REPUBLIC OF
THE MARSHALL ISLANDS

Implementation of MARPOL Annex VI, Regulations for the Prevention of Air Pollution from Ships

MARITIME ADMINISTRATOR

Aug/2019 **MN 2-013-8**

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TO: **ALL SHIPOWNERS, OPERATORS, MASTERS AND OFFICERS OF MERCHANT SHIPS, AND RECOGNIZED ORGANIZATIONS**

SUBJECT: **Implementation of MARPOL Annex VI, Regulations for the Prevention of Air Pollution from Ships**

References:

(a) **MARPOL**, *International Convention for the Prevention of Pollution from Ships, Consolidated Edition 2017*, as amended.

(b) **NOx Technical Code**, *Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines*, as amended

(c) **IMO Resolution MEPC.76(40)**, *Standard Specification for Shipboard Incinerators*, adopted 25 September 1997, as amended by **IMO Resolution MEPC.93(45),** adopted 5 October 2000

(d) **IMO Resolution MEPC.182(59)**, *2009 Guidelines for the sampling of fuel oil for determination of compliance with MARPOL Annex VI,* adopted 17 July 2009

(e) **IMO Resolution MEPC.243(66)**, *2014 Guidelines on the Approved Method Process,* adopted 4 April 2014

(f) **IMO Resolution MEPC.244(66)**, *2014 Standard specification for shipboard incinerators,* adopted 4 April 2014

(g) **IMO Resolution MEPC.259(68)**, *2015 Guidelines for exhaust gas cleaning systems,* adopted 15 May 2015

(h) **IMO Resolution MEPC.286(71)**, *Amendments to MARPOL Annex VI (Designation of the Baltic Sea and North Sea NOx Tier III Emission Control Areas and revised Bunker Delivery Note),* adopted 7 July 2017

(i) **IMO Resolution MEPC.305(73)**, *Amendments to MARPOL Annex VI (Prohibition on the carriage of non-compliant fuel oil for combustion purposes for propulsion or operation on board a ship),* adopted 26 October 2018

(j) **IMO Resolution MEPC.320(74),** *2019 Guidelines for consistent implementation of the 0.50% Sulphur limit under MARPOL Annex VI,* adopted 17 May 2019

(k) **IMO Resolution MSC.465(101)**, *Recommended interim measures to enhance the safety of ships relating to the use of oil fuel,* issued 14 June 2019

(l) **IMO Circular MEPC.1/Circ.793**, *Type approval of shipboard incinerators*, issued 18 October 2012

(m) **IMO Circular MEPC.1/Circ.878**, *Guidance on the development of a ship implementation plan for the consistent implementation of the 0.50% Sulphur limit under MARPOL Annex VI*, issued 9 November 2018

(n) **IMO Circular MEPC.1/Circ.881**, *Guidance for port State control on contingency measures for addressing non-compliant fuel oil*, issued 21 May 2019

(o) **IMO Circular MEPC.1/Circ.883**, *Guidance on indication of ongoing compliance in the case of the failure of a single monitoring instrument, and recommended actions to take if the Exhaust Gas Cleaning System (EGCS) fails to meet the provisions of the 2015 EGCS Guidelines (resolution MEPC.259(68),)* issued on 21 May 2019

(p) **IMO Circular MSC/Circ.585**, *Standards for Vapour Emission Control Systems*, issued 16 April 1992

(q) **RMI Marine Notice 2-011-51**, *International Code of Safety for Ships Using Gases or Other Low-Flashpoint Fuels (IGF Code)*

(r) **RMI Marine Notice 2-013-12**, *Regulations on Energy Efficiency for Ships*

(s) **RMI Marine Guideline 2-13-6**, *Guidance on the Application of Regulation 13 of MARPOL Annex VI Tier III Requirements to Dual Fuel and Gas-Fueled Engines*

PURPOSE

The Republic of the Marshall Islands (RMI) is a signatory to the International Convention for the Prevention of Pollution from Ships (MARPOL) Annex VI, which came into force 19 May 2005, and sets limits on ship sulphur oxide (SO_X) and nitrogen oxide (NO_X) emissions. It also establishes regulations on deliberate emissions of ozone depleting substances (ODS), volatile organic compound (VOC) emissions from tankers, incineration of certain products on board ships, fuel oil quality standards, and energy efficiency for ships.

