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IMLI

MERCHANT SHIPPING (PREVENTION OF AIR POLLUTION FROM SHIPS) REGULATIONS 2015

A Legislation Drafting Project submitted in partial fulfilment 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

1.1 Explanatory Memorandum

The draft law this explanatory note refers to creates Regulations for the prevention of air pollution from ships. The regulations incorporate MARPOL Annex VI and include the 2011 revised version. As Nigeria has not ratified MARPOL Annex VI an instrument of accession has been added to the draft. This explanatory note seeks to explain what this Convention constitutes, the importance of the ratification of this Convention and how it will be incorporated into the Nigerian legal system.

1.2 What is Air Pollution

The main concern of air pollution from ships is the current sulphur content of marine fuels. Air pollution is the introduction of substances into the air, which results in harmful effects, that endangers human health, living resources, ecosystems and material property. The pollutants, which cause a lot of concern, include, particulate matter (PM), oxides of sulphur (SO_x), oxides of nitrogen (NO_x), and ozone. These oxides are produced when sulphur is released into the atmosphere.

The United Nations Convention on the Law of the Sea (UNCLOS) has also provided its own definition for pollution, which is limited to the marine environment. In Article 212, air pollution is explained as the deposition of pollution from or through air into the marine environment.[1] It states, "States shall adopt laws [...] to control pollution of the marine environment from or through the atmosphere."[2]

[1] Friedrich, Axel *et al*; 'Air Pollution and GHG Emissions From Oceangoing Ships | International Council On Clean Transportation' <http://www.theicct.org/air-pollution-and-ghg-emissions-oceangoing-ships> last accessed May 3rd 2015.
[2] United Nations Convention on the Law of the Sea, 10 December 1982 concluded at the Montego Bay, Jamaica, entered into force on 16 November 1994, 1833 U.N.T.S. 397.

The International Maritime Organization (IMO) on the other hand has focused primarily on the pollutants that pose a risk to the marine environment like NO_x and SO_x. It has however, departed from the narrow definition given by the UNCLOS. In examining the feasibility of addressing greenhouse gas emissions. State environmental agencies have however adopted a broader definition of air pollution that seeks to address the public health and environmental effects and dangers caused by the consequences from direct exposure to air pollution. That definition does not only include NO_x and SO_x but other pollutants such as greenhouse gases and Particular Matter.[3] This explanatory note therefore focuses on the broader definition of air pollution, which includes greenhouse gases as an air pollutant.

1.3 Background To The Convention

The development and formulation of regulations in relation to vessel pollution beyond the territorial 3 nautical miles limits came about in the early 20th century.[4] This was a result of political pressures from both the United Kingdom and the United States. This pressure led to the 1926 Washington Draft Convention and the League of Nations Draft Convention.[5] These Draft legislation were never adopted formally as a result of the outbreak of the Second World War, which resulted in the suspension of any action to regulate and control vessel-source pollution.[6] The rapid economic growth during the post-war period enhanced the demand for protection of the marine environment from shipping-related pollution. At the Geneva Convention 1948 the United Nations took the first step to address the issue of marine pollution. This Convention led to the birth of the Inter-Governmental Maritime Consultative Organization (IMCO), the present day

[3] Ibid.
[4] Szepes, Mark; 'MARPOL 73/78: The Challenges Of Regulating Vessel-Source Oil Pollution', *Law.manchester.ac.uk*, 2013, <http://www.law.manchester.ac.uk/research/student-research/review/vol2/> accessed 3 February 2015.
[5] Ibid.
[6] Ibid.

IMO.[7]

At the early stages of IMCO the UK needed immediate action in the area of oil pollution. This high demand led the UK to create a committee for the prevention of pollution of the Sea by Oil, which was chaired by the Lord Faulkner, whose main aim was to explore potential global measures to regulate oil discharges.[8] The Faulkner Committee held a conference in 1954 with the aim of negotiating an international Convention on this subject.[9] This conference led to the International Convention for the Prevention of Pollution of the Sea by Oil (OILPOL), which came into force 26th July 1958.

OILPOL prohibited the release of oily waste into the sea within a 50 nautical-mile coastal zone targeted at oil tankers and not non-tanker commercial vessels.[10] Nonetheless, this Convention failed as it had poor implementation and insufficient enforcement controls for costal and port States. This was because the States could not monitor oily discharge and there was a general reluctance by flag States to prosecute those who didn't abide by the regulations.[11] The desire by the UK to reduce oil pollution was therefore not feasible.

The Oil spill disaster of the Torrey Canyon had the largest impact in the creation of marine pollution regulations.[12] This incident occurred in March 1967 by a Liberian tanker when the master attempted to take a short cut over the Seven Stones Reef.[13] This was the biggest oil spill ever recorded during the time it occurred and its effects were environmentally disastrous.[14] As a result the global maritime community was shocked and lured into taking quick action. It also prompted a new discussion on ship safety and served as a catalyst for the protection of the marine environment leading to a decision to

[7] Ibid.
[8] Ibid.
[9] Ibid.
[10] Ibid.
[11] Ibid.
[12] Mensah, A Thomas et al; Law Of The Sea, Environmental Law, And Settlement Of Disputes, Martinus Nijhoff, 2007.
[13] Ibid.
[14] Ibid.

develop a comprehensive instrument regarding pollution prevention from ships.[15] The instrument referred to as the International Convention for the Prevention of Pollution from Ships was signed at a diplomatic conference in 1973 as a first step into achieving this aim of eradicating marine pollution.

Following this disaster the United States lobbied for improvement and created the Environmental Protection Agency (EPA) 1970.[16] This act of the USA also encouraged other States to become aware and interested in the move to reduce marine pollution. During the International Conference on Marine Pollution by IMCO the 1973 MARPOL was established. This Convention later replaced OILPOL that was found to be inefficient after the Torrey Canyon incident.

The MARPOL Convention is considered to be the main international Convention on the prevention of pollution of the marine environment by ships from both operational and accidental causes. The intention of MARPOL 73 was to eliminate and eradicate both intentional and accidental pollution of the marine environment from oil and other harmful substances.[17] It was held that the best way to achieve this result is by the establishment of MARPOL. In general MARPOL was therefore created as an organic regulation with the expectation that it would evolve over time to consider additional environmental aspects. This evolution has occurred and continues to occur leading to the current 6 annexes, each dealing with a different type of pollution.

1.4 Annex VI

The concern over air pollution was trigged by a growing general awareness that the marine industry should not remain outside the growing worldwide trend to control air

[15] Marpol, How To Do It, 2013, IMO Publishing, 2013, page 3.
[16] Szepes, Mark; 'MARPOL 73/78: The Challenges Of Regulating Vessel-Source Oil Pollution', 2013, <http://www.law.manchester.ac.uk/research/student-research/review/vol2/> last accessed May 3rd 2015.
[17] Ibid.

pollution sources. [18] This concern resulted in the development of Annex VI, covering a range of air pollutants, which was adopted at a diplomatic conference by means of the 1997 protocol to the Convention.[19]

This explanatory note will focus on the new chapter 4 of Annex VI of MARPOL, which regulates on air pollution from ships. The protocol of 1997 (Annex VI – Regulations for the prevention of Air pollution from Ships) was first adopted 26th September 1997 and came into force 19th May 2005. Which was in response to the growing awareness of the shipping industry's contribution to the problem of air pollution. The Marine Environment Protection Committee (MEPC), which is the IMO's senior technical body on marine pollution, was the overseer of the development of Annex VI as a new annex to MARPOL.[20]

The rules of Annex VI set limits on sulphur oxide and nitrogen oxide from ship exhausts and prohibits deliberate emissions of ozone depleting substances. It includes a global cap of 4.5% by mass on the sulphur content of fuel oil and also set provisions allowing for special Sulphur Emission Control Areas where the sulphur content of the fuel used must not exceed 1.5% by mass, or ships must fit technologies to achieve equivalent SOx emissions. It also sets limits on emissions of NOx from diesel engines. The international community recognised that the requirements of MARPOL Annex VI needs to be strengthened in order to produce meaningful reduction in air pollution. This led to a revised version of Annex VI, which later led to the adoption of the new chapter 4 on Greenhouse Gases (GHG).

In 2000, the IMO undertook a comprehensive study to analyse greenhouse gas emission from ships. As a result of this study the main issues of the agenda of the MEPC became focused on greenhouse gas emissions from ships. On 5th December 2003, the IMO Assembly adopted Resolution A.963 (23) on IMO Policies and Practices Related to the

[18] Marpol, How To Do It, 2013, IMO Publishing, 2013.
[19] Marpol, How To Do It, 2013, IMO Publishing, 2013.
[20] 'Prevention Of Air Pollution From Shipping - Implementation Of Directive 2012/33/EU', 2013, <https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/307174/impact-assessment-air-pollution-shipping.pdf> last accessed May 3rd 2015.

Reduction of Greenhouse Gas Emissions from Ships, which urged MEPC to identify and develop the mechanism(s) needed to achieve the limitation or reduction of GHG emissions from international shipping. These mechanisms are the following four measures:

A. Technical and operational measures, these include:

1. Interim guidelines on the method of calculation of the energy efficiency design index for new ships (EEDI).
2. Interim guidelines for voluntary verification of energy efficiency design index.
3. Guidance for the development of a ship energy efficiency management plan (SEEMP), and
4. Guidelines for voluntary use of the energy efficiency operational indicator (EEOI).[21]

B. Market based measures.

The IMO obtained its mandate to regulate on matters concerning greenhouse gas emissions from the Kyoto Protocol.[22]

The Kyoto Protocol, which follows the United Nations Framework Convention on Climate Change, is one of the main instruments for combating climate change. It contains the undertakings entered into by the industrialised countries to reduce their emissions of certain greenhouse gases such as those covered in MARPOL, which are responsible for global warming. It also helped to make people all over the world more aware of the problems linked to climate change.[23]

The MARPOL Convention and UNCLOS also gives the IMO some competence to regulate in this area. The IMO started its work on the reduction of GHG emission from ships in the atmosphere in 1997 when it adopted Resolution 8 on 'CO_2 emissions from

[21]< http://unfccc.int/resource/docs/2011/smsn/igo/098.pdf> last accessed May 3rd 2015.

[22] Shi, Yubing; 'Greenhouse Gas Emissions From International Shipping: The Response From China'S Shipping Industry To The Regulatory Initiatives Of The International Maritime Organization', (2014) 29 The International Journal of Marine and Coastal Law.

[23]<http://europa.eu/legislation_summaries/environment/tackling_climate_change/l28060_en.htm> last accessed May 3rd 2015.

ships'.[24] The first study of the IMO on emissions of greenhouse gases from international shipping was executed after a request made at the International Conference of Parties to the MARPOL 73/78 Convention was held at the IMO Headquarters in September 1997.[25] Since then, various discussions and negations occurred on the reduction of green house gases from ships within the MEPC. By 2007 it was estimated that international shipping contributed about 2.7% to the global emissions of Carbon dioxide. Due to this the IMO adopted mandatory technical and operational energy efficiency measures with the aim of significantly reducing the amount of CO_2.[26] The solution they came up with was to introduce the Efficiency Design Index (EEDI) for new ships. During its 59th session MEPC circulated "Interim Guidelines on the Method of Calculation of the Energy Efficiency Design Index for new ships. This was also accompanied by the 'Guidance for the Development of a Ship Energy Efficiency Management Plan (SEEMP). These measures were made mandatory for new ships at MEPC 62 and entered into force on 1 January 2013.

According to the IMO this was the first legally binding climate change treaty to be adopted since the Kyoto Protocol. To assist the implementation of these regulations in Annex VI MEPC adopted four important guidelines namely resolutions:

- MEPC.212 (63) – Method of Calculation of the attained EEDI for new ships.
- MEPC.213(63) – Guidelines for the development of SEEMP.
- MEPC.214(63) – Guidelines on survey and certification of the EEDI.
- MEPC.215 (63) – Guidelines for calculation of reference lines for use with EEDI.

1.5 Chapter 4 Regulations

EEDI- Energy Efficiency Design Index

[24] Ibid.
[25] Ibid.
[26] Ibid.

$$EEDI = \frac{\text{Impact to environment}}{\text{Benefit to society}} = \frac{\text{Power x fuel consumption x } CO_2 \text{ emission factor}}{\text{Capacity x ship speed}}$$

(Transportation work)

The EEDI is expected to promote innovation at the design stage of ships for a reduction of their energy consumption.

The EEDI is applicable to ship types responsible for 85% of CO_2 emissions from international shipping. The EEDI for new ships is the most important technical measure and it aims at promoting the use of less polluting and energy efficient equipment and engines. It requires a minimum energy efficiency level per capacity depending on the ship type and size. It will also help in continued technical development of all components influencing the fuel efficiency of a ship because the level will be heightened every five years. Reduction rates are set until 2025-2030 when a 30% reduction is mandated over the average efficiency for ships built between 2000 and 2010. These measures will therefore, affect the players in the international shipping industry such as the shipowners, ship operators, shipbuilders, ship designers, marine diesel engine and equipment manufacturers. Although, these measures appear strict, these players will be free to adopt any technology they desire in order to achieve the targeted energy-efficiency level as long as the most cost-efficient solution is applied. The EEDI is therefore a non-prescriptive, performance-based tool, which leaves the choice of technologies to use in a specific ship design to the industry.[27]

The EEDI has been developed for the largest and most energy intensive segments of the world merchant fleet and will embrace about 70% of emissions from new oil and gas tankers, bulk carriers, general cargo, refrigerated cargo and container ships as well as combination carriers (wet/dry bulk). For ship types not covered by the current EEDI formula, suitable formulas will be developed in the future addressing the largest emitters first.[28]

[27] Marpol, How To Do It, 2013, IMO Publishing, 2013.
[28] Ibid.

The SEEMP on the other hand will assist the shipping industry in achieving cost-effective efficiency improvements in its operations, using the Energy Efficiency Operational Indicator (EEOI) as a monitoring tool and benchmark.[29]

The new IMO measures, it is said, will help ship operators save a total of $34 to $60 billion in fuel costs by 2020 as well as dramatically reduce CO_2 emissions from international maritime transport by up to 180 million tonnes annually by 2020. It is estimated that by 2030 this figure will increase to 390 million tonnes annually.[30]

However, the technical and operational measures will not be sufficient to satisfactorily reduce the amount of GHG emissions from international shipping in view of the growth projections of human population and world trade. Therefore, Market Based Measures (MBM) has also been considered and would serve two main purposes: providing a fiscal incentive for the maritime industry to reduce emissions even further and offsetting of growing ship emissions. The overwhelming part of any proceeds generated by an MBM would be used for climate change purposes in developing countries.[31]

The adoption by IMO of amendments to MARPOL Annex VI on inclusion of mandatory energy efficiency regulations for ships represents the first ever global and legally binding CO_2 reduction regime for an international industry sector or transport mode.

It is therefore clear that pollution from ships is not a new concept or concern of the IMO and the shipping world at large. This can be seen in the fact that mandatory IMO measures to reduce CO_2 from ships have been in existence before the Kyoto Protocol was adopted in October 1997. IMO introduced these regulations so as to involve the shipping world in the movement to protect our environment from the hazardous

[29] Ibid.
[30] Ibid.
[31] Ibid.

consequences of climate change. According to the then IMO Secretary-General E.E. Mitropoulos while talking about the new regulations in Annex VI said:

"This is a landmark for the Organisation, which has now made a positive contribution to worldwide efforts to stem climate change and, indeed, a landmark for the international community since, for the first time in history it has been possible to legislate GHG emission reductions for an entire industry sector".[32]

1.6 The Importance and Need for Nigeria to Incorporate Annex VI MARPOL

On the one hand, there is the need of society to be able to make use of the resources and facilities offered by nature in order to produce the things it needs and wants and, on the other hand, the need to ensure that man does not so pollute the environment as to make impossible the very activities which depend on the environment for their continuance – activities such as transportation, food production, recreation and industry.
(Thomas A. Mensah)[33]

This quote is all encompassing, which is simply that there is a responsibility to protect the environment. Nigeria should therefore take on this responsibility to protect its environment from pollutants in all sectors.

The policy of the maritime industry also reflects this responsibility, which is contained in the NIMASA (Nigerian Maritime Administration and Safety Agency) Act 2007. It is stated in the act that the national policy is to provide for the promotion of maritime

[32]<http://www.imo.org/OurWork/Environment/PollutionPrevention/AirPollution/Documents/GHG%20Flyer%20WEB.pdf> last accessed May 3rd 2015.
[33] Mensah, A Thomas; and others, *Law Of The Sea, Environmental Law, And Settlement Of Disputes*, Martinus Nijhoff, 2007.

safety and security, protection in the maritime environment, shipping registration and commercial shipping, maritime labour, the establishment of Nigerian maritime administration and safety agency; and for related matters.

