

標 題：

船舶からの大気汚染防止のための規則
MARPOL 73/78 新附属書VIについて

NKテクニカル インフォメーション

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関係船主・造船所各位

拝啓、貴社ますますご清栄のこととお喜び申し上げます。

さて、ご承知の通り、IMO 本部において 1997 年 9 月 15 日～26 日に開催された海洋汚染防止条約締約国会議において、海洋汚染防止条約 (MARPOL 73/78) に「船舶からの大気汚染防止」に関する新附属書VIを追加するための議定書が採択され、また、同時に、強制コードとして「船用ディーゼルエンジンからの NOx 排出規制に関するテクニカルコード」が採択されました。

同附属書VIの発効日は未定ではありますが、発効された後には発効日とは無関係に、同附属書 VI 3 章 第 13 規則に規定されております「窒素酸化物 (NOx)」の要件が、2000 年 1 月 1 日以降に建造される船舶に搭載される船用ディーゼルエンジンに適用されることになりました。

また、同様に、同附属書VI 3 章第 16 規則に規定されております「船上焼却炉」の要件が、2000 年 1 月 1 日以後に船舶に搭載される焼却炉に適用されることになりました。

条約発効が遅れた場合でも発効日にかかわらず、船用ディーゼルエンジン及び船上焼却炉に対するこれらの要件が遡及適用されるため、関係各位には、前広に検討及び対策が必要と思われるので、ここにお知らせ致します。

本会としましては、条約発効時の無用な混乱を避けるため、ご希望の方には事前にオプションの鑑定書を発効することにしております。

なお、詳細内容につきましては、当該附属書VI及び船用ディーゼルエンジンからの NOx 排出規制に関するテクニカルコードをご参照下さい。

添付 : MARPOL 73/78 Annex VI

本件に関する取扱いの詳細及びご不明の点につきましては、

本会開発部 (Tel.03-5226-2025, Fax.03-5226-2024) までお問い合わせ願います。

なお、鑑定書発行を依頼される場合は、

本会テクニカルサービス部 (Tel.03-5226-2041, Fax.03-5226-2039) までお願いします。

以 上

ClassNK

財団法人 日本海事協会

東京都千代田区紀尾井町4番7号 千102-8567

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ANNEX

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

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

"ANNEX VI

REGULATIONS FOR THE PREVENTION OF AIR POLLUTION FROM SHIPS

CHAPTER I - GENERAL

REGULATION 1

Application

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

REGULATION 2

Definitions

For the purpose of this Annex:

- (1) "A similar stage of construction" means the stage at which:
 - (a) construction identifiable with a specific ship begins; and
 - (b) assembly of that ship has commenced comprising at least 50 tonnes or one per cent of the estimated mass of all structural material, whichever is less.
- (2) "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 1200°C.
- (3) "Emission" means any release of substances, subject to control by this Annex from ships into the atmosphere or sea.
- (4) "New installations", in relation to regulation 12 of this Annex, means the installation of systems, equipment, including new portable fire extinguishing units, insulation, or other material on a ship after the date on which this Annex enters into force, but excludes repair or recharge of previously installed systems, equipment, insulation, or other material, or recharge of portable fire extinguishing units.

- (5) "NOx Technical Code" means the Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines adopted by Conference resolution 2, as may be 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 concerning amendment procedures applicable to an appendix to an Annex.

- (6) "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-tetrafluoroethane (also known as Halon 114B2)
CFC-11 Trichlorofluoromethane
CFC-12 Dichlorodifluoromethane
CFC-113 1,1,2-Trichloro-1,2,2-trifluoroethane
CFC-114 1,2-Dichloro-1,1,2,2-tetrafluoroethane
CFC-115 Chloropentafluoroethane

- (7) "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.
- (8) "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.
- (9) "Shipboard incinerator" means a shipboard facility designed for the primary purpose of incineration.
- (10) "Ships constructed" means ships the keels of which are laid or which are at a similar stage of construction.
- (11) "SOx Emission Control Area" means an area where the adoption of special mandatory measures for SOx emissions from ships is required to prevent, reduce and control air pollution from SOx and its attendant adverse impacts on land and sea areas. SOx Emission Control Areas shall include those listed in regulation 14 of this Annex.
- (12) "Tanker" means an oil tanker as defined in regulation 1(4) of Annex I or a chemical tanker as defined in regulation 1(1) of Annex II of the present Convention.
- (13) "The Protocol of 1997" means the Protocol of 1997 to amend the International Convention for the Prevention of Pollution from Ships, 1973, as amended by the Protocol of 1978 relating thereto.