This Notice summarizes these air emissions requirements and clarifies certain provisions with which RMI-flagged ships must comply.

This Marine Notice supersedes Rev. Jan/2018 and has been revised to incorporate updated references and amendments to the regulations adopted since the last revision, clarify fuel oil non-availability reporting requirements, and provide a standard RMI template for submitting a fuel oil non-availability report (FONAR).

APPLICABILITY

All "regulations" referred to in this Notice are the Regulations of MARPOL Annex VI, as amended.

The requirements of Annex VI detailed here apply to all RMI-flagged vessels, regardless of

tonnage, including vessels of any type whatsoever operating in the marine environment, including hydrofoil boats, air-cushion vehicles, submersibles, floating craft, yachts and fixed or floating platforms, except where expressly provided otherwise as detailed in the relevant sections below.

REQUIREMENTS

1.0 Chapter 1 – General

1.1 Exceptions

1.1.1 As specified under Regulation 3.1, the regulations of MARPOL Annex VI are not to apply to emissions necessary for securing the safety of the ship or saving life at sea, or those resulting from damage to the ship or its equipment.

1.1.2 Emissions that are solely and directly the result of, or associated with, the exploration, exploitation and associated offshore processing of sea-bed mineral resources are also exempted from the regulations. Express approval by the RMI Maritime Administrator (the "Administrator") is required to exempt the fuel oil quality requirements of Regulation 18 from hydrocarbons that are produced and subsequently used on site as fuel for platforms and drilling rigs [which shall be annotated on the International Air Pollution Prevention (IAPP) certificate].

1.2 Equivalents

1.2.1 Requests for equivalencies or alternative arrangements must be communicated to the Administrator, along with a recommendation from the Recognized Organization (RO) confirming that the alternative arrangement is at least as effective in terms of emissions reductions as that required by Annex VI, for consideration and formal approval.

1.2.2 Ships which intend to utilize an Exhaust Gas Cleaning System (EGCS) as a means for compliance with Regulation 14 and/or Regulation 13 shall be subject to the approval process for an equivalent arrangement. If utilized, an EGCS must be installed and approved in accordance with International Maritime Organization (IMO) Resolution MEPC.259(68), 2015 Guidelines for Exhaust Gas Cleaning Systems.

2.0 Chapter 2 – Survey, Certification and Means of Control

2.1 Survey and Certification

2.1.1 All ships of 400 gross tons (GT) and above and every fixed and floating drilling rig and other platform are to be subject to the relevant surveys as specified in Regulation 5.1.

2.1.2 Each marine diesel engine installed on a ship, irrespective of tonnage, to which Regulation 13 applies, is to be subject to survey and certification in accordance with the NO_X Technical Code.

2.1.3 The Administrator has delegated, in accordance with IMO requirements, the survey and certification functions associated with Chapter 3 of Annex VI to its ROs[1]. The ROs are specifically authorized to:

.1 issue/endorse an IAPP certificate after completion of the relevant surveys referred to in §2.1.1 above.

.2 issue an Engine International Air Pollution Prevention (EIAPP) certificate after completion of the relevant surveys referred to in §2.1.2 above.

.3 perform verification of VOC management plans (See §3.4.1.2 of this Notice).

.4 carry-out Type Approval of shipboard incinerators (See §3.5.2.1 of this Notice).

.5 review equivalents for compliance with the standards set forth in MARPOL Annex VI (See §1.2 of this Notice)

2.1.4 Whenever an accident occurs or a defect is discovered that affects the efficiency or completeness of equipment, the master or shipowner, must:

.1 Report this information, at the earliest opportunity, to the Administrator at technical@register-iri.com or to the RO responsible for issuing the relevant certificate.