Nigeria has ratified the MARPOL Convention and its annexes apart from Annex VI, which came into force in 2005. The Nigerian Government does not carry out systematic studies and assessment programmes on the consistent air quality as its being carried out by other countries such as the programme carried out by the Environmental Protection Agency (EPA) in the United States.[34] There are also other drawbacks such as the lack of database showing emission inventory due to the lack of consistent and systematic measurements; Unavailability of air pollution and GHG monitoring station, this is based on information from World Data Centre for Greenhouse Gases. There are also few independent and research-base measurement data that are available for general public view.[35] There is also a Lack of collaboration between key regulatory authorities, laxity in the enforcement of emission regulations and the air quality assessment and air pollution studies have focused mainly on urban centers. [36]

As demand and supply chains increase, the fast and efficient movement of goods is an economic imperative. Due to this there are investments being made in the Nigerian shipping industry to modernize and expand ports and intermodal facilities so as to accommodate growing cargo volumes. This growth will inevitably lead to local air quality problems and global climate-change risks unless ship emissions are further controlled.[37] To this date, in Nigeria improvements in ship environmental performance have not proceeded at the same pace as the increase in shipping activity and ship emissions remain largely unregulated.[38] These limitations in the Nigerian shipping industry, therefore shows that it is prone to the problems of air pollution from ships and needs to adopt regulations to minimize such risks.

[34] Tawari, C.C; and . Abowei, J.F.N; 'Air Pollution In The Niger Delta Area Of Nigeria', 2012, 1, International Journal of Fisheries and Aquatic Sciences, p. 111.
[35] Ibid.
[36] Ibid.
[37] Ibid.
[38] Ibid.

The first emission inventory resolved for ships was developed by Corbett and Fishbeck in 1997.[39] According to this assessment it was found that ships are major contributors to global emissions of nitrogen and sulfur, carbon dioxide, fine particular matter and hydrocarbons and carbon monoxide. Because such a high proportion of ship emissions occur relatively close to coastal areas and port cities, the ship contribution to emission inventories in many heavily populated land areas ranged from 5 percent to 30 percent.[40]

These studies on Air pollution from ships consider the following types of emissions:

Carbon dioxide: These are CO_2 emissions from ships that contribute directly to global warming, regardless of where they occur. Emissions from ocean-going vessels are estimated to account for 1.5–3 percent of overall CO_2- related
radioactive forcing[41].

Nitrogen oxides: In combination with hydro- carbons, which are widely available in the marine environment, NO_X emissions contribute to the formation of ozone. Although the global warming effect of ground-level ozone is low, both NO_X and ozone can be transported higher in the atmosphere where ozone has a significantly greater radioactive forcing impact. NO_X emissions also play a role in the reduction of methane, which has a smaller cooling effect. Overall, however, ship NO_X emissions are believed to have a net warming effect—one that is potentially equivalent to the warming effect from ship CO_2 emissions (IMO 2000).[42]

Primary and secondary particulate matter: Sulfates are estimated to have an overall cooling effect. The ship tracks, clouds that form in the wake of a ship's passage seeded by its PM emissions, are expected to have a slight cooling impact. Black carbon emissions are anticipated to have a warming impact. Black carbon from all sources, may be responsible for as much as 25 percent of observed global warming, and may

[39] Friedrich, Axel; *loc. cit.*
[40] Ibid.
[41] Ibid.
[42] Ibid.

have a climate-forcing efficacy twice that of CO_2 (Hansen and Nazarenko 2004). The net impacts of primary and secondary particulate matter from ships on cli- mate change risks are currently uncertain, as it is difficult to model all effects (including impacts on the albedo—or reflectiveness—of snow and ice surfaces, as well as impacts on cloud formation).[43]

Refrigerant gases: Fluorinated and chlorinated hydrocarbons (such as R-22) are still used as cooling agents in refrigerated ships and fishing vessels (UBA 2004). These hydro- carbons are highly potent greenhouse gases (UBA 2004). It has been estimated that 50 percent of the hydro fluorocarbons (HFCs) or per fluorocarbons (PFCs) used on a ship are released to the air during operation and that an additional 15 percent are emitted during maintenance (Drewry 1996).”[44]

The Greenhouse effect on the other hand is a situation whereby greenhouse gases create a condition in the upper atmosphere, which leads to a trapping of heat leading to increased surface and lower tropospheric temperatures.[45] Carbon dioxide emissions from combustion of fossil fuels are a source of greenhouse gas emissions. Scientists for about a century have understood this effect and technological advancements during this period to help increase the breadth and depth of data relating to the phenomenon.[46] Currently, scientists are studying the role of changes in composition of greenhouse gases from natural and anthropogenic sources for the effect on climate change. Other studies have also investigated the potential for long-term rising levels of atmospheric Carbon dioxide to cause increases in the acidity of ocean waters and the possible effects of this on marine ecosystems.[47]

[43] Ibid.
[44] Ibid.
[45] Tawari, C.C; *op.cit*., p. 105.
[46] Ibid.
[47] Ibid.

The international shipping industry is committed to reducing the emissions of CO_2 and other greenhouse gases. This industry is by far the most carbon efficient mode of commercial transport. However CO_2 emissions from the industry as whole (some 2.7% global emissions) can be compared to those of a major national economy.[48] The shipping industry therefore accepts that the CO_2 emission reduction must be aimed at and should be at least as ambitious as the CO_2 emissions reduction agreed under any new United Nations Climate Change Convention. Nonetheless, as shipping is the servant of the world trade, the emissions of the shipping sector will therefore be determined to a significant extent, by the expected long term growth of the world economy and population between now and 2050.[49]

The MARPOL Convention has helped to ensure a dramatic reduction in pollution by shipping. Although, the only way this can be efficient in reducing the effects of air pollution from ships is if the IMO regulations are implemented and well executed.

According to various studies on this issue it has been recognised that:

- Bunker fuels used in aviation and maritime sector contribute to almost 10% of the global GHG emissions.
- It is estimated that the shipping industry is said to have emitted 1,046 million tones of CO_2 in 2007, which corresponds to 3.3% of the global emissions during 2007.
- By 2050 in absence of the creation of policies and its implementation, ship emissions may grow by 150% to 250% (compared to the emissions in 2007) as a result the growth in shipping.
- The Second IMO GHG Study 2009 identifies a significant potential for reduction of GHG emissions through technical and operational measures. It estimates that, if implemented, these measures could increase efficiency and reduce the emissions rate by 25% to 75% below the current level.

[48] <http://www.shortsea.be/html_nl/publicaties/documents/shipping-world-trade-and-the-reduction-of-co2-emissions.pdf> last accessed May 3rd 2015.
[49] Ibid.

In considering these studies, it is clear that Nigeria contributes to GHG from ships. This is due to the fact that ships, which come and leave the Nigerian ports and also other local ships utilise bunker fuels, which leads to the emissions of GHG. Also, due to the lack of policies implemented in Nigeria she risks being one of the countries that will be tagged as a major source of pollutant if due care is not taken now to protect both the world at large and also our domestic environment.

The diagrams below show how the emission of Greenhouse Gases will increase over the years and its effect in international shipping, reflecting the impact caused by all countries. Therefore, steps need to be taken by Nigeria to contribute to avoiding the grievous damage it will cause. It also shows how pollution from ships will be larger than land-based pollution; in this regard, more attention needs to be placed on marine pollutions.

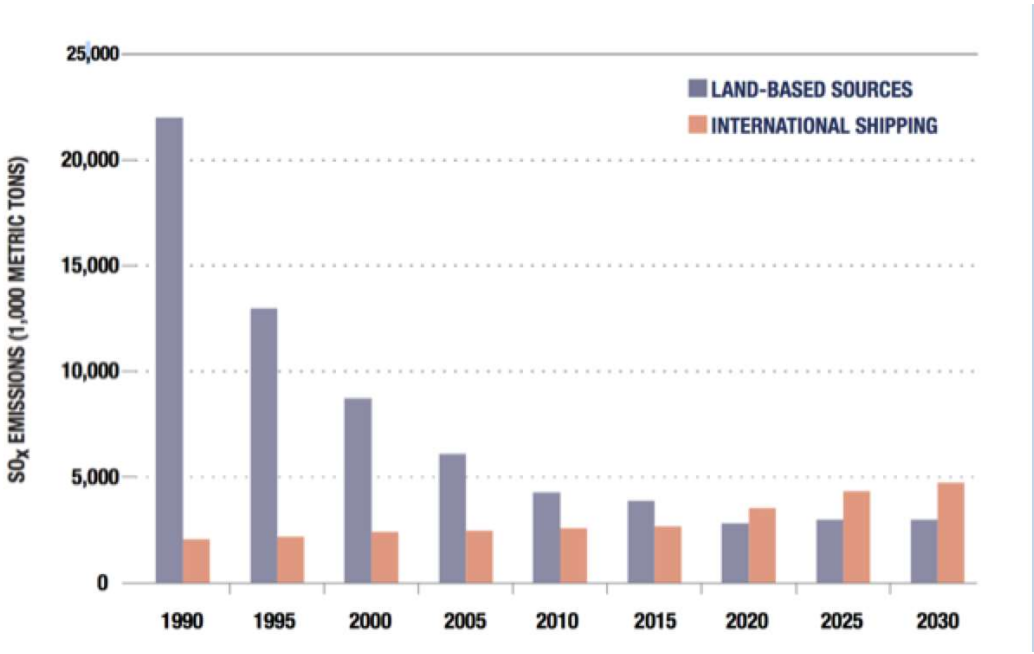


Figure 1: Inventories and Projections of SOx Emissions in Europe from Land-based and International Shipping Sources (EC 2009)

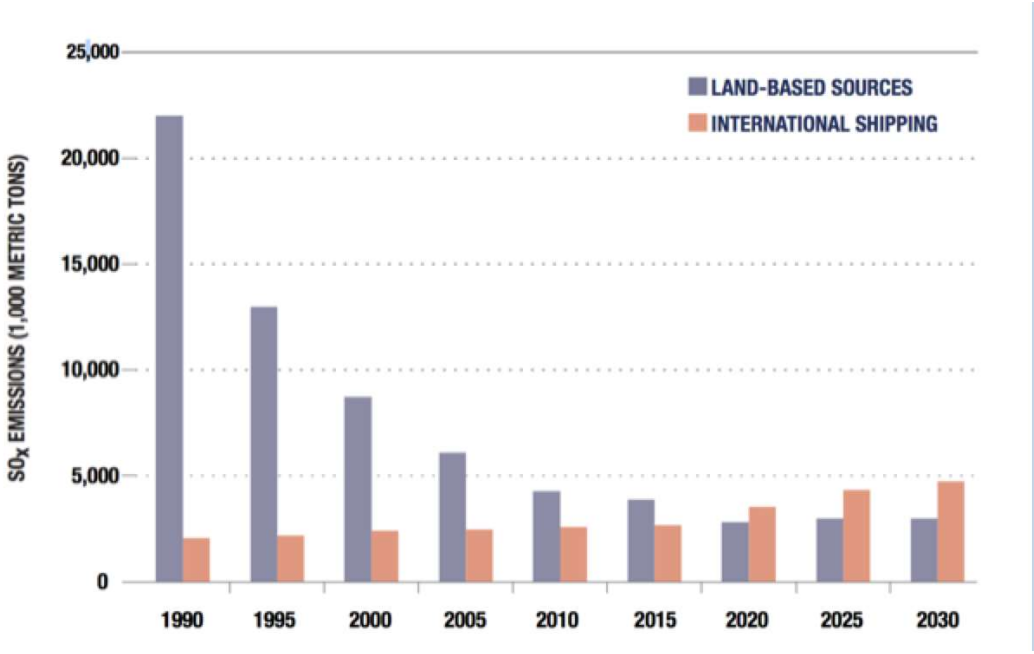


Figure 2 Inventories of NO_x Emissions in Europe from Land-based and International Shipping Sources (EC 2005)

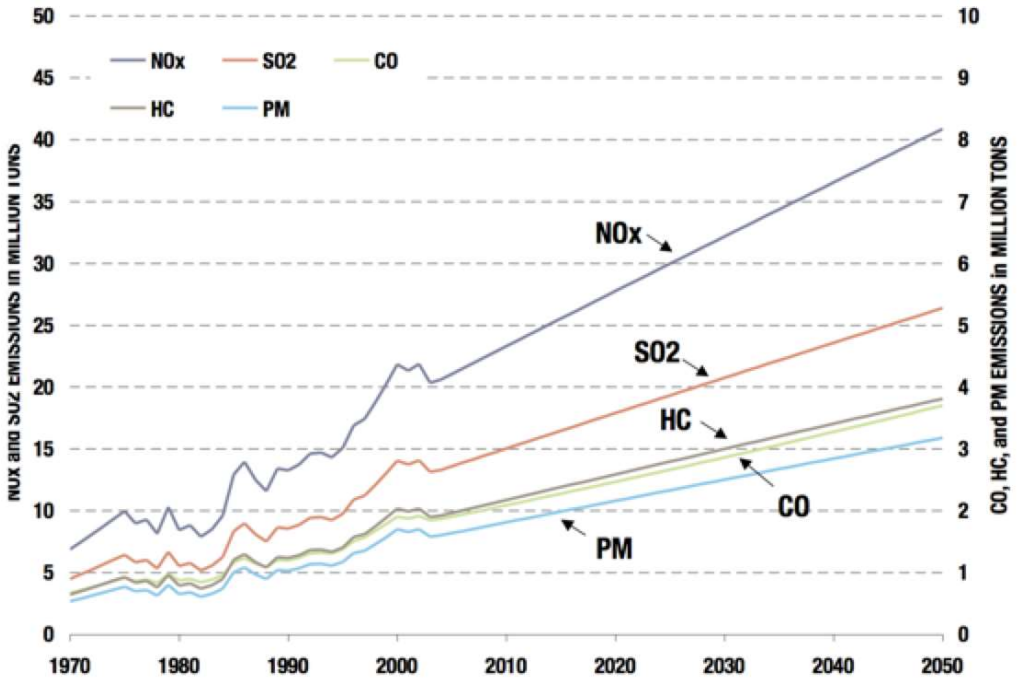


Figure 3: NOx, Sox, CO, HC and PM Emissions for International Shipping: 1970-2050

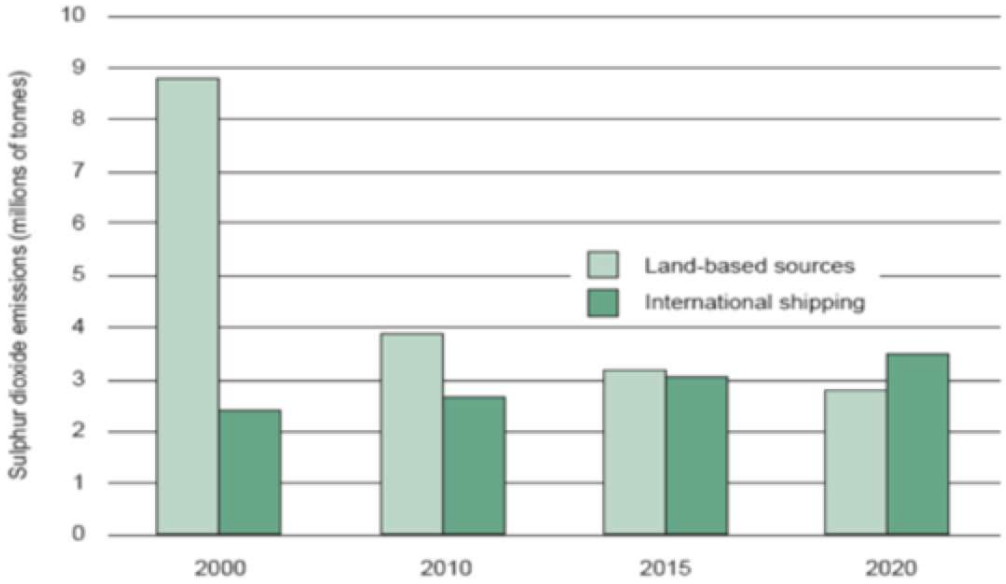
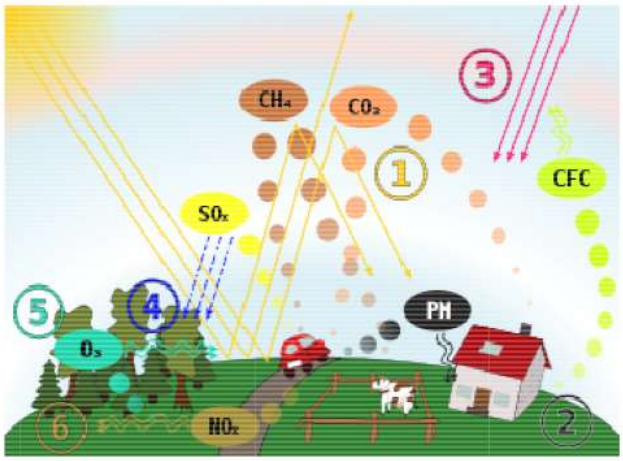


Figure 4 EU Sulphur dioxide by emissions by source.



