GUIDE FOR

THE ENVIRONMENTAL PROTECTION NOTATION FOR OFFSHORE UNITS, FLOATING INSTALLATIONS, AND LIFTBOATS

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Foreword

Since the introduction of the *Guide for the Class Notation Environmental Safety (ES)* in March 2001, technological advancements have occurred that help to diminish the impact of environmental discharges originating from offshore units, floating installations, and liftboats. Also, international treaties and conventions aimed at further protecting the environment have introduced more stringent requirements focused towards the prevention of pollution of the marine environment.

This Guide is for the use of designers, builders, owners, and operators in the offshore industry and specifies the ABS requirements and criteria for obtaining the optional notations Environmental Protection – Offshore (**ENVIRO-OS**) or Environmental Protection – Offshore Plus (**ENVIRO-OS+**). The **ENVIRO-OS** notation identifies the level of compliance with international environmental protection requirements and integrates associated ABS requirements which influence environmental protection. For the **ENVIRO-OS+** notation, this Guide invokes compliance with more stringent criteria for environmental protection related to management and support systems, sea discharges, and air discharges.

The effective date of this Guide is the first day of the month of publication.

GUIDE FOR

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SECTION 1 General

1 Scope and Application

This Guide has been developed with the objective of promoting an environmentally focused design, construction, and operation of ABS-classed offshore units, floating installations, and liftboats. The requirements specified in this Guide are additional to all other relevant requirements of ABS Rules and Guides. It identifies a foundational level which establishes that an offshore unit, floating installation, or liftboat complies with international environmental regulations and associated ABS Rules or Guides which are aimed at enhancing environmental protection. In addition, it establishes standards for a higher level of environmental protection that can be achieved through compliance with more stringent criteria related to management and support systems, sea discharges, and air discharges.

For critical safety measures, this Guide would be applied in the same manner as MARPOL. It would not apply to any emission necessary for the purpose of securing the safety of an offshore unit, floating installation, or liftboat or saving life at sea. Also the Guide would not apply to any emission resulting from damage to an offshore unit, floating installation, or liftboat or its equipment provided, after the occurrence of the damage or discovery of the emission, all reasonable precautions have been taken for the purpose of preventing or minimizing the emission. This exemption would not apply if an owner or a master acted either with intent to cause the damage or recklessly and with knowledge that damage would probably result.

Offshore units, floating installations, and liftboats designed, constructed, and operated in compliance with the foundational requirements of this Guide may be assigned a class notation **ENVIRO-OS**, Environmental Protection – Offshore. Offshore units, floating installations, and liftboats in compliance with the higher level requirements of this Guide may be assigned a class notation **ENVIRO-OS+**, Environmental Protection – Offshore Plus.

3 Basis of Notation

In general, the requirements of this Guide are based on applicable international regulations and standards. If an international regulation or standard has been adopted by its oversight authority (regardless of the status of the ratification process), it is applicable to the appropriate notations of this Guide.

Where a Flag State Administration, Coastal State Administration or Port State Administration has additional requirements related to environmental protection that are not addressed by this Guide, such as requirements addressing carriage, storage, use or disposal of base oils, brines, oil-based muds, synthetic-based muds, cuttings, radioactive materials, explosives or chemicals employed during operations, it is the responsibility of the owner or operator to comply with such regulations.

3.1 ENVIRO-OS Notation

Compliance with the applicable requirements of Annexes I, IV, V, and VI to the International Convention for the Prevention of Pollution from Ships, MARPOL 73/78, as amended, is a prerequisite for receiving the class notation **ENVIRO-OS**. See Section 3 of this Guide for additional requirements.

3.3 ENVIRO-OS+ Notation

Compliance with applicable requirements of the **ENVIRO-OS** notation and Annexes I, IV, V, and VI to the International Convention for the Prevention of Pollution from Ships, MARPOL 73/78, as amended, is a prerequisite for receiving the class notation **ENVIRO-OS+**. See Section 4 of this Guide for additional requirements.

SECTION 2 Documentation

1 Certification and Documentation

1.1 ENVIRO-OS Notation

The following certification and documentation are required, as applicable, in order to receive the Environmental Protection – Offshore, **ENVIRO-OS**, notation:

i) Safety Management Certificate in accordance with the International Safety Management Code (ISM Code)

ii) Documentation verifying a contract with the ABS Rapid Response Damage Assessment (RRDA) program, or with a similar program of another IACS Member Society

iii) International Oil Pollution Prevention Certificate (IOPPC)

iv) International Sewage Prevention Pollution Certificate (ISPPC), statement of compliance relating to the control of the discharge of sewage in accordance with MARPOL Annex IV, Regulation 11, or equivalent marine sanitation device of USCG regulations Title 33 CFR Part 159

v) Documentation verifying compliance with the requirements in Annex V to MARPOL 73/78

vi) Documentation verifying compliance with the requirements in the International Convention for the Control and Management of Ship's Ballast Water and Sediments, 2004

vii) International Anti-Fouling System Certificate

viii) Declaration on Anti-Fouling System

ix) International Air Pollution Prevention Certificate (IAPPC) or statement of compliance relating to NO_x control in accordance with MARPOL 73/78 Annex VI, Regulation 13. Further explanations of the Regulations (e.g., backgrounds, outlines, etc.) are available in the ABS *Guidance Notes on the Prevention of Air Pollution from Ships.*

1.3 ENVIRO-OS+ Notation

In addition to 2/1.1, the following certification and documentation are required, as applicable, in order to receive the Environmental Protection – Offshore Plus, **ENVIRO-OS+**, notation:

i) Incinerator type approval certificate in accordance with IMO Resolution MEPC 76(40) and Resolution MEPC.93(45), Amendments to the Standard Specification for Shipboard Incinerators

3 Operational Procedures

3.1 ENVIRO-OS Notation

The following documents are to be submitted for review, as appropriate:

i) Machinery spaces bilge water management plan

ii) Produced oil and oily mixtures area bilge water management plan

iii) Sewage management plan

iv) Garbage management plan

v) Ballast water management plan

vi) Instructions and procedures addressing operation and control of NO_x exhaust gas cleaning systems

vii) Fuel oil management for control of the SO_x emission, including fueling management plan and procedure

viii) Instructions and procedures addressing operation and control of SO_x exhaust gas cleaning systems

ix) Refrigerant systems management plan

3.3 ENVIRO-OS+ Notation

In addition to 2/3.1, the sewage management plan of 2/3.1iii) is to include the grey water system.

