oxides (SO_x) and particulate matter*

The provisions of Annex VI concerning SO_x and particulate matter emission controls apply to all fuel oil used on board and include main and all auxiliary engines together with such items as boilers and inert gas generators. These controls are divided into those applicable inside Emission Control Areas (ECAs) established to limit the emission of SO_x and particulate matter, and those controls applicable outside such areas.

The targets are achieved by limiting the maximum sulphur content of fuel oils as bunkered and subsequently used on board. The following table shows the limits on sulphur content of any fuel used on board ships:[50]

Outside an ECA established to limit SO_x and particulate matter emissions	**Inside an ECA established to limit SO_x and particulate matter emissions**
4.50% m/m prior to 1 January 2012	1.50% m/m prior to 1 July 2010
3.50% m/m on and after 1 January 2012	1.00% m/m on and after 1 July 2010
0.50% m/m on and after 1 January 2020*	0.10% m/m on and after 1 January 2015

*Depending on the outcome of a review, to be concluded in 2018, as to the availability of the required fuel oil, this date could be deferred to 1 January 2025.

As regards the ECAs established to limit SO_x and particulate matter emissions, Annex VI enumerates the following:

- Baltic Sea area – as defined in MARPOL Annex I
- North Sea area – as defined in MARPOL Annex V
- North American Emission Control Area – as defined in Appendix VII of Annex VI
- United States Caribbean Sea Emission Control Area[51]

Ships which operate both outside and inside these ECAs will likely operate on different fuel oils in order to comply with the respective limits. They are required to have

[50] Ibid, p. 89.
[51] Ibid.

on board written procedures as to how the change-over between fuel oil is to be carried out. A ship is required to have fully changed over to using ECA compliant fuel oil prior to entering the ECA from an area outside the ECA. Similarly change-over from the ECA compliant fuel oil is not to commence until after the ship has exited the ECA. At each change-over, the quantities of the ECA compliant fuel oils on board shall be recorded, together with the date, time and position of the ship when either the change-over prior to entry into an ECA has been completed or the change-over after exit from an ECA has been commenced. These records are to be made in a logbook as prescribed by the ship's Administration.[52]

Moreover, the Annex sets forth the limit values of sulphur content fuel oil and requires that rigorous records be kept and bunkers not be mixed, to ensure the limits not be breached. However, there are other means by which equivalent levels of SO_x and particulate matter emission control, both outside and inside ECAs, could be achieved. Equivalent methods may be divided into primary (formation of the pollutant is avoided) and secondary (the pollutant is formed and then removed, prior to the discharge of the exhaust gas stream to the atmosphere). The application of such methods is allowed, subject to approval by the Administration.[53]

4.6.4 *Volatile organic compounds (VOCs)*

Annex VI deals with emissions of VOCs in Regulation 15, which applies only to tankers. In this regard, two aspects should be noted. In the first, certain ports or terminals can control the emissions of VOCs to the atmosphere by utilizing a vapour emission control system (VECS). Where such emissions are regulated, both the shipboard vapour emission collection system and shore vapour emission control arrangements should take into account the safety standards for such systems developed by the Organization. A Party may choose to apply such controls only to particular ports or terminals under its jurisdiction and only to certain sizes of tankers or types of cargo. Where such controls are in place at particular ports or terminals, tankers not fitted with a vapour emission collection system may be accepted for a period of up to three years from the effective date of control.

[52] Ibid.
[53] Ibid, pp. 89 and 90.

Where a VECS is mandated, the relevant Party is to notify IMO of the requirement and its date of implementation.[54]

The second aspect of this Regulation requires that all tankers carrying crude oil have an approved and effectively implemented ship-specific VOC Management Plan covering at least the information given in the Regulation.[55]

4.6.5 *Shipboard incineration*

The provisions of Regulation 16 deal with shipboard incineration and require that incineration only be undertaken in equipment designed for that purpose.[56] Further, such provisions prohibit the incineration of certain listed substances, namely:

- residues of cargoes subject to Annex I, II or III or related contaminated packing materials;
- polychlorinated biphenyls (PCBs);
- garbage, as defined by Annex V, containing more than traces of heavy metals;
- refined petroleum products containing halogen compounds;
- sewage sludge and sludge oil either of which are not generated on board the ship; and
- exhaust gas cleaning system residues.[57]

The above mentioned Regulation also provides that incinerators installed on ships constructed on or after 1 January 2000 or units which are installed on existing ships on or after that date shall be approved by the Administration in accordance with appendix IV to Annex VI. For theses incinerators, operating manuals are to be maintained with the unit and training in correct operation of the units in accordance with the manual is to be given. Finally, it is required that the incinerators only be operated when certain prescribed temperatures have been achieved.[58]

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[54] Ibid, p. 90.
[55] Ibid.
[56] Ibid.
[57] MARPOL Annex VI, Chapter I, Regulation 16.
[58] "MARPOL – How to do it"; *op. cit.*, p. 91.

4.6.6 *Reception facilities*

Under Regulation 17, each Party undertakes to ensure the provision of reception facilities. These facilities shall be adequate to meet the: needs of ships using its repair ports for the reception of ozone depleting substances and equipment containing such substances when removed from ships; needs of ships using its ports, terminals or repair ports for the reception of exhaust gas cleaning residues from an exhaust gas cleaning system, without causing undue delay to ships; and needs in ship-breaking facilities for the reception of ozone depleting substances and equipment containing such substances when removed from ships.[59]

Further, the Regulation provides that if a particular port or terminal of a Party is remotely located from, or lacking in, the industrial infrastructure necessary to manage and process those substances and therefore cannot accept such substances, the Party shall inform the Organization of any such port or terminal so that this information may be circulated to all Parties and Member States of the Organization for their information and any appropriate action. Each Party that has provided the Organization with such information shall also notify the Organization of its ports and terminals where reception facilities are available to manage and process such substances.[60]

Another obligation imposed on the Parties is that they shall notify the Organization of all cases where reception facilities are unavailable or alleged to be inadequate.[61]

4.6.7 *Fuel oil quality and availability*

As far as fuel oil quality is concerned, it is important to note that Regulation 18 is not directed to ships, but rather relates to fuel oil suppliers and their control by the appropriate authorities, together with other regulatory aspects.[62]

Fuel oil for combustion purposes delivered to and used on board ships to which Annex VI applies shall meet the following requirements:

- the fuel oil shall be blends of hydrocarbons derived from petroleum refining. This

[59] MARPOL Annex VI, Chapter I, Regulation 17.
[60] Ibid.
[61] Ibid.
[62] Ibid, Regulation 18.

shall not preclude the incorporation of small amounts of additives intended to improve some aspects of performance;

- the fuel oil shall be free from inorganic acid; and
- the fuel oil shall not include any added substance or chemical waste which jeopardizes the safety of ships or adversely affects the performance of the machinery, or is harmful to personnel, or contributes overall to additional air pollution.[63]

For those ships that are required to have an IAPP Certificate, Regulation 18 contains specific ship-related actions concerning retaining bunker delivery notes on board for a period of not less than three years following delivery of the fuel oil, and retaining, under the ship's control (and therefore not necessarily on board), representative fuel oil samples until the subject fuel oil is substantially consumed, but for not less than 12 months from the date of delivery.[64]

Another responsibility assumed by the ship is in case when the bunkering port is located in a country not party Annex VI. In such a situation, apart from commercial considerations, there is no direct requirement when ordering bunkers. Hence, it is common for shipowners, when ordering bunkers, at a minimum to insert clauses to the effect that the fuel oil supply process is to be in accordance with the requirements of Annex VI and with a specified maximum sulphur content appropriate to the particular indented area of operation.[65]

The other aspect of Regulation 18 that places responsibilities on shipowners refers to the availability of fuel oil, particularly to situations in which the required fuel oil is not available locally. In other words, situations where there is only fuel oil which does not meet the required maximum sulphur limit as given under the provisions of Annex VI. In this regard, the shipowner must have made his or her best efforts to obtain the required fuel oil, and this effort should be taken into account by Parties when considering what action to take, or not to take, in the case of a ship using fuel oil the composition of which does not

[63] Ibid.
[64] "MARPOL – How to do it"; *op. cit.* p. 91.
[65] Ibid.

comply with the regulations.[66]

4.7 Regulations on energy efficiency for ships

On 15 July 2011, regulations on energy efficiency for ships were included in Annex VI with and entry into force date 1 January 2013.[67] The additional regulations are reflected in a new Chapter 4, which introduced Regulations 19 to 23 concerning regulations on energy efficiency for ships.[68]

The introduction of an International Energy efficient (IEE) Certificate provides the need for amending Chapter 2 of Annex VI. The amendments require ships, to which Chapter 4 applies, to be subject to survey and certification taking into account the guidelines developed by the Organization.[69]

Chapter 4 applies to all ships of 400 gross tonnage and above. Among other things, it provides requirements on the attained energy efficiency design index (attained EEDI), deals with the required EEDI, and stipulates how the attained EEDI shall be calculated.[70]

Moreover, the new Chapter provides requirements for the ship energy efficiency management plan (SEEMP). It is important to note that this Regulation applies to new and existing ships. Each ship shall keep on board a ship specific SEEMP. This may form part of the ship's Safety Management System.[71]

4.8 Verification of compliance with the provisions of Annex VI

As regards the verification of compliance with the provisions of Annex VI, it should be noted that by means of Resolution MEPC.247 (66), a new Chapter 5 was added to the Annex in April 2014.[72]

The new Chapter includes Regulations 24 and 25. Regulation 24 provides that the Parties shall use the provisions of the Code for Implementation in the execution of their

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[66] Ibid.
[67] Resolution MEPC. 2003(62)
[68] "MARPOL – How to do it"; *op. cit.*, p. 92.
[69] Ibid.
[70] Ibid.
[71] Ibid. It should be considered that the SEEMP shall be developed taking into account guidelines adopted by the Organization (Resolution MEPC.213 (63)).
[72] Resolution MEPC.247 (66), Online available: <http://rise.odessa.ua/texts/MEPC247_66e.php3> 24 January 2015.

obligations and responsibilities contained in Annex VI. Regulation 25 sets forth that every Party shall be subject to periodic audits by the Organization, which shall be carried out in accordance with the audit standard to verify compliance with and implementation of the Annex.[73]

4.9 Actions by the Marine Administration

It can be stated that in order to implement the provisions of Annex VI, the Marine Administration is required to carry out the following actions:

1. consider, in conjunction with other Administrations, where appropriate, requests for exemptions from certain aspects of Annex VI in order to facilitate trials of ship emission reduction and control technologies;[74]
2. approve and notify IMO of any equivalent fittings, material, appliance or apparatus or other procedures, alternative fuel oils or compliance methods used as an alternative to that required by the regulations;[75]
3. carry out initial, renewal and annual/intermediate surveys to ensure compliance with chapter 3 of Annex VI, and additional surveys as may be necessary;[76]
4. delegate surveys, if necessary, and establish procedures to receive notifications of corrective action, and that if corrective action is not taken then ensure the certificate is withdrawn and that the appropriate authorities of the port State are notified immediately;[77]
5. approve changes to equipment, systems, fittings, arrangements or material covered by survey;[78]
6. receive notifications from ships when an accident has occurred or a defect is discovered that substantially affects the efficiency or completeness of its equipment covered by Annex VI;[79]

[73] Ibid, Regulations 24 and 25.
[74] MARPOL Annex VI, Chapter I, Regulation 3.2.
[75] Ibid, Regulation 4.
[76] Ibid, Regulation 5.1.
[77] Ibid, Regulations 5.3.1 and 5.3.3.
[78] Ibid, Regulation 5.4.
[79] Ibid, Regulation 5.5.

7. issue or endorse certificates following surveys, in the prescribed format;[80]
8. where authorized as the competent authority, undertake port State control inspections as necessary;[81]
9. implement controls on the emission of ozone-depleting substances;[82]
10. agree to the fitting of identical replacement diesel engines;[83]
11. carry out or delegate pre-certification surveys of marine diesel engines and, following such surveys, issue certificates in the prescribed format;[84]
12. notify IMO of any ports or terminals where the use of vapour emission control systems is mandated and ensure that the shore-based elements are duly approved, operated safely and do not unduly delay ships;[85]
13. approve Volatile Organic Compound Management Plans;[86]
14. approve shipboard incinerators permitted under Regulation 16;[87]
15. promote the availability of compliant fuel oils in ports and terminals under its jurisdiction and notify IMO of same;[88]
16. consider cases where ships have on board non-compliant fuel oil due to non-availability of same and notify IMO of findings;[89]
17. authorize appropriate authorities within its jurisdiction to establish and apply fuel oil suppliers registration schemes;[90]
18. verify the attained Energy Efficiency Design index (EEDI);[91] and
19. establish that each ship has on board a ship specific Ship Energy Efficiency

[80] Ibid, Regulations 6, 7, 8 and 9.
[81] Ibid, Regulations 10, 18.7.2, 18.8.2 and 18.10.
[82] Ibid, Regulation 12.2.
[83] Ibid, Regulation 13.1.1.2.
[84] Ibid, Regulations 5.3.2 and 13.8.
[85] Ibid, Regulations 15.2 and 15.3.
[86] Ibid, Regulations 15.6.
[87] Ibid, Regulation 16.6.1.
[88] Ibid, Regulation 18.1.
[89] Ibid, Regulations 18.2.1 – 18.2.5.
[90] Ibid, Regulation 18.9.
[91] Ibid, Regulation 20.1.

Management Plan (SEEMP) that may form part of the ship's Safety Management System.[92]

4.10 Actions by shipowners or operators

Shipowners or operators should ensure that:

1. surveys as required by the Annex are arranged to be duly undertaken and facilitated;
2. there is on board an IAPP Certificate as required or, for ships under 400 gross tonnage, the appropriate alternative;
3. where exemptions or alternative compliance means are to be applied, they are duly approved or accepted by the Administration, and that the relevant documents is retained with the same;
4. if applicable, procedures are in place to prevent the deliberate discharge of ODSs;
5. there are, on board, for each diesel engine subject to the NO_x controls, EIAPP certificates to the appropriate Tier, except as may be allowed in the case of certain Tier II requirements.
6. Tier III marine diesel engines, where required to be installed, are duly operated as required within ECAs established for NO_x emission control;
7. where a relevant approved method is commercially available, it is duly installed as requires, and the marine diesel engine is thereafter maintained in a compliant condition;
8. the sulphur content of fuel oil as used is appropriate to the area of operation;
9. where the changeover of fuel oil is necessary in order to comply with the relevant ECA established for SO_x and particulate matter emission control requirements, it is duly completed prior to entry to, and commenced an exit from, the ECA in accordance with written procedures, and necessary date are duly recorded in the form as required;

[92] Ibid, Regulation 22.

10. for applicable tankers, where the use of vapour emission control systems is required, they are fitted and operated as necessary;
11. for tankers carrying crude oil, there is on board an approved and implemented VOC Management Plan;
12. there is no incineration of prohibited materials, and that any incineration undertaken is only carried out in an appropriate incinerator or as otherwise allowed;
13. duly certified incinerators are installed as required and that such units are operated by trained personnel in accordance with the operating manual, which is retained on board;
14. fuel oils are ordered to be in a compliant condition and best efforts are made, and duly documents, to obtain compliant fuel oil;
15. fuel oil bunker delivery notes and representative samples are signed for, retained as required and made available for inspection to competent authorities as demanded;
16. the attained EEDI and the required EEDI are calculated for each new ship or after a major conversion as required under chapter 4 of Annex VI; and
17. for each ship a specific Ship Energy Efficiency (IEE) Certificate for ships which fall under the requirements of chapter 4 of Annex VI.[93]

5. The Need for Argentina to Incorporate MARPOL Annex VI

The incorporation of MARPOL Annex VI into the legal system of Argentina becomes important for a number of reasons.

By virtue of Article 41 of the Constitution, Argentine authorities shall contribute to the preservation of the environment. Such Article provides that all inhabitants are entitled to a healthy and balanced environment, fit for human development in order that productive activities shall meet present needs without endangering those of future generations. It also establishes that the authorities shall provide for the protection of this right, the rational use of natural resources, the preservation of the natural and cultural heritage and of the

[93] "MARPOL – How to do it"; *op. cit.*, pp. 94 and 95.

biological diversity, and shall also provide for environmental information and education.[94]

The Argentine Environmental Law (Law No. 25,675) provides for the achievement of a sustainable and appropriate management of the environment, the preservation and protection of biodiversity and the implementation of sustainable development.

Article 5 (a) of the Organic Law of the Argentine Coast Guard, Law No. 18,398, sets forth that one of functions of the Argentine Coast Guard is to deal with the rules adopted in order to prohibit water pollution.