: Schematic drawing, causes and effects of air pollution
1: greenhouse effect; 2: particulate contamination; 3: increased UV radiation; 4: acid rain; 5: increased ground level ozone concentration; 6: increased levels of nitrogen oxides
htt://en.wikipedia.org/wiki/file:AirPollutionauses&Effects.svg

Figure 5

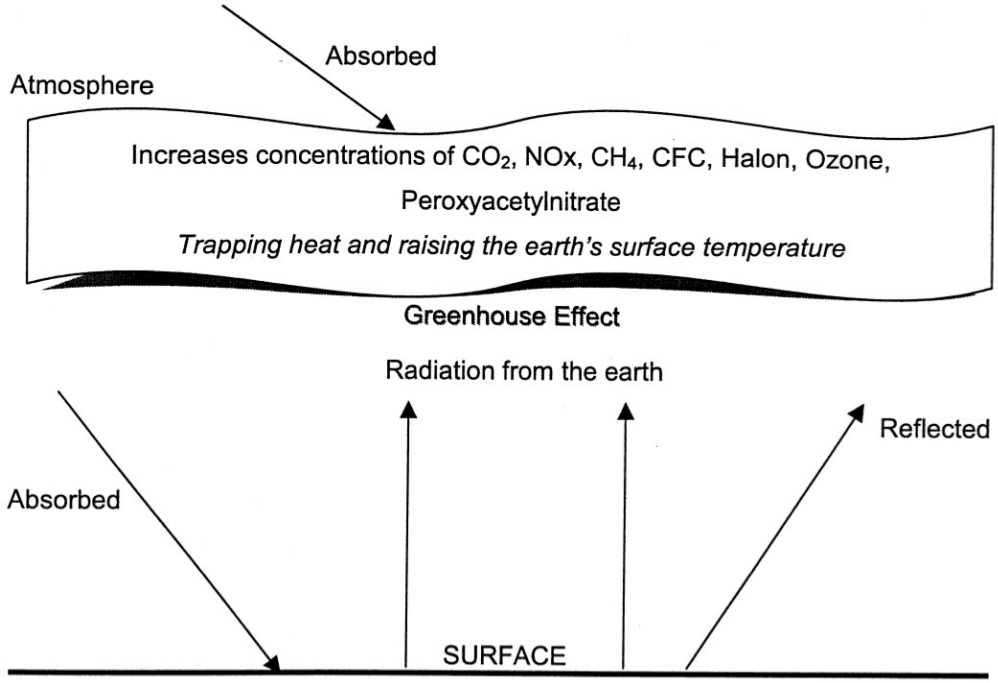


Figure 6 Schematic representation of greenhouse effect.

The reason for these increase over that of land based pollution is as a result of the importance of the shipping industry in the near future. The shipping of goods is important for sustainable development.[50] The lives and livelihood of people from both developing and developed countries are heavily reliant on the maritime transport sector.[51] This is because marine transportation remains the main means of mobility for the transportation of goods and services. More than 95% of global goods are transported on seagoing vessels.[52] Another contribution to the level of pollution is the type of fuel used. The fuel oil accounts for more than 50% of a ship's operating costs.[53] So as to make the account of the business cost-effective, most of the world's ship owners use bunker fuel, which is degraded residue

[50] Karim, Md. Saiful; and Alam, Shawkat; 'Climate Change And Reduction Of Emissions Of Greenhouse Gases From Ships: An Appraisal', (2010)1, AsianJIL.
[51] Ibid.
[52] Ibid.
[53] Ibid.

heavy oil. These degraded fuels produce a large amount of black smoke particulate matter, nitrogen oxides (NO_x), unburned hydrocarbons (UHC), sulphur oxides (SOx), carbon monoxide (CO), and carbon dioxide (CO_2) during the burning process in marine diesel engines, boilers, and incinerators.[54] These substances contribute to the process of depletion of the stratospheric ozone layer, accelerate greenhouse effect and lead to environmental hazards and acid rain. Therefore, the bunker fuels used, contribute to almost 10% of the global GHG emissions.[55]

The Common But Differentiated Responsibility (CBDR) principle is relevant in matters concerning climate change. This principle states that sustainable development is a responsibility that is shared.[56] Therefore if this principle is applied then Nigeria has a responsibility in matters concerning climate. UNCLOS also accepts this principle by stating that pollution can no longer be regarded as an inherent freedom of the seas; rather, it's careful prevention from all sources is now a legal obligation for the global community.[57] UNCLOS has also changed its focus on state responsibility to international co-operation for the conservation of the marine environment by imposing a general obligation on States to protect the marine environment.[58] As Nigeria is very much involved in meeting international standards and supporting the international community, one of the ways of maintaining this relationship will be to take responsibility and play a part in ensuring the safety of our environment.

1.7 Effects Of Pollution.

There are various studies to show the grievous impact of air pollution. The World Health Organization states that 2.4 million people die each year from air pollution.[59] "Epidemiological studies suggest that more than 500,000 Americans die each year from

[54] Ibid.
[55] Ibid.
[56] Ibid.
[57] Ibid.
[58] Ibid.
[59] Tawari, C.C; *op cit.,* 108.

cardiopulmonary disease linked to breathing fine particle air pollution."[60] Worldwide more deaths are linked to air pollution than to automobile accidents. The diseases related to air pollution are aggravated asthma, emphysema, lung and heart diseases and respiratory allergies, breathing, wheezing, coughing and aggravation of existing respiratory and cardiac conditions.

The impacts of climate change are experienced universally. Ecosystems and their goods and services depend on climatic conditions and therefore threaten the basic elements of life for people all over the world.[61] According to Tawari, in Nigeria it has affected certain areas like the Niger Delta's, access to water, food, health and the use of land and the environment. These impacts are long term and persistent, therefore, once it is emitted GHG can reside in the atmosphere for many decades.[62] For example Carbon dioxide can reside for centuries.[63] Therefore, the impact of climate change today will be experienced in the near future. Consequently, although the ethical considerations that States and people have a duty to protect the environment are an essential feature in public policy debates, they are fundamental also in a direct way to climate-change policy.[64]

Arguments may arise to justify emission reductions based on a weaker notion that emitters of greenhouse gases have obligations not arising from rights to consider the climate damage caused. This is just like a passer-by might be morally obliged to rescue or assist someone who has taken ill, even though the ill person is unlikely to have a right to that assistance as such.[65] Barry argues through his theory of intergenerational justice that it does not depend on equal rights across generations rather it depends on the twin notions of responsibility that "bad outcomes for which somebody is not responsible provide a prima facie case for compensation" – and 'vital interests' –

[60] Ibid.
[61] Dietz, Simon; Cameron J. Hepburn and Nicholas Stern, 'Economics, Ethics And Climate Change' SSRN Journal.
[62] Ibid.
[63] Ibid.
[64] Ibid.
[65] Ibid.

namely that there are certain objective requirements that all human beings have, regardless of their location in space or time."[66]

The point made here by Barry, is that future generations should have a standard of living and the opportunity to attain a standard living no lower than the current one. For that reason, regardless of the geographical location of Nigeria, it has an ethical obligation to help in securing the future generations by protecting the environment to make it suitable for future occupants. Also, regardless of which government in power led to the grievous damage or reluctance of the environment, it is the responsibility of the acting government to take necessary actions to rectify such damage by taking measures necessary to the environment locally and globally.

The IMO also provides reasons why governments should become parties to MARPOL regulations. This is as a result of:[67]

- Marine environmental concerns for waters under their jurisdiction
- Air quality concerns as they affect the populations or land areas under their jurisdiction.
- Benefits to their shipowners (worldwide acceptance of ships)
- Benefits to their ports (means to control pollution): or
- Concerns for worldwide environment.

Also, the failure to accept such obligations means that when its own shoreline is polluted or air quality affected it does not have the privilege under MARPOL to insist upon the prosecution of the ship concerned.[68]

The point to be made here is that due to the ever-growing violation and disrespect to the protection of the environment code by countries, the planet is slowly becoming inhabitable due to impact of climate change. The shipping industry being the cheapest method to conduct international trade and also a big industry supporting the Nigerian

[66] Ibid.
[67] Marpol, How To Do It, 2013, IMO Publishing, 2013.
[68] Ibid.

economy, has contributed largely to the emission of greenhouse gases from ships. Organizations such as IMO and other countries like China have decided to respond to this by creating regulations as aforementioned to reduce the emissions. It is pertinent in this regard that Nigeria should not be backward but should instead ratify this important Convention to support other countries to reduce the impact of greenhouse gas emissions in the air.

From the aforementioned evidence, it is clear that climate change is very important not only to Nigeria but the world at large. It can also been seen as an ethical responsibility for the Nigerian Government to apply this Convention so as to protect the future citizens from a flood gate of disastrous situations such as flood, famine, constant rain and diseases. It is clear that climate change can cause such horrific damages. This Convention also has so many benefits as it protects Nigeria against other pollutants with the protection of the IMO to sanction such pollutant.

1.8 How This Convention Will Be Implemented In Nigeria.

The Constitution of the Federal Republic of Nigeria draws a clear distinction between international law and municipal law. The President has the power to enter into any international treaty and create obligations for the country in the international community. However, for such international obligations to come to being and become binding on the citizens, legislative implementation is required. Therefore, a treaty cannot be self-executing in Nigeria.

As Nigeria is a dualist county, municipal law and international law are distinguished. While every law passed by National Assembly and the States House of Assembly, within their areas of competence is binding on all organs and persons within Nigeria and applied by the courts of the land after the assent of the President or Governor, as the case may be, a treaty cannot apply on its own force upon being made by the president until it is implemented by the National Assembly, and sometimes with the concurrence

of the houses of assembly of the component States, in line with section 12(1) of the Constitution of the Federal Republic of Nigeria.

A Convention only applies in Nigeria when it has been specifically incorporated into the Nigerian legislation. This incorporation can be done in two ways. It may be interwoven together with the provisions from other Convention to form one particular piece of legislation; or it may be introduced in a separate piece of legislation by featuring as the schedule to a brief enabling act.

An example of the former mode of incorporation is to be found in the Merchant Shipping act 1962 (now cap 224 of the 1990 laws) whilst an example of the latter mode of incorporation is to be found in the Carriage of Goods by Sea Act 1962 (now CAP 44 of the 1990 laws).

The transformation theory for adopting international Conventions is made clear in Section 1 (1) of the 1999 Constitution, which asserts, in clear and positive terms, the supremacy of the Constitution and the corresponding nullity of any laws inconsistent therewith. More importantly, section 12 (1) of the Constitution expressly provides that:

"No treaty between the Federation and any other Country shall have the force of law except to the extent to which any such treaty has been enacted into law by the National Assembly".[69]

According to Akin Oyebode, there are two methods of transforming treaties into national law and these are by enactment and by reference. Transformation by re-enactment, otherwise known as the force of law technique, is adopted when the statute to be implemented directly enacts provisions or the entire treaty in the form or a schedule in the statue. The other method is the implementing statue can transform the treaty into domestic law merely in reference to the treaty generally. This sometimes

[69]<http://nicn.gov.ng/publications/national%20industrial%20court%20and%20jurisdiction%20over%20international%20labour%20treaties%20under%20the%20third%20alteration%20act.pdf> last 2nd May 2015.

could be contained either in the long and short title of the statute or in the preamble or the schedule. However, such a treaty would not appear to be an implementing enactment. Nevertheless, it can be considered as such if a comparison of the words of the statute with those of the treaty combined with an acknowledgement of the statute, legislative history or other extrinsic evidence show that it is intended to be an implementing legislation.

The question of domestic application of domestic application of international treaties in Nigeria was answered in the Supreme Court's decision in *Abacha V Fawehinmi*[70] where the Supreme Court held, interalia, that the provisions of the African Charter on Human and People's Right has become part and parcel of the corpus of the Nigerian law as same has been re- enacted by the National Assembly. In *MHWUN V Minister of Health & Productivity & Ors*[71], the Court of Appeal held that the provisions of an international labour Convention couldn't be invoked and applied by a Nigerian Court until it has been re-enacted by an Act of the National Assembly. His lordship, Muntaka-Coomassie JCA stated on domestic application of International Labour Convention in Nigeria that:

> *".... There is no evidence before the court that the ILO Convention, even though signed by the Nigerian Government, has been enacted into law by the National Assembly... In so far as the ILO Convention has not been enacted into law by the National Assembly, it has no force of law in Nigeria and it cannot possibly apply.... where, however, the treaty is enacted into law by the National Assembly as was the case with the African Charter which is incorporated into our municipal (i.e. domestic) law by the African Charter on Human and People's Rights (Ratification and Enforcement Act, Cap. Laws of the Federation of Nigeria, 1990.... It becomes binding and our courts must give effect to it like all other laws falling within the judicial powers of the Courts".*[72]

[70] (2001) AHRLR 172 (NgSC 2000).
[71] (2005) 17 NWLR.
[72] Enabulele, A. O; 'Implementation Of Treaties In Nigeria And The Status Question: Whither Nigerian Courts?', (2009)17 African J Intl & Comparative Law.

1.9 Implementing Annex VI MARPOL

According to section 336(1) and subsection (a) the Merchant Shipping Act which states:

(1) As from the commencement of this Act, provisions of the following International Conventions and Agreements shall apply:

(a) International Convention for the Prevention of Pollution from Ships, 1973/ 1978 and the Annexes thereto;

This Convention was incorporated into Nigerian law by the International Convention for The Prevention of Pollution from Ships, 1973 and 1978 Protocol (Ratification and Enforcement) Act. However, this act does not incorporate Annex VI Marpol, as it has not been ratified by Nigeria. Therefore this draft includes regulations on Marpol annex VI that then attaches the Convention as a whole. The power to make regulations on the prevention of pollution of ship is provided for in Section 336(3) of the Merchant Shipping Act Nigeria.

Attached to the regulation is the instrument of accession to enable the ratification of MARPOL Annex VI. The text and format of the regulation has been borrowed from the method used by Singapore and the format of the Convention is borrowed from methods established by different countries like the UK, Ireland and also Singapore. This method used by these countries adopts the main structure of the regulations of MARPOL Annex VI, as it is mandatory to keep its contents and structure to avoiding deviating from the aim and meaning of the Convention. However, some modifications were made like the text, format and also contents so as to reflect the Nigerian style, law and technique in the documentation of international Conventions.

Section 1(1) of the Merchant Shipping Act 2007 gives the Minister General Superintendence of the matters to which this act covers. NIMASA Act section 22 (1)(q)

directs the Agency to establish the procedure for the implementation of Conventions of the IMO and other international organizations that Nigeria is a party to.