5 Plans and Additional Information

One set of stamped copies of the following plans and information is to be placed onboard the offshore unit, floating installation, or liftboat for the Operator's use and for presentation to the ABS Surveyor at appropriate surveys.

5.1 ENVIRO-OS Notation *(1 August 2014)*

The following plans or information are to be submitted for approval, review or reference, as appropriate:

i) Fuel oil storage, settling and service tanks arrangement, including overfilling prevention arrangement

ii) Produced oil and oily mixtures loading and discharge facilities arrangement drawings, including connections, spill trays and drainage systems

iii) For floating installations used for offshore storage of produced oil and oily mixtures, arrangements of ballast tanks and tanks for produced oil and oily mixtures, including piping systems and overfilling prevention arrangement for tanks of produced oil and oily mixtures

iv) Details and diagrams of sewage system, including processing equipment

v) List of equipment and arrangements for the handling/stowage of garbage

vi) Diagrammatic details of ballast system, including details of water treatment, if applicable

vii) Details of hull coating system, including anti-fouling coating specification

viii) Details of NO_x control and measurement procedures

ix) Details of SO_x control, including fuel oil system arrangements and/or exhaust gas abatement systems

x) Diagrammatic details of any permanently installed refrigerant system

xi) Details of fire extinguishing media used in fixed fire fighting systems and extinguishers

5.3 ENVIRO-OS+ Notation *(1 August 2014)*

In addition to 2/5.1, the following plans or information are to be submitted for approval, review or reference, as appropriate:

i) Lubricating oil tanks and other oil tanks (e.g., hydraulic oil) arrangement, including overfilling prevention arrangement

ii) Details and diagrams of incinerator to include the feed to the incinerator and the incinerator's operating system

iii) Inventory of hazardous and potentially hazardous materials as per the ABS *Guide for the Inventory of Hazardous Materials*

7 Definitions

Active Substance – a substance or organism, including a virus or a fungus that has a general or specific action on or against harmful aquatic organisms and pathogens.

Anti-Fouling System – a coating, paint, surface treatment, surface or device used to control or prevent attachment of unwanted organisms.

Ballast Water – water, with its suspended matter, taken onboard to control trim, list, draft, stability or stresses.

Ballast Water Management – mechanical, physical, chemical and biological processes, either singularly or in combination, to remove, render harmless or avoid the uptake or discharge of harmful aquatic organisms and pathogens within ballast water and sediments.

Domestic Waste Water (Grey Water) – non-industrial drainage from dish washing, laundry or bathing, or any waste water generated in the living spaces that does not contain sewage.

Emission Control Area (ECA) – any sea area designated by IMO, including any port areas or coastal areas, where there exists a need to prevent, reduce, and control emissions of NO_x or SO_x and particulate matter. Criteria and procedures for designation of ECAs are set forth in Appendix III of MARPOL Annex VI.

Floating Installation – a mobile or non-mobile offshore structure designed for operation afloat which provides hydrocarbon processing and/or hydrocarbon storage with the capacity to offload hydrocarbons. This includes such configurations as:

i) *Floating Production, Storage and Offloading System (FPSO)* – processes, stores and offloads hydrocarbons

ii) *Floating Production (and Offloading) System (FPS)* – processes and offloads hydrocarbons without storage capacity

iii) *Floating Storage and Offloading System (FSO)* – stores and offloads hydrocarbons without hydrocarbon processing facilities

iv) *Floating Offshore Installation (FOI)* – may process and offload hydrocarbons and may or may not have storage capacity, but the production facilities are not classed.

Food Wastes – any spoiled or unspoiled victual substances, such as fruits, vegetables, dairy products, poultry, meat products, food scraps, food particles and all other materials contaminated by such wastes generated onboard, principally in the galley and dining areas.

Garbage – all kinds of victual, domestic and operational waste generated during the normal operation of an offshore unit, floating installation, or liftboat and liable to be disposed of continuously or periodically. Excluding Annex V, garbage does not consist of those substances which are defined or listed in other MARPOL Annexes.

Global Warming Potential – a measure of how much a given mass of greenhouse gas is estimated to contribute to global warming. It is a relative scale which compares the radiative efficiency (heat-absorbing ability) and decay rate of a gas to the same properties of carbon dioxide. It is calculated over a specific time interval.

Liftboat – a self-propelled, self-elevating vessel with a relatively large open deck capable of carrying equipment and supplies in support of various offshore mineral exploration and production or offshore construction activities; also has the capability of rapidly raising its hull clear of the water on its own legs so as to provide a stable platform from which maintenance and construction work may be conducted.

Offshore Unit – a self-propelled or non-self-propelled mobile offshore structure designed for operation afloat or supported by the sea bed, which:

i) Engages in drilling operations for the exploration for or exploitation of resources beneath the sea bed (e.g., MODU), or

ii) Provides support for various offshore exploration, exploitation, and production of sea-bed mineral resources or offshore construction activities (e.g., MOU) such as:

- Column-stabilized accommodation units
- Self-elevating construction and maintenance vessels
- Column-stabilized pipe-laying units
- Column-stabilized crane units
- Offshore liquid natural gas terminals such as Floating, Storage and Regasification Units (FSRUs) and Floating Liquefied Natural Gas Units (FLNGs)
- Similar units used by the offshore industry.

Refrigerant Systems – includes refrigeration plants and systems, and centralized air conditioning systems.

Sediments – matter settled out of onboard ballast water.