Moreover, Law No. 22,190 - Regime for the Prevention and Control of Water Pollution and Other Elements of the Environment from Ships- provides that the Argentine Coast Guard shall be the enforcement authority of such Law. Further, its regulatory Decree No. 1886/83 introduced Title 8: "Prevention of Pollution from Ships" to the Argentine Coast Guard Navigation Regime (*REGINAVE*), which includes Chapter 4 on the prevention of air pollution from ships.

Law No. 24,089, which approved the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78), as well as Marine Ordinance No. 2/12 (Environmental Protection Directorate of the Argentine Coast Guard): "Regulations for the Prevention of Air Pollution from Ships" should also be taken into consideration.

In addition, Argentina has a coastline of more than 4,900 km along the Atlantic Ocean rich in living and non-living resources. It is a State party to the United Nations Convention on Law of the Sea (UNCLOS) and as such it has recognized the desirability of establishing

> a legal order for the seas and oceans which will facilitate international communication, and will promote the peaceful uses of the seas and oceans, the equitable and efficient utilization of their resources, the conservation of their living resources, and the study, protection and preservation of the marine environment...[95]

Considering its particular geographical position in southern South America, Argentina is one of the most important maritime destinations for trade. This implies a continuous growing in sea transportation within the region.

[94] Argentine Constitution, Article 41.
[95] Preamble of the United Nations Convention on Law of the Sea (UNCLOS).

Further, it can be stated that although shipping is the most energy and fuel efficient mode of mass cargo transport, it is one the main sources of adverse effects of emissions to air. An approach to improve its energy efficiency and effective emission control is considered important to limit impacts on human health and the environment.[96]

It is necessary for Argentina to keep a sovereign international position on this issue. There is a need to incorporate and implement regulations to limit or reduce emissions from ships. This will minimize their contribution to global air pollution and environmental problems such as global warning, which entails economic, social and environmental consequences of great magnitude.

The proposed measure constitutes a proper tool to enhance compliance with the international commitments undertaken through the ratification of MARPOL Convention. As it was previously stated, MARPOL Annex VI limits the main air pollutants contained in ships exhaust gas, including sulphur oxides and nitrous oxides, and prohibits deliberate emissions of ozone depleting substances. It also regulates shipboard incineration, and the emissions of volatile organic compounds from tankers. All these air pollutants are generated from shipping activities carried out in waters under the jurisdiction of Argentina, both from national and foreign ships. The incorporation and implementation of Annex VI will enable the State to certify ships navigating under the Argentine flag and to exercise effective control over foreign ships calling at national ports.

Furthermore, it is worth mentioning that regional efforts become essential when it comes to addressing problems associated with air pollution. Within the framework of the United Nations Environmental Programme - Regional Office for Latin America and the Caribbean, most countries in Latin America and the Caribbean have reaffirmed their commitment to improve air quality and have already established official air quality standards to protect health and the environment.[97]

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[96] International Maritime Organization (IMO), Technical and operational measures to improve the energy efficiency of international shipping and assessment of their effect on future emissions, November 2011, Online available: <http://www.imo.org/en/OurWork/Environment/PollutionPrevention/AirPollution/Documents/COP%2017/Submissions/Final%20SBSTA%20EEDI%20SEEMP%20COP17.pdf> 05 April 2016.

[97] United Nations Environmental Programme - Regional Office for Latin America and the Caribbean, Online available: <http://web.unep.org/latin-america-and-caribbean-reaffirms-its-commitment-improve-air-quality> 05 April 2016.

As regards other efforts undertaken by the countries of the region in addressing this relevant challenge, it should be taken into consideration that several States of the region have ratified MARPOL Annex VI, such as Brazil, Chile, Peru, Uruguay, among others.[98]

Finally, it should be noted that the incorporation of Annex VI into the legal system of Argentina will constitute a build-up on the existing legal regime concerning the protection of the marine environment and the prevention of pollution from ships. In this regard, the provisions of the following laws and regulations should be considered: Law No. 25,675 – Environmental Law; Law No. 18,398 – Organic Law of the Argentine Coast Guard; Law No. 22,190 - Regime for the Prevention and Control of Water Pollution and Other Elements of the Environment from Ships and its Regulatory Decree No. 1886/83; Law No. 24,089 – Law approving the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78); and Marine Ordinance No. 2/12 (Environmental Protection Directorate of the Argentine Coast Guard) - Regulations for the Prevention of Air Pollution from Ships.

6. Incorporation of MARPOL Annex VI into the Legal System of Argentina

In accordance with Article 99 (11) of the Argentine Constitution, the President has the power to conclude and sign treaties, concordats and other agreements required for the maintenance of good relations with international organizations and foreign powers.[99]

Moreover, the Constitution provides that treaties with other States shall be approved by the National Congress. In this respect, Article 75 (22) establishes that the Congress is empowered to approve or reject treaties entered into with other nations and international organizations, and concordats with the Holy See.[100]

Therefore, in terms of the constitutional rules of Argentina, the procedure to enter into treaties consists of the following stages:

1. Negotiation, adoption and authentication of the text of the treaty by the Executive Body – generally through the Ministry of Foreign Affairs;

[98] International Maritime Organization (IMO), Status of IMO Conventions, Online available: <http://www.imo.org/en/About/Conventions/StatusOfConventions/Pages/Default.aspx> 05 April 2016.
[99] Argentine Constitution, Article 99 (11).
[100] Ibid, Article 75 (22).

2. Approval of the text by the Legislative Body; and

3. Ratification of the treaty by the Executive Body – President.

Based on the above, it can be stated that a legislative instrument is required for an international convention to become binding on the domestic courts and on the citizens of Argentina. The law passed by the Congress to adopt the text of the treaty (subject to ratification by the Executive Body) shall be published in the Official Gazette.[101] Finally, there is a need to enact a specific regulation aiming at implementing the provisions of the international convention concerned. This regulation may take the form of a law enacted by the Congress, a decree passed by the Executive Body or any other type of regulation as may be deemed necessary considering the matter concerned, the relevant circumstances of the case and the powers of the enforcement authority.

7. Explanation of the Draft Law

As stated above, in accordance with the Argentine legislation, a legislative instrument is required for an international convention to become binding on the domestic courts and on the citizens of Argentina.

As far as the proposed Law is concerned, it should be noted that it has the purpose of adopting the text of the Protocol to amend the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL Convention), adopted in London on 26 September 1997. The 1997 Protocol included Annex VI - Regulations for the Prevention of Air Pollution from Ships - of said Convention.

Moreover, there is a need to enact a specific regulation aiming at implementing the provisions of the international convention concerned. In this regard, Marine Ordinance No. 2/12 on Regulations for the Prevention of Air Pollution from Ships should be taken into consideration. This Ordinance was enacted by the Argentine Coast Guard on 15 November 2012, through the Environmental Protection Directorate, for the purpose of providing standards for the prevention of air pollution from ships. Although at the time of enacting such regulation MARPOL Annex VI was not yet in force, such Ordinance expressly

[101] Argentine Civil and Commercial Code, Article 5.

provides that its provisions and the certificates thereby required are analogous to those set forth by Annex VI.[102]

Ultimately, it is necessary to address the issue of violations and enforcement of the provisions of the above mentioned Marine Ordinance. Title 8, Chapter 4 of the Argentine Coast Guard Navigation Regime (*REGINAVE*) contains provisions concerning the imposition of sanctions in the event that a ship has emitted any of the prohibited substances. Section 99 provides sanctions not only for shipowners or operators of such ships, but also for masters.

As regards shipowners or operators, the provision establishes that they shall be jointly and severally liable. Moreover, it imposes fines that may vary from three thousand (3,000) to ninety thousand (90,000) Argentine pesos.[103] On the other hand, concerning masters of ships that have emitted any of such substances, Section 99 provides for the suspension of the master's navigation license for a period varying from one (1) month to one (1) year.[104]

[102]Argentine Coast Guard, Environmental Protection Directorate, Marine Ordinance No. 2/12, Online available: <http://infoleg.mecon.gov.ar/infolegInternet/anexos/205000-209999/205073/norma.htm> 05 April 2016.
[103] Ibid, Title 8, Chapter 4, Section 99. See also Title 7, Chapter 1 which provides that fines shall be established based on "fine units" and that each fine unit shall amount to 1.5 Argentine pesos. Fine units are updated in accordance with Decree No. 1521/08.
[104] Ibid.

Law No. /2016

The Protocol to Amend the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto, adopted in London on 26 September 1997 is hereby approved. The 1997 Protocol included Annex VI - Regulations for the Prevention of Air Pollution from Ships - of said Convention.

Passed: …… 2016

Promulgated: …… 2016

The Senate and the House of Representatives of the Republic of Argentina in Congress assembled enact the following Law:

Article 1

Adoption of the Protocol

The Protocol to Amend the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL Convention), adopted in London on 26 September 1997 is hereby approved. The authenticated copy of the said Protocol forms part of this Law.

Article 2

Enforcement Authority

The enforcement authority of the instrument mentioned in Article 1 shall be the Ministry of Security through the Argentine Coast Guard.

Article 3

Complementary Laws

The following Laws shall remain in force: Law No. 25,675; Law No. 18,398; Law No. 22,190; Decree No. 1886/83; and Law No. 24,089.

Article 4

Entry into force

This Law shall enter into force five days after its publication in the Official Gazette.

Article 5

Communication to the Executive Power

Be it communicated to the Executive Power.

THE PRESENT LAW WAS PASSED BY THE ARGENTINE CONGRESS IN BUENOS AIRES, ON THE …….. DAY OF …….. OF THE YEAR TWO THOUSAND AND SIXTEEN.

Protocol of 1997 to Amend the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto

ADDITION OF ANNEX VI TO THE INTERNATIONAL CONVENTION FOR THE PREVENTION OF POLLUTION FROM SHIPS, 1973, AS MODIFIED BY THE PROTOCOL OF 1978 RELATING THERETO

The following new Annex VI is added after the existing Annex V:

ANNEX VI REGULATIONS FOR THE PREVENTION OF AIR POLLUTION FROM SHIPS

CHAPTER I GENERAL

REGULATION 1 APPLICATION

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

REGULATION 2 DEFINITIONS

For the purpose of this Annex:

1 *Annex* means Annex VI to the International Convention for the Prevention of Pollution from Ships 1973 (MARPOL), as modified by the Protocol of 1978 relating thereto, and as modified by the Protocol of 1997, as amended by the Organization, provided that such amendments are adopted and brought into force in accordance with the provisions of article 16 of the present Convention.

2 *A similar stage of construction* means the stage at which:

.1 construction identifiable with a specific ship begins; and

.2 assembly of that ship has commenced comprising at least 50 tons or one per cent of the estimated mass of all structural material, whichever is less.

3 *Anniversary date* means the day and the month of each year which will correspond to the date of expiry of the International Air Pollution Prevention Certificate.

4 *Auxiliary control device* means a system, function, or control strategy installed on a marine diesel engine that is used to protect the engine and/or its ancillary equipment against operating conditions that could result in damage or failure, or that is used to facilitate the starting of the engine. An auxiliary control device may also be a strategy or measure that has been satisfactorily demonstrated not to be a defeat device.

5 *Continuous feeding* is defined as the process whereby waste is fed into a combustion chamber without human assistance while the incinerator is in normal operating conditions with the combustion chamber operative temperature between 850°C and 1,200°C.

6 *Defeat device* means a device which measures, senses, or responds to operating variables (e.g., engine speed, temperature, intake pressure or any other parameter) for the purpose of activating, modulating, delaying or deactivating the operation of any component or the function of the emission control system such that the effectiveness of the emission control system is reduced under conditions encountered during normal operation, unless the use of such a device is substantially included in the applied emission certification test procedures.

7 *Emission* means any release of substances, subject to control by this Annex, from ships into the atmosphere or sea.

8 *Emission Control Area* means an area where the adoption of special mandatory measures for emissions from ships is required to prevent, reduce and control air pollution from NO_x or SO_x and particulate matter or all three types of emissions and their attendant adverse impacts on human health and the environment. Emission Control Areas shall include those listed in, or designated under, regulations 13 and 14 of this Annex.

9 *Fuel oil* means any fuel delivered to and intended for combustion purposes for propulsion or operation on board a ship, including distillate and residual fuels.

10 *Gross tonnage* means the gross tonnage calculated in accordance with the tonnage measurement regulations contained in Annex I to the International Convention on Tonnage Measurements of Ships, 1969 or any successor Convention.

11 *Installations* in relation to regulation 12 of this Annex means the installation of systems, equipment including portable fire-extinguishing units, insulation, or other material on a ship, but excludes the repair or recharge of previously installed systems, equipment, insulation, or other material, or the recharge of portable fire-extinguishing units.

12 *Installed* means a marine diesel engine that is or is intended to be fitted on a ship, including a portable auxiliary marine diesel engine, only if its fuelling, cooling, or exhaust system is an integral part of the ship. A fuelling system is considered integral to the ship only if it is permanently affixed to the ship. This definition includes a marine diesel engine that is used to supplement or augment the installed power capacity of the ship and is intended to be an integral part of the ship.

13 *Irrational emission control strategy* means any strategy or measure that, when the ship is operated under normal conditions of use, reduces the effectiveness of an emission control system to a level below that expected on the applicable emission test procedures.

14 *Marine diesel engine* means any reciprocating internal combustion engine operating on liquid or dual fuel, to which regulation 13 of this Annex applies, including booster/compound systems if applied.

15 *NO_x Technical Code* means the Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines adopted by resolution 2 of the 1997 MARPOL Conference, as amended by the Organization, provided that such amendments are adopted and brought into force in accordance with the provisions of article 16 of the present Convention.

16 *Ozone depleting substances* means 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 this Annex.

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-tetraflouroethane (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

17 *Shipboard incineration* means the incineration of wastes or other matter on board a ship, if such wastes or other matter were generated during the normal operation of that ship.

18 *Shipboard incinerator* means a shipboard facility designed for the primary purpose of incineration.

19 *Ships constructed* means ships the keels of which are laid or which are at a similar stage of construction.

20 *Sludge oil* means sludge from the fuel oil or lubricating oil separators, waste lubricating oil from main or auxiliary machinery, or waste oil from bilge water separators, oil filtering equipment or drip trays.

21 *"Tanker"* in relation to regulation 15 means an oil tanker as defined in regulation 1 of Annex I or a chemical tanker as defined in regulation 1 of Annex II of the present Convention.

For the purpose of chapter 4:

22 *Existing ship* means a ship which is not a new ship.

23 *New ship* means 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.

24 *Major Conversion* means in relation to chapter 4 a conversion of a 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 21.

25 *Bulk carrier* means 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.

26 *Gas carrier* in relation to chapter 4 of this Annex means a cargo ship, other than an LNG carrier as defined in paragraph 38 of this regulation, constructed or adapted and used for the carriage in bulk of any liquefied gas.

27 *Tanker* in relation to chapter 4 means an oil tanker as defined in MARPOL Annex I, regulation 1 or a chemical tanker or an NLS tanker as defined in MARPOL Annex II, regulation 1.

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

29 *General cargo ship* means 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 carrier, barge carrier, heavy load carrier, yacht carrier, nuclear fuel carrier.

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

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

32 *Passenger ship* means a ship which carries more than 12 passengers.

33 *Ro-ro cargo ship (vehicle carrier)* means a multi deck roll-on-roll-off cargo ship designed for the carriage of empty cars and trucks.

34 *Ro-ro cargo ship* means a ship designed for the carriage of roll-on-roll-off cargo transportation units.

35 *Ro-ro passenger ship* means a passenger ship with roll-on-roll-off cargo spaces.

36 *Attained* EEDI is the EEDI value achieved by an individual ship in accordance with regulation 20 of chapter 4.

37 *Required EEDI* is the maximum value of attained EEDI that is allowed by regulation 21 of chapter 4 for the specific ship type and size.

38 *LNG carrier* in relation to chapter 4 of this Annex means a cargo ship constructed or adapted and used for the carriage in bulk of liquefied natural gas (LNG).

39 *Cruise passenger ship* in relation to chapter 4 of this Annex means a passenger ship not having a cargo deck, designed exclusively for commercial transportation of passengers in overnight accommodations on a sea voyage.

40 *Conventional propulsion* in relation to chapter 4 of this Annex means a 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.

41*Non-conventional propulsion* in relation to chapter 4 of this Annex means a method of propulsion, other than conventional propulsion, including diesel-electric propulsion, turbine propulsion, and hybrid propulsion systems.

42 *Cargo ship having ice-breaking capability* in relation to chapter 4 of this Annex means a cargo ship which is designed to break level ice independently with a speed of at least 2 knots when the level ice thickness is 1.0 m or more having ice bending strength of at least 500 kPa.

43 A 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.

44 *Audit* means a systematic, independent and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which audit criteria are fulfilled.

45 *Audit Scheme* means the IMO Member State Audit Scheme established by the Organization and taking into account the guidelines developed by the Organization.

46 *Code for Implementation* means the IMO Instruments Implementation Code(III Code) adopted by the Organization by resolution A.1070(28).