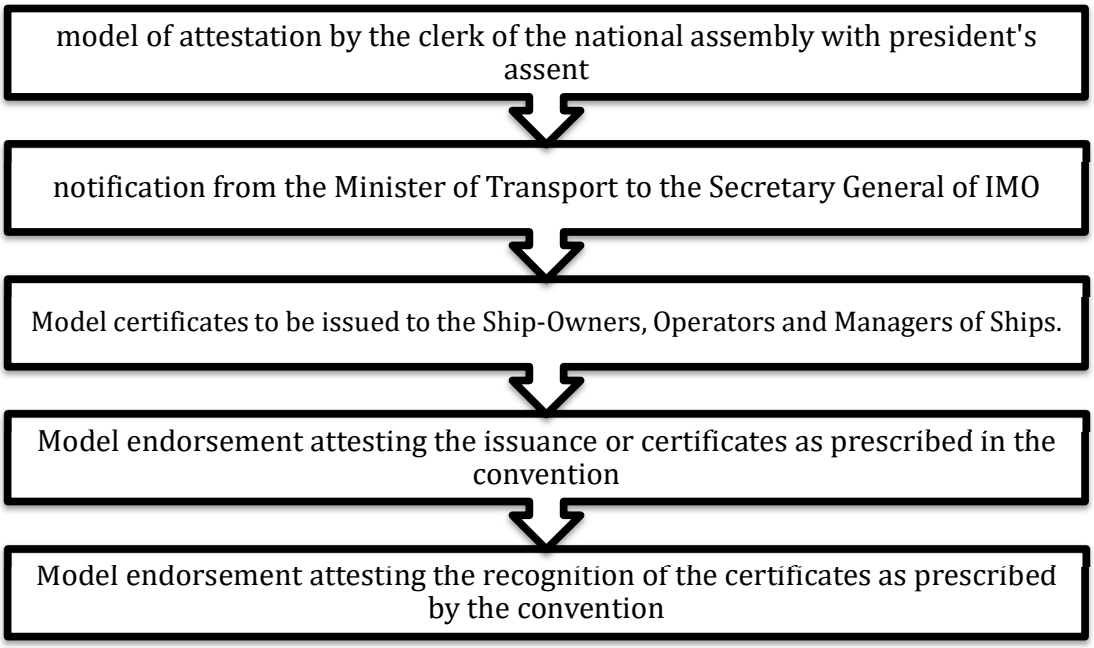
After this Convention has been ratified the Federal Minister of Transportation utilizing his powers to delegate from Section (1)(i) and (ii) of the Merchant Shipping Act 2007 will give directive to the Director General of NIMASA to consult with other agencies in the Ministry to prepare a draft bill. This draft bill will then be presented to the Minister of Transport for scrutiny and forward it to the Minister of Justice.

When the Minister of Justice has completed the scrutiny, the draft bill will be forwarded to the National Assembly. This draft bill will then be presented at the National Assembly for three readings, If the bill has been deemed free of any opposition, a committee will be set up to look at the draft bill. After the work of the committee and submission of the report to the entire National Assembly, the draft bill will be presented for public hearing.

If the draft bill meets the general requirements and is being accepted by the national assembly and the public, it will be presented to the president for his assent. When and if the President gives his assent does this draft bill become law. This law is then published in the national gazette for application and enforceability by the law courts.

The National Assembly upon passage of the bill may grant power to the relevant Minister to make regulations or guidelines for the implementation of the law. This procedure for incorporating international Convention is the same for any amendment of Convention or passing domestic law. It therefore, the method that will be used to pass this draft bill into law.

Below is table showing how this draft law will be presented:



1.10 Explanation Of Draft

The draft law contains regulations passed by the Minister. It has been divided into two major divisions, the first division is the regulations for the prevention of air pollution from ships and the second which is the first schedule of the regulation is MARPOL Annex VI, in its entirety.

The regulation format is borrowed from Singapore, Hong Kong(China), Ireland, and the UK. This is so as to reflect the different views of how MARPOL Annex VI should be better regulated. The regulation imposes restrictions on the emissions of harmful substances into the air from the ship such as ozone depleting substances, nitrogen oxide, greenhouse gases, volatile organic compounds and sulphur oxide; as have been previously mentioned. It also seek to control the quality of fuel oil used on board and regulated shipboard incineration. This is to ensure the compliance, survey and certification that will be required for regulates ships of 400 gross tonnage or above. Such ships whether it be a Nigerian or non- Nigerian ship within the waters of Nigeria,

are required to have on board the International Air pollution Prevention Certificates or the Nigerian Air Pollution Prevention Certificates before engaging in international or non-international voyages as appropriate. Like many countries have done, the reason for a Nigerian Certificate to be required on board is allow for better implementation and to serve as a watchdog over Nigerian ships for internal voyages as the international certificates mainly apply to international voyages. However the Nigerian certificates will also be used during international voyages so that the Administrator or the Government in general can ensure that Nigerian ships are meeting up with the requirements under MARPOL Annex VI.

MARPOL Annex VI specifies that for a ship solely engaged in domestic voyages voyages, an administration can exclude it from the nitrogen oxides emissions control requirements, as long as the ship is constructed, or the diesel engine therein has undertaken major conversion, before the commencement date of MARPOL Annex VI. In the regulation this requirement as been modified by specifying in part 7 that the "commencement date" refers to the commencement date of the Regulation instead of that of MARPOL Annex VI. This is because Nigeria will be new to the adoption of the regulations under MARPOL and it would therefore be better apply the regulations based on the commencement of this regulation.

The main provisions of the Regulation are :

Part 1 contains general provisions relating to when the regulation shall commence, its application and general comments on some important points such as who the administrator is and to refer to MARPOL Annex VI as the reference document which bears the same meaning as that contained in the provisions in the Regulation.

Part 2 requires ships of 400 gross tonnage or above to which the Regulation applied to have on board some relevant certificates such as the International Air Pollution Prevention Certificates, Nigerian Air Pollution Prevention Certificate,

International Energy Efficiency Certificate (this is provided in the new Appendix VIII to MARPOL Annex VI, as a result of the new chapter 4 regulations as been aforementioned) before being engaged in voyages. The requirement does not apply to certain class of ships specified in this Part.

Part 3 sets out general preventive controls on regulated Nigerian ships by imposing survey and certification requirements. This part covers:

- the application to, and the issue of IAPP Certificated and Nigerian Certificates by, the Administrator, which is the Nigerian Maritime Administration and Safety Agency.
- the duration of the certificates and the extension of validity periods of the Certificates; and
- the withdrawal and cancellation of the International Air Pollution Prevention Certificates ,Nigerian Air Pollution Prevention Certificates and The International Energy Efficiency Certificates.

Part 4 restricts the emission of certain harmful substances from specified ships by imposing control on :

- emissions of ozone depleting substances;
- emission of nitrogen oxide
- emission of volatile organic compounds
- emission of sulphur oxide;
- shipboard incineration
- the quality of fuel oil used on board.

It also includes the new regulations of chapter to make mandatory the Energy Efficiency Design Index (EEDI) for new applicable ships, and the Ship Energy Efficiency Management Plan (SEEMP) for all applicable ships. This was added so as to reflect the new changes made in MARPOL Annex VI. It

also for controlling emissions greenhouse gas emissions.

Part 5 provides for other measures to implement MARPOL Annex VI such as the duty to maintain the condition of regulated Nigerian Ships so as to ensure that the ship remains fit to proceed to sea without presenting an unreasonable threat of harm to the marine environment. Alterations to equipment, systems, fittings etc. of regulated Nigerian ships subject to the approval of the Administrator. Duty to keep certain certificates on regulated ships to make readily accessible. Duty to report when accident occurs in the Nigerian waters by the ship company or master to the administrator immediately it occurs, so that the Administrator can begin investigation as to whether an additional survey is required. Lastly, the power of the government surveyors to inspect a specified ship within the waters of Nigeria as to revel and deficiencies. All these extra powers have been added so that Nigeria can further monitor and prevent any form of air pollution and to also to give the administration more powers in implementing these regulations.

Part 6 contains miscellaneous provisions to deal with recignised organizations and exemptions and administrative arrangements to give effect to MARPOL Annex VI. It also, contains other measurements that will be important in implementing MARPOL Annex VI. Added here is a further section that adds other powers during the inspection of the ship. For example, if it is found by the Administrator that the ship will be a threat it may permit that such ship be taken to the nearest appropriate repair yard. Also the investigation carried out by the administrator on any ship can be sent to a state requesting the investigation and the Administrator can also report to IMO. Also if there is no valid certificate on board a ship such as the IAPP certificate such ship can be detained. All these are added so as to make the implementation of MARPOL Annex VI successful. Also as Nigeria is new to this annex it is important that the Administration is given enough power and detail on how best to implement MARPOL and monitor ship air emissions.

Part 7 contains the interpretation of terms used in the Regulation.

However, offences have not been included, as the minister has not been given the power to regulate on such measures. The draft is also personalised so as to reflect the style and structure of regulations in Nigeria. For example the definitions are contained at the bottom of the regulations.

However, some definitions are contained in certain sections for easier emphasis. Also a lot of emphasis is placed on Nigerian air pollution rather than just international air pollution certificates to make it better monitored by the Nigerian government. Nonetheless the powers given to the Administration are substantial to report the ship to a body which may be able to sanction the ship company or owner.

Annex VI, has been attached as the first schedule for ease of reference. Also because Annex VI is very comprehensive in explaining its provisions and is more detailed. The first schedule also contains all the forms and certificates needed in its appendixes, for easy accessibility. In doing so the preamble, introductory annexes and final clauses have been omitted. The schedule was formed by the combination of MEPC.176 (58), MEPC.190 (60), MEPC.202 (62) and MEPC.203(62). As aforementioned the appendix contains all the required certificates which are the IAPP, IEE, also the tables for emission control areas, limits for ship board incinerations, test cycles and weighting factors. Also all the definitions of some terms contained and also not contained in the Regulation are all inserted in the Regulation 2 of MARPOL Annex VI.

In conclusion this draft goes beyond just attaching the Convention to adding regulations that makes it easier to understand how to apply the law. Also as MARPOL VI is a very technical legal instrument and because Nigeria has not ratified the Convention, this method used in the draft will make it easier for its implementation as it is well detailed as to what powers are given and what is expected by States and the administrator to make this regulation work to its fullest.

Federal Republic Of Nigeria

INSTRUMENT OF ACCESSION TO THE 1997 PROTOCOL (ANNEX VI) OF THE INTERNATIONAL CONVENTION FOR THE PREVENTION OF POLLUTION FROM SHIPS, 1973 AS MODIFIED BY THE PROTOCOL OF 1978 (MARPOL 73/78)

Whereas the protocol of the 1997 Protocol (Annex VI) of the International Convention for the Prevention of Pollution from ships 1973 As modified by the protocol 1978, was opened for signature at the Headquarters of the International Maritime Organization on 1 January 1998 ;

And Whereas it is provided in Article 5 of the Protocol that any Party to the Convention may express its consent to be bound by this Protocol by acceding to it;

And Whereas the Government of the Federal Republic of Nigeria has by decision duly reached in accordance with its Constitutional provisions, agreed to accede to the aforesaid Protocol.

Now Therefore, I, DR.GOODLUCK EBELE JONATHAN, President of the Federal Republic of Nigeria, on behalf of the Government of the Federal Republic of Nigeria, do hereby accede to the Protocol of the 1997 Protocol (Annex VI) of the International Convention for the Prevention of Pollution from ships 1973 as modified by the protocol 1978.

In Witness Whereof, I have hereunto set my hand and caused the Seal of the Federal Republic of Nigeria to be affixed to these presents.

Done at Abuja this day of in the year Two Thousand and fifteen.

……

DR. GOODLUCK EBELE JONATHAN, GCFR

President of the Federal Republic of Nigeria

MERCHANT SHIPPING (PREVENTION OF AIR POLLUTION FROM SHIPS) REGULATIONS 2015

ARRANGEMENT OF SECTIONS

PART 1

General

PART 2

Prohibitions affecting regulated ships

PART 3

General Preventive Controls Affecting Regulated Nigerian Ships

Part 6

Miscellaneous

PART 7

Definitions and Interpretation

PART 8

First Schedule

MERCHANT SHIPPING (PREVENTION OF AIR POLLUTION FROM SHIPS) REGULATIONS 2015

In exercise of the powers conferred by Section 336(3) of the Merchant Shipping Act Nigeria, the Maritime and Port Authority of Nigeria, with the approval of the Minister for Transport, hereby makes the following Regulations:

(May 1st 2015)

PART 1

General

1. Short title, commencement and application

(1) These Rules may be cited as the Merchant Shipping (prevention of air pollution from ships) regulations and shall come into operation on a date to be notified in the Federal *Gazette.*

(2) Annex VI shall, subject to these Regulations, have force of law in Nigeria.

(a) A provision of Annex VI interpreted or explained by a provision of these Regulations shall be read as having the same meaning attributed by that provision.

(b) For the purpose of regulation 1 of Annex VI, reference to "all ships" in that regulation shall be read as a reference to :

(i) Nigerian ships; and

(ii) other ships while they are in Nigerian waters,

and these regulations shall apply to such ships.

(3). Where standards and guidelines developed by the Organization and referred to in these Regulations are amended after these Regulations come into operation, the reference shall be taken to be a reference to the standards and guidelines as amended.

(4). If a word or expression that is not defined in these Regulation is used in these Regulations and is also used in Annex VI, the word or expression has, unless the context otherwise requires, the same meaning in these Regulations as in that Annex.

2. Exemptions

The Administrator may grant exemptions from all or any of these Regulations including Annex VI (as may be specified in the exemption) for classes of cases or individual cases on such terms as he may specify and may, subject to giving reasonable notice, alter or cancel any such exemption.

3. Administration

(1) Except where provided in these Regulations, for the purposes of these Regulations, references to the Administration and to officer of the Administration shall be read as references to the Administrator and the surveyor of ships respectively and references to the nominated surveyor or recognised organisation shall be read as references to an authorised organisation respectively.

(2) For the purposes of regulation 6 of Annex VI, references to the Administration shall be read as a reference to the Administrator and references to persons or organisations duly authorised by the Administration shall be read as references to authorised organisations respectively.

Part 2

Prohibitions Affecting Regulated Ships

4. Prohibition on regulated ships being engaged in international voyages without International Air Pollution Prevention Certificates

(1) Subject to subsection (2) and section 5, a regulated ship is not to be engaged in an international voyage unless an International Air Pollution Prevention Certificate is in force in respect of the ship.

(2) Subsection (1) does not apply to a regulated ship constructed before 19 May 2005 until the earlier of:

(a) the first scheduled dry-docking referred to in Annex VI that falls after that date; or

(b) 19 May 2008.

5. Exception To Section 4

Section 4 does not prevent a regulated ship from being engaged in an international voyage if there is in force in respect of the ship a certificate (other than an international air pollution prevention certificate) issued by or under the authority of an administration, certifying that the ship is in compliance with the requirements of annex vi.

6. Prohibition on regulated ships being engaged in non-international voyages without certain certificates

(1) Subject to subsections (2) and (3) and section 7, a regulated ship is not to be engaged in a non-international voyage unless an International Air Pollution Prevention Certificate or a Nigerian Air Pollution Prevention Certificate is in force in respect of the ship.

(2) Subsection (1) does not apply to a regulated ship that is not self-propelled.

(3) Subsection (1) does not apply to a regulated ship constructed before the commencement date until the earlier of:

(a) the first scheduled dry-docking referred to in Annex VI that falls after the commencement date; or

(b) One year after the commencement date.

7. Exception to section 5

Section 6 does not prevent a regulated ship from being engaged in a non-international voyage if there is in force in respect of the ship a certificate or document issued by or under the authority of an Administration the effect of which is recognized by the Administrator as equivalent to that of a relevant certificate.

Part 3

General Preventive Controls Affecting Regulated Nigerian Ships

Issue of Relevant Certificates in respect of Regulated Nigerian Ships.

8. Application for IAPP Certificates

(1) A company of a regulated Nigerian ship may apply to the Administrator for a certificate entitled "International Air Pollution Prevention Certificate" in respect of the ship.
(2) An application under subsection (1) is to be accompanied by the prescribed fee in relation to the issue of an IAPP Certificate.
(3) The Administrator shall not issue an IAPP Certificate in respect of a regulated Nigerian ship unless he is satisfied:

(a) that:

(i) where an IAPP Certificate has never been issued in respect of the ship, an initial survey of the ship has been carried out in accordance with section 9; or
(ii) where an IAPP Certificate has been issued in respect of the ship, a renewal survey of the ship has been carried out in accordance with section 10; and

(b) that, on the evidence of a declaration of survey forwarded to the Administrator under section 9(2) or 10(2), the equipment, systems, fittings, arrangements and material of the ship comply with the requirements under Annex VI.

(4) Form of IAPP Certificate:

(a) The IAPP Certificate shall be in the form set out in Appendix I of Annex VI and shall be in at least one of the following languages:

(i) English;
(ii) French;
(*c*) Spanish.

(b) Subject to paragraph (a), where the official language of the state whose flag the ship is entitled to fly, has been used in an IAPP Certificate, then that language shall prevail in case of a dispute or discrepancy.

9. Application for Nigerian Certificates

(1) A company of a regulated Nigerian Ship may apply to the Administrator for a certificate entitled "Nigerian Air Pollution Prevention Certificate" in respect of the ship.
(2) An application under subsection (1) is to be accompanied by the prescribed fee in relation to the issue of a Nigerian Certificate.
(3) The Administrator shall not issue a Nigerian Certificate in respect of a regulated Nigerian ship unless he is satisfied:
(a) that:

(i) Where a Nigerian Certificate has never been issued in respect of the ship, an initial survey of the ship has been carried out in accordance with section 11; or
(ii) Where a Nigerian Certificate has been issued in respect of the ship, a renewal survey of the ship has been carried out in accordance with section 12; and

(b) that, on the evidence of a declaration of survey forwarded to the Administrator under section 11(2) or 12(2), the equipment, systems, fittings arrangements and material of the ship comply with the requirements under this Regulation.