REGULATION 3

General Exceptions

Regulations of this Annex shall not apply to:

- (a) any emission necessary for the purpose of securing the safety of a ship or saving life at sea; or
- (b) any emission resulting from damage to a ship or its equipment:
 - (i) 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
 - (ii) except if the owner or the master acted either with intent to cause damage, or recklessly and with knowledge that damage would probably result.

REGULATION 4

Equivalents

- (1) The Administration may allow any fitting, material, appliance or apparatus to be fitted in a ship as an alternative to that required by this Annex if such fitting, material, appliance or apparatus is at least as effective as that required by this Annex.
- (2) The Administration which allows a fitting, material, appliance or apparatus as an alternative to that required by this Annex shall communicate to the Organization for circulation to the Parties to the present Convention particulars thereof, for their information and appropriate action, if any.

CHAPTER II - SURVEY, CERTIFICATION AND MEANS OF CONTROL

REGULATION 5

Surveys and Inspections

- (1) Every ship of 400 gross tonnage or above and every fixed and floating drilling rig and other platforms shall be subject to the surveys specified below:
 - (a) 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 this Annex;
 - (b) periodical surveys at intervals specified by the Administration, but not exceeding five years, which shall be such as to ensure that the equipment, systems, fittings, arrangements and material fully comply with the requirements of this Annex; and

- (c) a minimum of one intermediate survey during the period of validity of the certificate which shall be such as to ensure that the equipment and arrangements fully comply with the requirements of this Annex and are in good working order. In cases where only one such intermediate survey is carried out in a single certificate validity period, and where the period of the certificate exceeds 2½ years, it shall be held within six months before or after the halfway date of the certificate's period of validity. Such intermediate surveys shall be endorsed on the certificate issued under regulation 6 of this Annex.
- (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 this Annex 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. 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*. In every case the Administration concerned shall fully guarantee the completeness and efficiency of the survey.
- (4) The survey of engines and equipment for compliance with regulation 13 of this Annex shall be conducted in accordance with the NOx Technical Code.
- (5) The Administration shall institute arrangements for unscheduled inspections to be carried out during the period of validity of the certificate. Such inspections shall ensure that the equipment remains in all respects satisfactory for the service for which the equipment is intended. These inspections may be carried out by their own inspection service, nominated surveyors, recognized organizations, or by other Parties upon request of the Administration. Where the Administration, under the provisions of paragraph (1) of this regulation, establishes mandatory annual surveys, the above unscheduled inspections shall not be obligatory.
- (6) 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 should be withdrawn by the Administration. If the ship is in a port of another Party, the appropriate authorities of the port State shall also be notified immediately. When an officer of the Administration, a nominated surveyor or recognized organization has notified the appropriate authorities of the port State, the Government of the port State concerned shall give such officer, surveyor or organization any necessary assistance to carry out their obligations under this regulation.
- (7) 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.

* Refer to the Guidelines for the Authorization of Organizations Acting on Behalf of the Administration adopted by the Organization by resolution A.739(18) and Specification for the Survey and Certification Function of Recognized Organization Acting on Behalf of the Administration adopted by the Organization by resolution A.789(19).

- (8) 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 of International Air Pollution Prevention Certificate

- (1) An International Air Pollution Prevention Certificate shall be issued, after survey in accordance with the provisions of regulation 5 of this Annex, to:
- (a) any ship of 400 gross tonnage or above engaged in voyages to ports or offshore terminals under the jurisdiction of other Parties; and
 - (b) platforms and drilling rigs engaged in voyages to waters under the sovereignty or jurisdiction of other Parties to the Protocol of 1997.
- (2) Ships constructed before the date of entry into force of the Protocol of 1997 shall be issued with an International Air Pollution Prevention Certificate in accordance with paragraph (1) of this regulation no later than the first scheduled drydocking after entry into force of the Protocol of 1997, but in no case later than 3 years after entry into force of the Protocol of 1997.
- (3) Such certificate shall be issued 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.