47 *Audit Standard* means the Code for Implementation.

REGULATION 3 EXCEPTIONS AND EXEMPTIONS

General

1 Regulations of this Annex shall not apply to:

.1 any emission necessary for the purpose of securing the safety of a ship or saving life at sea; or

.2 any emission resulting from damage to a ship or its equipment:

.2.1 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 emission; and

.2.2 except if the owner or the master acted either with intent to cause damage, or recklessly and with knowledge that damage would probably result.

Trials for Ship Emission Reduction and Control Technology Research

2 The Administration of a Party may, in co-operation with other Administrations as appropriate, issue an exemption from specific provisions of this Annex for a ship to conduct trials for the development of ship emission reduction and control technologies and engine design programmes. Such an exemption shall only be provided if the applications of specific provisions of the Annex or the revised NO_x Technical Code 2008 could impede research into the development of such technologies or programmes. A permit for such an exemption shall only be provided to the minimum number of ships necessary and be subject to the following provisions:

.1 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

.2 for marine diesel engines with a per cylinder displacement at or 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.

Emissions from Sea-bed Mineral Activities

3.1 Emissions directly arising from the exploration, exploitation and associated offshore processing of sea-bed mineral resources are, consistent with article 2(3)(b)(ii) of the present Convention, exempt from the provisions of this Annex. Such emissions include the following:

.1 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 the flaring of hydrocarbons and the burning of cuttings, muds, and/or stimulation fluids during well completion and testing operations, and flaring arising from upset conditions;

.2 the release of gases and volatile compounds entrained in drilling fluids and cuttings;

.3 emissions associated solely and directly with the treatment, handling, or storage of sea-bed minerals; and

.4 emissions from marine diesel engines that are solely dedicated to the exploration, exploitation and associated offshore processing of sea-bed mineral resources.

3.2 The requirements of regulation 18 of this Annex shall not apply to the use of hydrocarbons which are produced and subsequently used on site as fuel, when approved by the Administration.

REGULATION 4 EQUIVALENTS

1 The Administration of a Party may allow any fitting, material, appliance or apparatus to be fitted in a ship or other procedures, alternative fuel oils, or compliance methods used as an alternative to that required by this Annex 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 that required by this Annex, including any of the standards set forth in regulations 13 and 14.

2 The Administration of a Party which allows a fitting, material, appliance or apparatus or other procedures, alternative fuel oils, or compliance methods used as an alternative to that required by this Annex shall communicate to the Organization for circulation to the Parties particulars thereof, for their information and appropriate action, if any.

3 The Administration of a Party should take into account any relevant guidelines developed by the Organization pertaining to the equivalents provided for in this regulation.

4 The Administration of a Party which allows the use of an equivalent as set forth in paragraph 1 of this regulation shall endeavour not to impair or damage its environment, human health, property, or resources or those of other States.

CHAPTER II SURVEY, CERTIFICATION AND MEANS OF CONTROL

REGULATION 5 SURVEYS

1 Every ship of 400 gross tonnage and above and every fixed and floating drilling rig and other platforms shall, to ensure compliance with the requirements of chapter 3 of this Annex, be subject to the surveys specified below:

.1 An initial survey before the ship is put into service or before the certificate required under regulation 6 of this Annex is issued for the first time. This survey shall be such as to ensure that the equipment, systems, fittings, arrangements and material fully comply with the applicable requirements of chapter 3;

.2 A renewal survey at intervals specified by the Administration, but not exceeding five years, except where regulation 9.2, 9.5, 9.6 or 9.7 of this Annex is applicable. The renewal survey shall be such as to ensure that the equipment, systems, fittings, arrangements and material fully comply with applicable requirements of chapter 3;

.3 An intermediate survey within three months before or after the second anniversary date or within three months before or after the third anniversary date of the certificate which shall take the place of one of the annual surveys specified in paragraph 1.4 of this regulation. The intermediate survey shall be such as to ensure that the equipment and arrangements fully comply with the applicable requirements of chapter 3 and are in good working order. Such intermediate surveys shall be endorsed on the IAPP Certificate issued under regulation 6 or 7 of this Annex;

.4 An annual survey within three months before or after each anniversary date of the certificate, including a general inspection of the equipment, systems, fittings, arrangements and material referred to in paragraph 1.1 of this regulation to ensure that they have been maintained in accordance with paragraph 5 of this regulation and that they remain satisfactory for the service for which the ship is intended. Such annual surveys shall be endorsed on the IAPP Certificate issued under regulation 6 or 7 of this Annex; and

.5 An additional survey either general or partial, according to the circumstances, shall be made whenever any important repairs or renewals are made as prescribed in paragraph 5 of this regulation or after a repair resulting from investigations prescribed in paragraph 6 of this regulation. The survey shall be such as to ensure that the necessary repairs or renewals have been effectively made, that the material and workmanship of such repairs or renewals are in all respects satisfactory and that the ship complies in all respects with the requirements of chapter 3.

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

3 Surveys of ships as regards the enforcement of the provisions of this Annex shall be carried out by officers of the Administration.

.1 The Administration may, however, entrust the surveys either to surveyors nominated for the purpose or to organizations recognized by it. Such organizations shall comply with the guidelines adopted by the Organization;[††††]

.2 The survey of marine diesel engines and equipment for compliance with regulation 13 of this Annex shall be conducted in accordance with the revised NO_x Technical Code 2008;

.3 When a nominated surveyor or recognized organization determines that the condition of the equipment does not correspond substantially with the particulars of the certificate, they shall ensure that corrective action is taken and shall in due course notify the Administration. If such corrective action is not taken, the certificate shall be withdrawn by the Administration. If the ship is in a port of another Party, the appropriate authorities of the port State shall also be notified immediately. When an officer of the Administration, a nominated surveyor or recognized organization has notified the appropriate authorities of the port State, the Government of the port State concerned shall give such officer, surveyor or organization any necessary assistance to carry out their obligations under this regulation; and

.4 In every case, the Administration concerned shall fully guarantee the completeness and efficiency of the survey and shall undertake to ensure the necessary arrangements to satisfy this obligation.

4 Ships to which chapter 4 applies shall also be subject to the surveys specified below, taking into account Guidelines adopted by the Organization[‡‡‡‡]:

.1 An initial survey before a new ship is put in service and before the International Energy Efficiency Certificate is issued. The survey shall verify that the ship's attained EEDI is in accordance with the requirements in chapter 4, and that the SEEMP required by regulation 22 is on board;

.2 A general or partial survey, according to the circumstances, after a major conversion of a new ship to which this regulation applies. The survey shall ensure that the attained EEDI is recalculated as necessary and meets the requirement of regulation 21, with the reduction factor applicable to the ship type and size of the converted ship in the phase corresponding to the date of contract or keel laying or delivery determined for the original ship in

[††††] Refer to the Guidelines for the authorization of organizations acting on behalf of the Administration, adopted by the Organization by resolution A.739(18), as may be amended by the Organization, and the Specifications on the survey and certification functions of recognized organizations acting on behalf of the Administration, adopted by the Organization by resolution A.789(19), as may be amended by the Organization.

[‡‡‡‡]Refer to Guidelines on Survey and Certification of the Energy Efficiency Design Index.

accordance with regulation 2.23;

.3 In cases where the major conversion of a new or existing ship is so extensive that the ship is regarded by the Administration as a newly constructed ship, the Administration shall determine the necessity of an initial survey on attained EEDI. Such a survey, if determined necessary, shall ensure that the attained EEDI is calculated and meets the requirement of regulation 21, with the reduction factor applicable 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. The survey shall also verify that the SEEMP required by regulation 22 is on board; and

.4 For existing ships, the verification of the requirement to have a SEEMP on board according to regulation 22 shall take place at the first intermediate or renewal survey identified in paragraph 1 of this regulation, whichever is the first, on or after 1 January 2013.

5 The equipment shall be maintained to conform with the provisions of this Annex and no changes shall be made in the equipment, systems, fittings, arrangements, or material covered by the survey, without the express approval of the Administration. The direct replacement of such equipment and fittings with equipment and fittings that conform with the provisions of this Annex is permitted.

6 Whenever an accident occurs to a ship or a defect is discovered which substantially affects the efficiency or completeness of its equipment covered by this Annex, the master or owner of the ship shall report at the earliest opportunity to the Administration, a nominated surveyor, or recognized organization responsible for issuing the relevant certificate.

REGULATION 6 ISSUE OR ENDORSEMENT OF CERTIFICATES

International Air Pollution Prevention Certificate

1 An International Air Pollution Prevention Certificate shall be issued, after an initial or renewal survey in accordance with the provisions of regulation 5 of this Annex, to:

.1 any ship of 400 gross tonnage and above engaged in voyages to ports or offshore terminals under the jurisdiction of other Parties; and

.2 platforms and drilling rigs engaged in voyages to waters under the sovereignty or jurisdiction of other Parties.

2 A ship constructed before the date Annex VI enters into force for that particular ship's Administration, shall be issued with an International Air Pollution Prevention Certificate in accordance with paragraph 1 of this regulation no later than the first scheduled dry-docking after the date of such entry into force, but in no case later than three years after this date.

3 Such certificate shall be issued or endorsed either by the Administration or by any person or organization duly authorized by it. In every case, the Administration assumes full responsibility for the certificate.

International Energy Efficiency Certificate

4 An International Energy Efficiency Certificate for the ship shall be issued after a survey in accordance with the provisions of regulation 5.4 to any ship of 400 gross tonnage and above before that ship may engage in voyages to ports or offshore terminals under the jurisdiction of other Parties.

5 The certificate shall be issued or endorsed either by the Administration or any organization duly authorized by it[§§§§]. In every case, the Administration assumes full responsibility for the certificate.

REGULATION 7 ISSUE OF A CERTIFICATE BY ANOTHER PARTY

1 A Party may, at the request of the Administration, cause a ship to be surveyed and, if satisfied that the applicable provisions of this Annex are complied with, shall issue or authorize the issuance of an International Air Pollution Prevention Certificate or an International Energy Efficiency Certificate to the ship, and where appropriate, endorse or authorize the endorsement of such certificates on the ship, in accordance with this Annex.

2 A copy of the certificate and a copy of the survey report shall be transmitted as soon as possible to the requesting Administration.

3 A certificate so issued shall contain a statement to the effect that it has been issued at the request of the Administration and it shall have the same force and receive the same recognition as a certificate issued under regulation 6 of this Annex.

4 No International Air Pollution Prevention Certificate or International Energy Efficiency Certificate shall be issued to a ship which is entitled to fly the flag of a State which is not a Party.

REGULATION 8 FORM OF CERTIFICATES

International Air Pollution Prevention Certificate

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

International Energy Efficiency Certificate

2 The International Energy Efficiency Certificate shall be drawn up in a form corresponding to the model given in appendix VIII to this Annex and shall be at least in English, French or Spanish. If an official language of the issuing Party is also used, this shall prevail in case of a dispute or discrepancy.

[§§§§]Refer to the Guidelines for the authorization of organizations acting on behalf of the Administration, adopted by the Organization by resolution A.739(18), as may be amended by the Organization, and the Specifications on the survey and certification functions of recognized organizations acting on behalf of the Administration, adopted by the Organization by resolution A.789(19), as may be amended by the Organization.

REGULATION 9 DURATION AND VALIDITY OF CERTIFICATES

International Air Pollution Prevention Certificate

1 An International Air Pollution Prevention Certificate shall be issued for a period specified by the Administration, which shall not exceed five years.

2 Notwithstanding the requirements of paragraph 1 of this regulation:

.1 when the renewal survey is completed within three months before the expiry date of the existing certificate, the new certificate shall be valid from the date of completion of the renewal survey to a date not exceeding five years from the date of expiry of the existing certificate;

.2 when the renewal survey is completed after the expiry date of the existing certificate, the new certificate shall be valid from the date of completion of the renewal survey to a date not exceeding five years from the date of expiry of the existing certificate; and

.3 when the renewal survey is completed more than three months before the expiry date of the existing certificate, the new certificate shall be valid from the date of completion of the renewal survey to a date not exceeding five years from the date of completion of the renewal survey.

3 If a certificate is issued for a period of less than five years, the Administration may extend the validity of the certificate beyond the expiry date to the maximum period specified in paragraph 1 of this regulation, provided that the surveys referred to in regulations 5.1.3 and 5.1.4 of this Annex applicable when a certificate is issued for a period of five years are carried out as appropriate.

4 If a renewal survey has been completed and a new certificate cannot be issued or placed on board the ship before the expiry date of the existing certificate, the person or organization authorized by the Administration may endorse the existing certificate and such a certificate shall be accepted as valid for a further period which shall not exceed five months from the expiry date.

5 If a ship, at the time when a certificate expires, is not in a port in which it is to be surveyed, the Administration may extend the period of validity of the certificate but this extension shall be granted only for the purpose of allowing the ship to complete its voyage to the port in which it is to be surveyed, and then only in cases where it appears proper and reasonable to do so. No certificate shall be extended for a period longer than three months, and a ship to which an extension is granted shall not, on its arrival in the port in which it is to be surveyed, be entitled by virtue of such extension to leave that port without having a new certificate. When the renewal survey is completed, the new certificate shall be valid to a date not exceeding five years from the date of expiry of the existing certificate before the extension was granted.

6 A certificate issued to a ship engaged on short voyages which has not been extended under the foregoing provisions of this regulation may be extended by the Administration for a period of grace of up to one month from the date of expiry stated on it. When the renewal survey is completed, the new certificate shall be valid to a date not exceeding five years from the date of expiry of the existing certificate before the extension was granted.

7 In special circumstances, as determined by the Administration, a new certificate need not be dated from the date of expiry of the existing certificate as required by paragraph 2.1, 5 or 6 of this regulation. In these special circumstances, the new certificate shall be valid to a date not exceeding five years from the date of completion of the renewal survey.

8 If an annual or intermediate survey is completed before the period specified in regulation 5 of this Annex, then:

.1 the anniversary date shown on the certificate shall be amended by endorsement to a date which shall not be more than three months later than the date on which the survey was completed;

.2 the subsequent annual or intermediate survey required by regulation 5 of this Annex shall be completed at the intervals prescribed by that regulation using the new anniversary date; and

.3 the expiry date may remain unchanged provided one or more annual or intermediate surveys, as appropriate, are carried out so that the maximum intervals between the surveys prescribed by regulation 5 of this Annex are not exceeded.

9 A certificate issued under regulation 6 or 7 of this Annex shall cease to be valid in any of the following cases:

.1 if the relevant surveys are not completed within the periods specified under regulation 5.1 of this Annex;

.2 if the certificate is not endorsed in accordance with regulation 5.1.3 or 5.1.4 of this Annex; and

.3 upon transfer of the ship to the flag of another State. A new certificate shall only be issued when the Government issuing the new certificate is fully satisfied that the ship is in compliance with the requirements of regulation 5.4 of this Annex. In the case of a transfer between Parties, if requested within three months after the transfer has taken place, the Government of the Party whose flag the ship was formerly entitled to fly shall, as soon as possible, transmit to the Administration copies of the certificate carried by the ship before the transfer and, if available, copies of the relevant survey reports.

International Energy Efficiency Certificate

10 The International Energy Efficiency Certificate shall be valid throughout the life of the ship subject to the provisions of paragraph 11 below.

11 An International Energy Efficiency Certificate issued under this Annex shall cease to be valid in any of the following cases:

.1 if the ship is withdrawn from service or if a new certificate is issued following major conversion of the ship; or

.2 upon transfer of the ship to the flag of another State. A new certificate shall only be issued when the Government issuing the new certificate is fully satisfied that the ship is in compliance with the requirements of chapter 4. In the case of a transfer between Parties, if

requested within three months after the transfer has taken place, the Government of the Party whose flag the ship was formerly entitled to fly shall, as soon as possible, transmit to the Administration copies of the certificate carried by the ship before the transfer and, if available, copies of the relevant survey reports.

REGULATION 10 PORT STATE CONTROL ON OPERATIONAL REQUIREMENTS

1 A ship, when in a port or an offshore terminal under the jurisdiction of another Party, is subject to inspection by officers duly authorized by such Party concerning operational requirements under this Annex, where there are clear grounds for believing that the master or crew are not familiar with essential shipboard procedures relating to the prevention of air pollution from ships.

2 In the circumstances given in paragraph 1 of this regulation, the Party shall take such steps as to ensure that the ship shall not sail until the situation has been brought to order in accordance with the requirements of this Annex.

3 Procedures relating to the port State control prescribed in article 5 of the present Convention shall apply to this regulation.

4 Nothing in this regulation shall be construed to limit the rights and obligations of a Party carrying out control over operational requirements specifically provided for in the present Convention.

5 In relation to chapter 4, any port State inspection shall be limited to verifying, when appropriate, that there is a valid International Energy Efficiency Certificate on board, in accordance with article 5 of the Convention.