10. Issue for IEE Certificates

(1) An IEE Certificate for the ship shall be issued after a survey, in accordance with the provisions of regulation 5.4 of Annex VI, 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.

(2) An IEE Certificate shall be issued or endorsed, as appropriate, by a qualified person.

(3) An IEE Certificate shall not be issued to a ship which is entitled to fly the flag of a state which is not a Party."

(4) Form of IEE Certificate:

A. (1) The IEE Certificate shall be in the form set out in Appendix VIII of Annex VI and shall be in at least one of the following languages:

(i) English;
(ii) French;
(iii) Spanish.

B. (2) Subject to subsection (1), where the official language of the state whose flag the ship is entitled to fly, has been used in an IEE Certificate, then that language shall prevail in case of a dispute or discrepancy."

Surveys of Regulated Nigerian Ships

11. Initial surveys

(1) An initial survey of a regulated Nigerian ship is to be carried out by a surveyor before the ship is put into service or before any relevant certificate is issued for the first time in respect of the ship.
(2) If, after having carried out an initial survey in respect of a regulated Nigerian ship, the surveyor is satisfied that the equipment, systems, fittings, arrangements and material of the ship comply with the requirements under Annex VI or this Regulation (as may be applicable), he shall make a declaration of survey to the effect that he is so satisfied and forward the declaration of

survey to the Administrator.
(3) If a regulated Nigerian ship is installed with a relevant diesel engine or provided with any equipment to which section 28 applies, the initial survey of the ship, in so far as it relates to such engine or equipment, is to be conducted in accordance with the NO_x Technical Code.

12. Renewal surveys

(1) A renewal survey of a regulated Nigerian ship is, except where section 17, 21 or 22 is applicable, to be carried out by a surveyor within 5 years:

(a) from the date of completion of the initial survey; or
(b) if a renewal survey of the ship has been carried out in respect of the ship, from the date of completion of the preceding renewal survey.

(2) If, after having carried out a renewal survey in respect of a regulated Nigerian ship, the surveyor is satisfied that the equipment, systems, fittings, arrangements and material of the ship comply with the requirements under Annex VI or this Regulation (as may be applicable), he shall make a declaration of survey to the effect that he is so satisfied and forward the declaration of survey to the Administrator.

(3) If a regulated Nigerian ship is installed with a relevant diesel engine or provided with any equipment to which section 29 applies, the renewal survey of the ship, in so far as it relates to such engine or equipment, is to be conducted in accordance with the NO_x Technical Code.

13. Intermediate surveys

(1) An intermediate survey of a regulated Nigerian ship is to be carried out by a surveyor:

(a) within the period commencing 3 months before and ending 3 months after the second anniversary date of the relevant certificate issued in respect of the ship; or
(b) within the period commencing 3 months before and ending 3 months after the third anniversary date of the relevant certificate issued in respect of the ship.

(2) If, after having carried out an intermediate survey in respect of a regulated Nigerian ship, the surveyor is satisfied that the equipment and arrangements of the ship:

(a) Comply with the requirements under Annex VI or this Regulation (as may be applicable); and
(b) are in good working order,

he shall make an endorsement to that effect on the relevant certificate issued in respect of the ship.

(3) If a regulated Nigerian ship is installed with a relevant diesel engine or provided with any equipment to which section 29 applies, the intermediate survey of the ship, in so far as it relates to such engine or equipment, is to be conducted in accordance with the NO_x Technical Code.

14. Annual surveys

(1) Subject to subsection (2), an annual survey of a regulated Nigerian ship is to be carried out by a surveyor within the period commencing 3 months before and ending 3 months after each anniversary date of the relevant certificate issued in respect of the ship.

(2) If an intermediate survey of a regulated Nigerian ship has been carried out under section 13(1) by reference to an anniversary date, the annual survey of the ship by reference to the anniversary date is not required to be carried out.

(3) An annual survey of a regulated Nigerian ship is to include a general inspection of the equipment, systems, fittings, arrangements and material of the ship.

(4) If, after having carried out an annual survey in respect of a regulated Nigerian ship, the surveyor is satisfied that the equipment, systems, fittings, arrangements and material of the ship:

(a) have been maintained in accordance with the requirements under Annex VI or this Regulation (as may be applicable); and
(b) remain satisfactory for the service for which the ship is intended,

he shall make an endorsement to that effect on the relevant certificate issued in respect of the ship.

(5) If a regulated Nigerian ship is installed with a relevant diesel engine or provided with any equipment to which section 29 applies, the annual survey of the ship, in so far as it relates to such engine or equipment, is to be conducted in accordance with the NO_x Technical Code.

15. Additional surveys

(1) The Administrator may, by notice in writing to the company and the master of a regulated Nigerian ship, require an additional survey of the ship to be carried out by a surveyor within a reasonable period specified by the Administrator if:

(a) after a relevant certificate has been issued in respect of the ship, alterations have been made to the equipment, systems, fittings, arrangements or material covered by the survey leading to the issue of the certificate;
(b) he has reasonable grounds to believe that, after a relevant certificate has been issued in respect of the ship, important repairs or renewals have been made to the ship;
(c) he has reasonable grounds to believe that section 39 is not complied with in

respect of the ship; or
(d) he determines under section 41 that the survey is necessary.

(2) If a regulated Nigerian ship is installed with a relevant diesel engine or provided with any equipment to which section 29 applies, the additional survey of the ship, in so far as it relates to such engine or equipment, if necessary, is to be conducted in accordance with the NO_x Technical Code.

(3) The additional survey may either be general or partial as the Administrator thinks fit.

(4) On receiving a notice under subsection (1), the company and the master of the ship shall cause an additional survey to be carried out as required under that subsection.

(5) If, after having carried out an additional survey in respect of a regulated Nigerian ship, the surveyor is satisfied that:

(a) the ship complies with the requirements of Annex VI or this Regulation (as may be applicable); and
(b) in the case where repairs or renewals have been made to the ship, whether subsection (1)(a), (b), (c) or (d) applies—
(i) such repairs or renewals have been effectively made; and
(ii) the materials used in, and the workmanship of, such repairs or renewals are satisfactory,

he shall make a declaration of survey to the effect that he is so satisfied and forward the declaration of survey to the Administrator.

Duration of Relevant Certificates issued in respect of Regulated Nigerian Ships and Extension of their Validity Period

16. Duration of relevant certificates

Subject to the provisions of this Regulation:

(a) an IAPP Certificate issued under section 8 is valid for such period as may be specified by the Administrator in the Certificate, being a period expiring within the 5 years from the date of completion of the initial survey or renewal survey (as may be applicable); and

(b) a Nigerian Certificate issued under section 9 is valid for such period as may be specified by the Administrator in the Certificate, being a period expiring within the 5 years from the date of completion of the initial survey or renewal survey (as may be applicable).

(c) an IEE Certificate shall be valid throughout the life of the ship

17. Duration of relevant certificates issued after renewal surveys

(1) If a renewal survey is completed more than 3 months before the date of expiry of the existing relevant certificate in force in respect of a regulated Nigerian ship, the new relevant certificate issued as a result of the survey is valid from the date of completion of the survey to a date as specified in the certificate, being a period expiring within the 5 years from the date of completion of the survey.

(2) If a renewal survey is completed within 3 months before the date of expiry of the existing relevant certificate in force in respect of a regulated Nigerian ship, the new relevant certificate issued as a result of the survey is valid for a period as specified in the certificate, being a period expiring within the 5 years from the date of expiry of the existing relevant certificate.

(3) If a renewal survey is completed on or after the date of expiry of the existing relevant certificate in force in respect of a regulated Nigerian ship, the new relevant certificate issued as a result of the survey is, subject to subsection (5), valid for a period as specified in the certificate, being a period expiring within the 5 years from the date of expiry of the existing relevant certificate.

(4) If the period of validity of an existing relevant certificate issued in respect of a regulated Nigerian ship has been extended under section 21 or 22, the new relevant certificate issued in respect of the ship as a result of a renewal survey is, subject to subsection (5), valid for a period as specified in the certificate, being a period expiring within the 5 years from the date of expiry of the existing relevant certificate before the extension was granted.

(5) Where the Administrator considers appropriate in the special circumstances of the case, a new relevant certificate issued as a result of the renewal survey under subsection (3) or (4) is valid for a period as specified in the certificate, being a period expiring within the 5 years from the date of completion of the survey.

(6)An IEE Certificate issued in accordance with the criteria specified in Annex VI shall cease to be valid in any of the following cases: (*a*) if the ship is withdrawn from service or if a new IEE Certificate is issued following major conversion of the ship; (*b*) upon transfer of the ship to the flag of another state."

18. Duration of relevant certificates after early completion of surveys

If an intermediate survey or annual survey in respect of a regulated Nigerian Ship is completed before the period specified in relation to it in section 13(1)(a) or (b) (as may be applicable) or 14(1) (as may be applicable), then:

(a) the anniversary date ascertained from the date of expiry in the existing relevant certificate is to be superseded by an endorsement to refer to another date as specified in the certificate, being a date within the 3 months from the date of completion of the survey;

(b) the subsequent survey required by section 13(1) or 14(1) (as may be applicable) is to be completed at the intervals provided under either section using the new anniversary date as may be specified by the Administrator based on the form entitled "Endorsement for Advancement of Anniversary Date where Regulation 9(8) applies" set out in Appendix I to Annex VI; and

(c) the date of expiry in the existing relevant certificate may remain unchanged if:

(i) one or more intermediate surveys are carried out so that the maximum intervals between an intermediate survey and an annual survey ascertained under section 13(1) and 14(1) are not exceeded; or

(ii) one or more annual surveys are carried out so that the maximum intervals between the annual surveys ascertained under section 14(1) are not exceeded.

19. Extension of validity period up to 5 years

(1) Subject to subsection (2), if a relevant certificate issued in respect of a regulated Nigerian ship is valid for a period of less than 5 years, the Administrator may, on the application of the company or the master of the ship, extend the period of validity of the certificate in such a way that it is not to be valid for more than 5 years.

(2) Subsection (1) applies if the survey under section 13 or 14 (as may be applicable) is to be carried out on the regulated Nigerian ship as if the relevant certificate had been issued for a period of 5 years.

20. Extension of validity period where new relevant certificates cannot be issued, etc. before existing relevant certificates expire

If, on an application under section 8(1) or 9(1) for a new relevant certificate in respect of a regulated Nigerian ship, the Administrator is satisfied as to matters set out in section 8(3)(a)(ii) and (b) or 9(3)(a)(ii) and (b) (as may be applicable) but the new relevant certificate cannot be issued or placed on board the ship concerned before the date of expiry of the existing relevant certificate in force in respect of the ship, the Administrator may extend the period of validity of the existing relevant certificate for a further period not exceeding 5 months from the date of expiry of the existing relevant certificate.

21. Extension of validity period of relevant certificates where ships are not in ports in which ships are to be surveyed

(1) If a relevant certificate issued in respect of a regulated Nigerian ship expires when it is not in the port in which it is to be surveyed, the Administrator may, on the application of the company or the master of the ship, extend the period of validity of the relevant certificate for a period

within 3 months from the date of expiry of the certificate.

(2) The Administrator shall not extend the period of validity of the certificate unless:

(a) he is satisfied that it is for the purpose of allowing the ship to complete its voyage to the port in which it is to be surveyed; and

(b) he considers that it is proper and reasonable to do so.

(3) If the period of validity of a relevant certificate has been extended under this section, the certificate is, notwithstanding such extension, to expire when the ship completes its voyage to the port in which it is to be surveyed.

22. Extension of validity period of relevant certificates where ships are on short voyages

The Administrator may, on the application of the company or the master of a regulated Nigerian ship, extend the period of validity of a relevant certificate issued in respect of the ship for a period not exceeding one month from the date of expiry of the certificate if:

(a) the ship is engaged in short voyages; and

(b) the period of validity of the certificate has not been extended under section 18(1) or 20(1).

23. Where relevant certificates cease to be valid

A relevant certificate issued in respect of a regulated Nigerian ship ceases to be valid if:

(a) any survey is not carried out within the period specified in relation to it in Regulation 2;

(b) the certificate is not endorsed in accordance with section 13 or 14 (as may be applicable); or

(c) the ship is transferred to the registry of a place outside Nigeria.

Withdrawal and Cancellation of International Air Pollution Prevention Certificates or Nigerian Air Pollution Prevention Certificates

24. Withdrawal of International Air Pollution Prevention Certificates or Nigerian Air Pollution Prevention Certificates

(1) Where, upon any survey (other than an initial survey) being carried out by any surveyor in respect of a regulated Nigerian ship under Regulation 2, the surveyor determines that the condition of the ship in respect of which an International Air Pollution Prevention Certificate or a Nigerian Air Pollution Prevention Certificate has been issued by the Administrator or a recognized organization, or its equipment, does not correspond substantially with the particulars in the Certificate, he shall require the company or the master of the ship to take the corrective action which is in his opinion necessary, and shall give notice to the Administrator.

(2) If the corrective action required under subsection (1) is not taken within the period specified by the surveyor, or in the absence of such specified period, within a reasonable period, he shall give notice to the Administrator.

(3) On receiving a notice under subsection (2), the Administrator may, by notice in writing to the company and the master of the regulated Nigerian ship, withdraw the Certificate issued in respect of the ship.

(4) On receiving a notice under subsection (3), the company and the master of the ship concerned shall forthwith deliver to the Administrator the International Air Pollution Prevention Certificate or Nigerian Air Pollution Prevention Certificate (as may be applicable) issued in respect of the ship.

(5) After a corrective action required under subsection (1) has been taken to the satisfaction of a surveyor, he shall give notice to the Administrator of that fact.

(6) On receiving a notice under subsection (5), the Administrator shall as soon as reasonably practicable return the Certificate previously withdrawn by him to the company of the ship concerned.

25. Cancellation of International Air Pollution Prevention Certificates or Nigerian Air Pollution Prevention Certificates

(1) The Administrator may, by notice in writing to the company and the master of a regulated Nigerian ship, cancel an International Air Pollution Prevention Certificate or a Nigerian Air Pollution Prevention Certificate issued by himself or a recognized organization in respect of the ship if he has reasonable grounds to believe that the Certificate was issued, or any endorsement on it was made, on the basis of false or erroneous information.

(2) The Administrator shall give reasons for cancelling the Certificate.

(3) On receiving a notice under subsection (1), the company and the master of the ship concerned shall forthwith deliver to the Administrator the Certificate issued in respect of the ship.

Part 4

Control Of Air Pollution From Specified Ships

General Exception to Part 4

26. Emissions to which this Part does not apply

(1) This Part does not apply to an emission that is necessary for the purpose of securing the

safety of a ship or saving life at sea.

(2) This Part does not apply to an inevitable emission that results from any damage to a ship or its equipment unless the company or the master of the ship:

(a) has acted with intent to cause damage to the ship or the equipment; or

(b) has acted recklessly and with knowledge that such damage would probably result from his act.

(3) For the purposes of subsection (2), an inevitable emission that results from any damage to a ship or its equipment is an emission that results from such damage when, after the damage occurs or after the emission is discovered, all reasonable precautions have been taken to prevent or minimize the emission.

General Emission Control

27. Control of deliberate emissions of ozone depleting substances

(1) A specified ship is not to be engaged in deliberate emissions of ozone depleting substances.

(2) For the purposes of subsection (1), deliberate emissions include emissions occurring in the course of maintaining, servicing, repairing or disposing of systems or equipment, but do not include minimal releases associated with the recapture or recycling of an ozone depleting substance.

28. Control of ozone depleting substances

(1) Subject to subsection (2), new installations on a specified ship are not to contain ozone depleting substances.

(2) New installations on a specified ship that contains hydrochlorofluorocarbons are permitted until 1 January 2020.

(3) If any ozone depleting substances or equipment consisting of such substances are removed from a specified ship, the substances or equipment are to be delivered to the appropriate reception facilities referred to in Annex VI.

(4) In this section, “new installations” means systems and equipment, including new portable fire-extinguishing units, insulation, or other material, installed on a specified ship after 19 May 2005, but does not include the repair or recharge of previously installed systems, equipment, insulation, or other material, or recharge of portable fire-extinguishing units.