Sewage (Black Water) –

i) Drainage and other wastes from any form of toilets and urinals

ii) Drainage from medical premises (dispensary, sick bay, etc.) via wash basins, wash tubs, and scuppers located in such premises

iii) Other waste waters when mixed with the drainages defined in *i)* through *ii)*

9 Abbreviations

AFS	Anti-fouling system
BWM	Ballast water management
CFC	Chlorofluorocarbons
CFR	Code of Federal Regulations (USA)
ECA	Emission control area
GWP	Global warming potential (based on a 100-year time horizon)
HCFC	Hydro-chlorofluorocarbons
IACS	International Association of Classification Societies
IAPPC	International Air Pollution Prevention Certificate
IHM	Inventory of Hazardous Materials (ABS notation)
IMO	International Maritime Organization
IOPPC	International Oil Pollution Prevention Certificate
ISM Code	International Safety Management Code
ISPPC	International Sewage Pollution Prevention Certificate
MARPOL	International Convention for the Prevention of Pollution from Ships
MEPC	Marine Environmental Protection Committee (IMO)
MODU	Mobile offshore drilling unit
MOU	Mobile offshore unit
MSC	Maritime Safety Committee (IMO)
NO_x	Nitrogen oxides
ODS	Ozone depleting substances
POT	Protection of Fuel and Lubricating Oil Tanks (ABS notation)
ppm	Parts per million

SO_x	Sulfur oxides
UNEP	United Nations Environment Program
USCG	United States Coast Guard

11 References

The following international standards, guidelines, and recommendations were considered in developing this Guide:

- IMO MARPOL 73/78 Annex I – Regulations for the Prevention of Pollution by Oil
- IMO MARPOL 73/78 Annex IV – Regulations for the Prevention of Pollution by Sewage from Ships
- IMO MARPOL 73/78 Annex V – Regulations for the Prevention of Pollution by Garbage from Ships
- IMO MARPOL 73/78 Annex VI – Regulations for the Prevention of Air Pollution from Ships, IMO Resolution MEPC. 176(58)

Anti-Fouling Systems – IMO International Convention on the Control of Harmful Anti-Fouling Systems on Ships, 2001 (AFS Convention) and associated Conference resolutions

Ballast Water – International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004 (BWM Convention), IMO BWM/CONF/36 and associated Guidelines

Diesel Engine Exhaust NO_x Content – Technical Code on Control Emission of Nitrogen Oxides from Marine Diesel Engines (NO_x Technical Code, 2008), IMO Resolution MEPC.177(58)

Exhaust Gas Cleaning Systems – IMO Resolution MEPC.170(57) Guidelines for Exhaust Gas Cleaning Systems

Garbage Management – IMO MEPC Circular 317 Guidelines for the Development of Garbage Management Plans

Prevention of Oil Pollution from Offshore Floating Installations – IMO Resolution MEPC.139(53) Guidelines for the Application of the Revised MARPOL Annex I Requirements to Floating Production, Storage and Offloading Facilities (FPSOs) and Floating Storage Units (FSUs) as amended by IMO Resolution MEPC.142(54)

Refrigerants and Fire-fighting Gases – UNEP The Montreal Protocol on Substances that Deplete the Ozone Layer

Safety Management – IMO Resolution A.741(18) International Management Code for the Safe Operation of Ships and for Pollution Prevention (International Safety Management (ISM) Code)

Sewage Treatment Plants – IMO Resolution MEPC.159(55) Revised Guidelines on Implementation of Effluent Standards and Performance Tests for Sewage Treatment Plants

Shipboard Incinerators – IMO Resolution MEPC 76(40) Standard Specification for Shipboard Incinerators

SECTION 3 ENVIRO-OS Notation

1 Management and Support Systems *(1 August 2014)*

The essential management practices and systems associated with the **ENVIRO-OS** notation are presented in this Subsection.

1.1 Environmental Officer

An Environmental Officer is to be assigned onboard any offshore unit, floating installation, or liftboat receiving the **ENVIRO-OS** notation. This individual is responsible for the administration of the onboard environmental program which includes, but is not limited to:

i) Compliance with current IMO environmental regulations

ii) Implementation of relevant procedures and waste management plans associated with this Guide and the IMO environmental regulations

iii) Upkeep of relevant logs and records

iv) Training of personnel in relevant environmental practices

1.3 Safety and Environmental Management

Self-propelled offshore units, self-propelled floating installations, and liftboats are to comply with the requirements of the International Safety Management Code (ISM Code).

1.5 Support Systems – Rapid Response Damage Assessment Program

For offshore units designed for operations afloat, floating installations, and liftboats 500 gross tons and over, an approved contract is to be implemented with the ABS RRDA program, or with a similar program of another IACS Member Society.

3 Sea Discharge – Oil

This Subsection addresses requirements aimed at reducing the potential adverse effects on the sea environment by oil discharges from offshore units, floating installations, and liftboats.

3.1 Machinery Spaces

Offshore units, floating installations, and liftboats are to hold and maintain a valid IOPP Certificate with Form A in accordance with the requirements of MARPOL Annex I.

Offshore units and floating installations are to comply with the requirements of MARPOL (2006 consolidated edition) Annex I in accordance with Regulation 39 and Unified Interpretation 56 while on location and engaged in the exploration, exploitation, and associated processing of sea-bed mineral resources.

In addition, offshore units, floating installations, and liftboats are to comply with the requirements of 3/3.1.1 through 3/3.1.5.

3.1.1 Protection of Fuel Oil Tanks

Offshore Units: Arrangements of fuel oil tanks are to comply with 4-2-5/11 of the ABS *Rules for Building and Classing Mobile Offshore Drilling Units (MODU Rules)*.

Floating Installations: Arrangements of fuel oil tanks are to comply with IMO Resolution MEPC.142(54).

Liftboats: Arrangements of fuel oil tanks are to comply with 4-6-4/17.1 and 4-6-4/17.3 of the *Steel Vessel Rules*.

3.1.2 High Level Alarms

All fuel oil tanks are to be fitted with an alarm to warn of the level reaching a predetermined high level.

3.1.3 Oil Filtering Equipment

Oil filtering equipment for machinery spaces is to be provided with alarm arrangements to indicate when the oil content of the effluent exceeds 15 ppm. In addition, automatic stopping arrangements are to be provided for any discharge of oily mixtures when the oil content in the effluent exceeds 15 ppm.

The oil filtering equipment for machinery spaces is not to be used to discharge oily waste which originates from any area other than machinery spaces, or to discharge machinery space oily waste mixed with oily waste, other than the collection trays in 3/5.1.5, which originates from any other area of the offshore unit, floating installation, or liftboat.