REGULATION 7

Issue of a Certificate by another Government

- (1) The Government of a Party to the Protocol of 1997 may, at the request of the Administration, cause a ship to be surveyed and, if satisfied that the provisions of this Annex are complied with, issue or authorize the issuance of an International Air Pollution Prevention Certificate to 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 shall be issued to a ship which is entitled to fly the flag of a State which is not a Party to the Protocol of 1997.

REGULATION 8

Form of Certificate

The International Air Pollution Prevention Certificate shall be drawn up in an official language of the issuing country in the form corresponding to the model given in appendix I to this Annex. If the language used is not English, French, or Spanish, the text shall include a translation into one of these languages.

REGULATION 9

Duration and Validity of Certificate

- (1) An International Air Pollution Prevention Certificate shall be issued for a period specified by the Administration, which shall not exceed five years from the date of issue.
- (2) No extension of the five-year period of validity of the International Air Pollution Prevention Certificate shall be permitted, except in accordance with paragraph (3).
- (3) If the ship, at the time when the International Air Pollution Prevention Certificate expires, is not in a port of the State whose flag it is entitled to fly or in which it is to be surveyed, the Administration may extend the certificate for a period of no more than 5 months. Such extension shall be granted only for the purpose of allowing the ship to complete its voyage to the State whose flag it is entitled to fly or in which it is to be surveyed, and then only in cases where it appears proper and reasonable to do so. After arrival in the State whose flag it is entitled to fly or in which it is to be surveyed, the ship shall not be entitled by virtue of such extension to leave the port or State without having obtained a new International Air Pollution Prevention Certificate.
- (4) An International Air Pollution Prevention Certificate shall cease to be valid in any of the following circumstances:
 - (a) if the inspections and surveys are not carried out within the periods specified under regulation 5 of this Annex;
 - (b) if significant alterations have taken place to the equipment, systems, fittings, arrangements or material to which this Annex applies without the express approval of the Administration, except the direct replacement of such equipment or fittings with equipment or fittings that conform with the requirements of this Annex. For the purpose of regulation 13, significant alteration shall include any change or adjustment to the system, fittings, or arrangement of a diesel engine which results in the nitrogen oxide limits applied to that engine no longer being complied with; or
 - (c) upon transfer of the ship to the flag of another State. A new certificate shall be issued only when the Government issuing the new certificate is fully satisfied that the ship is in full compliance with the requirements of regulation 5 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 of the other Party a copy of the International Air Pollution Prevention 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 to the Protocol of 1997, 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 will 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.

REGULATION 11

Detection of Violations and Enforcement

- (1) Parties to this Annex 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 the present 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) Subject to the provisions of regulation 3, 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 to the Protocol of 1997.
- (2) New installations which contain ozone depleting substances shall be prohibited on all ships, except that new installations containing hydro-chlorofluorocarbons (HCFCs) are permitted until 1 January 2020.
- (3) The substances referred to in this regulation, and equipment containing such substances, shall be delivered to appropriate reception facilities when removed from ships.

REGULATION 13

Nitrogen Oxides (NO_x)

- (1) (a) This regulation shall apply to:
 - (i) each diesel engine with a power output of more than 130 kW which is installed on a ship constructed on or after 1 January 2000; and
 - (ii) each diesel engine with a power output of more than 130 kW which undergoes a major conversion on or after 1 January 2000.