.2 Establish a corrective action plan acceptable to the Administrator or RO.

.3 Regarding EGCS malfunctions, IMO Circular MEPC.1/Circ.883 is to be considered and followed where relevant.

2.2 On-Board Recordkeeping

2.2.1 The Administrator requires that a MARPOL Annex VI Record Book must be established and maintained on-board, in the custody of the Chief Engineer, for filing:

.1 the Engine Technical Files;

1 See RMI Marine Guideline 2-11-15, *Organizations Acting on Behalf of the Marshall Islands Maritime Administrator.*

.2 the Record Book of Engine Parameters, when the Engine Parametric Check Method is employed;

.3 the Approved Method File, if applicable;

.4 Bunker Delivery Notes; and

.5 a tracking and control system for fuel oil samples.

2.2.2 The Ozone Depleting Substances (ODS) record book described under §3.1.2 of this Notice, the record of NOx Tier III engine operational status described under §3.2.6, and the fuel oil changeover record described under §3.3.2 may also be incorporated into the MARPOL Annex VI Record Book, provided such entries are maintained separately within independent sections.

3.0 Chapter 3 – Requirements for Control of Emissions from Ships

3.1 ODS (Regulation 12)

3.1.1 Applicability

.1 All ships with installations[2] containing ODS must comply with the regulations as provided under Regulation 12, except for permanently sealed equipment where there are no refrigerant charging connections or potentially removable components that contain ODS.

3.1.2 ODS Record Book

.1 The ODS record book, when required as per Regulation 12.6 for any ship of 400 GT and above and drill rigs and platforms regardless of tonnage, may be incorporated into the MARPOL Annex VI Record Book required by the Administrator under §2.2 of this Notice, provided such entries are maintained separately within independent sections of the MARPOL Annex VI Record Book.

3.2 NO_X (Regulation 13)

3.2.1 The operation of a marine diesel engine[3] with a power output of more than 130

[2] The term "installations" in relation to the requirements of Regulation 12 refers to systems, equipment (including portable fire-extinguishers), insulation, or other material on a ship, but excludes the repair or recharge of previously installed systems, equipment, insulation or other material, or the recharge of portable fire-extinguishers.

[3] The term "marine diesel engine" in relation to the requirements of Regulation 13 means any reciprocating internal combustion engine operating on liquid or dual fuel, including booster/compound systems if applied. This definition includes gas fueled engines which are installed, or undergo a major conversion, on or after 01 March 2016.

kilowatt (kW) and which is installed, or undergoes a major conversion on or after 01 January 2000, on any ship (including all yachts and fishing vessels), irrespective of tonnage, except when the engine is an identical replacement to the engine that it is replacing, and subject to the approval of the Administrator, is prohibited, unless it complies with the applicable NO_X emission limits and requirements specified in Regulation 13.

3.2.2 NOx Tier III Emission Control Areas

Marine diesel engines installed on a ship must comply, based on the date of ship construction, with the NOx Tier III emission standards when the ship is operating in an Emission Control Area (ECA).

NOx Tier III ECA	**Engine Compliance Required**
Baltic Sea Area[4]	01 January 2021 - for ship constructed on or after this date
North Sea Area[5]	01 January 2021 - for ship constructed on or after this date
North America[6]	01 January 2016 - for ship constructed on or after this date
United States Caribbean Sea[7]	01 January 2016 - for ship constructed on or after this date

3.2.3 Application to Yachts

.1 Under the Annex VI Regulations 13.5.2.1 and 13.5.2.3, NOx Tier III requirements shall not apply to marine diesel engines installed on a ship specifically designed, and used solely, for recreational purposes when:

a. it is less than 24 meters; or

b. constructed prior to 01 January 2021 and of less than 500 gross tonnage, with a length of 24 meters or over.

.2 For Regulations 13.5.2.1 and 13.5.2.3, the term "for recreational purposes" is to mean private yachts (PYs), private yachts limited charter (PYLCs), commercial yachts (CYs), yachts engaged in trade (YETs), and passenger yachts (PAXYs).