3.1.4 Sludge Tank

The total capacity of sludge tanks is to meet the criteria specified in MARPOL Annex I, Unified Interpretations 16.1 and 16.2, as applicable, based on the greater of the maximum period of voyage between ports where sludge can be discharged ashore or 30 days, fuel oil consumption, homogenizers or sludge incinerators installed, and fuel purification.

The sludge tank is not to be used for the storage of sludge waste which originates from any area other than machinery spaces or to be used for the storage of sludge from machinery space mixed with sludge or any other waste which originates from any other area of the offshore unit, floating installation, or liftboat.

3.1.5 Collecting Trays

Collecting trays with capacities of at least the following are to be fitted under all vents for fuel oil tanks, lubricating oil tanks, other oil tanks (e.g., hydraulic oil) and overflow tanks, and filling manifolds:

i) 0.12 m^3 (4.21 ft^3) for all offshore units, all floating installations, and liftboats of 1,600 gross tons or more

ii) 0.06 m^3 (2.11 ft^3) for liftboats of 300 or more but less than 1,600 gross tons

iii) 0.02 m^3 (0.70 ft^3) for liftboats of less than 300 gross tons

In addition, collecting trays are to be provided with means for the disposal of any drainage without discharging it into the sea.

3.3 Produced Oil and Oily Mixtures Area

Floating installations used for offshore storage of produced oil and oily mixtures are to comply with the requirements of MARPOL Annex I in accordance with IMO Resolution MEPC.139(53) as amended by IMO Resolution MEPC.142(54) and Form F (Supplement to the IOPP Certificate – Record of Construction and Equipment for FPSOs and FSUs).

In addition, these floating installations are to comply with the requirements of 3/3.1.1 through 3/3.1.5 and 3/3.3.1 through 3/3.3.2.

3.3.1 Gauging Systems

Tanks containing produced oil and oily mixtures are to be fitted with tank overfill protection in accordance with 5C-1-7/21.15 of the *Steel Vessel Rules*.

3.3.2 Produced Oil and Oily Mixtures Deck Area

The produced oil and oily mixtures deck area is to be fitted with means and arrangements to reduce the likelihood of a produced oil and oily mixtures spill on deck reaching the sea. These means and arrangements are to include, as a minimum but not be limited to, the following:

i) Collecting trays with capacities of at least the following are to be fitted under loading manifolds or transfer connections for produced oil and oily mixtures:

a) 0.06 m^3 (2.11 ft^3) for loading hoses or arms with inside diameters of 50 mm (2 in.) or less

b) 0.12 m^3 (4.21 ft^3) for loading hoses or arms with inside diameters of more than 50 mm (2 in.) but less than 100 mm (4 in.)

c) 0.24 m^3 (8.42 ft^3) for loading hoses or arms with inside diameters of 100 mm (4 in.) or more but less than 150 mm (6 in.)

d) 0.36 m^3 (12.63 ft^3) for loading hoses or arms with inside diameters of 150 mm (6 in.) or more but less than 300 mm (12 in.)

e) 0.48 m^3 (16.84 ft^3) for loading hoses or arms with inside diameters of 300 mm (12 in.) or more

In addition, collecting trays are to be provided with means for the disposal of any drainage without discharging it into the sea.

ii) Continuous coamings of approximately 150 mm height, but nowhere less than 50 mm above the upper edge of the sheer strake, are to be fitted to keep any spills on deck and away from accommodation and service areas. In addition, the deck drainage system is to be provided with means for the disposal of any drainage without discharging it into the sea.

5 Sea Discharge – Sewage

This Subsection addresses requirements aimed at reducing the potential adverse effects on the sea environment by sewage discharges from offshore units, floating installations, and liftboats.

Offshore units, floating installations, and liftboats are to hold and maintain a valid International Sewage Pollution Prevention Certificate in accordance with the requirements of MARPOL Annex IV or a statement of compliance relating to the control of the discharge of sewage in accordance with MARPOL Annex IV, Regulation 11.

In addition, offshore units, floating installations, and liftboats are to comply with the requirements of 3/5.1 through 3/5.5.

5.1 Treatment

A sewage treatment plant, type approved by the Flag Administration, is to be provided. Sewage treatment plants installed before 1 January 2010 are to comply with MARPOL Annex IV under the guidelines specified in IMO Resolution MEPC.2(VI) or equivalent marine sanitation devices of USCG regulations Title 33 CFR Part 159. Plants installed on or after 1 January 2010 are to comply with IMO Resolution MEPC.159(55). (Refer to USCG NVIC 9-82, change 1 and NVIC 1-09, as appropriate.)

Alternatively for liftboats, a sewage comminuting and disinfecting system or an appropriately sized sewage holding tank is to be provided in accordance with MARPOL Annex IV, Regulation 9.

5.3 Piping Arrangement

A suitable discharge pipeline is to be provided which leads to the exterior of the offshore unit, floating installation, or liftboat and can be fitted with a standard shore connection, as specified in MARPOL Annex IV, Regulation 10.

5.5 Sewage Management Plan

A sewage management plan is to be placed onboard for the guidance of the operating personnel. This plan is to give clear guidance to the crew about the sewage system and is to include, as a minimum:

i) Offshore unit, floating installation, or liftboat name and ABS ID number

ii) Simplified diagrams and component description of the sewage system

iii) Step-by-step instructions for the operation and management of the sewage system

iv) Methods and means of recording all sewage discharges, whether to sea or to any reception facility. The recorded data shall include, as a minimum, date of discharge; quantity of sewage discharge; location and type of reception facility; and for sea discharges while underway the distance to the nearest land and the speed of the offshore unit, floating installation, or liftboat.

The sewage management plan is to be submitted for review by ABS to verify the presence of the above information, which is to be consistent with the design information and limitations considered in the classification of the offshore unit, floating installation, or liftboat. ABS is not responsible for the operation of the sewage system.

7 Sea Discharge – Garbage

This Subsection addresses requirements aimed towards the prevention of pollution to the sea environment by garbage discharges from offshore units, floating installations, and liftboats.

Offshore units, floating installations, and liftboats are to comply with the provisions of MARPOL Annex V and the requirements of 3/7.1.