REGULATION 11 DETECTION OF VIOLATIONS AND ENFORCEMENT

1 Parties shall co-operate in the detection of violations and the enforcement of the provisions of this Annex, using all appropriate and practicable measures of detection and environmental monitoring, adequate procedures for reporting and accumulation of evidence.

2 A ship to which this Annex applies may, in any port or offshore terminal of a Party, be subject to inspection by officers appointed or authorized by that Party for the purpose of verifying whether the ship has emitted any of the substances covered by this Annex in violation of the provision of this Annex. If an inspection indicates a violation of this Annex, a report shall be forwarded to the Administration for any appropriate action.

3 Any Party shall furnish to the Administration evidence, if any, that the ship has emitted any of the substances covered by this Annex in violation of the provisions of this Annex. If it is practicable to do so, the competent authority of the former Party shall notify the master of the ship of the alleged violation.

4 Upon receiving such evidence, the Administration so informed shall investigate the matter, and may request the other Party to furnish further or better evidence of the alleged contravention. If the

Administration is satisfied that sufficient evidence is available to enable proceedings to be brought in respect of the alleged violation, it shall cause such proceedings to be taken in accordance with its law as soon as possible. The Administration shall promptly inform the Party which has reported the alleged violation, as well as the Organization, of the action taken.

5 A Party may also inspect a ship to which this Annex applies when it enters the ports or offshore terminals under its jurisdiction, if a request for an investigation is received from any Party together with sufficient evidence that the ship has emitted any of the substances covered by the Annex in any place in violation of this Annex. The report of such investigation shall be sent to the Party requesting it and to the Administration so that the appropriate action may be taken under the present Convention.

6 The international law concerning the prevention, reduction, and control of pollution of the marine environment from ships, including that law relating to enforcement and safeguards, in force at the time of application or interpretation of this Annex, applies, mutatis mutandis, to the rules and standards set forth in this Annex.

CHAPTER III REQUIREMENTS FOR CONTROL OF EMISSIONS FROM SHIPS

REGULATION 12 OZONE DEPLETING SUBSTANCES

1 This regulation does not apply to permanently sealed equipment where there are no refrigerant charging connections or potentially removable components containing ozone depleting substances.

2 Subject to the provisions of regulation 3.1, any deliberate emissions of ozone depleting substances shall be prohibited. Deliberate emissions include emissions occurring in the course of maintaining, servicing, repairing or disposing of systems or equipment, except that deliberate emissions do not include minimal releases associated with the recapture or recycling of an ozone depleting substance. Emissions arising from leaks of an ozone depleting substance, whether or not the leaks are deliberate, may be regulated by Parties.

3.1 Installations which contain ozone depleting substances, other than hydro-chlorofluorocarbons, shall be prohibited:

.1 on ships constructed on or after 19 May 2005; or

.2 in the case of ships constructed before 19 May 2005, which have a contractual delivery date of the equipment to the ship on or after 19 May 2005 or, in the absence of a contractual delivery date, the actual delivery of the equipment to the ship on or after 19 May 2005.

3.2 Installations which contain hydro-chlorofluorocarbons shall be prohibited:

.1 on ships constructed on or after 1 January 2020; or

.2 in the case of ships constructed before 1 January 2020, which have a contractual delivery date of the equipment to the ship on or after 1 January 2020 or, in the absence of a contractual delivery date, the actual delivery of the equipment to the ship on or after 1 January 2020.

4 The substances referred to in this regulation, and equipment containing such substances, shall be delivered to appropriate reception facilities when removed from ships.

5 Each ship subject to regulation 6.1 shall maintain a list of equipment containing ozone depleting substances.[*****]

6 Each ship subject to regulation 6.1 which has rechargeable systems that contain ozone depleting substances shall maintain an Ozone Depleting Substances Record Book. This Record Book may form part of an existing log-book or electronic recording system as approved by the Administration.

7 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:

.3.1 deliberate; and

.3.2 non-deliberate;

.4 discharge of ozone depleting substances to land-based reception facilities; and

.5 supply of ozone depleting substances to the ship.

REGULATION 13 NITROGEN OXIDES (NO_X)

Application

1.1 This regulation shall apply to:

.1 each marine diesel engine with a power output of more than 130 kW installed on a ship; and

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

1.2 This regulation does not apply to:

.1 a marine diesel engine intended to be used solely for emergencies, or solely to power any

[*****]See Appendix I, Supplement to International Air Pollution Prevention Certificate (IAPP Certificate), section 2.1.

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

.2 a marine diesel engine installed on a ship 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, provided that such engine is subject to an alternative NO_x control measure established by the Administration.

1.3 Notwithstanding the provisions of subparagraph 1.1 of this paragraph, the Administration may provide an exclusion from the application of this regulation for any marine diesel engine which is installed on a ship constructed, or for any marine diesel engine which undergoes a major conversion, before 19 May 2005, provided that the ship on which the engine is installed is solely engaged in voyages to ports or offshore terminals within the State the flag of which the ship is entitled to fly.

Major Conversion

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

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

.2 any substantial modification, as defined in the revised NOx Technical Code 2008, is made to the engine, or

.3 the maximum continuous rating of the engine is increased by more than 10% compared to the maximum continuous rating of the original certification of the engine.

2.2 For a major conversion involving the replacement of a marine diesel engine with a non-identical marine diesel engine, or the installation of an additional marine diesel engine, the standards in this regulation at the time of the replacement or addition of the engine shall apply. 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 5.1.1 of this regulation (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 guidelines developed by the Organization.

2.3 A marine diesel engine referred to in paragraph 2.1.2 or 2.1.3 shall meet the following standards:

.1 for ships constructed prior to 1 January 2000, the standards set forth in paragraph 3 of this regulation shall apply; and

.2 for ships constructed on or after 1 January 2000, the standards in force at the time the ship was constructed shall apply.

Tier I

3 Subject to regulation 3 of this Annex, the operation of a marine diesel engine which is installed on a ship constructed on or after 1 January 2000 and prior to 1 January 2011 is prohibited, except when

the emission of nitrogen oxides (calculated as the total weighted emission of NO_2) from the engine is within the following limits, where n = rated engine speed (crankshaft revolutions per minute):

.1 17.0 g/kWh when n is less than 130 rpm;

.2 $45 \cdot n^{(-0.2)}$ g/kWh when n is 130 or more but less than 2,000 rpm;

.3 9.8 g/kWh when n is 2,000 rpm or more.

Tier II

4 Subject to regulation 3 of this Annex, the operation of a marine diesel engine which is installed on a ship constructed on or after 1 January 2011 is prohibited, except when the emission of nitrogen oxides (calculated as the total weighted emission of NO2) from the engine is within the following limits, where n = rated engine speed (crankshaft revolutions per minute):

.1 14.4 g/kWh when n is less than 130 rpm;

.2 $44 \cdot n^{(-0.23)}$ g/kWh when n is 130 or more but less than 2,000 rpm;

.3 7.7 g/kWh when n is 2,000 rpm or more.

Tier III

5.1 Subject to regulation 3 of this Annex, in an emission control area designated for Tier III NOx control under paragraph 6 of this regulation, the operation of a marine diesel engine that is installed on a ship:

.1 is prohibited except when the emission of nitrogen oxides (calculated as the total weighted emission of NOx) from the engine is within the following limits, where n = rated engine speed (crankshaft revolutions per minute):

.1 3.4 g/kWh when n is less than 130 rpm;

.2 $9^{(-0.2)}$n g/kWh when n is 130 or more but less than 2,000 rpm;

.3 2.0 g/kWh when n is 2,000 rpm or more;

when:

.2 that ship is constructed on or after 1 January 2016 and is operating in the North American Emission Control Area or the United States Caribbean Sea Emission Control Area;

when:

.3 that ship is operating in an emission control area designated for Tier III NOx control under paragraph 6 of this regulation, other than an emission control area described in paragraph 5.1.2 of this regulation, and is constructed on or after the date of adoption of such an emission control area, or a later date as may be specified in the amendment designating the NOx Tier III emission control area, whichever is later.

5.2 The standards set forth in paragraph 5.1.1 of this regulation shall not apply to:

.1 a marine diesel engine installed on a ship with a length (L), as defined in regulation 1.19 of Annex I to the present Convention, 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 paragraph 5.1.1 of this regulation 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 regulation 1.19 of Annex I to the present convention, of 24 m or over when it has been specifically designed, and is used solely, for recreational purposes."Emission Control Area

6 For the purpose of this regulation, emission control areas shall be:

.1 the North American area, which means the area described by the coordinates provided in Appendix VII to this Annex;

.2 the United States Caribbean Sea area, which means the area described by the coordinates provided in Appendix VII to this Annex; and

.3 any other sea area, including any port area, designated by the Organization in accordance with the criteria and procedures set forth in Appendix III to this Annex.

Marine Diesel Engines Installed on a Ship Constructed Prior to 1 January 2000

7.1 Notwithstanding paragraph 1.1.1 of this regulation, a marine diesel engine with a power output of more than 5,000 kW and a per cylinder displacement at or above 90 litres installed on a ship constructed on or after 1 January 1990 but prior to 1 January 2000 shall comply with the emission limits set forth in subparagraph 7.4 of this paragraph, provided that an Approved Method for that engine has been certified by an Administration of a Party and notification of such certification has been submitted to the Organization by the certifying Administration. Compliance with this paragraph shall be demonstrated through one of the following:

.1 installation of the certified Approved Method, as confirmed by a survey using the verification procedure specified in the Approved Method File, including appropriate notation on the ship’s International Air Pollution Prevention Certificate of the presence of the Approved Method; or

.2 certification of the engine confirming that it operates within the limits set forth in paragraph 3, 4, or 5.1.1 of this regulation and an appropriate notation of the engine certification on the ship’s International Air Pollution Prevention Certificate.

7.2 Subparagraph 7.1 shall apply no later than the first renewal survey that occurs 12 months or more after deposit of the notification in subparagraph 7.1. If a shipowner of a ship on which an Approved Method is to be installed can demonstrate to the satisfaction of the Administration that the Approved Method was not commercially available despite best efforts to obtain it, then that Approved Method shall be installed on the ship no later than the next annual survey of that ship which falls after the Approved Method is commercially available.

7.3 With regard to a marine diesel engine with a power output of more than 5,000 kW and a per cylinder displacement at or above 90 litres installed on a ship constructed on or after 1 January 1990 but prior to 1 January 2000, the International Air Pollution Prevention Certificate shall, for a marine diesel engine to which paragraph 7.1 of this regulation applies, indicate that either an approved method has been applied pursuant to paragraph 7.1.1 of this regulation or the engine has been certified pursuant to paragraph 7.1.2 of this regulation or that an approved method does not yet exist or is not yet commercially available as described in paragraph 7.2 of this regulation.

7.4 Subject to regulation 3 of this Annex, the operation of a marine diesel engine described in subparagraph 7.1 is prohibited, except when the emission of nitrogen oxides (calculated as the total weighted emission of NO_2) from the engine is within the following limits, where n = rated engine speed (crankshaft revolutions per minute):

.1 17.0 g/kWh when n is less than 130 rpm;

.2 $45 \cdot n^{(-0.2)}$ g/kWh when n is 130 or more but less than 2,000 rpm; and

.3 9.8 g/kWh when n is 2,000 rpm or more.

7.5 Certification of an 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 set forth 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 set forth in subparagraph 7.4 of this paragraph and the cost of purchasing and installing such Approved Method.[†††††]

Certification

8 The revised NO_x Technical Code 2008 shall be applied in the certification, testing, and measurement procedures for the standards set forth in this regulation.

9 The procedures for determining NO_x emissions set out in the revised NO_x Technical Code 2008 are intended to be representative of the normal operation of the engine. Defeat devices and irrational emission control strategies undermine this intention and shall not be allowed. This regulation shall not prevent the use of auxiliary control devices that are used to protect the engine and/or its ancillary equipment against operating conditions that could result in damage or failure or that are used to facilitate the starting of the engine.

[†††††] The cost of an Approved Method shall not exceed 375 Special Drawing Rights/metric ton NO_x calculated in accordance with the Cost-Effectiveness formula below:

$Ce = [\text{Cost of Approved Method} \cdot 10^6] / [P(kW) \cdot 0.768 \cdot 6000(\text{hours/year}) \cdot 5\ (\text{years}) \cdot \Delta\ NO_x(g/kWh)]$

REGULATION 14 SULPHUR OXIDES (SO_X) AND PARTICULATE MATTER

General Requirements

1 The sulphur content of any fuel oil used on board ships shall not exceed the following limits:

.1 4.50% m/m prior to 1 January 2012;

.2 3.50% m/m on and after 1 January 2012; and

.3 0.50% m/m on and after 1 January 2020.

2 The worldwide average sulphur content of residual fuel oil supplied for use on board ships shall be monitored taking into account guidelines developed by the Organization.[‡‡‡‡‡]

Requirements within Emission Control Areas

3 For the purpose of this regulation, emission control areas shall include:

.1 the Baltic Sea area as defined in regulation 1.11.2 of Annex I and the North Sea area as defined in regulation 1.14.6 of Annex V;

.2 the North American area as described by the coordinates provided in Appendix VII to this Annex;

.3 the United States Caribbean Sea area as described by the coordinates provided in Appendix VII to this Annex; and

.4 any other sea area, including any port area, designated by the Organization in accordance with the criteria and procedures set forth in Appendix III to this Annex.

4 While ships are operating within an Emission Control Area, the sulphur content of fuel oil used on board ships shall not exceed the following limits:

.1 1.50% m/m prior to 1 July 2010;

.2 1.00% m/m on and after 1 July 2010; and

.3 0.10% m/m on and after 1 January 2015.

.4 Prior to 1 January 2020, the sulphur content of fuel oil referred to in paragraph 4 of this regulation shall not apply to ships operating in the North American area or the United States Caribbean Sea area defined in paragraph 3, built on or before 1 August 2011 that are powered by propulsion boilers that were not originally designed for continued operation on marine distillate fuel or natural gas.

5 The sulphur content of fuel oil referred to in paragraph 1 and paragraph 4 of this regulation shall be documented by its supplier as required by regulation 18 of this Annex.

6 Those ships using separate fuel oils to comply with paragraph 4 of this regulation and entering or leaving an Emission Control Area set forth in paragraph 3 of this regulation shall carry a written

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[‡‡‡‡‡] MEPC.82(43), “Guidelines for Monitoring the World-wide Average Sulphur Content of Residual Fuel Oils Supplied for Use On Board Ships”.

procedure showing how the fuel oil change-over is to be done, allowing sufficient time for the fuel oil service system to be fully flushed of all fuel oils exceeding the applicable sulphur content specified in paragraph 4 of this regulation prior to entry into an Emission Control Area. 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.

7 During the first twelve months immediately following entry into force of an amendment designating a specific emission control area under paragraph 3 of this regulation, ships operating in that emission control area are exempt from the requirements in paragraphs 4 and 6 of this regulation and from the requirements of paragraph 5 of this regulation insofar as they relate to paragraph 4 of this regulation[§§§§§].

Review Provision

8 A review of the standard set forth in subparagraph 1.3 of this regulation shall be completed by 2018 to determine the availability of fuel oil to comply with the fuel oil standard set forth in that paragraph and shall take into account the following elements:

.1 the global market supply and demand for fuel oil to comply with paragraph 1.3 of this regulation that exist at the time that the review is conducted;

.2 an analysis of the trends in fuel oil markets; and

.3 any other relevant issue.

9 The Organization shall establish a group of experts, comprising of representatives with the appropriate expertise in the fuel oil market and appropriate maritime, environmental, scientific, and legal expertise, to conduct the review referred to in paragraph 8 of this regulation. The group of experts shall develop the appropriate information to inform the decision to be taken by the Parties.

10 The Parties, based on the information developed by the group of experts, may decide whether it is possible for ships to comply with the date in paragraph 1.3 of this regulation. If a decision is taken that it is not possible for ships to comply, then the standard in that subparagraph shall become effective on 1 January 2025.

REGULATION 15 VOLATILE ORGANIC COMPOUNDS (VOCS)

1 If the emissions of VOCs from a tanker are to be regulated in a port or ports or a terminal or terminals under the jurisdiction of a Party, they shall be regulated in accordance with the provisions of this regulation.

[§§§§§]The 12 month exemption provided by paragraph 7 will apply for the North American emission control area until 1 August 2012.

The 12 month exemption provided by paragraph 7 will apply for the United States Caribbean Sea emission control area until 1 January 2014.

2 A Party regulating tankers for VOC emissions shall submit a notification to the Organization. This notification shall include information on the size of tankers to be controlled, the cargoes requiring vapour emission control systems, and the effective date of such control. The notification shall be submitted at least six months before the effective date.

3 A Party which designates ports or terminals at which VOCs emissions from tankers are to be regulated shall ensure that vapour emission control systems, approved by that Party taking into account the safety standards for such systems developed by the Organization[******], are provided in any designated port and terminal and are operated safely and in a manner so as to avoid undue delay to a ship.