[4] Defined in Regulation 1.11.2 of MARPOL Annex I. See IMO Resolution MEPC.286(71) for ECA designation.
[5] Defined in Regulation 1.14.6 of MARPOL Annex V. See IMO Resolution MEPC.286(71) for ECA designation.
[6] Defined in Appendix VII of MARPOL Annex VI.
[7] Defined in Appendix VII of MARPOL Annex VI

3.2.4 Exemptions

.1 Emergency diesel engines and engines installed in lifeboats, devices or equipment intended to be used solely for emergencies are exempted from the requirements of Regulation 13.

.2 As of 1 January 2019, ships subject to NOx Tier III requirements that are fitted with dual-fuel or only Tier II marine diesel engines are temporarily exempted from complying with NOx Tier III emission standards under specific operational circumstances. The exemption is to allow such ships to be built, converted, repaired and/or maintained at shipyards or repair facilities located within NOx Tier III ECAs. Explicit authorization from the Administrator is not required, provided all conditions for the exemption are adhered to:

a. the subject marine diesel engines must meet NOx Tier II emission standards;

b. the ship is not permitted to load or unload cargo for the duration of the exemption;

c. the ship is only permitted to sail directly to or from the shipyard or other repair facility; and,

d. the ship must follow any additional specific routing requirements specified by the relevant port State(s).

.3 See also RMI Marine Guideline 2-13-6, *Guidance on the Application of Regulation 13 of MARPOL Annex VI Tier III Requirements to Dual Fuel and Gas-Fueled Engines* for additional guidance.

3.2.5 Recordkeeping

.1 All ships subject to NOx Tier III requirements shall maintain a record of the tier and operational (on/off) status of marine diesel engines installed onboard, together with the date, time and position of the ship, upon entry into and exit from a NOx Tier III ECA, or when the on/off status changes within such an area.

.2 The record may be incorporated into the MARPOL Annex VI Record Book required by the Administrator under §2.2 of this Notice, provided such entries are maintained separately within independent sections of the MARPOL Annex VI Record Book.

3.2.6 Approved Method

.1 Existing marine diesel engines, with a power output greater than 5,000 kW and a per-cylinder displacement at or above 90 liters, installed on a ship constructed on or after 01 January 1990, but before 01 January 2000, may be subject to compliance with the NO_X emission limits under regulation 13.3 (Tier I) if an approved method exists for that engine. Additional guidance on the approved method process can be found in IMO Resolution MEPC.243(66), 2014 Guidelines on the Approved Method Process. For a current listing of IMO Circulars communicating information on Approved methods, see the Public IMO Global Integrated Shipping Information System (GISIS) database.[8]

3.3 SO_X (Regulation 14)

3.3.1 Sulphur Content of Fuel Oil

.1 Fuel oil used onboard any ship, irrespective of tonnage, is to be compliant with the applicable sulphur content standards of Regulation 14. The sulphur content of any fuel oil used onboard shall also be appropriately documented by the fuel oil supplier (see §3.7 of this Notice).

.2 IMO Circular MEPC.1/Circ.878, Guidance on the development of a ship implementation plan for the consistent implementation of the 0.50% Sulphur limit under MARPOL Annex VI, is to be referenced when preparing to comply with the 0.50% sulphur content limit by 01 January 2020. While a ship implementation plan (SIP) is not a mandatory requirement, the guidance in IMO Circular MEPC.1/Circ.878 is a useful tool to identify any potential fuel-related issues that may need to be addressed by the ship in preparation for and when implementing the 0.50% sulphur limit requirement. Additional information regarding implementation of the 0.50% sulphur content limit is provided under IMO Resolution MEPC.320(74).