7.1 Garbage Management Plan

A garbage management plan is to be placed onboard for the guidance of the crew. This plan is to be in accordance with MEPC/Circular 317, Guidelines for the Development of Garbage Management Plans, and is to include, as a minimum:

i) Offshore unit, floating installation, or liftboat name and ABS ID number

ii) Procedures for collecting and separating, processing (including volume reduction), storing and disposing of garbage

iii) Procedures for the operation of the equipment onboard associated with the handling of garbage

9 Sea Discharge – Water Ballast

9.1 General

This Subsection addresses requirements aimed towards the prevention of transporting harmful aquatic organisms and pathogens via water ballast discharges from offshore units, floating installations in transit conditions (e.g., delivery voyages, voyages for drydocking, voyages for site relocation, etc.), and liftboats.

Offshore units, floating installations in transit condition, and liftboats are to comply with the appropriate requirements of the International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004 (BWM Convention) and the requirements of 3/9.3 through 3/9.9.

This Subsection does not address requirements for the design of ballast systems or ballast water treatment systems.

9.3 Ballast Water Management Plan

A ballast water management plan is to be placed onboard for the guidance of the crew. This plan is to be in accordance with IMO Resolution MEPC.127(53), "Guidelines for Ballast Water Management and Development of Ballast Water Management Plans (G4)".

9.5 Methods of Ballast Water Management

Methods of ballast water management are to consist of ballast water exchange or ballast water management systems in accordance with the BWM Convention.

9.5.1 Ballast Water Exchange

The three accepted methods for ballast water exchange are as follows:

i) *Sequential method* – a process by which a ballast tank is first emptied and then refilled with replacement ballast water to achieve at least a 95% volumetric exchange.

ii) *Flow-through method* – a process by which replacement ballast water is pumped into a ballast tank allowing the water to overflow the tank.

iii) *Dilution method* – a process by which replacement ballast water is filled through the top of the ballast tank with simultaneous discharge from the bottom at the same flow rate.

As a minimum, ballast water exchange procedures are to be in accordance with IMO Resolution MEPC.124(53), "Guidelines for Ballast Water Exchange (G6)". Design and construction of ballast water exchange arrangements are to be in accordance with IMO Resolution MEPC.149(55), "Guidelines for Ballast Water Exchange Design and Construction Standards (G11)".

9.5.2 Ballast Water Management Systems

Ballast water management systems are to be type-approved in accordance with IMO Resolution MEPC.174(58), "Guidelines for Approval of Ballast Water Management Systems (G8)".

In addition, ballast water management systems that make use of active substances are to comply with IMO Resolution MEPC.169(57), "Procedure for Approval of Ballast Water Management Systems that Make Use of Active Substances (G9)".

9.7 Ballast Water Records

Records of ballast water management are to be maintained onboard in accordance with Regulation B-2 and Appendix II of the BWM Convention.

9.9 Responsible Officer

The Environmental Officer is to be responsible for verifying that all applicable ballast water handling and treatment procedures of the ballast water management plan are followed and for recording and maintaining the appropriate records of same. See 3/1.1.

11 Sea Discharge – Anti-Fouling Systems

This Subsection addresses requirements aimed at reducing the potential adverse effects of introducing organotin compounds to the sea environment by anti-fouling systems of offshore units, floating installations, and liftboats.

Liftboats 400 gross tons and above are to hold and maintain a valid International Anti-Fouling System Certificate in accordance with the requirements of the AFS Convention.

Liftboats 24 meters or more in length, but less than 400 gross tons, are to hold and maintain a valid Declaration on Anti-Fouling System in accordance with the requirements of the AFS Convention.

In addition, offshore units, floating installations, and liftboats constructed or drydocked on or after 1 January 2003 are to comply with the requirements of 3/11.1.

11.1 Application of Organotin Compounds

Anti-fouling systems for hulls or external parts or surfaces:

i) Are not to bear organotin compounds which act as biocides, or

ii) Are to bear a coating that forms a barrier to prevent leaching of organotin compounds from an underlying non-compliant system

Small quantities of organotin compounds (such as mono- and di-substituted organotin compounds) are allowed as a chemical catalyst. The levels of these compounds are not to provide a biocidal effect and are not to be present above 2,500 milligram (mg) total tin per kilogram (kg) of dry paint.

13 Air Discharge – Nitrogen Oxides (NO_x) Emission

This Subsection addresses requirements aimed towards the prevention of pollution to the air environment by NO_x emission from offshore units, floating installations, and liftboats.

13.1 Diesel Engines

For NO_x emissions, marine diesel engines with power output greater than 130 kW, installed on or after 1 January 2000, are to comply with the requirements of this paragraph. In addition, these requirements apply to marine diesel engines which undergo major conversions, as defined by MARPOL Annex VI, on or after 1 January 2000. They do not apply to diesel engines which:

i) Are used solely for emergencies

ii) Are installed in lifeboats

iii) Are solely dedicated to the exploration, exploitation, and associated offshore processing of sea-bed mineral resources (for example diesel engines driving pumps or equipment solely associated with cuttings, muds, stimulation fluids during well completion, etc).

Marine diesel engines are to be certified for NO_x emission in accordance with the requirements of Regulation 13, MARPOL Annex VI and the NO_x Technical Code, 2008.

13.1.1 Tier I

13.1.1(a) Construction on or after 1 January 2000. The operation of marine diesel engines, excluding *i)* through *iii)* above, which are installed on offshore units, floating installations, and liftboats constructed on or after 1 January 2000 and prior to 1 January 2011 are prohibited unless the NO_x emissions from the engines' exhausts are within the Tier I limits of Regulation 13, MARPOL Annex VI.

13.1.1(b) Construction prior to 1 January 2000. Marine diesel engines, excluding *i)* through *iii)* above, with a power output of more than 5,000 kilowatt (kW) and a per cylinder displacement at or above 90 liters installed on offshore units, floating installations, and liftboats constructed on or after 1 January 1990 but prior to 1 January 2000 are to comply with the Tier I emission levels and the requirements of Regulations 13.7.1 through 13.7.5 of MARPOL Annex VI.