- (b) This regulation does not apply to:
- (i) emergency diesel engines, engines installed in lifeboats and any device or equipment intended to be used solely in case of emergency; and
 - (ii) engines installed on 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, provided that such engines are subject to an alternative NO_x control measure established by the Administration.
- (c) Notwithstanding the provisions of sub-paragraph (a) of this paragraph, the Administration may allow exclusion from the application of this regulation to any diesel engine which is installed on a ship constructed, or on a ship which undergoes a major conversion, before the date of entry into force of the present Protocol, provided that the ship is solely engaged in voyages to ports or offshore terminals within the State the flag of which the ship is entitled to fly.
- (2) (a) For the purpose of this regulation, "major conversion" means a modification of an engine where:
- (i) the engine is replaced by a new engine built on or after 1 January 2000, or
 - (ii) any substantial modification, as defined in the NO_x Technical Code, is made to the engine, or
 - (iii) the maximum continuous rating of the engine is increased by more than 10%.
- (b) The NO_x emission resulting from modifications referred to in the sub-paragraph (a) of this paragraph shall be documented in accordance with the NO_x Technical Code for approval by the Administration.
- (3) (a) Subject to the provision of regulation 3 of this Annex, the operation of each diesel engine to which this regulation applies 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:
- (i) 17.0g/kWh when n is less than 130 rpm
 - (ii) $45.0 \cdot n^{(-0.2)}$ g/kWh when n is 130 or more but less than 2000 rpm
 - (iii) 9.8 g/kWh when n is 2000 rpm or more
- where n = rated engine speed (crankshaft revolutions per minute).

When using fuel composed of blends from hydrocarbons derived from petroleum refining, test procedure and measurement methods shall be in accordance with the NO_x Technical Code, taking into consideration the Test Cycles and Weighting Factors outlined in appendix II to this Annex.

- (b) Notwithstanding the provisions of sub-paragraph (a) of this paragraph, the operation of a diesel engine is permitted when:
- (i) an exhaust gas cleaning system, approved by the Administration in accordance with the NOx Technical Code, is applied to the engine to reduce onboard NOx emissions at least to the limits specified in sub-paragraph (a), or
 - (ii) any other equivalent method, approved by the Administration taking into account relevant guidelines to be developed by the Organization, is applied to reduce onboard NOx emissions at least to the limit specified in sub-paragraph (a) of this paragraph.

REGULATION 14

Sulphur Oxides (SOx)

General requirements

- (1) The sulphur content of any fuel oil used on board ships shall not exceed 4.5% m/m.
- (2) The worldwide average sulphur content of residual fuel oil supplied for use on board ships shall be monitored taking into account guidelines to be developed by the Organization.

Requirements within SOx Emission Control Areas

- (3) For the purpose of this regulation, SOx Emission Control Areas shall include:
 - (a) the Baltic Sea area as defined in regulation 10(1)(b) of Annex I; and
 - (b) any other sea area, including port, areas designated by the Organization in accordance with criteria and procedures for designation of SOx Emission Control Areas with respect to the prevention of air pollution from ships contained in appendix III to this Annex.
- (4) While ships are within SOx Emission Control Areas, at least one of the following conditions shall be fulfilled:
 - (a) the sulphur content of fuel oil used on board ships in a SOx Emission Control Area does not exceed 1.5% m/m;
 - (b) an exhaust gas cleaning system, approved by the Administration taking into account guidelines to be developed by the Organization, is applied to reduce the total emission of sulphur oxides from ships, including both auxiliary and main propulsion engines, to 6.0 g SOx/kWh or less calculated as the total weight of sulphur dioxide emission. Waste streams from the use of such equipment shall not be discharged into enclosed ports, harbours and estuaries unless it can be thoroughly documented by the ship that such waste streams have no adverse impact on the ecosystems of such enclosed ports, harbours and estuaries, based upon criteria communicated by the authorities of the port State to the Organization. The Organization shall circulate the criteria to all Parties to the Convention; or

- (c) any other technological method that is verifiable and enforceable to limit SOx emissions to a level equivalent to that described in sub-paragraph (b) is applied. These methods shall be approved by the Administration taking into account guidelines to be developed by the Organization.
- (5) The sulphur content of fuel oil referred to in paragraph (1) and sub-paragraph (4)(a) of this regulation shall be documented by the supplier as required by regulation 18 of this Annex.
- (6) Those ships using separate fuel oils to comply with paragraph (4)(a) of this regulation shall allow sufficient time for the fuel oil service system to be fully flushed of all fuels exceeding 1.5% m/m sulphur content prior to entry into a SOx Emission Control Area. The volume of low sulphur fuel oils (less than or equal to 1.5% sulphur content) in each tank as well as the date, time, and position of the ship when any fuel-changeover operation is completed, shall be recorded in such log-book as prescribed by the Administration.
- (7) During the first twelve months immediately following entry into force of the present Protocol, or of an amendment to the present Protocol designating a specific SOx Emission Control Area under paragraph (3)(b) of this regulation, ships entering a SOx Emission Control Area referred to in sub-paragraph (3)(a) of this regulation or designated under paragraph (3)(b) of this regulation are exempted 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 sub-paragraph (4)(a) of this regulation.