3.3.2 Non-Compliant Fuel Oil Carriage Prohibition

.1 From 01 March 2020, the carriage of fuel oil for use on board the ship with a sulphur content exceeding 0.50% m/m is prohibited under Regulation 14.1, as amended by IMO Resolution MEPC.305(73). This prohibition does not apply to non-compliant fuel oil carried for use onboard a ship with an approved EGCS installed as an alternative means of compliance under Regulation 4.1 (see §1.2.2 of this Notice).

[8] The most current list of notifications and their associated IMO circulars may be obtained from the Public IMO GISIS database (registration is free, and required for new users).

.2 Under some circumstances, the Administrator may permit a ship to carry non-compliant fuel oil, with concurrent approval by the Competent Authorities for the port of destination and port of departure, as relevant, if Party to MARPOL Annex VI. Such a situation may be to allow for a single, one-way, direct voyage to bunker compliant fuel oil for the ship, in accordance with Regulation 18.2.4, when compliant fuel oil is not available. IMO Circular MEPC.1/Circ.881, guidance for port State control on contingency measures for addressing non-compliant fuel oil, is to be referenced when considering options to deal with remaining non-compliant fuel oil onboard. See also §3.8 of this Notice for further information on reporting fuel oil non-availability.

3.3.3 Fuel Oil Changeover Procedures and Recordkeeping

.1 All ships using separate fuel oils when operating within a SO_X ECA are to carry a written fuel oil changeover procedure[9], developed specifically for that ship, and maintain a record[10] of the date, time and position of the ship for any fuel oil changeover operation, along with the volume of low sulphur fuel oils in each tank.

.2 The record may be incorporated into the MARPOL Annex VI Record Book required by the Administrator under §2.2 of this Notice, provided such entries are maintained separately within independent sections of the book.

3.4 VOCs (Regulation 15)

3.4.1 Tankers

.1 Tankers subject to vapor emissions control are to be fitted with a vapor collection system approved by an RO on behalf of the Administrator taking into account IMO Circular MSC/Circ.585, Standards for Vapour Emission Control Systems, within three years after a port/terminal has notified the IMO of its regulation of tanker VOC emissions. See GISIS module[11] for ports or terminals where VOCs are controlled.

.2 The VOC management plan, required for all tankers carrying crude oil, must be approved by an RO on behalf of the Administrator.

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9 Administrator guidance on changing over from high to low sulphur fuel oil is in Appendix A of this Notice.

10 A sample changeover recording form, Low Sulphur Fuel Oil Changeover Completion Form, is provided in Appendix B of this Notice.

11 The most current list of notifications may be obtained from the Public IMO GISIS database (registration is free, and required for new users).

3.4.2 Gas Carriers

.1 Gas carriers must comply with the requirements of this section only if their loading and containment systems allow safe retention of non-methane VOCs on board, or their safe return ashore.

3.5 Shipboard Incineration (Regulation 16)

3.5.1 Applicability

.1 All ships, irrespective of tonnage, are to comply with the regulations pertaining to shipboard incineration as provided under Regulation 16.

3.5.2 Approvals

.1 An incinerator on a ship constructed on or after 01 January 2000, or installed on or after 01 January 2000 is to be approved by an RO on behalf of the Administrator taking into account the standard specification for shipboard incinerators, as applicable. See IMO Resolution MEPC.244(66), 2014 Standard Specification for Shipboard Incinerators.

Also refer to IMO Circular MEPC.1/Circ.793, Type Approval of Shipboard Incinerators.

3.5.3 Alternative Waste Treatment Devices

.1 Development, installation and operation of alternative thermal waste treatment devices that meet or exceed the requirements of Regulation 16 may be permitted on a case-by-case basis by the Administrator.

3.6 Fuel Oil Quality (Regulation 18)

3.6.1 Fuel oil delivered to and used onboard any ship shall meet the standards of Regulation 18 which addresses the composition of hydrocarbons to be used for combustion purposes.

3.6.2 Fuel oil for combustion purposes derived from methods other than petroleum refining must meet the standards of Regulation 18 regarding their composition, must not exceed the sulphur content requirements set forth in Regulation 14, and must not cause an engine to exceed the NO_X emission limits set forth in Regulation 13.