29. Control of emission of nitrogen oxide

(1) Subject to subsections (2), (3) and (4), a relevant diesel engine is not to be put into operation

unless the on-board emission of nitrogen oxide from the engine is kept within the limits specified in regulation 13(3)(a) of Annex VI.

(2) Subsection (1) does not apply to:

(a) an emergency diesel engine, an engine installed in a lifeboat or any device or equipment intended to be used solely in case of emergency; or

(b) a diesel engine subject to an alternative nitrogen oxide control measure established by the Administrator, which is installed on a specified ship that is—

(i) a Nigerian ship

(ii) solely engaged in non-international voyages.

(3) Subsection (1) does not apply to a relevant diesel engine if:

(a) the engine undergoes a major conversion before the commencement date and the specified ship on which the engine is installed:

(i) is a Nigerian Ship

(ii) is solely engaged in non-international voyages; or

(b) the specified ship on which the engine is installed:

(i) is a Nigerian ship

(ii) is solely engaged in non-international voyages;

(iii) is constructed before the commencement date.

(4) Subsection (1) does not apply to a relevant diesel engine if the following system or method has been applied to the engine to reduce on-board emission of nitrogen oxide at least to the limits specified in regulation 13(3) of Annex VI:

(a) in relation to a Nigerian ship:

(i) an exhaust gas cleaning system approved by the Administrator in accordance with the NO_x Technical Code; or

(ii) any other equivalent method approved by the Administrator after taking into account all relevant guidelines developed from time to time by IMO; or

(b) in relation to a non-Nigerian ship:

(i) an exhaust gas cleaning system approved by the Administration in accordance with the NO_x Technical Code; or

(ii) any other equivalent method approved by the Administration after taking into account all relevant guidelines developed from time to time by IMO.

(5) For the purposes of subsection (1), when fuel oil composed of blends from hydrocarbons derived from petroleum refining is used in a relevant diesel engine, the test procedures and measurement methods adopted for calculating the emission of nitrogen oxide from the engine are to comply with the NO_x Technical Code, with the test cycles and weighting factors set out in Appendix II to Annex VI being taken into account.

(6) A relevant diesel engine to which this section applies is to comply with the standards applicable to it in the NO_x Technical Code.

(7) After a relevant diesel engine to which this section applies undergoes a major conversion, the emission of nitrogen oxide resulting from such conversion is to be documented in accordance with the NO_x Technical Code for approval by the Administrator.

30. Control of emission of volatile organic compounds

(1) Where a Nigerian tanker, being a specified ship, is within any designated port or terminal that is subject to control of emission of vapour, and a notification of such designation has been submitted to IMO pursuant to regulation 15(2) of Annex VI, the tanker is, subject to subsection (2):

(a) to be provided with a system for the collection of vapour approved by the Administrator after taking into account the safety standards developed from time to time by IMO; and

(b) to use such system during the loading of the cargoes specified in the notification.

(2) Where a Nigerian tanker is to be involved in the loading at a port or terminal referred to in subsection (1) of the cargoes specified in the notification referred to in that subsection, the tanker is not required to comply with subsection (1)(a) and (b) within 3 years after the effective date specified in the notification if:

(a) a system for the control of emission of vapour has been installed at the port or terminal; and

(b) the operator of the port or terminal allows the tanker to use the system during the loading of the cargoes.

(3) Where a tanker is a gas carrier, this section only applies to the tanker when the type of loading and containment systems allow safe retention of non-methane volatile organic compounds on board or the safe return of such compounds ashore at the loading port.

(4) In this section:

"chemical tanker" means—

(a) a ship constructed or adapted primarily to carry a cargo of noxious liquid substances in bulk; or

(b) an oil tanker when carrying a cargo or part cargo of noxious liquid substances in bulk;

"combination carrier" means a ship designed to carry either oil or solid cargoes in bulk;

"gas carrier" means a ship constructed or adapted for the carriage of any liquefied gas in bulk;

"Nigerian tanker" means a tanker registered in Nigeria;

"tanker" means an oil tanker being a ship constructed or adapted primarily to carry oil in bulk in its cargo spaces, and includes a combination carrier or chemical tanker when carrying a

cargo or part cargo of oil or noxious liquid substances in bulk.

Sulphur Oxide Emission Control

31. General control on emission of sulphur oxide

(1) The sulphur content of any fuel oil used on board a specified ship is not to exceed 4.5% m/m.

(2) Subsection (1) does not apply if the specified ship is:

(a) within a sulphur oxide emission control area referred to in regulation 14(3)of Annex VI; or

(b) Within a sulphur oxide emission control area designated by IMO in accordance with Appendix III to the Annex.

(3) In this section, "m/m" means mass per mass.

32. Requirements within sulphur oxide emission control areas

(1) Subject to subsection (2), when a specified ship that is a Nigerian ship is within a sulphur oxide emission control area described in section 31(2), the ship is to comply with the requirements specified in regulation 14(4), (5) and (6) of Annex VI.

(2) If the specified ship referred to in subsection (1) enters the sulphur oxide emission control area within the period of 12 months beginning on the date on which the control area is designated by IMO as such under regulation 14(3) subsection 3 of Annex VI, the ship:

(a) is not required to comply with regulation 14(4) and (6) of the Annex; and

(b) is not required to comply with regulation 14(5) of the Annex in so far as it relates to regulation 14(4) subsection 1 of the Annex.

33.Energy Efficiency for Ships Chapter 4 Annex VI.

(1) This Part applies to all ships of 400 gross tonnage and above.

(2) The provisions of this Part shall not apply to ships registered in the State solely engaged in voyages within the territorial seas of the State.

(3) Regulations 6 and 7 in this part shall not apply to ships which have diesel-electric propulsion, turbine propulsion or hybrid propulsion systems.

(4) Notwithstanding the provisions of paragraph (1), the Minister may waive the requirement

for a ship of 400 gross tonnage and above from complying with Regulations 6 and 7 in this part.

(5) Paragraph (4) shall not apply to ships of 400 gross tonnage and above for which:

(*a*) the building contract is placed on or after 1 January 2017, (*b*) in the absence of a building contract, the keel is laid or is at a similar stage of construction on or after 1 July 2017.
(c) the delivery is on or after 1 July 2019, or
(*d*) in cases of a major conversion of a new or existing ship, on or after 1 January 2017, and in which regulation 5.4.2 and regulation 5.4.3 of Chapter II of Annex VI apply.

Attained EEDI.

(6) (1) The attained EEDI shall be calculated for:

(*a*) each new ship,
(*b*) each new ship which has undergone a major conversion, or
(*c*) each new or existing ship which has undergone a major con- version, that is so extensive that the ship is regarded by the Minister as a newly constructed ship, which falls into one or more of the following categories specified in regulation 2.25 to regulation 2.35 of Annex VI:

(i) bulk carrier;
(ii) combination carrier;
(iii) container ship; (iv) gas carrier;
(v) general cargo ship; (vi) passenger ship;
(vii) refrigerated cargo carrier;
(viii) ro-ro cargo ship (vehicle carrier);
(ix) ro-ro cargo ship;
(x) ro-ro passenger ship;
(xi) tanker.

(2) The attained EEDI shall be specific to each ship and shall indicate the estimated performance of the ship in terms of energy efficiency and be accompanied by the EEDI technical file that contains the information necessary for the calculation of the attained EEDI and that shows the process of calculation. The attained EEDI shall be verified, based on the EEDI technical file, by a qualified person.

(3) The attained EEDI shall be calculated taking into account the Guidelines on the method of calculation of the Energy Efficiency Design Index for new ships, as may be amended from time to time, developed by the Organization.

Required EEDI.

(7) (1) For each—

(*a*) new ship,

(*b*) new ship which has undergone a major conversion, or

(*c*) new or existing ship which has undergone a major conversion that is so extensive that the ship is regarded by the Minister as a newly constructed ship, which falls into one or more of the following categories specified in regulation 2.25 to regulation 2.31 of Annex VI:

(i) bulk carrier;
(ii) gas carrier;
(iii) tanker;
(iv) container ship;
(v) general cargo ship;
(vi) refrigerated cargo carrier;
(vii) combination carrier,

and to which this Part is applicable, the attained EEDI shall be as follows:

Attained EEDI ≤ Required EEDI □□(1-X/100) □□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 con-version which is so extensive that the ship is regarded by the Administratoe as a newly constructed ship, the attained EEDI shall be calculated and meet the requirement of subsection (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. The tables which contain the reduction factors and the method of calculation is contained in schedule one, regulation 21 of MARPOL Annex VI.

(3) Where the design of a ship allows it to fall into more than one of the above ship type definitions, the required EEDI for the ship shall be the most stringent

(the lowest) required.

(4) For each ship to which this Regulation applies, the installed propulsion power shall not be less than the propulsion power needed to maintain the maneuverability of the ship under adverse conditions as defined in the guidelines developed by the Organization.

(6) Notice is given that the Organization has undertaken, at the beginning of Phase 1 and at

the midpoint of Phase 2, to review the status of technological developments and, where necessary, amend the time periods, the EEDI reference line parameters for relevant ship types and reduction rates set out in this Regulation.

SEEMP

(8)(1) Each ship shall keep on board a ship specific SEEMP which may form part of the ship's SMS.

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

(9) For the definitions in this section refer to Regulation 2 of the first schedule.

Shipboard Incineration

34. Shipboard incineration within and outside waters of Nigeria

(1) Shipboard incineration is not to take place on board a specified ship that is a Nigerian ship outside the waters of Nigerian unless:

(a) the substance for incineration is other than those specified in regulation 16(4) of Annex VI;

(b) the incineration is conducted in a shipboard incinerator and, if the incinerator is installed on the ship on or after 1 January 2000, the requirements under section 35 are complied with;

(c) where the substance for shipboard incineration is sewage sludge or sludge oil generated during the normal operation of the ship, the incineration takes place in the main or auxiliary power plant or boilers while the ship is not inside a port, harbour or estuary; and

(d) where the substance for shipboard incineration is polyvinyl chlorides, the incineration is conducted in a shipboard incinerator in respect of which an IMO Type Approval Certificate has been issued.

(2) Shipboard incineration is not to take place on board a specified ship within the waters of Nigeria unless:

(a) the substance for incineration is other than those specified in regulation 16(4) of Annex VI;

(b) the incineration is conducted in a shipboard incinerator and, if the incinerator is installed on the ship on or after 1 January 2000, the requirements under section 35 are complied with;

(c) where the substance for shipboard incineration is sewage sludge or sludge oil generated during the normal operation of the ship, the incineration takes place in the main or auxiliary power plant or boilers while the ship is not inside a port, harbour or estuary; and

(d) the incineration is conducted in a shipboard incinerator in respect of which an IMO Type Approval Certificate has been issued.

(2) In this section:

"IMO Type Approval Certificate" means the Certificate of Shipboard Incinerator certifying that a shipboard incinerator has been examined and tested in accordance with the document entitled "Standard Specification for Shipboard Incinerators" adopted by the IMO resolution MEPC. 76(40) on 25 September 1997, as from time to time revised or amended by the revision or amendment that applies to Nigerian;

"sewage sludge" means the sediment of sewage;

"shipboard incineration" means the incineration of waste or other matter on board a specified ship,where such waste or other matter has been generated during the normal operation of the ship;

"sludge oil" means sludge from the fuel 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.

35. Shipboard incinerator and its operation

(1) Subject to subsection (2), a shipboard incinerator installed on a specified ship on or after 1 January 2000 is to comply with the requirements contained in Appendix IV to Annex VI.
(2) An operating manual:

(a) issued by the manufacturer of a shipboard incinerator to which this section applies; and
(b) provides guidance on how the incinerator may be operated within the limits described in paragraph 2 of Appendix IV to Annex VI,

is to be kept on board a specified ship.

(3) A person responsible for the operation of the incinerator to which this section applies is to be trained in such a way as to be capable of implementing the guidance provided in the operating manual referred to in subsection (2).

(4) The temperature of the flue gas outlet of the incinerator concerned during combustion is to be monitored at all times.

(5) If the incinerator concerned is a continuous-feed shipboard incinerator, waste is not to be fed into it when the temperature is below 850°C.

(6) If the incinerator concerned is a batch-loaded shipboard incinerator, it is to be so designed that the temperature in its combustion chamber will reach 600°C within 5 minutes after it is started up.

(7) In this section:
"batch-loaded" means the loading of waste in separate batches as may be required;

"continuous-feed" means the process during which waste is fed into a combustion chamber without human assistance while a shipboard incinerator is in normal operating conditions with the combustion chamber operative temperature kept between 850°C and 1200°C.

Control of Fuel Oil Quality

36. Control of fuel oil quality

(1) This section applies to all specified ships except the specified ships that use—

(a) coal in its solid form; or

(b) nuclear fuels.

(2) Fuel oil used on board a specified ship to which this section applies is to comply with the requirements set out in regulation 18(1) of Annex VI.

(3) A local supplier shall, in respect of fuel oil delivered by him to be used on board a regulated ship:

(a) prepare a bunker delivery note which contains at least the information as specified in Appendix V to Annex VI;

(b) procure his representative to sign and certify a declaration in the bunker delivery note to confirm that the fuel oil delivered complies with regulations 14(1) or (4)(a) (as may be applicable) and 18(1) of the Annex;

(c) seal a representative sample of the fuel oil delivered and sign the label attached to the sample on completion of the bunkering operation to confirm that it is a true sample of the fuel oil delivered;

(d) deliver to the officer in charge of the bunkering operation or the master of the ship the bunker delivery note and the representative sample of the fuel oil delivered;

(e) keep a copy of the bunker delivery note for a period of 3 years after the day on which the fuel oil is delivered to the ship; and

(f) make the copy kept under paragraph (e) available for inspection at all reasonable times.

(4) The company and the master of a regulated ship shall:

(a) on completion of a bunkering operation, ensure that the label attached to the representative sample of the fuel oil delivered is signed by the officer in charge of the operation or by the master himself;

(b) keep the bunker delivery note on board the ship in a place so as to be readily available for inspection at all reasonable times for a period of 3 years after the day on which the fuel oil is delivered to the ship; and

(c) retain the representative sample of the fuel oil that accompanies the bunker delivery note until the fuel oil is substantially consumed and, in any event, until the expiry of the period of 12 months from the day on which the fuel oil is

delivered to the ship, inclusive of the day of delivery.

(5) Notwithstanding subsection (4) and without limiting the generality of section 43, the Administrator may exempt the company and the master of a regulated ship from complying with any of the requirements under that subsection if the ship is solely engaged in non-international voyages.

37. Power of Government surveyors to inspect bunker delivery notes, etc.

A Government surveyor may, for the purpose of controlling the quality of fuel oil, do one or more of the following:

(a) require a company or the master of a regulated ship to provide for inspection:

(b) (i) a bunker delivery note required under section 36; or

(ii) where applicable, the representative sample of the fuel oil that accompanies the bunker delivery note referred to in subparagraph (i);

(b) make a copy of the bunker delivery note;

(c) require the master or any other officer in charge of the ship to certify that the copy made under paragraph (b) is a true copy of the bunker delivery note.

Part 5

Other Measures to Implement Annex VI

38. Duty to maintain condition of regulated Nigerian ships

The condition of a regulated Nigerian ship in respect of which a relevant certificate has been issued, and its equipment, are to be maintained so as to comply with the requirements under Annex VI or this Regulation (as may be applicable) to ensure that the ship remains fit to proceed to sea without presenting an unreasonable threat of harm to the marine environment.

39. Alterations to regulated Nigerian ships subject to approval of Administrator

Where any alteration is to be made to the equipment, systems, fittings, arrangements or material of a regulated Nigerian ship covered by the survey leading to the issue or endorsement of a relevant certificate, such alteration is subject to the prior approval of the Administrator.

40. Duty to keep certain certificates on regulated ships

An International Air Pollution Prevention Certificate or a Nigerian Air Pollution Prevention Certificate that is issued in respect of a regulated ship and is for the time being in force is to be kept on board the ship and is to be made available for inspection by a Government surveyor at all reasonable times.

41. Duty to report

(1) Where an accident occurs to, or a defect is discovered in, a specified ship, and the accident or defect substantially affects the efficiency or completeness of the equipment of the ship, the company and the master of the ship shall:

(a) where the ship is within the waters of Nigeria, immediately report the accident or defect to the Administrator; or

(b) where the ship is a Nigerian ship that is in a port of any Convention country outside Nigeria, immediately report the accident or defect to the Administrator and the appropriate authority of that country.