REGULATION 15

Volatile Organic Compounds

- (1) If the emissions of volatile organic compounds (VOCs) from tankers are to be regulated in ports or terminals under the jurisdiction of a Party to the Protocol of 1997, they shall be regulated in accordance with the provisions of this regulation.
- (2) A Party to the Protocol of 1997 which designates ports or terminals under its jurisdiction in which VOCs emissions are to be regulated, shall submit a notification to the Organization. This notification shall include information on the size of tankers to be controlled, on 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) The Government of each Party to the Protocol of 1997 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 Government taking into account the safety standards developed by the Organization*, are provided in ports and terminals designated, and are operated safely and in a manner so as to avoid undue delay to the ship.
- (4) The Organization shall circulate a list of the ports and terminals designated by the Parties to the Protocol of 1997 to other Parties to the Protocol of 1997 and Member States of the Organization for their information.

* Reference is made to MSC/Circ.585 on Standards for Vapour Emission Control Systems.

- (5) All tankers which are subject to vapour emission control in accordance with the provisions of paragraph (2) of this regulation shall be provided with a vapour collection system approved by the Administration taking into account the safety standards developed by the Organization, and shall use such system during the loading of such cargoes. Terminals which have installed vapour emission control systems in accordance with this regulation may accept existing tankers which are not fitted with vapour collection systems for a period of three years after the effective date identified in paragraph (2).
- (6) This regulation shall only apply to gas carriers when the type of loading and containment systems allow safe retention of non-methane VOCs on board, or their safe return ashore.

REGULATION 16

Shipboard Incineration

- (1) Except as provided in paragraph (5), shipboard incineration shall be allowed only in a shipboard incinerator.
- (2) (a) Except as provided in sub-paragraph (b) of this paragraph, each incinerator installed on board a ship on or after 1 January 2000 shall meet the requirements contained in appendix IV to this Annex. Each incinerator shall be approved by the Administration taking into account the standard specifications for shipboard incinerators developed by the Organization**.
- (b) The Administration may allow exclusion from the application of sub-paragraph (a) of this paragraph to any incinerator which is installed on board a ship before the date of entry into force of the Protocol of 1997, 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.
- (3) Nothing in this regulation 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.
- (4) Shipboard incineration of the following substances shall be prohibited:
- (a) Annex I, II and III cargo residues of this convention and related contaminated packing materials;
- (b) polychlorinated biphenyls (PCBs);

* Reference is made to MSC/Circ.585 on Standards for Vapour Emission Control Systems.

** Reference is made to resolution MEPC 76(40) on Standard specification for shipboard incinerators.

- (c) garbage, as defined in Annex V of the present Convention, containing more than traces of heavy metals; and
 - (d) refined petroleum products containing halogen compounds.
- (5) Shipboard incineration of sewage sludge and sludge oil generated during the normal operation of a ship may also take place in the main or auxiliary power plant or boilers, but in those cases, shall not take place inside ports, harbours and estuaries.
 - (6) Shipboard incineration of polyvinyl chlorides (PVCs) shall be prohibited, except in shipboard incinerators for which IMO Type Approval Certificates have been issued*.
 - (7) All ships with incinerators subject to this regulation shall possess a manufacturer's operating manual which shall specify how to operate the incinerator within the limits described in paragraph 2 of appendix IV to this Annex.
 - (8) Personnel responsible for operation of any incinerator shall be trained and capable of implementing the guidance provided in the manufacturer's operating manual.
 - (9) Monitoring of combustion flue gas outlet temperature shall be required at all times and waste shall not be fed into a continuous-feed shipboard incinerator when the temperature is below the minimum allowed temperature of 850°C. For batch-loaded shipboard incinerators, the unit shall be designed so that the temperature in the combustion chamber shall reach 600°C within 5 minutes after start-up.
 - (10) Nothing in this regulation precludes the development, installation and operation of alternative design shipboard thermal waste treatment devices that meet or exceed the requirements of this regulation.