4 The Organization shall circulate a list of the ports and terminals designated by Parties to other Parties and Member States of the Organization for their information.

5 A tanker to which paragraph 1 of this regulation applies shall be provided with a vapour emission collection system approved by the Administration taking into account the safety standards for such systems developed by the Organization5, and shall use this system during the loading of relevant cargoes. A port or terminal which has installed vapour emission control systems in accordance with this regulation may accept tankers which are not fitted with vapour collection systems for a period of three years after the effective date identified in paragraph 2 of this regulation.

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

.1 provide written procedures for minimizing VOC emissions during the loading, seapassage and discharge of cargo;

.2 give consideration to the additional VOC generated by crude oil washing;

.3 identify a person responsible for implementing the plan; and

.4 for ships on international voyages, be written in the working language of the master and officers and, if the working language of the master and officers is not English, French, or Spanish, include a translation into one of these languages.

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

REGULATION 16 SHIPBOARD INCINERATION

1 Except as provided in paragraph 4 of this regulation, shipboard incineration shall be allowed only in a shipboard incinerator.

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

[††††††] MSC.30(61), “International Code for the Construction and Equipment of Ships Carrying Liquefied Gases inBulk”, chapter 5.

2 Shipboard incineration of the following substances shall be prohibited:

.1 residues of cargoes subject to Annex I, II or III or related contaminated packing materials;

.2 polychlorinated biphenyls (PCBs);

.3 garbage, as defined by Annex V, containing more than traces of heavy metals;

.4 refined petroleum products containing halogen compounds;

.5 sewage sludge and sludge oil either of which are not generated on board the ship; and

.6 exhaust gas cleaning system residues.

3 Shipboard incineration of polyvinyl chlorides (PVCs) shall be prohibited, except in shipboard incinerator for which an IMO Type Approval Certificates[‡‡‡‡‡‡] has been issued.

4 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.

5 Nothing in this regulation neither:

.1 affects the prohibition in, or other requirements of, the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972, as amended, and the 1996 Protocol thereto, nor

.2 precludes the development, installation and operation of alternative design shipboard thermal waste treatment devices that meet or exceed the requirements of this regulation.

6.1 Except as provided in subparagraph 6.2 of this paragraph, 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 meet the requirements contained in appendix IV to this Annex. Each incinerator subject to this subparagraph shall be approved by the Administration taking into account the standard specification for shipboard incinerators developed by the Organization[§§§§§§]; or

6.2 The Administration may allow exclusion from the application of subparagraph 6.1 of this paragraph to any incinerator which is installed on board a 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.

7 Incinerators installed in accordance with the requirements of paragraph 6.1 of this regulation shall be provided with a manufacturer's operating manual which is to be retained with the unit and which shall specify how to operate the incinerator within the limits described in paragraph 2 of appendix IV of this Annex.

[‡‡‡‡‡‡]Type Approval Certificates issued in accordance with resolution MEPC.59(33) or MEPC.76(40).

[§§§§§§]Refer to resolution MEPC.76(40), Standard specification for shipboard incinerators.

8 Personnel responsible for the operation of an incinerator installed in accordance with the requirements of paragraph 6.1 of this regulation shall be trained to implement the guidance provided in the manufacturer's operating manual as required by paragraph 7 of this regulation.

9 For incinerators installed in accordance with the requirements of paragraph 6.1 of this regulation the combustion chamber gas outlet temperature shall be monitored at all times the unit s 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 shall reach 600°C within five minutes after start-up and will thereafter stabilize at a temperature not less than 850°C.

REGULATION 17 RECEPTION FACILITIES

1 Each Party undertakes to ensure the provision of facilities adequate to meet the:

.1 needs of ships using its repair ports for the reception of ozone depleting substances and equipment containing such substances when removed from ships;

.2 needs of ships using its ports, terminals or repair ports for the reception of exhaust gas cleaning residues from an exhaust gas cleaning system, without causing undue delay to ships; and

.3 needs in ship-breaking facilities for the reception of ozone depleting substances and equipment containing such substances when removed from ships.

2 If a particular port or terminal of a Party is – taking into account the guidelines to be developed by the Organization – remotely located from, or lacking in, the industrial infrastructure necessary to manage and process those substances referred to in paragraph 1 of this regulation and therefore cannot accept such substances, then the Party shall inform the Organization of any such port or terminal so that this information may be circulated to all Parties and Member States of the Organization for their information and any appropriate action. Each Party that has provided the Organization with such information shall also notify the Organization of its ports and terminals where reception facilities are available to manage and process such substances.

3 Each Party shall notify the Organization for transmission to the Members of the Organization of all cases where the facilities provided under this regulation are unavailable or alleged to be inadequate.

REGULATION 18 FUEL OIL AVAILABILITY AND QUALITY

Fuel Oil Availability

1 Each Party shall take all reasonable steps to promote the availability of fuel oils which comply with this Annex and inform the Organization of the availability of compliant fuel oils in its ports and terminals.

2.1 If a ship is found by a Party not to be in compliance with the standards for compliant fuel oils set forth in this Annex, the competent authority of the Party is entitled to require the ship to:

.1 present a record of the actions taken to attempt to achieve compliance; and

.2 provide evidence that it attempted to purchase compliant fuel oil in accordance with its voyage plan and, if it was not made available where planned, that attempts were made to locate alternative sources for such fuel oil and that despite best efforts to obtain compliant fuel oil, no such fuel oil was made available for purchase.

2.2 The ship should not be required to deviate from its intended voyage or to delay unduly the voyage in order to achieve compliance.

2.3 If a ship provides the information set forth in subparagraph 2.1 of this paragraph, a Party shall take into account all relevant circumstances and the evidence presented to determine the appropriate action to take, including not taking control measures.

2.4 A ship shall notify its Administration and the competent authority of the relevant port of destination when it cannot purchase compliant fuel oil.

2.5 A Party shall notify the Organization when a ship has presented evidence of the non-availability of compliant fuel oil.

Fuel Oil Quality

3 Fuel oil for combustion purposes delivered to and used on board ships to which this Annex applies shall meet the following requirements:

.1 except as provided in subparagraph 3.2:

.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 for combustion purposes derived by methods other than petroleum refining shall not:

.2.1 exceed the applicable sulphur content set forth in regulation 14 of this Annex;

.2.2 cause an engine to exceed the applicable NOx emission limit set forth in paragraphs 3, 4, 5.1.1 and 7.4 of regulation 13;

.2.3 contain inorganic acid; or

.2.4.1 jeopardize the safety of ships or adversely affect the performance of the machinery, or

.2.4.2 be harmful to personnel, or

.2.4.3 contribute overall to additional air pollution.

4 This regulation does not apply to coal in its solid form or nuclear fuels. Paragraphs 5, 6,7.1, 7.2, 8.1, 8.2, 9.2, 9.3, and 9.4 of this regulation do not apply to gas fuels such as Liquified Natural Gas, Compressed Natural Gas or Liquified Petroleum Gas. The sulphur content of gas fuels delivered to a ship specifically for combustion purposes on board that ship shall be documented by the supplier.

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

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

7.1 The competent authority of a Party may inspect the bunker delivery notes on board any ship to which this Annex applies while the ship is in its port or offshore terminal, may make a copy of each delivery note, and may require the master or person in charge of the ship to certify that each copy is a true copy of such bunker delivery note. The competent authority may also verify the contents of each note through consultations with the port where the note was issued.

7.2 The inspection of the bunker delivery notes and the taking of certified copies by the competent authority under this paragraph shall be performed as expeditiously as possible without causing the ship to be unduly delayed.

8.1 The bunker delivery note shall be accompanied by a representative sample of the fuel oil delivered taking into account guidelines developed by the Organization.[*******] The sample is to 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 substantially consumed, but in any case for a period of not less than 12 months from the time of delivery.

8.2 If an Administration requires the representative sample to be analysed, it shall be done in accordance with the verification procedure set forth in appendix VI to determine whether the fuel oil meets the requirements of this Annex.

9 Parties undertake to ensure that appropriate authorities designated by them:

.1 maintain a register of local suppliers of fuel oil;

[*******] Refer to MEPC.96(47), "Guidelines for the Sampling of Fuel Oil for Determination of Compliance withAnnex VI of MARPOL 73/78".

.2 require local suppliers to provide the bunker delivery note and sample as required by this regulation, certified by the fuel oil supplier that the fuel oil meets the requirements of regulations 14 and 18 of this Annex;

.3 require local suppliers to retain a copy of the bunker delivery note for at least three years for inspection and verification by the port State as necessary;

.4 take action as appropriate against fuel oil suppliers that have been found to deliver fuel oil that does not comply with that stated on the bunker delivery note;

.5 inform the Administration of any ship receiving fuel oil found to be non-compliant with the requirements of regulation 14 or 18 of this Annex; and

.6 inform the Organization for transmission to Parties and Member States of the Organization of all cases where fuel oil suppliers have failed to meet the requirements specified in regulations 14 or 18 of this Annex.

10 In connection with port State inspections carried out by Parties, the Parties further undertake to:

.1 inform the Party or non-Party under whose jurisdiction a bunker delivery note was issued of cases of delivery of noncompliant fuel oil, giving all relevant information; and

.2 ensure that remedial action as appropriate is taken to bring noncompliant fuel oil discovered into compliance.

11 For every ship of 400 gross tonnage and above on scheduled services with frequent and regular port calls, an Administration may decide after application and consultation with affected States that compliance with paragraph 6 of this regulation may be documented in an alternative manner which gives similar certainty of compliance with regulations 14 and 18 of this Annex.

CHAPTER 4 REGULATIONS ON ENERGY EFFICIENCY FOR SHIPS

REGULATION 19

Application

1 This chapter shall apply to all ships of 400 gross tonnage and above.

2 The provisions of this chapter shall not apply to:

.1 ships 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. However, each Party should ensure, by the adoption of appropriate measures, that such ships are constructed and act in a manner consistent with chapter 4, so far as is reasonable and practicable.

.2 ships not propelled by mechanical means, and platforms including FPSOs and FSUs and drilling rigs, regardless of their propulsion.

3 Regulations 20 and 21 of this Annex shall not apply to ships which have non-conventional propulsion, except that regulations 20 and 21 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 43 of regulation 2. Regulations 20 and 21 shall not apply to cargo ships having ice-breaking capability.

4 Notwithstanding the provisions of paragraph 1 of this regulation, the Administration may waive the requirement for a ship of 400 gross tonnage and above from complying with regulation 20 and regulation 21.

5 The provision of paragraph 4 of this regulation shall not apply to ships of 400 gross tonnage and above:

.1 for which the building contract is placed on or after 1 January 2017; 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 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 existing ship, as defined in regulation 2.24, on or after 1 January 2017, and in which regulation 5.4.2 and regulation 5.4.3 of chapter 2 apply.

6 The Administration of a Party to the present Convention which allows application of paragraph 4, or suspends, withdraws or declines the application of that paragraph, to a ship entitled to fly its flag shall forthwith communicate to the Organization for circulation to the Parties to the present Protocol particulars thereof, for their information.

REGULATION 20 ATTAINED ENERGY EFFICIENCY DESIGN INDEX (ATTAINED EEDI)

1 The 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 in regulations 2.25 to 2.35, 2.38 and 2.39 of this Annex. 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, either by the Administration or by any organization duly authorized by it*

2 The attained EEDI shall be calculated taking into account guidelines[†††††††] developed by the Organization.

[†††††††]Guidelines on the method of calculation of the Energy Efficiency Design Index for new ships.

REGULATION 21 REQUIRED EEDI

1 For each:

.1 new ship;

.2 new ship which has undergone a major conversion; and

.3 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 of the categories in regulations 2.25 to 2.31, 2.33 to 2.35, 2.38and 2.39 and to which this chapter is applicable, the attained EEDI shall be as follows:

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

where X is the reduction factor specified in table 1 for the required EEDI compared to the EEDI reference line.

2 For each new and existing ship that has undergone a major conversion which is so extensive that the ship is regarded by the Administration as a newly constructed ship, the attained EEDI shall be calculated and meet the requirement of paragraph 21.1 with the reduction factor applicable 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 1. Reduction factors (in percentage) for the EEDI relative to the EEDI Reference line

Ship Type	Size	Phase 0 1 Jan 2013 – 31 Dec 2014	Phase 1 1 Jan 2015 – 31 Dec 2019	Phase 2 1 Jan 2020 – 31 Dec 2024	Phase 3 1 Jan 2025 and onwards
Bulk carrier	20,000 DWT and above	0	10	20	30
	10,000 – 20,000 DWT	n/a	0-10*	0-20*	0-30*
Gas carrier	10,000 DWT and above	0	10	20	30
	2,000 – 10,000 DWT	n/a	0-10*	0-20*	0-30*

*Refer to *Code for Recognized Organizations (RO Code)*, adopted by the MEPC by resolution MEPC.237(65), as may be amended.

Tanker	20,000 DWT and above	0	10	20	30
	4,000 – 20,000 DWT	n/a	0-10*	0-20*	0-30*
Container ship	15,000 DWT and above	0	10	20	30
	10,000 – 15,000 DWT	n/a	0-10*	0-20*	0-30*
General Cargo ships	15,000 DWT and above	0	10	20	30
	3,000 – 15,000 DWT	n/a	0-10*	0-20*	0-30*
Refrigerated cargo carrier	5,000 DWT and above	0	10	20	30
	3,000 – 5,000 DWT	n/a	0-10*	0-20*	0-30*
Combination carrier	20,000 DWT and above	0	10	20	30
	4,000 – 20,000 DWT	n/a	0-10*	0-20*	0-30*
LNG carrier***	10,000 DWT and above	n/a	10**	20	30
Ro-ro cargo ship (vehicle carrier)***	10,000 DWT and above	n/a	5**	15	30
Ro-ro cargo ship***	2,000 DWT and above	n/a	5**	20	30
	1,000 – 2,000 DWT	n/a	0-5* **	0-20*	0-30*

Ro-ro passenger ship***	1000 DWT and above	n/a	5**	20	30
	250 – 1,000 DWT	n/a	0-5* **	0-20*	0-30*
Cruise passenger ship*** having non-conventional propulsion	85,000 GT and above	n/a	5**	20	30
	25,000 – 85,000 GT	n/a	0-5* **	0-20*	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.

**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 43 of regulation 2.

Note: n/a means that no required EEDI applies.

3 The Reference line values shall be calculated as follows:

Reference line value = $a \times b^{-c}$

where a, b and c are the parameters given in Table 2.

Table 2. Parameters for determination of reference values for the different ship types

Ship type defined in regulation 2	A	b	c
2.25 Bulk carrier	961.79	DWT of the ship	0.477
2.26 Gas carrier	1120.00	DWT of the ship	0.456
2.27 Tanker	1218.80	DWT of the ship	0.488
2.28 Container ship	174.22	DWT of the ship	0.201
2.29 General cargo ship	107.48	DWT of the ship	0.216

2.30 Refrigerated cargo carrier	227.01	DWT of the ship	0.244
2.31 Combination carrier	1219.00	DWT of the ship	0.488
2.33 Ro-ro cargo ship (vehicle carrier)	$(DWT/GT)^{-0.7} \cdot 780.36$ where $DWT/GT<0.3$ -0.7 1812.63 where $DWT/GT \geq 0.3$	DWT of the ship	0.471
2.34 Ro-ro cargo ship	1405.15	DWT of the ship	0.498
2.35 Ro-ro passenger ship	752.16	DWT of the ship	0.381
2.38 LNG carrier	2253.7	DWT of the ship	0.474
2.39 Cruise passenger ship having non-conventional propulsion	170.84	GT of the ship	0.214

4 If the design of a ship allows it to fall into more than one of the ship type definitions specified in table 2, the required EEDI for the ship shall be the most stringent (the lowest) required EEDI.

5 For each ship to which this regulation applies, the installed propulsion power shall not be less than the propulsion power needed to maintain the manoeuvrability of the ship under adverse conditions as defined in the guidelines to be developed by the Organization.

6 At the beginning of Phase 1 and at the midpoint of Phase 2, the Organization shall review the status of technological developments and, if proven necessary, amend the time periods, the EEDI reference line parameters for relevant ship types and reduction rates set out in this regulation.

REGULATION 22 SHIP ENERGY EFFICIENCY MANAGEMENT PLAN (SEEMP)

1 Each ship shall keep on board a ship specific Ship Energy Efficiency Management Plan (SEEMP). This may form part of the ship's Safety Management System (SMS).

2 The SEEMP shall be developed taking into account guidelines adopted by the Organization.

REGULATION 23 PROMOTION OF TECHNICAL CO-OPERATION AND TRANSFER OF TECHNOLOGY RELATING TO THE IMPROVEMENT OF ENERGY EFFICIENCY OF SHIPS

1 Administrations shall, in co-operation with the Organization and other international bodies, promote and provide, as appropriate, support directly or through the Organization to States, especially developing States that request technical assistance.