3.6.3 Flashpoint

.1 Although Regulation 18 addresses some aspects relating to fuel oil safety,

SOLAS regulation II-2/4.2.1 contains provisions related specifically to the minimum flashpoint requirement for marine oil fuel. However, there are currently no mandatory provisions under MARPOL or SOLAS for reporting non-compliance with this fuel oil parameter.

.2 As an interim measure to enhance the safety of ships relating to the use of fuel oil, all cases where oil fuel suppliers delivered fuel oil failing to meet the flashpoint requirements specified in SOLAS regulation II-2/4.2.1 must be reported (see §3.7.4 of this Notice).

.3 Taking into account Regulation 18.9.6 and IMO Resolution MSC.465(101), Recommended interim measures to enhance the safety of ships relating to the use of oil fuel, the Administrator will subsequently notify the IMO of reported cases when confirmed.

3.7 Bunker Delivery Notes and Fuel Oil Samples (Regulation 18)

3.7.1 Applicability

.1 For every ship of 400 GT and above and every fixed and floating drilling rig and other platform, details of fuel delivered for combustion purposes must be documented by means of a Bunker Delivery Note accompanied by a representative sample of the fuel oil, in accordance with the requirements as provided under Regulation 18.

.2 The requirements of this section do not apply to gas fuels such as liquefied natural gas, compressed natural gas, or liquefied petroleum gas. However, the sulphur content of gas fuels delivered to a ship specifically for combustion purposes on board that ship must be documented by the supplier. See §5.3 of RMI Marine Notice 2-011-51.

3.7.2 Bunker Delivery Note

.1 From 01 January 2019, the Bunker Deliver Note is to be provided in the format specified under Appendix V of MARPOL Annex VI, as amended by IMO Resolution MEPC.286(71).

3.7.3 Fuel Oil Samples

.1 Representative fuel oil samples must be obtained in accordance with IMO Resolution MEPC.182(59), Guidelines for the Sampling of Fuel Oil for Determination of Compliance with the Revised MARPOL Annex VI.3.7.4 Alternative Documentation

.2 For every ship of 400 GT and above, on scheduled services with frequent and regular port calls which would render compliance with the

requirements of this section impracticable, an alternative documentation and sampling storage plan may be approved by the Administrator, after consideration of the circumstances involved and consultation with the affected States concerned.

3.7.4 Non-Compliance

.1 If a Bunker Delivery Note or representative sample is not provided by the bunker supplier or fuel oil is found not to be in compliance with that stated on the Bunker Delivery Note or the flashpoint requirement of SOLAS Regulation II-2/4.2.1, details shall be recorded in the ship's log, and the Administrator is to be notified at the following address:

Technical
Republic of the Marshall Islands
Maritime Administrator
11495 Commerce Park Drive
Reston, Virginia 20191-1506 USA
Tel: +1-703-620-4880
Fax: +1-703-476-8522
Email: technical@register-iri.com

3.8 Fuel Oil Availability

3.8.1 If a ship, despite all best efforts, is unable to obtain the required fuel oil to meet the applicable emission requirements, the Administrator shall be promptly notified at the address listed in §3.7.4 of this Notice, in addition to the Competent Authorities of the port of destination and port of departure, as relevant.

3.8.2 When a ship has presented evidence of such instances of the non-availability of compliant fuel oil, the Administrator will subsequently notify the IMO in accordance with Regulation 18.2.5. Therefore, it is essential that the following information be provided to the Administrator:

.1 A record of actions taken to attempt to achieve compliance;

.2 Copies of Bunker Delivery Note(s);

.3 Post-bunkering laboratory analysis of drip samples taken to determine the percent concentration of sulphur found within the stemmed fuel oil; and

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

3.8.3 Ships which are unable to purchase compliant fuel oil are to utilize the standard format for reporting fuel oil non-availability set out in Appendix C of this Notice.