(2) On receiving a report under subsection (1)(a), the Administrator may cause an investigation to be initiated for the purpose of determining whether any additional survey under section 15 is necessary.

42. Power of Government surveyors to inspect

(1) A specified ship is to be subject to an inspection by a Government surveyor if it is within the waters of Nigeria.

(2) If any such inspection reveals any deficiencies, the Government surveyor may take appropriate steps to ensure that the specified ship does not proceed to sea until the situation has been rectified in accordance with the requirements of Annex VI or this Regulation (as may be applicable).

Part 6

Miscellaneous

43. Exemption

The Administrator may exempt any specified ship or class or description of specified ships from any of the requirements of this Regulation on such conditions as he may specify, and he may alter or cancel any such exemption.

44. Equivalents

Where this Regulation requires a particular fitting, material, appliance or apparatus to be fitted in a specified ship, the Administrator may allow any other fitting, material, appliance or apparatus to be fitted in the ship if he is satisfied that such fitting, material, appliance or apparatus is at least as effective as that required by this Regulation.

45. Access to Annex VI and NOx Technical Code

The Administrator shall:

(a) keep a copy of the English and Chinese texts of Annex VI and NO_x Technical Code at his office; and
(b) allow the public to inspect such texts free of charge at the office during normal business hours.

46. Appointment of Government surveyors

The Administrator may appoint a person to be a Government surveyor for the purposes of this Regulation.

47. Powers to Inspect

(1) A ship to which these Regulations apply shall be subject, in Nigerian waters, to inspection by a surveyor of ships.

(2) Any such inspection shall be limited to verifying that there is on board in relation to that ship a valid IAPP Certificate in the form prescribed by the Convention or a valid Nigerian Air Pollution Prevention Certificate unless there are clear grounds for believing that the condition of the ship or its equipment does not correspond substantially with the particulars of that Certificate.

(3) In the case referred to in subsection (2), or if the ship does not carry a valid Certificate, the surveyor of ships shall take such steps as he may consider necessary to ensure that the ship shall not sail until it can proceed to sea without presenting an unreasonable threat of harm to the atmosphere or sea.

(4)The Aministrator may in such a case permit the ship to proceed to the nearest appropriate repair yard.

(5) Upon receiving evidence that a particular ship has emitted any of the substances covered by Annex VI in violation of the provisions of these Regulations, the Administrator shall cause the matter to be investigated by an inspector and shall inform the State which has reported the contravention as well as IMO, of the action taken.

(6) The Administrator may also cause a ship other than a Nigerian ship to be inspected by an inspector when it enters Nigeria waters if a request for an investigation is received from any State which is a Party to the Convention together with sufficient evidence that the ship has emitted any of the substances covered by Annex VI in violation of the provisions of these Regulations in any place.

(7) The report of such investigation may be sent to the State requesting the investigation and the State in which the ship is registered.

48. Administrator may request Convention countries to survey regulated Nigerian ships and issue or endorse International Air Pollution Prevention Certificates

(1) The Administrator may request any Convention country:

(a) to carry out a survey in respect of a regulated Nigeria ship on his behalf in conformity with Annex VI; and

(b) to issue an International Air Pollution Prevention Certificate in respect of the ship, or to make endorsements on the Certificate issued in respect of the ship, on his behalf in conformity with the Annex.

(2) For the purposes of this Regulation, an endorsement made on an International Air Pollution Prevention Certificate by any Convention country on behalf of the Administrator in conformity with Annex VI has the same effect as an endorsement made by the Administrator under this Regulation.

49. Administrator may recognize organizations to survey regulated Nigerian ships and issue certain certificates, etc.

The Administrator may recognize an organization for the purposes of:

(a) surveying regulated Nigerian ships in conformity with Annex VI or in compliance with this Regulation (as may be applicable);

(b) issuing International Air Pollution Prevention Certificates in respect of those ships in conformity with the Annex;

(c) making endorsements on International Air Pollution Prevention Certificates issued by the organization in respect of those ships in conformity with the Annex;

(d) issuing Nigerian Air Pollution Prevention Certificates in respect of those ships in compliance with the requirements under this Regulation;

(e) making endorsements on Nigerian Air Pollution Prevention Certificates issued by the organization in respect of those ships in compliance with the requirements under this Regulation;

(f) granting extensions, with the prior consent of the Administrator, of validity period of International Air Pollution Prevention Certificates or Nigerian Air Pollution Prevention Certificates issued by the organization;

(g) altering any particulars contained in International Air Pollution Prevention Certificates or Nigerian Air Pollution Prevention Certificates issued by the organization; and

(h) issuing certified true copies of International Air Pollution Prevention Certificates or Nigerian Air Pollution Prevention Certificates issued by the organization.

50. Administrator may at request of Convention countries to survey non-Nigerian ships and issue

IAPP Certificates

The Administrator may, at the request of any Convention country, exercise any of his powers under Regulations 1, 2 and 3 of Part 3 in respect of a regulated ship that is a non-Nigerian ship while it is within the waters of Nigeria, and the provisions of those Regulations apply accordingly.

51. Form of relevant certificates

(1) Subject to subsection (2), the Administrator may specify the form of a relevant certificate issued in respect of a regulated Nigerian ship.

(2) An IAPP Certificate specified by the Administrator under subsection (1) is to be in accordance with the form entitled "International Air Pollution Prevention Certificate" set out in Appendix I to Annex VI.

52.Alteration made to relevant certificates

(1) The company of a regulated Nigerian ship in respect of which a relevant certificate has been issued by the Administrator may request the Administrator to alter any particulars contained in the certificate.

(2) The Administrator may refuse to make the alteration requested if he considers it to be a material alteration.

(3) If the Administrator agrees to make the alteration, he shall, upon payment of the prescribed fee in relation to the alteration, alter the relevant certificate accordingly.

53. Certified true copies of relevant certificates

(1) The company of a regulated Nigerian ship in respect of which the Administrator has issued a relevant certificate may apply to the Administrator for the issue of a certified true copy of the certificate.

54. Prohibition on proceeding to sea without IAPP Certificate

(1) The master of every ship of 400 gross tonnage and above shall produce to the Port Master, at the time a clearance for the ship is demanded for a voyage from Nigeria to a port or place outside Nigeria waters, the IAPP Certificate to be in force when the ship proceeds to sea.

(2) A clearance shall not be granted, and the ship may be detained, until the IAPP Certificate is so produced

PART 7

Definitions and Interpretation

In these Regulations, unless the context otherwise requires :

"Annex VI" means Annex VI to the Convention which contains regulations for the prevention of air pollution from ships and which is set out in the First Schedule;

"Administration" means the Nigerian Maritime Safety Agency or any other department charged with maritime safety;

"approved" and "approved in the Convention so far as given effect by these Regulation" means approved by the Minister;

"anniversary date" in relation to a relevant certificate, has the meaning assigned to it by the definition of "Anniversary date" in Annex VI, which is to apply to the relevant certificate as it applies to an International Air Pollution Prevention Certificate referred to in that definition;

"authorised organisation" means an organisation authorised by regulations made under section 219 of the Merchant Shipping Act for the purposes of surveying ships and issuing certificates under Part XII of that Act;

"company" (in relation to a ship, means:

(a) the owner of the ship; or

(b) any other person who has assumed responsibility for the operation of the ship, and on assuming such responsibility has agreed to take over all the duties and responsibilities imposed in respect of the ship by the Convention;

"commencement date" means the date on which this Regulation comes into operation;

"constructed" in relation to a specified ship, means:

(a) having the keel of the ship laid; or

(b) being at a stage at which:

(i) construction identifiable with the ship begins; and

(ii) assembly of the ship has commenced comprising at least 50 tonnes or 1% of the estimated mass of all structural material, whichever is the less;

"Convention" means the International Convention for the Prevention of Pollution from Ships, 1973, including its protocols and appendices, and Annex VI (but no other Annex), as from time to time revised or amended by the revision or amendment to any

"Convention country" means a country which is a party to the Convention;

provision of such Convention that applies to Nigeria;

"emission" means any release from a ship into the atmosphere or sea of any substance subject to control under Part 4;

“fuel oil” in relation to a ship, means any oil used on board the ship for combustion in connection with its propulsion and operation;

“Government surveyor” means a person appointed under section 46 to be a Government surveyor;

“IAPP Certificate” means an International Air Pollution Prevention Certificate issued under regulation 6 of Annex VI by the Administration of any Contracting Party to the Convention;

“ ‘IEE Certificate’ means an International Energy Efficiency Certificate;”

“international voyage” means a voyage between:

(a) Nigeria and a port outside Nigeria; or

(b) a port in a Convention country and a port outside that country (whether in another Convention country or not);

“IMO” or “Organization” means the International Maritime Organization;

"Inspector " means the Government Inspector of Shipping who is the head of the Nigerian Maritime Safety Administration;

“local supplier” (means the person who delivers fuel oil to a ship in Nigeria;

“major conversion” in relation to a relevant diesel engine, means a modification of the engine where—

(a) the engine is replaced by a new diesel engine built on or after 1 January 2000;

(b) any substantial modification, as defined in the NO_x Technical Code, is made to the engine; or

(c) the maximum continuous rating of the engine is increased by more than 10%;

“Nigerian Air Pollution Prevention Certificate” means—

(a) a Nigerian Certificate; or

(b) a certificate entitled “Nigeria Air Pollution Prevention Certificate” issued by a recognized organization in compliance with this Regulation;

“Nigerian Certificate” means a certificate issued under section 9;

"Nigerian ship" means a ship:

1. *(a) which* is registered or licensed in Nigeria under the Merchant Shipping Act 2007; or

2. *(b) not* exceeding eighty registered tonnage employed solely on the coasts or inland waters of Nigeria and exempted under the Merchant Shipping Act from being registered;

"Nigerian waters" shall include inland waters, territorial waters or waters of the exclusive Economic Zone (respectively, together or any combination thereof) and the meaning given to them by the national inland;

"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 on 26 September 1997, as from time to time revised or amended by the revision or amendment that applies to Nigeria;

"non-international voyage" means:

(a) a voyage that begins and ends within the waters of Nigeria, during the course of which the ship concerned does not call at any port outside Nigeria; or

(b) a voyage between Nigeria and any other port in Nigeia, during the course of which the ship concerned does not call at any port outside Nigeria;

"ozone depleting substance" means any controlled substance defined in paragraph 4 of article 1 of the Montreal Protocol on Substances that Deplete the Ozone Layer, 1987, as listed in Annex A, B, C or E to the Protocol, as from time to time revised or amended by the revision or amendment that applies to Nigeria;

"recognized organization" means an organization recognized by the Administrator under section 49;

"regulated Nigerian ship" means a regulated ship that is a Nigerian ship;

"regulated ship" means a specified ship of 400 gross tonnage or above;

"relevant certificate" means an IAPP Certificate or a Nigerian Certificate;

"relevant diesel engine" means a diesel engine with a power output of more than 130 kW—

(a) that is installed on a specified ship constructed on or after 1 January 2000; or

(b) that undergoes a major conversion on or after 1 January 2000;

"shipboard incinerator" means a shipboard facility designed for the primary purpose of incineration;

"specified ship" means:

(a) a Nigerian ship, wherever it may be; and

(b) a non-Nigerian ship within the waters of Nigeria,

but does not include:

(c) warships;

(d) naval auxiliaries; or

(e) other ships owned or operated by a government and used only on government non-commercial service;

“surveyor” means:

(a) a Government surveyor; or

(b) a recognized organization.

PART 8

FIRST SCHEDULE

ANNEX VI OF THE CONVENTION

REGULATIONS FOR THE PREVENTION OF AIR POLLUTION FROM SHIPS

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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"** means a cargo ship 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, regulation1.

(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.

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;[73]
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

[73] 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.

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[74]:

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 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 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.

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

(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[75]. In every case, the Administration assumes full responsibility for the certificate.

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[75] 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 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.

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:

4. on ships constructed on or after 1 January 2020; or
5. 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.[76]

(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:
    a. deliberate; and
    b. 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

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

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 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 in force at the time of the replacement or addition of the engine shall apply. On or after 1 January 2016, 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), then that replacement engine shall meet the standards set forth in paragraph 4 of this regulation (Tier II). Guidelines are to be developed by the Organization to set forth the criteria of when it is

not possible for a replacement engine to meet the standards in subparagraph 5.1.1 of this regulation.

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, the operation of a marine diesel engine which is installed on a ship constructed on or after 1 January 2016:

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):

1.1. 3.4 g/kWh when n is less than 130 rpm;

1.2. $9 \cdot n^{(-0.2)}$ g/kWh when n is 130 or more but less than 2,000 rpm; and

1.3. 2.0 g/kWh when n is 2,000 rpm or more;

2. is subject to the standards set forth in subparagraph 5.1.1 of this paragraph when the ship is operating in an Emission Control Area designated under paragraph 6 of this regulation; and

3. is subject to the standards set forth in paragraph 4 of this regulation when the ship is operating outside of an Emission Control Area designated under paragraph 6 of this regulation.

5.2 Subject to the review set forth in paragraph 10 of this regulation, 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, 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.

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.[77]

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.

Review

(10) Beginning in 2012 and completed no later than 2013, the Organization shall review the status of the technological developments to implement the standards set forth in paragraph 5.1.1 of this regulation and shall, if proven necessary, adjust the time periods set forth in that subparagraph.

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.

[77] 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:
$Ce = [\text{Cost of Approved Method} \cdot 10^6] / [P(kW) \cdot 0.768 \cdot 6000(\text{hours/year}) \cdot 5 (\text{years}) \cdot \Delta NO_x(g/kWh)]$

(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.[78]

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 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

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

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[79].

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.

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[79] 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[80], 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, sea passage and discharge of cargo;
2. give consideration to the additional VOC generated by crude oil washing;
3. identify a person responsible for implementing the plan; and
4. for ships on international voyages, be written in the working language of the master and officers and, if the working language of the master and officers is not English, French, or Spanish, include a translation into one of these languages.

(7) This regulation shall also apply to gas carriers only if the type of loading and containment systems allow safe retention of non-methane VOCs on board or their safe return ashore.[81]

Regulation 16 Shipboard Incineration

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

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[80] MSC/Circ.585, Standards for vapour emission control systems.
[81] MSC.30(61), "International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk", 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[82] 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[83]; 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.

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

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

(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.

(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 is in operation. Where that incinerator is of the continuous-feed type, waste shall not be fed into the unit when the combustion chamber gas outlet temperature is below 850°C. Where that incinerator is of the batch-loaded type, the unit shall be designed so that the combustion chamber gas outlet temperature 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;

2.2. 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.[84] 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;
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

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

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.

(3) Regulation 20 and regulation 21 shall not apply to ships which have diesel-electric propulsion, turbine propulsion or hybrid propulsion systems.

(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. 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 [85] duly authorized by it.

(2) The attained EEDI shall be calculated taking into account guidelines[86] developed by the Organization.

Regulation 21 Required EEDI

(1) For each:

3. new ship;
4. new ship which has undergone a major conversion; and
5. 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 defined in regulation 2.25 to 2.31 and to which this chapter is applicable, the attained EEDI shall be as follows:

Attained EEDI ≦ Required EEDI = (1-X/100) × 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.

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[85] 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.

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

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*
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	n/a	0-10*	0-20*	0-30*

	DWT				

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

(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.

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+.....

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.

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* 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).

* 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

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)

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: .....
(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:

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* Delete as appropriate.

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

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)

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* Delete as appropriate.

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: .....

Date

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

(Seal or stamp of the authority, as appropriate)

* Delete 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 AnnexVI 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, which are specially designed, and used solely, for recreational purposes and to which, in accordance with regulation 13.5.2.1, 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 Criteria and 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

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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°C

Appendix V Iinformation 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 VI Fuel 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":

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

6. .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":

6. If the result of "X" is equal to or falls below the applicable limit required by Annex VI,

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

the fuel oil shall be deemed to meet the requirements.

7. 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 2.5.2 above, 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:

   a. 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	POINT	LATITUDE	LONGITUDE
1	32º 32′ 10″ N.	117º 06′ 11″ W.	25	42º 47′ 34″ N.	129º 05′ 42″ W.
2	32º 32′ 04″ N.	117º 07′ 29″ W.	26	43º 26′ 22″ N.	129º 01′ 26″ W.
3	32º 31′ 39″ N.	117º 14′ 20″ W.	27	44º 24′ 43″ N.	128º 41′ 23″ W.
4	32º 33′ 13″ N.	117º 15′ 50″ W.	28	45º 30′ 43″ N.	128º 40′ 02″ W.
5	32º 34′ 21″ N.	117º 22′ 01″ W.	29	46º 11′ 01″ N.	128º 49′ 01″ W.
6	32º 35′ 23″ N.	117º 27′ 53″ W.	30	46º 33′ 55″ N.	129º 04′ 29″ W.
7	32º 37′ 38″ N.	117º 49′ 34″ W.	31	47º 39′ 55″ N.	131º 15′ 41″ W.
8	31º 07′ 59″ N.	118º 36′ 21″ W.	32	48º 32′ 32″ N.	132º 41′ 00″ W.
9	30º 33′	121º 47′	33	48º 57′	133º 14′

	25″ N.	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″ N.	127º 07′ 18″ 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.