2 The Administration of a Party shall co-operate actively with other Parties, subject to its national laws, regulations and policies, to promote the development and transfer of technology and exchange of information to States which request technical assistance, particularly developing States, in respect of the implementation of measures to fulfil the requirements of chapter 4 of this annex, in particular regulations 19.4 to 19.6.

CHAPTER 5 VERIFICATION OF COMPLIANCE WITH THE PROVISIONS OF THIS ANNEX

REGULATION 24

Application
Parties shall use the provisions of the Code for Implementation in the execution of their obligations and responsibilities contained in this Annex.

REGULATION 25 VERIFICATION OF COMPLIANCE

(1) Every Party shall be subject to periodic audits by the Organization in accordance with the audit standard to verify compliance with and implementation of this Annex.

(2) The Secretary-General of the Organization shall have responsibility for administering the Audit Scheme, based on the guidelines developed by the Organization.

(3) Every Party shall have responsibility for facilitating the conduct of the audit and implementation of a programme of actions to address the findings, based on the guidelines developed by the Organization.

(4) Audit of all Parties shall be:

.1 based on an overall schedule developed by the Secretary-General of the Organization, taking into account the guidelines developed by the Organization; and

.2 conducted at periodic intervals, taking into account the guidelines developed by the Organization.

APPENDIX I FORM OF INTERNATIONAL AIR POLLUTION PREVENTION (IAPP)

CERTIFICATE (REGULATION 8)

INTERNATIONAL AIR POLLUTION PREVENTION CERTIFICATE

Issued under the provisions of the Protocol of 1997, as amended by resolution MEPC.176(58) in 2008, to amend the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 related thereto (hereinafter referred to as "the Convention") under the authority of the Government of:

.....

(full designation of the country)

by .....

(full designation of the competent person or

organization authorized under the provisions of the Convention)

Particulars of ship*.....

Name of ship.....

Distinctive number or letters.....

Port of registry.....

Gross tonnage.....

IMO Number+.....

---

* Alternatively, the particulars of the ship may be placed horizontally in boxes.

+ In accordance with IMO ship identification number scheme, adopted by the Organization by resolution A.600(15).

THIS IS TO CERTIFY:

1 That the ship has been surveyed in accordance with regulation 5 of Annex VI of the Convention; and

2 That the survey shows that the equipment, systems, fittings, arrangements and materials fully comply with the applicable requirements of Annex VI of the Convention.

Completion date of survey on which this Certificate is based: ..... (dd/mm/yyyy)

This Certificate is valid until .....* subject to surveys in accordance with regulation 5 of Annex VI of the Convention.

Issued at .....

(Place of issue of certificate)

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

(Date of issue) *(Signature of authorized official issuing the certificate)*

(Seal or stamp of the authority, as appropriate)

*Insert the date of expiry as specified by the Administration in accordance with regulation 9.1 of Annex VI of the Convention. The day and the month of this date correspond to the anniversary date as defined in regulation 2.3 of Annex VI of the Convention, unless amended in accordance with regulation 9.8 of Annex VI of the Convention

Endorsement for annual and intermediate surveys

THIS IS TO CERTIFY that at a survey required by regulation 5 of Annex VI of the Convention the ship was found to comply with the relevant provisions of that Annex:

Annual survey: Signed: .....

(Signature of authorized official)

Place: .....

Date (dd/mm/yyyy):.....

(Seal or stamp of the authority, as appropriate)

Annual/Intermediate* survey: Signed: .....

(Signature of authorized official)

Place: .....

Date (dd/mm/yyyy):.....

(Seal or stamp of the authority, as appropriate)

Annual Survey: Signed: .....

*Delete as appropriate.

(Signature of authorized official)

Place: .....

Date (dd/mm/yyyy):.....

(Seal or stamp of the authority, as appropriate)

Annual/intermediate survey in accordance with regulation 9.8.3

THIS IS TO CERTIFY that, at an annual/intermediate* survey in accordance with regulation 9.8.3 of Annex VI of the Convention, the ship was found to comply with the relevant provisions of that Annex:

Signed: .....

(Signature of authorized official)

Place: .....

Date (dd/mm/yyyy):.....

(Seal or stamp of the authority, as appropriate)

Endorsement to extend the certificate if valid for less than 5 years where regulation 9.3 applies

*Delete as appropriate.

The ship complies with the relevant provisions of the Annex, and this certificate shall, in accordance with regulation 9.3 of Annex VI of the Convention, be accepted as valid until (dd/mm/yyyy): .....

Signed: .....

(Signature of authorized official)

Place: .....

Date (dd/mm/yyyy):.....

(Seal or stamp of the authority, as appropriate)

Endorsement where the renewal survey has been completed and regulation 9.4 applies

The ship complies with the relevant provisions of the Annex, and this certificate shall, in accordance with regulation 9.4 of Annex VI of the Convention, be accepted as valid until

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

Signed: .....

(Signature of authorized official)

Place: .....

Date (dd/mm/yyyy):.....

(Seal or stamp of the authority, as appropriate)

Endorsement to extend the validity of the certificate until reaching the port of survey or for a period of grace where regulation 9.5 or 9.6 applies

This certificate shall, in accordance with regulation 9.5 or 9.6[*] of Annex VI of the Convention, be accepted as valid until (dd/mm/yyyy):.....

Signed: .....

(*Signature of authorized official)*

Place: .....

Date (dd/mm/yyyy):.....

(Seal or stamp of the authority, as appropriate)

Endorsement for advancement of anniversary date where regulation 9.8 applies

In accordance with regulation 9.8 of Annex VI of the Convention, the new anniversary date is (dd/mm/yyyy): .....

Signed: .....

(Signature of authorized official)

Place: .....

[*]Delete as appropriate.

Date (dd/mm/yyyy):.....

(Seal or stamp of the authority, as appropriate)

In accordance with regulation 9.8 of Annex VI of the Convention, the new anniversary date is (dd/mm/yyyy): .....

Signed:

.....

(Signature of authorized official)

Place:

.....

Date (dd/mm/yyyy):.....

(Seal or stamp of the authority, as appropriate)

SUPPLEMENT TO INTERNATIONAL AIR POLLUTION PREVENTION CERTIFICATE (IAPP CERTIFICATE)

RECORD OF CONSTRUCTION AND EQUIPMENT

Notes:

. 1 This Record shall be permanently attached to the IAPP Certificate. The IAPP Certificate shall be available on board the ship at all times.

2 The Record shall be at least in English, French or Spanish. If an official language of the issuing country is also used, this shall prevail in case of a dispute or discrepancy.

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

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

1 Particulars of ship

1.1 Name of ship .....

1.2 IMO number .....

1.3 Date on which keel was laid or ship was at a similar stage of construction .....

1.4 Length (L) # metres .....

Completed only in respect of ships constructed on or after 1 January 2016 that are specially designed, and used solely, for recreational purposes and to which, in accordance with regulation 13.5.2.1 and regulation 13.5.2.3, the NOx emission limit as given by regulation 13.5.1.1 will not apply.

2 Control of emissions from ships

2.1 Ozone depleting substances (regulation 12)

2.1.1 The following fire-extinguishing systems, other systems and equipment containing ozone depleting substances, other than hydro-chlorofluorocarbons, installed before 19 May 2005 may continue in service:

System of equipment	Location on board	Substance

2.1.2 The following systems containing hydro-chlorofluorocarbons (HCFCs) installed before 1 January 2020 may continue in service:

System of equipment	Location on board	Substance

2.2 Nitrogen oxides (NOx) (regulation 13)

2.2.1 The following marine diesel engines installed on this ship comply with the applicable emission limit of regulation 13 in accordance with the revised NOx Technical Code 2008:

		Engine #1	Engine #2	Engine #3	Engine #4	Engine #5	Engine #6
Manufacturer and model							
Serial number							
Use							
Power output (kW)							
Rated speed (RPM)							
Date of installation (dd/mm/yyyy)							
Date of major conversion (dd/mm/yyyy)	According to Reg. 13.2.2						
	According to Reg. 13.2.3						
Exempted by regulation 13.1.1.2		☐	☐	☐	☐	☐	☐
Tier I Reg.13.3		☐	☐	☐	☐	☐	☐
Tier II Reg.13.4		☐	☐	☐	☐	☐	☐
Tier II Reg. 13.2.2 or 13.5.2		☐	☐	☐	☐	☐	☐
Tier III Reg.13.5.1.1		☐	☐	☐	☐	☐	☐
Approved Method exists		☐	☐	☐	☐	☐	☐
Approved Method not commercially available		☐	☐	☐	☐	☐	☐
Approved Method installed		☐	☐	☐	☐	☐	☐

2.3 Sulphur oxides (SOx) and particulate matter *(regulation 14)*

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

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

.2 an equivalent arrangement approved in accordance with regulation 4.1 as listed in 2.6.....

2.4 *Volatile organic compounds (VOCs) (regulation 15)*

2.4.1 The tanker has a vapour collection system installed and approved in accordance with MSC/Circ.585.....

2.4.2.1 For a tanker carrying crude oil, there is an approved VOC Management Plan .....

2.4.2.2 VOC Management Plan approval reference: .....

2.5 Shipboard incineration (regulation 16)

The ship has an incinerator:

.1 installed on or after 1 January 2000 which complies with resolution MEPC.76(40) as amended.....

.2 installed before 1 January 2000 which complies with:

.2.1 resolution MEPC.59(33) .....

.2.2 resolution MEPC.76(40) .....

2.6*Equivalents (regulation 4)*

The ship has been allowed to use the following fitting, material, appliance or apparatus to be fitted in a ship or other procedures, alternative fuel oils, or compliance methods used as an alternative to that required by this Annex:

System or equipment	**Equivalent used**	**Approval reference**

THIS IS TO CERTIFY that this Record is correct in all respects

Issued
at.....
(Place of issue of the Record)

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

(Signature of duly authorized official issuing the Record)

(Seal or stamp of the authority, as appropriate)

APPENDIX II TEST CYCLES AND WEIGHTING FACTORS (REGULATION 13)

The following test cycles and weighing factors shall be applied for verification of compliance of marine diesel engines with the applicable NOx limit in accordance with regulation 13 of this Annex using the test procedure and calculation method as specified in the revised NO_x Technical Code 2008.

.1 For constant-speed marine engines for ship main propulsion, including diesel-electric drive, test cycle E2 shall be applied;

.2 For controllable-pitch propeller sets test cycle E2 shall be applied;

.3 For propeller-law-operated main and propeller-law-operated auxiliary engines the test cycle E3 shall be applied;

.4 For constant-speed auxiliary engines test cycle D2 shall be applied; and

.5 For variable-speed, variable-load auxiliary engines, not included above, test cycle C1 shall be applied.

Test cycle for *constant speed main propulsion* application (including diesel-electric drive and all controllable-pitch propeller installations)

Test cycle type E2	Speed	100%	100%	100%	100%
	Power	100%	75%	50%	25%
	Weighting factor	0.2	0.5	0.15	0.15

Test cycle for *propeller-law-operated main* and *propeller-law-operated auxiliary engine* application

Test cycle type E3	Speed	100%	91%	80%	63%
	Power	100%	75%	50%	25%
	Weighting factor	0.2	0.5	0.15	0.15

Test cycle for *constant-speed auxiliary engine* application

Test cycle type D2	Speed	100%	100%	100%	100%	100%
	Power	100%	75%	50%	25%	10%

	Weighting factor	0.05	0.25	0.3	0.3	0.1

Test cycle for *variable-speed and load auxiliary engine* application

Test cycle type C1	Speed	Rated				Intermediate			Idle
	Torque	100%	75%	50%	10%	100%	75%	50%	0%
	Weighting factor	0.15	0.15	0.15	0.1	0.1	0.1	0.1	0.15

In the case of an engine to be certified in accordance with subparagraph 5.1.1 of regulation 13, the specific emission at each individual mode point shall not exceed the applicable NO_x emission limit value by more than 50% except as follows:

.1 The 10% mode point in the D2 test cycle.

.2 The 10% mode point in the C1 test cycle.

.3 The idle mode point in the C1 test cycle.

APPENDIX III CRITERIAAND PROCEDURES FOR DESIGNATION OF EMISSION CONTROL AREAS (REGULATION 13.6 AND REGULATION 14.3)

1 Objectives

1.1 The purpose of this appendix is to provide the criteria and procedures to Parties for the formulation and submission of proposals for the designation of Emission Control Areas and to set forth the factors to be considered in the assessment of such proposals by the Organization.

1.2 Emissions of NO_x, SO_x and particulate matter from ocean-going ships contribute to ambient concentrations of air pollution in cities and coastal areas around the world. Adverse public health and environmental effects associated with air pollution include premature mortality, cardiopulmonary disease, lung cancer, chronic respiratory ailments, acidification and eutrophication.

1.3 An Emission Control Area should be considered for adoption by the Organization if supported by a demonstrated need to prevent, reduce, and control emissions of NO_x or SO_x and particulate matter or all three types of emissions (hereinafter emissions) from ships.

2 Process for the Designation of Emission Control Areas

2.1 A proposal to the Organization for designation of an Emission Control Area for NO_x or SO_x and particulate matter or all three types of emissions may be submitted only by Parties. Where two or more Parties have a common interest in a particular area, they should formulate a coordinated proposal.

2.2 A proposal to designate a given area as an Emission Control Area should be submitted to the Organization in accordance with the rules and procedures established by the Organization.

3 Criteria for Designation of an Emission Control Area

3.1 The proposal shall include:

.1 a clear delineation of the proposed area of application, along with a reference chart on which the area is marked;

.2 the type or types of emission(s) that is or are being proposed for control(i.e. NOx or SOx and particulate matter or all three types of emissions);

.3 a description of the human populations and environmental areas at risk from the impacts of ship emissions;

.4 an assessment that emissions from ships operating in the proposed area of application are contributing to ambient concentrations of air pollution or to adverse environmental impacts. Such assessment shall include a description of the impacts of the relevant emissions on human health and the environment, such as adverse impacts to terrestrial and aquatic ecosystems, areas of natural productivity, critical habitats, water quality, human health, and areas of cultural and scientific significance, if applicable. The sources of relevant data including methodologies used shall be identified;

.5 relevant information pertaining to the meteorological conditions in the proposed area of

application to the human populations and environmental areas at risk, in particular prevailing wind patterns, or to topographical, geological, oceanographic, morphological, or other conditions that contribute to ambient concentrations of air pollution or adverse environmental impacts;

.6 the nature of the ship traffic in the proposed Emission Control Area, including the patterns and density of such traffic;

.7 a description of the control measures taken by the proposing Party or Parties addressing land-based sources of NOx, SOx and particulate matter emissions affecting the human populations and environmental areas at risk that are in place and operating concurrent with the consideration of measures to be adopted in relation to provisions of regulations 13 and 14 of Annex VI; and

.8 the relative costs of reducing emissions from ships when compared with land-based controls, and the economic impacts on shipping engaged in international trade.

3.2 The geographical limits of an Emission Control Area will be based on the relevant criteria outlined above, including emissions and deposition from ships navigating in the proposed area, traffic patterns and density, and wind conditions.

4 Procedures for the Assessment and Adoption of Emission Control Areas by the Organization

4.1 The Organization shall consider each proposal submitted to it by a Party or Parties.

4.2 In assessing the proposal, the Organization shall take into account the criteria which are to be included in each proposal for adoption as set forth in section 3 above.

4.3 An Emission Control Area shall be designated by means of an amendment to this Annex, considered, adopted and brought into force in accordance with article 16 of the present Convention.

5 Operation of Emission Control Areas

5.1 Parties which have ships navigating in the area are encouraged to bring to the Organization any concerns regarding the operation of the area.

APPENDIX IV TYPE APPROVAL AND OPERATING LIMITS FOR SHIPBOARD INCINERATORS (REGULATION 16)

1 Ships incinerators described in regulation 16.6.1 on board shall possess an IMO type approval certificate for each incinerator. In order to obtain such certificate, the incinerator shall be designed and built to an approved standard as described in regulation 16.6.1. Each model shall be subject to a specified type approval test operation at the factory or an approved test facility, and under the responsibility of the Administration, using the following standard fuel/waste specification for the type approval test for determining whether the incinerator operates within the limits specified in paragraph 2 of this appendix:

Sludge Oil Consisting of:	75% Sludge oil from HFO; 5% waste lubricating oil; and 20% emulsified water.
Solid waste consisting of:	50% food waste; 50% rubbish containing; approx. 30% paper, " 40% cardboard, " 10% rags, " 20% plastic The mixture will have up to 50% moisture and 7% incombustible solids.