3.8.4 Providing the above information does not indemnify the ship from Port State Control (PSC) action in the event compliant fuel oil could not be obtained. The relevant authorities for the port of destination, if Party to MARPOL Annex VI, are to consider all relevant circumstances in addition to the evidence provided when determining the appropriate action to take. Therefore, prompt notification is required when requesting any deviation from the standards in §3.3 of this Notice.

4.0 Chapter 4 – Regulations on Energy Efficiency for Ships

For compliance with Chapter 4 of Annex VI, refer to RMI Marine Notice 2-013-12.

Appendix A:
General Administrator Guidance on
Changing from a High to a Low Sulphur Fuel Oil

Procedures for changing from a High Sulphur Fuel Oil (HSFO) to a Low Sulphur Fuel Oil (LSFO) should, in addition to the processes required under §3.3.2 of this Notice, address the issues raised below and include arrangement drawings. Several practical issues relating to the development of plans have been identified. These include the need to:

Address safety issues, including whether it is appropriate to change to LSFO with the engine room unmanned (if applicable).

Ensure that adequate quantities of ready-to-use fuel oil for engines and boilers used for propulsion and generating plant remain continuously available during any changeover procedures from HSFO to LSFO.

Confirm with engine and equipment manufacturers that main and auxiliary engines, and associated fuel treatment equipment are suitable for use of LSFO and implement any recommendations made.

Implement a procedure on board the ship to check the compatibility of the different fuels to be used for the changeover dilution process. This may be by using a compatibility spot test kit onboard or, preferably, by sending samples of the two fuels to an independent testing service.

Seek approval from the vessel's RO for any proposed changes to piping systems or fuel storage arrangements that are planned to accommodate the use of LSFO onboard.

Several organizations and ROs have developed LSFO changeover calculators, which provide an estimate of the time required to dilute or flush out HSFO in the fuel oil service system to meet the applicable ECA limit. It should be noted that these calculations are an estimate for guidance purposes only and that spot samples to check actual sulphur content at various stages of the process are recommended to account for any operations not considered.

Appendix B:
Low Sulphur Fuel Oil Changeover Completion Record

Date	Time	Ship's Position		Volume of Low Sulphur Fuel Oils in Each Tank		Fuel Oil Consignment	Chief Engineer Signature
		Latitude	Longitude	Location	Quantity		

Appendix C:
Compliant Fuel Oil Non-Availability Report (FONAR)

Notes:

1.0 The MI-112, *Compliant Fuel Oil Non-Availability Report*, is to be sent to the flag Administration and to the competent authorities in the relevant port(s) of destination in accordance with regulation 18.2.4 of MARPOL Annex VI. The report shall be sent as soon as it is determined that the ship/operator will be unable to procure compliant fuel oil and preferably before the ship leaves the port/terminal where compliant fuel cannot be obtained. A copy of the FONAR should be kept on board for inspection for at least 36 months.

2.0 This report should be used to provide evidence if a ship is unable to obtain fuel oil compliant with the provisions stipulated in regulations 14.1 or 14.4 of MARPOL Annex VI.

3.0 Before filing a FONAR, the following should be observed by the ship/operator:

3.1 A fuel oil non-availability report is not an exemption. According to regulation 18.2 of MARPOL Annex VI, it is the responsibility of the Party of the destination port, through its competent authority, to scrutinize the information provided and take action, as appropriate.

3.2 In the case of insufficiently supported and/or repeated claims of non-availability, the Party may require additional documentation and substantiation of fuel oil non-availability claims. The ship/operator may also be subject to more extensive inspections or examinations while in port.

3.3 Ships/operators are expected to take into account logistical conditions and/or terminal/port policies when planning bunkering, including but not limited to having to change berth or anchor within a port or terminal in order to obtain compliant fuel.

3.4 Ships/operators are expected to prepare as far as reasonably practicable to be able to operate on compliant fuel oils. This could include, but is not limited to, fuel oils with different viscosity and different sulphur content not exceeding regulatory requirements (requiring different lube oils) as well as requiring heating and/or other treatment on board.