	47″ N.	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″ N.	139º 56′ 19″ 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.

22	40º 18′ 47″ N.	128º 45′ 46″ W.	46	56º 37′ 19″ N.	142º 48′ 57″ W
23	41º 13′ 39″ N.	128º 40′ 22″ W.	47	58º 51′ 04″ N.	153º 15′ 03″ W.
24	42º 12′ 49″ N.	129º 00′ 38″ W.			

b. 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	POINT	LATITUDE	LONGITUDE
1	60º 00′ 00″ N.	64º 09′ 36″ W.	104	25º 48′ 20″ N.	79º 42′ 24″ W.
2	60º 00′ 00″ N.	56º 43′ 00″ W.	105	25º 46′ 26″ N.	79º 42′ 44″ W.
3	58º 54′ 01″ N.	55º 38′ 05″ W.	106	25º 46′ 16″ N.	79º 42′ 45″ W.
4	57º 50′ 52″ N.	55º 03′ 47″ W.	107	25º 43′ 40″ N.	79º 42′ 59″ W.
5	57º 35′ 13″ N.	54º 00′ 59″ W.	108	25º 42′ 31″ N.	79º 42′ 48″ W.
6	57º 14′ 20″ N.	53º 07′ 58″ W.	109	25º 40′ 37″ N.	79º 42′ 27″ W.
7	56º 48′ 09″	52º 23′ 29″	110	25º 37′ 24″	79º 42′ 27″

	N.	W.
8	56º	51º
	18′	49′
	13″	42″
	N.	W.
9	54º	50º
	23′	17′
	21″	44″
	N.	W.
10	53º	50º
	44′	07′
	54″	17″
	N.	W.
11	53º	50º
	04′	10′
	59″	05″
	N.	W.
12	52º	49º
	20′	57′
	06″	09″
	N.	W.
13	51º	48º
	34′	52′
	20″	45″
	N.	W.
14	50º	48º
	40′	16′
	15″	04″
	N.	W.
15	50º	48º
	02′	07′
	28″	03″
	N.	W.
16	49º	48º
	24′	09′
	03″	35″
	N.	W.
17	48º	47º
	39′	55′
	22″	17″
	N.	W.
18	47º	47º
	24′	46′
	25″	56″
	N.	W.
19	46º	48º
	35′	00′
	12″	54″
	N.	W.
2	45º	48º

	N.	W.
11	25º	79º
	37′	42′
	08″	27″
	N.	W.
11	25º	79º
	31′	42′
2	03″	12″
	N.	W.
11	25º	79º
	27′	42′
3	59″	11″
	N.	W.
11	25º	79º
	24′	42′
4	04″	12″
	N.	W.
11	25º	79º
	22′	42′
5	21″	20″
	N.	W.
11	25º	79º
	21′	42′
6	29″	08″
	N.	W.
11	25º	79º
	16′	41′
7	52″	24″
	N.	W.
11	25º	79º
	15′	41′
8	57″	31″
	N.	W.
11	25º	79º
	10′	41′
9	39″	31″
	N.	W.
12	25º	79º
	09′	41′
0	51″	36″
	N.	W.
12	25º	79º
	09′	41′
1	03″	45″
	N.	W.
12	25º	79º
	03′	42′
2	55″	29″
	N.	W.
11	25º	79º

0	19′	43′	23	02′	42′
	45″	28″		60″	56″
	N.	W.		N.	W.
21	44º	49º	124	25º	79º
	43′	16′		00′	44′
	38″	50″		30″	05″
	N.	W.		N.	W.
22	44º	49º	125	24º	79º
	16′	51′		59′	44′
	38″	23″		03″	48″
	N.	W.		N.	W.
23	43º	50º	126	24º	79º
	53′	34′		55′	45′
	15″	01″		28″	57″
	N.	W.		N.	W.
24	43º	51º	127	24º	79º
	36′	20′		44′	49′
	06″	41″		18″	24″
	N.	W.		N.	W.
25	43º	52º	128	24º	79º
	23′	17′		43′	49′
	59″	22″		04″	38″
	N.	W.		N.	W.
26	43º	53º	129	24º	79º
	19′	20′		42′	50′
	50″	13″		36″	50″
	N.	W.		N.	W.
27	43º	54º	130	24º	79º
	21′	09′		41′	52′
	14″	20″		47″	57″
	N.	W.		N.	W.
28	43º	55º	131	24º	79º
	29′	07′		38′	59′
	41″	41″		32″	58″
	N.	W.		N.	W.
29	42º	55º	132	24º	80º
	40′	31′		36′	03′
	12″	44″		27″	51″
	N.	W.		N.	W.
30	41º	56º	133	24º	80º
	58′	09′		33′	12′
	19″	34″		18″	43″
	N.	W.		N.	W.
31	41º	57º	134	24º	80º
	20′	05′		33′	13′
	21″	13″		05″	21″
	N.	W.		N.	W.
32	40º	58º	135	24º	80º
	55′	02′		32′	15′
	34″	55″		13″	16″

	N.	W.
3	40º	59º
3	41′	05′
	38″	18″
	N.	W.
3	40º	60º
4	38′	12′
	33″	20″
	N.	W.
3	40º	61º
5	45′	14′
	46″	03″
	N.	W.
3	41º	62º
6	04′	17′
	52″	49″
	N.	W.
3	40º	63º
7	36′	10′
	55″	49″
	N.	W.
3	40º	64º
8	17′	08′
	32″	37″
	N.	W.
3	40º	64º
9	07′	59′
	46″	31″
	N.	W.
4	40º	65º
0	05′	53′
	44″	07″
	N.	W.
4	39º	65º
1	58′	59′
	05″	51″
	N.	W.
4	39º	66º
2	28′	21′
	24″	14″
	N.	W.
4	39º	66º
3	01′	48′
	54″	33″
	N.	W.
4	38º	67º
4	39′	20′
	16″	59″
	N.	W.
4	38º	68º

	N.	W.
1	24º	80º
3	31′	16′
6	27″	55″
	N.	W.
1	24º	80º
3	30′	17′
7	57″	47″
	N.	W.
1	24º	80º
3	30′	19′
8	14″	21″
	N.	W.
1	24º	80º
3	30′	19′
9	06″	44″
	N.	W.
1	24º	80º
4	29′	21′
0	38″	05″
	N.	W.
1	24º	80º
4	28′	24′
1	18″	35″
	N.	W.
1	24º	80º
4	28′	25′
2	06″	10″
	N.	W.
1	24º	80º
4	27′	27′
3	23″	20″
	N.	W.
1	24º	80º
4	26′	29′
4	30″	30″
	N.	W.
1	24º	80º
4	25′	32′
5	07″	22″
	N.	W.
1	24º	80º
4	23′	36′
6	30″	09″
	N.	W.
1	24º	80º
4	22′	38′
7	33″	56″
	N.	W.
1	24º	80º

5	19′	02′	4	22′	39′
	20″	01″	8	07″	51″
	N.	W.		N.	W.
4	38º	68º	1	24º	80º
6	05′	46′	4	19′	45′
	29″	55″	9	31″	21″
	N.	W.		N.	W.
4	37º	69º	1	24º	80º
7	58′	34′	5	19′	45′
	14″	07″	0	16″	47″
	N.	W.		N.	W.
4	37º	70º	1	24º	80º
8	57′	24′	5	18′	46′
	47″	09″	1	38″	49″
	N.	W.		N.	W.
4	37º	70º	1	24º	80º
9	52′	37′	5	18′	46′
	46″	50″	2	35″	54″
	N.	W.		N.	W.
5	37º	71º	1	24º	80º
0	18′	08′	5	09′	59′
	37″	33″	3	51″	47″
	N.	W.		N.	W.
5	36º	71º	1	24º	80º
1	32′	33′	5	09′	59′
	25″	59″	4	48″	51″
	N.	W.		N.	W.
5	35º	71º	1	24º	81º
2	34′	26′	5	08′	01′
	58″	02″	5	58″	07″
	N.	W.		N.	W.
5	34º	71º	1	24º	81º
3	33′	37′	5	08′	01′
	10″	04″	6	30″	51″
	N.	W.		N.	W.
5	33º	71º	1	24º	81º
4	54′	52′	5	08′	01′
	49″	35″	7	26″	57″
	N.	W.		N.	W.
5	33º	72º	1	24º	81º
5	19′	17′	5	07′	03′
	23″	12″	8	28″	06″
	N.	W.		N.	W.
5	32º	72º	1	24º	81º
6	45′	54′	5	02′	09′
	31″	05″	9	20″	05″
	N.	W.		N.	W.
5	31º	74º	1	23º	81º
7	55′	12′	6	59′	11′
	13″	02″	0	60″	16″

	N.	W.
58	31º 27′ 14″ N.	75º 15′ 20″ W.
59	31º 03′ 16″ N.	75º 51′ 18″ 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.
7	27º	79º

	N.	W.
161	23º 55′ 32″ N.	81º 12′ 55″ W.
162	23º 53′ 52″ N.	81º 19′ 43″ 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.
1	23º	83º

0	05′ 59″ N.	35′ 19″ W.	7 3	49′ 52″ N.	14′ 59″ W.
7 1	27º 00′ 28″ N.	79º 35′ 17″ W.	1 7 4	23º 51′ 22″ N.	83º 25′ 49″ W.
7 2	26º 55′ 16″ N.	79º 34′ 39″ W.	1 7 5	23º 52′ 27″ N.	83º 33′ 01″ W.
7 3	26º 53′ 58″ N.	79º 34′ 27″ W.	1 7 6	23º 54′ 04″ N.	83º 41′ 35″ W.
7 4	26º 45′ 46″ N.	79º 32′ 41″ W.	1 7 7	23º 55′ 47″ N.	83º 48′ 11″ W.
7 5	26º 44′ 30″ N.	79º 32′ 23″ W.	1 7 8	23º 58′ 38″ N.	83º 59′ 59″ W.
7 6	26º 43′ 40″ N.	79º 32′ 20″ W.	1 7 9	24º 09′ 37″ N.	84º 29′ 27″ W.
7 7	26º 41′ 12″ N.	79º 32′ 01″ W.	1 8 0	24º 13′ 20″ N.	84º 38′ 39″ W.
7 8	26º 38′ 13″ N.	79º 31′ 32″ W.	1 8 1	24º 16′ 41″ N.	84º 46′ 07″ W.
7 9	26º 36′ 30″ N.	79º 31′ 06″ W.	1 8 2	24º 23′ 30″ N.	84º 59′ 59″ W.
8 0	26º 35′ 21″ N.	79º 30′ 50″ W.	1 8 3	24º 26′ 37″ N.	85º 06′ 19″ W.
8 1	26º 34′ 51″ N.	79º 30′ 46″ W.	1 8 4	24º 38′ 57″ N.	85º 31′ 54″ W.
8 2	26º 34′ 11″	79º 30′ 38″	1 8 5	24º 44′ 17″	85º 43′ 11″

	N.	W.
83	26º 31′ 12″ N.	79º 30′ 15″ W.
84	26º 29′ 05″ N.	79º 29′ 53″ W.
85	26º 25′ 31″ N.	79º 29′ 58″ W.
86	26º 23′ 29″ N.	79º 29′ 55″ W.
87	26º 23′ 21″ N.	79º 29′ 54″ W.
88	26º 18′ 57″ N.	79º 31′ 55″ W.
89	26º 15′ 26″ N.	79º 33′ 17″ W.
90	26º 15′ 13″ N.	79º 33′ 23″ W.
91	26º 08′ 09″ N.	79º 35′ 53″ W.
92	26º 07′ 47″ N.	79º 36′ 09″ W.
93	26º 06′ 59″ N.	79º 36′ 35″ W.
94	26º 02′ 52″ N.	79º 38′ 22″ W.
9	25º	79º

	N.	W.
1	24º	85º
86	53′ 57″ N.	59′ 59″ W.
1	25º	86º
87	10′ 44″ N.	30′ 07″ W.
1	25º	86º
88	43′ 15″ N.	21′ 14″ W.
1	26º	86º
89	13′ 13″ N.	06′ 45″ W.
1	26º	86º
90	27′ 22″ N.	13′ 15″ W.
1	26º	86º
91	33′ 46″ N.	37′ 07″ W.
1	26º	87º
92	01′ 24″ N.	29′ 35″ W.
1	25º	88º
93	42′ 25″ N.	33′ 00″ W.
1	25º	90º
94	46′ 54″ N.	29′ 41″ W.
1	25º	90º
95	44′ 39″ N.	47′ 05″ W.
1	25º	91º
96	51′ 43″ N.	52′ 50″ W.
1	26º	93º
97	17′ 44″ N.	03′ 59″ W.
1	25º	93º

5	59′ 30″ N.	40′ 03″ W.		98	59′ 55″ N.	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.

c. 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		POINT	LATITUDE	LONGITUDE
1	22º 32′ 54″ N.	153º 00′ 33″ W.		24	18º 39′ 16″ N.	161º 19′ 14″ W.
2	23º	153º		2	18º	160º

	06′ 05″ N.	28′ 36″ W.	5	30′ 31″ N.	38′ 30″ W.
3	23º 32′ 11″ N.	154º 02′ 12″ W.	26	18º 29′ 31″ N.	159º 56′ 17″ W.
4	23º 51′ 47″ N.	154º 36′ 48″ W.	27	18º 10′ 41″ N.	159º 14′ 08″ W.
5	24º 21′ 49″ N.	155º 51′ 13″ W.	28	17º 31′ 17″ N.	158º 56′ 55″ W.
6	24º 41′ 47″ N.	156º 27′ 27″ W.	29	16º 54′ 06″ N.	158º 30′ 29″ W.
7	24º 57′ 33″ N.	157º 22′ 17″ W.	30	16º 25′ 49″ N.	157º 59′ 25″ W.
8	25º 13′ 41″ N.	157º 54′ 13″ W.	31	15º 59′ 57″ N.	157º 17′ 35″ W.
9	25º 25′ 31″ N.	158º 30′ 36″ W.	32	15º 40′ 37″ N.	156º 21′ 06″ W.
10	25º 31′ 19″ N.	159º 09′ 47″ W.	33	15º 37′ 36″ N.	155º 22′ 16″ W.
11	25º 30′ 31″ N.	159º 54′ 21″ W.	34	15º 43′ 46″ N.	154º 46′ 37″ W.
12	25º 21′ 53″ N.	160º 39′ 53″ W.	35	15º 55′ 32″ N.	154º 13′ 05″ W.
13	25º 00′ 06″ N.	161º 38′ 33″ W.	36	16º 46′ 27″ N.	152º 49′ 11″ W.
14	24º 40′ 49″	162º 13′ 13″	37	17º 33′ 42″	152º 00′ 32″

	N.	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″ N.	162º 53′ 48″ W.
23	19º 09′ 43″ N.	162º 20′ 35″ W.

	N.	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″ N.	153º 00′ 33″ W.

3. The United States Caribbean Sea area includes:

    a. 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

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′	64º 50′

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′	64º 21′ 8″

	36″ N.	17″ W.		30″ N.	W.
14	18º 23′ 48″ N.	64º 49′ 41″ W.	42	18º 2′ 31″ N.	64º 20′ 8″ W.
15	18º 24′ 11″ N.	64º 49′ 0″ W.	43	18º 2′ 3″ N.	64º 15′ 57″ W.
16	18º 24′ 28″ N.	64º 47′ 57″ W.	44	18º 0′ 12″ N.	64º 2′ 29″ W.
17	18º 24′ 18″ N.	64º 47′ 1″ W.	45	17º 59′ 58″ N.	64º 1′ 4″ W.
18	18º 23′ 13″ N.	64º 46′ 37″ W.	46	17º 58′ 47″ N.	63º 57′ 1″ W.
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*

Name of ship .....

Distinctive number or letters

.....

Port of registry .....

Gross tonnage .....

IMO Number+.....

THIS IS TO CERTIFY:

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* 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).

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*

.....

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

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)"

***