2 Incinerators described in regulation 16.6.1 shall operate within the following limits:

O2 in combustion chamber:	6 – 12%
CO in flue gas maximum average:	200 mg/MJ
Soot number maximum average:	Bacharach 3 or Ringelman 1 (20% opacity) (A higher soot number is acceptable only during very short periods such as starting up)
Unburned components in ash residues:	Maximum 10% by Weight
Combustion chamber flue gas outlet temperature range:	850 – 1200^{o}C

APPENDIX V INFORMATION TO BE INCLUDED IN THE BUNKER DELIVERY NOTE (REGULATION 18.5)

Name and IMO Number of receiving ship

Port

Date of commencement of delivery

Name, address, and telephone number of marine fuel oil supplier

Product name(s)

Quantity in metric tons

Density at 15°C, kg/m^3‡‡‡‡‡‡‡

Sulphur content (%m/m)§§§§§§§

A declaration signed and certified by the fuel oil supplier's representative that the fuel oil supplied is in conformity with the applicable subparagraph of regulation 14.1 or 14.4 and regulation 18.3 of this Annex.

‡‡‡‡‡‡‡Fuel oil shall be tested in accordance with ISO 3675:1998 or ISO 12185:1996.

§§§§§§§Fuel oil shall be tested in accordance with ISO 8754:2003.

APPENDIX VI FUEL VERIFICATION PROCEDURE FOR MARPOL ANNEX VIFUEL OIL SAMPLES (REGULATION 18.8.2)

The following procedure shall be used to determine whether the fuel oil delivered to and used on board ships is compliant with the sulphur limits required by regulation 14 of Annex VI.

1 General Requirements

1.1 The representative fuel oil sample, which is required by paragraph 8.1 of regulation 18 (the "MARPOL sample") shall be used to verify the sulphur content of the fuel oil supplied to a ship.

1.2 An Administration, through its competent authority, shall manage the verification procedure.

1.3 The laboratories responsible for the verification procedure set forth in this appendix shall be fully accredited[********] for the purpose of conducting the tests.

2 Verification Procedure Stage 1

2.1 The MARPOL sample shall be delivered by the competent authority to the laboratory.

2.2 The laboratory shall:

.1 record the details of the seal number and the sample label on the test record;

.2 confirm that the condition of the seal on the MARPOL sample has not been broken; and

.3 reject any MARPOL sample where the seal has been broken.

2.3 If the seal of the MARPOL sample has not been broken, the laboratory shall proceed with the verification procedure and shall:

.1 ensure that the MARPOL sample is thoroughly homogenized;

.2 draw two sub-samples from the MARPOL sample; and

.3 reseal the MARPOL sample and record the new reseal details on the test record.

2.4 The two sub-samples shall be tested in succession, in accordance with the specified test method referred to in appendix V. For the purposes of this verification procedure, the results of the test analysis shall be referred to as "A" and "B":

.1 If the results of "A" and "B" are within the repeatability (r) of the test method, the results shall be considered valid.

.2 .2 shall be rejected and two new sub-samples should be taken by the laboratory and analysed. The sample bottle should be resealed in accordance with paragraph 2.3.3 above after the new sub-samples have been taken.

2.5 If the test results of "A" and "B" are valid, an average of these two results should be calculated thus giving the result referred to as "X":

[********] Accreditation is in accordance with ISO 17025 or an equivalent standard.

.1 If the result of “X” is equal to or falls below the applicable limit required by Annex VI, the fuel oil shall be deemed to meet the requirements.

.2 If the result of “X” is greater than the applicable limit required by Annex VI, Verification Procedure Stage 2 should be conducted; however, if the result of “X” is greater than the specification limit by 0.59R (where R is the reproducibility of the test method), the fuel oil shall be considered non-compliant and no further testing is necessary.

3 Verification Procedure Stage 2

3.1 If Stage 2 of the verification procedure is necessary in accordance with paragraph 2.5.2above, the competent authority shall send the MARPOL sample to a second accredited laboratory.

3.2 Upon receiving the MARPOL sample, the laboratory shall:

.1 record the details of the reseal number applied in accordance with 2.3.3 and the sample label on the test record;

.2 draw two sub-samples from the MARPOL sample; and

.3 reseal the MARPOL sample and record the new reseal details on the test record.

3.3 The two sub-samples shall be tested in succession, in accordance with the test method specified in appendix V. For the purposes of this verification procedure, the results of the test analysis shall be referred to as “C” and “D”:

.1 If the results of “C” and “D” are within the repeatability (r) of the test method, the results shall be considered valid.

.2 If the results of “C” and “D” are not within the repeatability (r) of the test method, both results shall be rejected and two new sub-samples shall be taken by the laboratory and analysed. The sample bottle should be resealed in accordance with paragraph 3.2.3 after the new sub-samples have been taken.

3.4 If the test results of “C” and “D” are valid, and the results of “A”, “B”, “C”, and “D” are within the reproducibility (R) of the test method then the laboratory shall average the results, which is referred to as “Y”:

.1 If the result of “Y” is equal to or falls below the applicable limit required by Annex VI, the fuel oil shall be deemed to meet the requirements.

.2 If the result of “Y” is greater than the applicable limit required by Annex VI, then the fuel oil fails to meet the standards required by Annex VI.

3.5 If the result of “A”, “B”, “C” and “D” are not within the reproducibility (R) of the test method then the Administration may discard all of the test results and, at its discretion, repeat the entire testing process.

3.6 The results obtained from the verification procedure are final.

APPENDIX VII EMISSION CONTROL AREAS (REGULATION 13.6 AND REGULATION 14.3)

.1 The boundaries of emission control areas designated under regulations 13.6 and 14.3, other than the Baltic Sea and the North Sea areas, are set forth in this appendix.

.2 The North American area comprises:

.1 the sea area located off the Pacific coasts of the United States and Canada, enclosed by geodesic lines connecting the following coordinates:

POINT	LATITUDE	LONGITUDE
1	32º 32′ 10″ N.	117º 06′ 11″ W.
2	32º 32′ 04″ N.	117º 07′ 29″ W.
3	32º 31′ 39″ N.	117º 14′ 20″ W.
4	32º 33′ 13″ N.	117º 15′ 50″ W.
5	32º 34′ 21″ N.	117º 22′ 01″ W.
6	32º 35′ 23″ N.	117º 27′ 53″ W.
7	32º 37′ 38″ N.	117º 49′ 34″ W.
8	31º 07′ 59″ N.	118º 36′ 21″ W.
9	30º 33′ 25″ N.	121º 47′ 29″ W.
10	31º 46′ 11″ N.	123º 17′ 22″ W.
11	32º 21′ 58″ N.	123º 50′ 44″ W.
12	32º 56′ 39″ N.	124º 11′ 47″ W.
13	33º 40′ 12″ N.	124º 27′ 15″ W.
14	34º 31′ 28″ N.	125º 16′ 52″ W.
15	35º 14′ 38″ N.	125º 43′ 23″ W.
16	35º 43′ 60″ N.	126º 18′ 53″ W.
17	36º 16′ 25″ N.	126º 45′ 30″ W.
18	37º 01′ 35″	127º 07′ 18″

POINT	LATITUDE	LONGITUDE
25	42º 47′ 34″ N.	129º 05′ 42″ W.
26	43º 26′ 22″ N.	129º 01′ 26″ W.
27	44º 24′ 43″ N.	128º 41′ 23″ W.
28	45º 30′ 43″ N.	128º 40′ 02″ W.
29	46º 11′ 01″ N.	128º 49′ 01″ W.
30	46º 33′ 55″ N.	129º 04′ 29″ W.
31	47º 39′ 55″ N.	131º 15′ 41″ W.
32	48º 32′ 32″ N.	132º 41′ 00″ W.
33	48º 57′ 47″ N.	133º 14′ 47″ W.
34	49º 22′ 39″ N.	134º 15′ 51″ W.
35	50º 01′ 52″ N.	135º 19′ 01″ W.
36	51º 03′ 18″ N.	136º 45′ 45″ W.
37	51º 54′ 04″ N.	137º 41′ 54″ W.
38	52º 45′ 12″ N.	138º 20′ 14″ W.
39	53º 29′ 20″ N.	138º 40′ 36″ W.
40	53º 40′ 39″ N.	138º 48′ 53″ W.
41	54º 13′ 45″ N.	139º 32′ 38″ W.
42	54º 39′ 25″	139º 56′ 19″

	N.	W.
19	37º 45′ 39″ N.	127º 38′ 02″ W.
20	38º 25′ 08″ N.	127º 52′ 60″ W.
21	39º 25′ 05″ N.	128º 31′ 23″ W.
22	40º 18′ 47″ N.	128º 45′ 46″ W.
23	41º 13′ 39″ N.	128º 40′ 22″ W.
24	42º 12′ 49″ N.	129º 00′ 38″ W.

	N.	W.
43	55º 20′ 18″ N.	140º 55′ 45″ W.
44	56º 07′ 12″ N.	141º 36′ 18″ W.
45	56º 28′ 32″ N.	142º 17′ 19″ W.
46	56º 37′ 19″ N.	142º 48′ 57″ W
47	58º 51′ 04″ N.	153º 15′ 03″ W.

.2 the sea areas located off the Atlantic coasts of the United States, Canada, and France (Saint-Pierre-et-Miquelon) and the Gulf of Mexico coast of the United States enclosed by geodesic lines connecting the following coordinates:

POINT	LATITUDE	LONGITUDE
1	60º 00′ 00″ N.	64º 09′ 36″ W.
2	60º 00′ 00″ N.	56º 43′ 00″ W.
3	58º 54′ 01″ N.	55º 38′ 05″ W.
4	57º 50′ 52″ N.	55º 03′ 47″ W.
5	57º 35′ 13″ N.	54º 00′ 59″ W.
6	57º 14′ 20″ N.	53º 07′ 58″ W.
7	56º 48′ 09″ N.	52º 23′ 29″ W.
8	56º 18′ 13″ N.	51º 49′ 42″ W.
9	54º 23′ 21″ N.	50º 17′ 44″ W.
10	53º 44′ 54″ N.	50º 07′ 17″ W.
11	53º 04′ 59″ N.	50º 10′ 05″ W.
12	52º 20′ 06″ N.	49º 57′ 09″ W.
13	51º 34′ 20″ N.	48º 52′ 45″ W.

POINT	LATITUDE	LONGITUDE
104	25º 48′ 20″ N.	79º 42′ 24″ W.
105	25º 46′ 26″ N.	79º 42′ 44″ W.
106	25º 46′ 16″ N.	79º 42′ 45″ W.
107	25º 43′ 40″ N.	79º 42′ 59″ W.
108	25º 42′ 31″ N.	79º 42′ 48″ W.
109	25º 40′ 37″ N.	79º 42′ 27″ W.
110	25º 37′ 24″ N.	79º 42′ 27″ W.
111	25º 37′ 08″ N.	79º 42′ 27″ W.
112	25º 31′ 03″ N.	79º 42′ 12″ W.
113	25º 27′ 59″ N.	79º 42′ 11″ W.
114	25º 24′ 04″ N.	79º 42′ 12″ W.
115	25º 22′ 21″ N.	79º 42′ 20″ W.
116	25º 21′ 29″ N.	79º 42′ 08″ W.

14	50º 40′ 15″ N.	48º 16′ 04″ W.
15	50º 02′ 28″ N.	48º 07′ 03″ W.
16	49º 24′ 03″ N.	48º 09′ 35″ W.
17	48º 39′ 22″ N.	47º 55′ 17″ W.
18	47º 24′ 25″ N.	47º 46′ 56″ W.
19	46º 35′ 12″ N.	48º 00′ 54″ W.
20	45º 19′ 45″ N.	48º 43′ 28″ W.
21	44º 43′ 38″ N.	49º 16′ 50″ W.
22	44º 16′ 38″ N.	49º 51′ 23″ W.
23	43º 53′ 15″ N.	50º 34′ 01″ W.
24	43º 36′ 06″ N.	51º 20′ 41″ W.
25	43º 23′ 59″ N.	52º 17′ 22″ W.
26	43º 19′ 50″ N.	53º 20′ 13″ W.
27	43º 21′ 14″ N.	54º 09′ 20″ W.
28	43º 29′ 41″ N.	55º 07′ 41″ W.
29	42º 40′ 12″ N.	55º 31′ 44″ W.
30	41º 58′ 19″ N.	56º 09′ 34″ W.
31	41º 20′ 21″ N.	57º 05′ 13″ W.
32	40º 55′ 34″ N.	58º 02′ 55″ W.
33	40º 41′ 38″ N.	59º 05′ 18″ W.
34	40º 38′ 33″ N.	60º 12′ 20″ W.
35	40º 45′ 46″ N.	61º 14′ 03″ W.
36	41º 04′ 52″ N.	62º 17′ 49″ W.

117	25º 16′ 52″ N.	79º 41′ 24″ W.
118	25º 15′ 57″ N.	79º 41′ 31″ W.
119	25º 10′ 39″ N.	79º 41′ 31″ W.
120	25º 09′ 51″ N.	79º 41′ 36″ W.
121	25º 09′ 03″ N.	79º 41′ 45″ W.
122	25º 03′ 55″ N.	79º 42′ 29″ W.
123	25º 02′ 60″ N.	79º 42′ 56″ W.
124	25º 00′ 30″ N.	79º 44′ 05″ W.
125	24º 59′ 03″ N.	79º 44′ 48″ W.
126	24º 55′ 28″ N.	79º 45′ 57″ W.
127	24º 44′ 18″ N.	79º 49′ 24″ W.
128	24º 43′ 04″ N.	79º 49′ 38″ W.
129	24º 42′ 36″ N.	79º 50′ 50″ W.
130	24º 41′ 47″ N.	79º 52′ 57″ W.
131	24º 38′ 32″ N.	79º 59′ 58″ W.
132	24º 36′ 27″ N.	80º 03′ 51″ W.
133	24º 33′ 18″ N.	80º 12′ 43″ W.
134	24º 33′ 05″ N.	80º 13′ 21″ W.
135	24º 32′ 13″ N.	80º 15′ 16″ W.
136	24º 31′ 27″ N.	80º 16′ 55″ W.
137	24º 30′ 57″ N.	80º 17′ 47″ W.
138	24º 30′ 14″ N.	80º 19′ 21″ W.
139	24º 30′ 06″ N.	80º 19′ 44″ W.

37	40º 36′ 55″ N.	63º 10′ 49″ W.
38	40º 17′ 32″ N.	64º 08′ 37″ W.
39	40º 07′ 46″ N.	64º 59′ 31″ W.
40	40º 05′ 44″ N.	65º 53′ 07″ W.
41	39º 58′ 05″ N.	65º 59′ 51″ W.
42	39º 28′ 24″ N.	66º 21′ 14″ W.
43	39º 01′ 54″ N.	66º 48′ 33″ W.
44	38º 39′ 16″ N.	67º 20′ 59″ W.
45	38º 19′ 20″ N.	68º 02′ 01″ W.
46	38º 05′ 29″ N.	68º 46′ 55″ W.
47	37º 58′ 14″ N.	69º 34′ 07″ W.
48	37º 57′ 47″ N.	70º 24′ 09″ W.
49	37º 52′ 46″ N.	70º 37′ 50″ W.
50	37º 18′ 37″ N.	71º 08′ 33″ W.
51	36º 32′ 25″ N.	71º 33′ 59″ W.
52	35º 34′ 58″ N.	71º 26′ 02″ W.
53	34º 33′ 10″ N.	71º 37′ 04″ W.
54	33º 54′ 49″ N.	71º 52′ 35″ W.
55	33º 19′ 23″ N.	72º 17′ 12″ W.
56	32º 45′ 31″ N.	72º 54′ 05″ W.
57	31º 55′ 13″ N.	74º 12′ 02″ W.
58	31º 27′ 14″ N.	75º 15′ 20″ W.
59	31º 03′ 16″ N.	75º 51′ 18″ W.

140	24º 29′ 38″ N.	80º 21′ 05″ W.
141	24º 28′ 18″ N.	80º 24′ 35″ W.
142	24º 28′ 06″ N.	80º 25′ 10″ W.
143	24º 27′ 23″ N.	80º 27′ 20″ W.
144	24º 26′ 30″ N.	80º 29′ 30″ W.
145	24º 25′ 07″ N.	80º 32′ 22″ W.
146	24º 23′ 30″ N.	80º 36′ 09″ W.
147	24º 22′ 33″ N.	80º 38′ 56″ W.
148	24º 22′ 07″ N.	80º 39′ 51″ W.
149	24º 19′ 31″ N.	80º 45′ 21″ W.
150	24º 19′ 16″ N.	80º 45′ 47″ W.
151	24º 18′ 38″ N.	80º 46′ 49″ W.
152	24º 18′ 35″ N.	80º 46′ 54″ W.
153	24º 09′ 51″ N.	80º 59′ 47″ W.
154	24º 09′ 48″ N.	80º 59′ 51″ W.
155	24º 08′ 58″ N.	81º 01′ 07″ W.
156	24º 08′ 30″ N.	81º 01′ 51″ W.
157	24º 08′ 26″ N.	81º 01′ 57″ W.
158	24º 07′ 28″ N.	81º 03′ 06″ W.
159	24º 02′ 20″ N.	81º 09′ 05″ W.
160	23º 59′ 60″ N.	81º 11′ 16″ W.
161	23º 55′ 32″ N.	81º 12′ 55″ W.
162	23º 53′ 52″ N.	81º 19′ 43″ W.