13.1.2 Tier II

13.1.2(a) Construction on or after 1 January 2011. The operation of marine diesel engines, excluding *i)* through *iii)* above, which are installed on offshore units, floating installations, and liftboats constructed on or after 1 January 2011 are prohibited unless the NO_x emissions from the engines' exhausts are within the Tier II limits of Regulation 13, MARPOL Annex VI.

13.1.3 Tier III

13.1.3(a) Construction on or after 1 January 2016. The operation of marine diesel engines, excluding *i)* through *iii)* above, which are installed on offshore units, floating installations, and liftboats constructed on or after 1 January 2016 and operating in an Emission Control Area (ECA) are prohibited unless the NO_x emissions from the engines' exhausts are within the Tier III limits of Regulation 13, MARPOL Annex VI.

13.1.4 NO_x Exhaust Gas Cleaning Systems

Special consideration will be given to exhaust gas cleaning systems provided the systems are at least as effective in terms of NO_x emission reduction as required by 3/13.1.1 through 3/13.1.3 and Regulation 13, MARPOL Annex VI. Exhaust gas cleaning systems are to:

i) Comply with the appropriate IMO guidelines

ii) Be operated and controlled in accordance with manufacturers' instructions and procedures

iii) Be acceptable to ABS

15 Air Discharge – Sulfur Oxides (SO_x) Emission

This Subsection addresses requirements aimed at reducing the potential adverse effects on the air environment by SO_x emission from offshore units, floating installations, and liftboats.

15.1 Fuel Oil for Combustion

15.1.1 Fuel Oil Quality

Fuel oil delivered and used onboard is to:

i) Comply with the requirements of Regulation 18.3, MARPOL Annex VI

ii) Be free from inorganic acid

iii) Be derived from blends of hydrocarbons from petroleum refining as per Regulation 18.3.1 or methods other than petroleum refining as per Regulation 18.3.2

When approved by the appropriate Administration, compliance with the requirements of Regulation 18, MARPOL Annex VI does not apply to the use of hydrocarbons that are produced and subsequently used on site as fuel.

15.1.2 Fuel Oil Sulfur Content – Global

When operating globally outside an ECA, the sulfur content of fuel oil used onboard is not to exceed the following limits:

i) 3.5% mass/mass prior to 1 January 2020

ii) 0.5% mass/mass on and after 1 January 2020

15.1.3 Fuel Oil Sulfur Content – Emission Control Areas (ECAs)

When operating within an ECA, the sulfur content of fuel oil used onboard is not to exceed the following limits:

i) 1.5% mass/mass prior to 1 July 2010

ii) 1.0% mass/mass on and after 1 July 2010

iii) 0.1% mass/mass on and after 1 January 2015

ECAs include the Baltic Sea, North Sea, and any other sea area designated by IMO. See Subsection 2/7 of this Guide and Regulation 14.3 of MARPOL Annex VI.

15.3 Fuel Oil Management Plan

15.3.1 General

A fuel oil management plan is to be placed onboard for the guidance of the crew. This plan is to include, as a minimum:

i) Offshore unit, floating installation, or liftboat name and ABS ID number

ii) Procedures for bunkering fuels onboard

iii) Means used for the control of SO_x emissions from oil fired equipment (such as internal combustion engines, incinerators, etc)

iv) Compliance with the requirements of 3/15.3.2 and 3/15.3.3, as applicable

The fuel oil management plan is to be submitted for review by ABS to verify the presence of the above information, which is to be consistent with the design information and limitations considered in the classification of the offshore unit, floating installation, or liftboat. ABS is not responsible for the operation of fuel oil systems.

15.3.2 Emission Control Areas (ECAs)

Self-propelled offshore units, self-propelled floating installations, or liftboats that use or intend to use separate fuels for propulsion when entering or leaving an ECA are to include, as a minimum, the following:

- Step-by-step instructions and procedures on how to perform the fuel oil changeover
- Diagrammatic details of the fuel oil system including details of change over for SO_x control
- Methods and means of recording the volume of low-sulfur fuel oils in tanks, and date, time, and position of the self-propelled offshore unit, self-propelled floating installation, or liftboat when any operation of fuel oil changeover is completed prior to entry into or is commenced after exit from an ECA

15.3.3 Fuel Oil Availability

15.3.3(a) Course of Action. When fuel oil complying with 3/15.1.2 or 3/15.1.3, as applicable, is not available, the fuel oil management plan is to contain a course of action which includes any of, but not be limited to, the following:

i) Bunker the minimal amount of fuel oil necessary to proceed to a port or terminal where fuel oil complying with 3/15.1.2 or 3/15.1.3, as applicable, can be obtained

ii) Carriage of sufficient amounts of Marine Distillate Fuels, such as grades DMA, DMB, and DMC of ISO 8217, in appropriate bunker tanks

iii) If fuel oil compatibility can be confirmed by a fuel oil test company, the high sulfur fuel oil exceeding 3/15.1.2 or 3/15.1.3, as applicable, should be diluted by mixing with a low sulfur fuel oil taken onboard from the next available bunkering source

iv) If fuel oil compatibility can be confirmed by a fuel oil company, the high sulfur fuel oil exceeding 3/15.1.2 or 3/15.1.3, as applicable, and low sulfur fuel oil can be mixed, to the required ratio, in a settling tank to obtain fuel oil with sulfur content complying with 3/15.1.2 or 3/15.1.3, as applicable, prior to use in marine diesel engines, oil fired boilers, or other oil fired equipment

v) Use of exhaust gas cleaning systems

15.3.3(b) Records. Upon receiving fuel oil not in compliance with the sulfur content of 3/15.1.2, or 3/15.1.3, as applicable, the following is to be recorded in the appropriate log:

- Date, time, and name of bunkering source
- Sulfur content as indicated on the bunker delivery note or provided documentation or a statement when a bunker delivery note or similar documentation did not accompany the delivered fuel
- List of fuel oil tanks bunkered with non-compliant fuel oil or fuel oil not accompanied with a bunker delivery note or similar documentation
- Volume of non-compliant fuel oil or fuel oil not accompanied with a bunker delivery note or similar documentation in each tank
- Course of action taken (see 3/15.3.3(*a*))

15.5 SO_x Exhaust Gas Cleaning Systems

For marine diesel engines, oil fired boilers and inert gas generators, special consideration will be given to exhaust gas cleaning systems provided the systems are at least as effective in terms of SO_x emission reduction as required by 3/15.1.2, 3/15.1.3, and Regulation 14, MARPOL Annex VI. Exhaust gas cleaning systems are to:

i) Comply with IMO Resolution MEPC.170(57), Guidelines for Exhaust Gas Cleaning Systems, if installed before 1 July 2010 and MEPC.184(59), 2009 Guidelines for Exhaust Gas Cleaning Systems, if installed on or after 1 July 2010.

ii) Be operated and controlled in accordance with manufacturers' instructions and procedures

iii) Be acceptable to ABS

17 Air Discharge – Incinerators

This Subsection addresses requirements aimed towards the prevention of pollution to the air environment by incinerators from offshore units, floating installations, and liftboats.