REGULATION 17

Reception Facilities

- (1) The Government of each Party to the Protocol of 1997 undertakes to ensure the provision of facilities adequate to meet the:
 - (a) needs of ships using its repair ports for the reception of ozone depleting substances and equipment containing such substances when removed from ships;
 - (b) needs of ships using its ports, terminals or repair ports for the reception of exhaust gas cleaning residues from an approved exhaust gas cleaning system when discharge into the marine environment of these residues is not permitted under regulation 14 of this Annex;
- without causing undue delay to ships, and

* Reference is made to resolution MEPC 76(40) on Standard specification for shipboard incinerators.

- (c) needs in ship breaking facilities for the reception of ozone depleting substances and equipment containing such substances when removed from ships.
- (2) Each Party to the Protocol of 1997 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 Quality

- (1) Fuel oil for combustion purposes delivered to and used on board ships to which this Annex applies shall meet the following requirements:
 - (a) except as provided in sub-paragraph (b):
 - (i) 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;
 - (ii) the fuel oil shall be free from inorganic acid;
 - (iii) the fuel oil shall not include any added substance or chemical waste which either;
 - (1) jeopardizes the safety of ships or adversely affects the performance of the machinery, or
 - (2) is harmful to personnel, or
 - (3) contributes overall to additional air pollution; and
 - (b) fuel oil for combustion purposes derived by methods other than petroleum refining shall not:
 - (i) exceed the sulphur content set forth in regulation 14 of this Annex;
 - (ii) cause an engine to exceed the NOx emission limits set forth in regulation 13(3)(a) of this Annex;
 - (iii) contain inorganic acid; and
 - (iv)
 - (1) jeopardizes the safety of ships or adversely affects the performance of the machinery, or
 - (2) is harmful to personnel, or
 - (3) contributes overall to additional air pollution.

- (2) This regulation does not apply to coal in its solid form or nuclear fuels.
- (3) 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.
- (4) 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.
- (5)
 - (a) The competent authority of the Government of a Party to the Protocol of 1997 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.
 - (b) 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.
- (6) The bunker delivery note shall be accompanied by a representative sample of the fuel oil delivered having regard to guidelines to be developed by the Organization. The sample is to be sealed and signed by the supplier's representative and the master or officer in charge of the bunker operation on completion of bunkering operations and retained under the ship's control until the fuel oil is substantially consumed, but in any case for a period of not less than twelve months from the time of delivery.
- (7) Parties to the Protocol of 1997 undertake ensure that appropriate authorities designated by them:
 - (a) maintain a register of local suppliers of fuel oil;
 - (b) 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;
 - (c) require local suppliers to retain a copy of the bunker delivery note for at least 3 years for inspection and verification by the port State as necessary;
 - (d) 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;
 - (e) inform the Administration of any ship receiving fuel oil found to be noncompliant with the requirements of regulations 14 or 18 of this Annex; and

* Reference is made to Resolution A.787(19) on Procedures for port State control.

- (f) inform the Organization for transmission to Parties to the Protocol of 1997 of all cases where fuel oil suppliers have failed to meet the requirements specified in regulations 14 or 18 of this Annex.
- (8) In connection with port State inspections carried out by Parties to the Protocol of 1997, the Parties further undertake to:
 - (a) inform the Party or non-Party under whose jurisdiction bunker delivery note was issued of cases of delivery of noncompliant fuel oil, giving all relevant information; and
 - (b) ensure that remedial action as appropriate is taken to bring noncompliant fuel oil discovered into compliance.

REGULATION 19

Requirements for Platforms and Drilling Rigs

- (1) Subject to the provisions of paragraphs (2) and (3) of this regulation, fixed and floating platforms and drilling rigs shall comply with the requirements of this Annex.
- (2) 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:
 - (a) emissions resulting from the incineration of substances that are solely and directly the result of exploration, exploitation and associated offshore processing of sea-bed mineral resources, including but not limited to 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;
 - (b) the release of gases and volatile compounds entrained in drilling fluids and cuttings;
 - (c) emissions associated solely and directly with the treatment, handling, or storage of sea-bed minerals; and
 - (d) emissions from diesel engines that are solely dedicated to the exploration, exploitation and associated offshore processing of sea-bed mineral resources.
- (3) 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.