60	30º 45′ 42″ N.	76º 31′ 38″ W.
61	30º 12′ 48″ N.	77º 18′ 29″ W.
62	29º 25′ 17″ N.	76º 56′ 42″ W.
63	28º 36′ 59″ N.	76º 47′ 60″ W.
64	28º 17′ 13″ N.	76º 40′ 10″ W.
65	28º 17′ 12″ N.	79º 11′ 23″ W.
66	27º 52′ 56″ N.	79º 28′ 35″ W.
67	27º 26′ 01″ N.	79º 31′ 38″ W.
68	27º 16′ 13″ N.	79º 34′ 18″ W.
68	27º 11′ 54″ N.	79º 34′ 56″ W.
70	27º 05′ 59″ N.	79º 35′ 19″ W.
71	27º 00′ 28″ N.	79º 35′ 17″ W.
72	26º 55′ 16″ N.	79º 34′ 39″ W.
73	26º 53′ 58″ N.	79º 34′ 27″ W.
74	26º 45′ 46″ N.	79º 32′ 41″ W.
75	26º 44′ 30″ N.	79º 32′ 23″ W.
76	26º 43′ 40″ N.	79º 32′ 20″ W.
77	26º 41′ 12″ N.	79º 32′ 01″ W.
78	26º 38′ 13″ N.	79º 31′ 32″ W.
79	26º 36′ 30″ N.	79º 31′ 06″ W.
80	26º 35′ 21″ N.	79º 30′ 50″ W.
81	26º 34′ 51″ N.	79º 30′ 46″ W.
82	26º 34′ 11″ N.	79º 30′ 38″ W.

163	23º 50′ 52″ N.	81º 29′ 59″ W.
164	23º 50′ 02″ N.	81º 39′ 59″ W.
165	23º 49′ 05″ N.	81º 49′ 59″ W.
166	23º 49′ 05″ N.	82º 00′ 11″ W.
167	23º 49′ 42″ N.	82º 09′ 59″ W.
168	23º 51′ 14″ N.	82º 24′ 59″ W.
169	23º 51′ 14″ N.	82º 39′ 59″ W.
170	23º 49′ 42″ N.	82º 48′ 53″ W.
171	23º 49′ 32″ N.	82º 51′ 11″ W.
172	23º 49′ 24″ N.	82º 59′ 59″ W.
173	23º 49′ 52″ N.	83º 14′ 59″ W.
174	23º 51′ 22″ N.	83º 25′ 49″ W.
175	23º 52′ 27″ N.	83º 33′ 01″ W.
176	23º 54′ 04″ N.	83º 41′ 35″ W.
177	23º 55′ 47″ N.	83º 48′ 11″ W.
178	23º 58′ 38″ N.	83º 59′ 59″ W.
179	24º 09′ 37″ N.	84º 29′ 27″ W.
180	24º 13′ 20″ N.	84º 38′ 39″ W.
181	24º 16′ 41″ N.	84º 46′ 07″ W.
182	24º 23′ 30″ N.	84º 59′ 59″ W.
183	24º 26′ 37″ N.	85º 06′ 19″ W.
184	24º 38′ 57″ N.	85º 31′ 54″ W.
185	24º 44′ 17″ N.	85º 43′ 11″ W.

83	26º 31′ 12″ N.	79º 30′ 15″ W.		186	24º 53′ 57″ N.	85º 59′ 59″ W.
84	26º 29′ 05″ N.	79º 29′ 53″ W.		187	25º 10′ 44″ N.	86º 30′ 07″ W.
85	26º 25′ 31″ N.	79º 29′ 58″ W.		188	25º 43′ 15″ N.	86º 21′ 14″ W.
86	26º 23′ 29″ N.	79º 29′ 55″ W.		189	26º 13′ 13″ N.	86º 06′ 45″ W.
87	26º 23′ 21″ N.	79º 29′ 54″ W.		190	26º 27′ 22″ N.	86º 13′ 15″ W.
88	26º 18′ 57″ N.	79º 31′ 55″ W.		191	26º 33′ 46″ N.	86º 37′ 07″ W.
89	26º 15′ 26″ N.	79º 33′ 17″ W.		192	26º 01′ 24″ N.	87º 29′ 35″ W.
90	26º 15′ 13″ N.	79º 33′ 23″ W.		193	25º 42′ 25″ N.	88º 33′ 00″ W.
91	26º 08′ 09″ N.	79º 35′ 53″ W.		194	25º 46′ 54″ N.	90º 29′ 41″ W.
92	26º 07′ 47″ N.	79º 36′ 09″ W.		195	25º 44′ 39″ N.	90º 47′ 05″ W.
93	26º 06′ 59″ N.	79º 36′ 35″ W.		196	25º 51′ 43″ N.	91º 52′ 50″ W.
94	26º 02′ 52″ N.	79º 38′ 22″ W.		197	26º 17′ 44″ N.	93º 03′ 59″ W.
95	25º 59′ 30″ N.	79º 40′ 03″ W.		198	25º 59′ 55″ N.	93º 33′ 52″ W.
96	25º 59′ 16″ N.	79º 40′ 08″ W.		199	26º 00′ 32″ N.	95º 39′ 27″ W.
97	25º 57′ 48″ N.	79º 40′ 38″ W.		200	26º 00′ 33″ N.	96º 48′ 30″ W.
98	25º 56′ 18″ N.	79º 41′ 06″ W.		201	25º 58′ 32″ N.	96º 55′ 28″ W.
99	25º 54′ 04″ N.	79º 41′ 38″ W.		202	25º 58′ 15″ N.	96º 58′ 41″ W.
100	25º 53′ 24″ N.	79º 41′ 46″ W.		203	25º 57′ 58″ N.	97º 01′ 54″ W.
101	25º 51′ 54″ N.	79º 41′ 59″ W.		204	25º 57′ 41″ N.	97º 05′ 08″ W.
102	25º 49′ 33″ N.	79º 42′ 16″ W.		205	25º 57′ 24″ N.	97º 08′ 21″ W.
103	25º 48′ 24″ N.	79º 42′ 23″ W.		206	25º 57′ 24″ N.	97º 08′ 47″ W.

.3 the sea area located off the coasts of the Hawaiian Islands of Hawai′i, Maui, Oahu, Moloka′i, Ni′ihau, Kaua′i, Lāna′i, and Kaho′olawe, enclosed by geodesic lines

connecting the following coordinates:

POINT	LATITUDE	LONGITUDE
1	22º 32′ 54″ N.	153º 00′ 33″ W.
2	23º 06′ 05″ N.	153º 28′ 36″ W.
3	23º 32′ 11″ N.	154º 02′ 12″ W.
4	23º 51′ 47″ N.	154º 36′ 48″ W.
5	24º 21′ 49″ N.	155º 51′ 13″ W.
6	24º 41′ 47″ N.	156º 27′ 27″ W.
7	24º 57′ 33″ N.	157º 22′ 17″ W.
8	25º 13′ 41″ N.	157º 54′ 13″ W.
9	25º 25′ 31″ N.	158º 30′ 36″ W.
10	25º 31′ 19″ N.	159º 09′ 47″ W.
11	25º 30′ 31″ N.	159º 54′ 21″ W.
12	25º 21′ 53″ N.	160º 39′ 53″ W.
13	25º 00′ 06″ N.	161º 38′ 33″ W.
14	24º 40′ 49″ N.	162º 13′ 13″ W.
15	24º 15′ 53″ N.	162º 43′ 08″ W.
16	23º 40′ 50″ N.	163º 13′ 00″ W.
17	23º 03′ 20″ N.	163º 32′ 58″ W.
18	22º 20′ 09″ N.	163º 44′ 41″ W.
19	21º 36′ 45″ N.	163º 46′ 03″ W.
20	20º 55′ 26″ N.	163º 37′ 44″ W.
21	20º 13′ 34″ N.	163º 19′ 13″ W.
22	19º 39′ 03″	162º 53′ 48″

POINT	LATITUDE	LONGITUDE
24	18º 39′ 16″ N.	161º 19′ 14″ W.
25	18º 30′ 31″ N.	160º 38′ 30″ W.
26	18º 29′ 31″ N.	159º 56′ 17″ W.
27	18º 10′ 41″ N.	159º 14′ 08″ W.
28	17º 31′ 17″ N.	158º 56′ 55″ W.
29	16º 54′ 06″ N.	158º 30′ 29″ W.
30	16º 25′ 49″ N.	157º 59′ 25″ W.
31	15º 59′ 57″ N.	157º 17′ 35″ W.
32	15º 40′ 37″ N.	156º 21′ 06″ W.
33	15º 37′ 36″ N.	155º 22′ 16″ W.
34	15º 43′ 46″ N.	154º 46′ 37″ W.
35	15º 55′ 32″ N.	154º 13′ 05″ W.
36	16º 46′ 27″ N.	152º 49′ 11″ W.
37	17º 33′ 42″ N.	152º 00′ 32″ W.
38	18º 30′ 16″ N.	151º 30′ 24″ W.
39	19º 02′ 47″ N.	151º 22′ 17″ W.
40	19º 34′ 46″ N.	151º 19′ 47″ W.
41	20º 07′ 42″ N.	151º 22′ 58″ W.
42	20º 38′ 43″ N.	151º 31′ 36″ W.
43	21º 29′ 09″ N.	151º 59′ 50″ W.
44	22º 06′ 58″ N.	152º 31′ 25″ W.
45	22º 32′ 54″	153º 00′ 33″

	N.	W.
23	19º 09′ 43″ N.	162º 20′ 35″ W.

	N.	W.

.3 The United States Caribbean Sea area includes:

.1 the sea area located off the Atlantic and Caribbean coasts of the Commonwealth of Puerto Rico and the United States Virgin Islands, enclosed by geodesic lines connecting the following coordinates:

POINT	LATITUDE	LONGITUDE
1	17º 18′ 37″ N.	67º 32′ 14″ W.
2	19º 11′ 14″ N.	67º 26′ 45″ W.
3	19º 30′ 28″ N.	65º 16′ 48″ W.
4	19º 12′ 25″ N.	65º 6′ 8″ W.
5	18º 45′ 13″ N.	65º 0′ 22″ W.
6	18º 41′ 14″ N.	64º 59′ 33″ W.
7	18º 29′ 22″ N.	64º 53′ 51″ W.
8	18º 27′ 35″ N.	64º 53′ 22″ W.
9	18º 25′ 21″ N.	64º 52′ 39″ W.
10	18º 24′ 30″ N.	64º 52′ 19″ W.
11	18º 23′ 51″ N.	64º 51′ 50″ W.
12	18º 23′ 42″ N.	64º 51′ 23″ W.
13	18º 23′ 36″ N.	64º 50′ 17″ W.
14	18º 23′ 48″ N.	64º 49′ 41″ W.
15	18º 24′ 11″ N.	64º 49′ 0″ W.
16	18º 24′ 28″ N.	64º 47′ 57″ W.
17	18º 24′ 18″ N.	64º 47′ 1″ W.
18	18º 23′ 13″	64º 46′ 37″ W.

POINT	LATITUDE	LONGITUDE
29	18º 21′ 57″ N.	64º 40′ 15″ W.
30	18º 21′ 51″ N.	64º 38′ 23″ W.
31	18º 21′ 22″ N.	64º 38′ 16″ W.
32	18º 20′ 39″ N.	64º 38′ 33″ W.
33	18º 19′ 15″ N.	64º 38′ 14″ W.
34	18º 19′ 7″ N.	64º 38′ 16″ W.
35	18º 17′ 23″ N.	64º 39′ 38″ W.
36	18º 16′ 43″ N.	64º 39′ 41″ W.
37	18º 11′ 33″ N.	64º 38′ 58″ W.
38	18º 3′ 2″ N.	64º 38′ 3″ W.
39	18º 2′ 56″ N.	64º 29′ 35″ W.
40	18º 2′ 51″ N.	64º 27′ 2″ W.
41	18º 2′ 30″ N.	64º 21′ 8″ W.
42	18º 2′ 31″ N.	64º 20′ 8″ W.
43	18º 2′ 3″ N.	64º 15′ 57″ W.
44	18º 0′ 12″ N.	64º 2′ 29″ W.
45	17º 59′ 58″ N.	64º 1′ 4″ W.
46	17º 58′ 47″	63º 57′ 1″ W.

	N.				N.	
19	18º 22′ 37″ N.	64º 45′ 20″ W.		47	17º 57′ 51″ N.	63º 53′ 54″ W.
20	18º 22′ 39″ N.	64º 44′ 42″ W.		48	17º 56′ 38″ N.	63º 53′ 21″ W.
21	18º 22′ 42″ N.	64º 44′ 36″ W.		49	17º 39′ 40″ N.	63º 54′ 53″ W.
22	18º 22′ 37″ N.	64º 44′ 24″ W.		50	17º 37′ 8″ N.	63º 55′ 10″ W.
23	18º 22′ 39″ N.	64º 43′ 42″ W.		51	17º 30′ 21″ N.	63º 55′ 56″ W.
24	18º 22′ 30″ N.	64º 43′ 36″ W.		52	17º 11′ 36″ N.	63º 57′ 57″ W.
25	18º 22′ 25″ N.	64º 42′ 58″ W.		53	17º 4′ 60″ N.	63º 58′ 41″ W.
26	18º 22′ 26″ N.	64º 42′ 28″ W.		54	16º 59′ 49″ N.	63º 59′ 18″ W.
27	18º 22′ 15″ N.	64º 42′ 3″ W.		55	17º 18′ 37″ N.	67º 32′ 14″ W.
28	18º 22′ 22″ N.	64º 40′ 60″ W.				

APPENDIX VIII FORM OF INTERNATIONAL ENERGY EFFICIENCY (IEE)

CERTIFICATE

INTERNATIONAL ENERGY EFFICIENCY CERTIFICATE

Issued under the provisions of the Protocol of 1997, as amended by resolution MEPC.203(62), to amend the International Convention for the Prevention of Pollution by Ships, 1973, as modified by the Protocol of 1978 related thereto (hereinafter referred to as "the Convention") under the authority of the Government of:

…….....

(Full designation of the Party)

by .....

(Full designation of the competent person or organization authorized under the provisions of the Convention)

Particulars of ship[17]

Name of ship .....

Distinctive number or letters .....

Port of registry .....

Gross tonnage .....

IMO Number[18].....

[17] Alternatively, the particulars of the ship may be placed horizontally in boxes.

[18] In accordance with IMO ship identification number scheme, adopted by the Organization by resolution A.600(15).

THIS IS TO CERTIFY:

1 That the ship has been surveyed in accordance with regulation 5.4 of Annex VI of the Convention and

2 That the survey shows that the ship complies with the applicable requirements in regulation 20, regulation 21 and regulation 22.

Completion date of survey on which this Certificate is based: ..... (dd/mm/yyyy)

Issued at .....
(Place of issue of certificate)

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

(Date of issue)

(Signature of duly authorized official issuing the certificate)

(Seal or stamp of the authority, as appropriate)

SUPPLEMENT TO THE INTERNATIONAL ENERGY EFFICIENCY CERTIFICATE

(IEE CERTIFICATE)

RECORD OF CONSTRUCTION RELATING TO ENERGY EFFICIENCY

Notes:

1 This Record shall be permanently attached to the IEE Certificate. The IEE Certificate shall be available on board the ship at all times.

2 The Record shall be at least in English, French or Spanish. If an official language of the issuing Party is also used, this shall prevail in case of a dispute or discrepancy.

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

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

1 Particulars of ship

1.1 Name of ship .....

1.2 IMO number .....

1.3 Date of building contract .....

1.4 Gross tonnage .....

1.5 Deadweight .....

1.6 Type of ship* .....

2 Propulsion system

2.1 Diesel propulsion .....

2.2 Diesel-electric propulsion .....

2.3 Turbine propulsion .....

2.4 Hybrid propulsion .....

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

3 Attained Energy Efficiency Design Index (EEDI)

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

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

3.2 The Attained EEDI is not calculated as:

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

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

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

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

4 Required EEDI

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

4.2 The required EEDI is not applicable as:

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

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

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

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

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

5 Ship Energy Efficiency Management Plan

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

6 EEDI technical file

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

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

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

THIS IS TO CERTIFY that this Record is correct in all respects.

Issued at .....

(Place of issue of the Record)

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

(Date of issue)

(Signature of duly authorized official issuing the Record)

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

***