Where installed onboard, incinerators are to be type-approved in accordance with IMO Resolution MEPC.76(40), Standard Specification for Shipboard Incinerators. In particular, incinerators are to comply with the emission standards of Annex A1 of the IMO Resolution.

Onboard incineration is to conform to Regulation 16 of MARPOL Annex VI, and the following substances are prohibited from being incinerated:

i) MARPOL Annex I, II, and III cargo residues

ii) Polychlorinated biphenyls (PCBs)

iii) Garbage containing more than traces of heavy metals

iv) Refined petroleum products containing halogen compounds

v) Sewage sludge and sludge oil, either of which is not generated onboard

vi) Polyvinylchlorides (PVCs) except by incinerators issued IMO Type Approval Certificates

vii) Exhaust gas cleaning system residues

Incineration of any garbage, excluding *iii)*, is to be recorded in the Garbage Record Book in accordance with MARPOL Annex V. See Subsection 3/7.

19 Air Discharge – Refrigerant Systems

This Subsection addresses requirements aimed at reducing the potential adverse effects on the air environment by refrigerant systems onboard offshore units, floating installations, and liftboats.

19.1 General Requirements

The requirements of Subsection 3/19 are applicable to refrigerant systems (see Subsection 2/7) onboard offshore units, floating installations, and liftboats.

Stand-alone air-conditioning or refrigerator units and permanently sealed equipment, where there are no refrigerant charging connections or potentially removable components containing ozone depleting substances (ODS), are not subject to the requirements of Subsection 3/19.

19.3 Acceptable Refrigerants *(18 June 2013)*

Refrigerant systems are to be provided with environmentally friendly refrigerants. The use of ozone depleting refrigerants is prohibited other than hydro-chlorofluorocarbons (HCFCs) which will be permitted on units constructed prior to 1 January 2020.

19.5 Systems Arrangements

Refrigerant systems are to be arranged with appropriate means for isolation of sections and components to allow for system maintenance without releasing any substantial quantity of the refrigerant.

Recovery units are to be installed for the evacuation of the system in order to minimize unavoidable release of refrigerant during recovery. For refrigerant recovery, compressors/recovery units are to be capable of evacuating a system charge into an independent/separate liquid storage container(s). The recovered refrigerant storage capacity of this storage container(s) is to be at least 125% of the largest volume of refrigerant in any one segment of the refrigeration system which can be isolated. Each portion of the system that can be isolated is to have piping connections suitable for the attachment of the recovery equipment.

19.7 System Leak Monitoring

Annual refrigerant leakage is to be not more than 10% of the total refrigerant charge of each system.

An appropriate leak detection system is to be provided to continuously monitor spaces into which the refrigerant could leak. Further, an alarm is to be given in a manned location when the refrigerant concentration exceeds a predetermined limit (for example, 25 ppm for ammonia or 300 ppm for halogenated fluorocarbons). Corrective action to repair a refrigerant leak is to be taken as soon as practicable after the activation of the alarm.

19.9 Refrigerant Systems Management Plan

A refrigerant systems management plan is to be placed onboard for the guidance of the operating personnel. This plan is to give clear guidance to the crew about the refrigerant systems and is to include, as a minimum:

i) Offshore unit, floating installation, or liftboat name and ABS ID number

ii) Simplified diagrams and component description of all refrigerant systems

iii) Procedures detailing the means to control the loss, leakage, venting and disposal of refrigerants

iv) Methods and means of recording in mass (kilograms) refrigerant inventory. The recorded data shall include, as a minimum, the following:

a) Supply of refrigerant onboard

b) Discharge of refrigerant to the atmosphere due to leaks or system maintenance

c) Recovered refrigerant including its storage location

d) Refrigerant disposal to reception facilities or vessels acting as reception facilities

The refrigerant systems management plan is to be submitted for review by ABS to verify the presence of the above information, which is to be consistent with the design information and limitations considered in the classification of the offshore unit, floating installation, or liftboat. ABS is not responsible for the operation of refrigerant systems.

21 Air Discharge – Fire-fighting Systems

This Subsection addresses requirements aimed at reducing the potential adverse effects on the air environment by fire-fighting systems onboard offshore units, floating installations, and liftboats.

21.1 Fire-extinguishing Medium

The use of Halons or perfluorocarbon mediums is not permitted in fixed fire extinguishing systems or portable fire extinguishers. Alternative mediums to Halons or perfluorocarbons may be acceptable, provided:

i) They contain no ozone depleting substances

ii) They have a GWP less than 4000

SECTION 4 ENVIRO-OS+ Notation

1 Management and Support Systems *(1 August 2014)*

In addition to the requirements in Subsection 3/1, vessels are to comply with 4/1.1.

1.1 Recycling

Offshore units, floating installations, and liftboats are to hold and maintain the class notation **IHM** (Inventory of Hazardous Materials). See the ABS *Guide for the Inventory of Hazardous Materials*.

3 Sea Discharge – Oil

In addition to the text in Subsection 3/3, offshore units, floating installations, and liftboats are to comply with 4/3.1.

3.1 Machinery Spaces

3.1.1 Protection of Fuel Oil Tanks and Lubricating Oil Tanks

Offshore Units: In addition to 3/3.1.1, arrangements of fuel oil tanks and lubricating oil tanks are to comply with the requirements for the class notation **POT** in 4-2-5/13 of the *MODU Rules*.

Liftboats: In addition to 3/3.1.1, arrangements of fuel oil tanks and lubricating oil tanks are to comply with the requirements for the class notation **POT** in 4-6-4/17.5 of the *Steel Vessel Rules*.

3.1.2 High Level Alarms

In addition to 3/3.1.2, lubricating oil tanks and other oil tanks (e.g., hydraulic oil) are to be fitted with an alarm to warn of the level reaching a predetermined high level.

3.1.3 Oil Filtering Equipment

Oil filtering equipment for machinery spaces is to be provided with alarm arrangements to indicate when the oil content of the effluent exceeds 5 ppm. In addition, automatic stopping arrangements are to be provided for any discharge of oily mixtures when the oil content in the effluent exceeds 5 ppm.

5 Sea Discharge – Sewage

Offshore units, floating installations, and liftboats are to comply with the appropriate sea discharge – sewage requirements of Subsection 3/5 and the requirements of 4/5.1 and 4/5.3.

5.1 Sewage Treatment Plant

A sewage treatment plant type approved by the Flag Administration is to be provided. Sewage treatment plants installed before 1 January 2010 are to comply with MARPOL Annex IV under the guidelines specified in IMO Resolution MEPC.2(VI) or equivalent marine sanitation devices of USCG regulations Title 33 CFR Part 159. Plants installed on or after 1 January 2010 are to comply with IMO Resolution MEPC.159(55). (Refer to USCG NVIC 9-82, change 1 and NVIC 1-09, as appropriate.)

5.3 Domestic Waste Water (Grey Water)

Sewage treatment plants are to be equipped with means to treat grey water in addition to sewage.

For liftboats in port, a sewage holding tank, if installed in conjunction with the treatment plant, is to have sufficient capacity for the storage of both sewage and grey water. The tank is to be fitted with a high level alarm.

7 Sea Discharge – Garbage

Offshore units, floating installations, and liftboats are to comply with the appropriate sea discharge – garbage requirements of Subsection 3/7 and the requirements of 4/7.1 and 4/7.3.

7.1 Arrangements

For offshore units and floating installations, dedicated and separate arrangements are to be provided for garbage requiring short-term storage and garbage requiring long-term storage.

7.3 Food Wastes

Beyond three nautical miles from land, liftboats are not to dispose of food wastes into the sea except when they have been passed through a comminuter or grinder. Such comminuted or ground food wastes are to be capable of passing through a screen with openings no greater than 25 mm (1 in.).

In addition, food wastes from offshore units, floating installations, and liftboats may be incinerated. See Subsection 4/15.

9 Sea Discharge – Anti-Fouling Systems *(5 April 2011)*

Offshore units, floating installations, and liftboats are to comply with the appropriate sea discharge – anti-fouling systems requirements of Subsection 3/11.

11 Air Discharge – Nitrogen Oxides (NO_x) Emission

Offshore units, floating installations, and liftboats are to comply with the appropriate air discharge – NO_x emission requirements of Subsection 3/13 and the requirement of 4/11.1.

11.1 Sea-bed Mineral Activities

For offshore units and floating installations, marine diesel engines solely dedicated to the exploration, exploitation, and associated offshore processing of sea-bed mineral resources are to comply with the appropriate NO_x emission levels of 3/13.1.1 through 3/13.1.3.

13 Air Discharge – Sulfur Oxides (SO_x) Emission

Offshore units, floating installations, and liftboats are to comply with the appropriate air discharge – SO_x emission requirements of Subsection 3/15 and the requirement of 4/13.1.

13.1 Fuel Oil Sulfur Content - Global

In lieu of 3/15.1.2*i)*, the sulfur content of fuel oil used onboard is not to exceed the limit of 3.0% mass/mass prior to 1 January 2020.

15 Air Discharge – Incinerators *(15 August 2011)*

For offshore units, floating installations, and liftboats 500 gross tons and over, at least one incinerator is to be installed onboard and is to comply with the air discharge – incinerators requirements of Subsection 3/17, unless stowage arrangements for all garbage and other shipboard wastes generated during the ship's normal service are provided until off-loaded to shore, and related procedures are available onboard.

17 Air Discharge – Refrigerant Systems

Offshore units, floating installations, and liftboats are to comply with the appropriate air discharge – refrigerant systems requirements of Subsection 3/19 and the requirements of 4/17.1.

17.1 Acceptable Refrigerants *(18 June 2013)*

In lieu of 3/19.3, refrigerant systems are to be provided with environmentally friendly refrigerants. The use of ozone depleting refrigerants is prohibited other than hydro-chlorofluorocarbons (HCFCs), which will be permitted on units constructed prior to 1 January 2020. Furthermore, the use of refrigerants with global warming potential (GWP) greater than 2000 are prohibited other than for the notation, **EP2020+**.

Where the use of a refrigerant medium exceeds a GWP of 2000, a special notation, **EP2020+**, will be assigned provided the refrigerant system complies with all the other conditions and requirements of Subsection 3/19. The notation **EP2020+** signifies the Owner's commitment to replace the existing refrigerant with one having a GWP less than or equal to 2000 by the year 2020.

19 Air Discharge – Fire-fighting Systems

Offshore units, floating installations, and liftboats are to comply with the appropriate air discharge – fire-fighting systems requirements of Subsection 3/21 and the requirement of 4/19.1.

19.1 Fire-extinguishing Medium

In lieu of 3/21.1*ii)*, the GWP is to be less than 2000.

SECTION 5 Surveys After Construction

1 Surveys

As applicable, all annual, intermediate and renewal or periodical surveys for the various MARPOL Annexes are to be satisfactorily completed, as well as completion of the periodical survey requirements of machinery, as specified in the appropriate sections of Chapters 6 and 8 of the ABS *Rules for Survey After Construction (Part 7)*, and:

- Annual survey for Inventory of Hazardous Materials (**IHM**)
- Functional/confirmatory survey for Ballast Water Management Systems

At each periodical survey, the attending Surveyor is to verify the following are maintained onboard:

i) Certification and documentation as outlined in Subsection 2/1

ii) Operational procedures as outlined in Subsection 2/3