



Office of  
Deputy Commissioner  
of Maritime Affairs

# THE REPUBLIC OF LIBERIA

## LIBERIA MARITIME AUTHORITY

### IMO 2020 Global Sulphur Limit – Guide for Liberia Registered Ships and Frequently Asked Questions

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## **Introduction**

IMO has been working to reduce harmful impacts of shipping on the environment since the 1960s. Annex VI to the International Convention for the Prevention of Pollution from Ships (MARPOL) was adopted in 1997, to address prevention of air pollution from ships.

The regulations for the Prevention of Air Pollution from Ships, MARPOL Annex VI, seek to control airborne emissions from ships (sulphur oxides (SO<sub>x</sub>), nitrogen oxides (NO<sub>x</sub>), ozone depleting substances (ODS), volatile organic compounds (VOC) and shipboard incineration) and their contribution to local and global air pollution, human health issues and environmental problems.

Annex VI entered into force on 19 May 2005 and revised in October 2008 with significantly strengthened regulations. The revised Annex VI entered into force on 1 July 2010 and introduced gradual reductions in the Sulphur content of any fuel oil used on board ships not to exceed 4.50% m/m (mass by mass) prior to 1 January 2012, 3.50% m/m on or after 1 January 2012 and 0.50% m/m on or after 1 January 2020. The 0.50% m/m Sulphur limit would apply from 1 January 2020, unless by 2018, a further study determined that fuel oil to comply with that standard would not be available, in which case that limit shall take effect on 1 January 2025. At its 70<sup>th</sup> session in October 2016, IMO's Marine Environment Protection Committee, decided the 0.50% m/m limit shall apply from 1 January 2020.

The Annex VI regulations also reduced lower sulphur oxide emissions in designated emission control areas (ECA). The current Sulphur content of any fuel oil used on board ships operating within an ECA shall not to exceed 0.10% m/m.

In the last twelve months leading to effective date of the 2020 global Sulphur cap, the Liberian Administration has been responding to numerous questions related to preparation, implementation, operation and enforcement, including Exhaust Gas Cleaning System (EGCS). A summary of questions and the Administrations responses are contained in this document, which will be updated as necessary.

## **Preparation for 2020**

### **1. What is the Sulphur 2020 limit?**

From 1 January 2020, the limit for sulphur in fuel oil used on board ships operating outside designated emission control areas (ECA) will be reduced to 0.50% m/m (mass by mass), from 3.50% m/m.

The Sulphur content of any fuel oil carried for use on board ships when operating outside designated emission control areas, shall not exceed 0.50% m/m on and after 1 March 2020.

For vessels operating in designated emission control areas under MARPOL, the limit, which remains unchanged, has been 0.10% since 1 January 2015.

This limit is set in Annex VI of the International Maritime Organization (IMO) International convention for Prevention of Pollution from Ships (MARPOL).

Under Annex VI, regulation 4, ships may also meet the SOx emission requirements by using approved equivalent methods, such as exhaust gas cleaning systems (EGCS) or “scrubber”. The equivalent arrangement must be approved by the ship’s Administration (the flag State).

## **2. In which circumstances does the sulphur 2020 limit not apply?**

Does not apply to:

1. Ships that use abatement technology such as EGCS as equivalent means of compliance
2. Ships conducting tests for abatement technology
3. Ships reporting non-availability of compliant fuel oil (FONAR)
4. Ships carrying non-compliant fuel as cargo

## **3. How can ships comply?**

1. Use a compliant fuel oil with a sulphur content that does not exceed 0.50%; or
2. If exceeding 0.50%, use an equivalent or alternate compliance method e.g. an Exhaust Gas Cleaning System ("scrubber"); or
3. Use onshore power supply when at the berth

## **4. How can shipowners prepare for 2020?**

The Marine Environment Protection Committee approved **MEPC.1-Circ.878 - Guidance on the Development of a Ship Implementation Plan (SIP) for the Consistent Implementation of the 0.50% Sulphur Limit under MARPOL Annex VI**, which also includes a sample format for the implementation plan, potential impacts of low sulphur fuel oil on machinery systems and guidance for fuel oil tank cleaning.

Making a ship-specific SIP is considered a good starting point for preparing, as the plan will cover the expected challenges. The plan is not mandatory and is not subject to approval or endorsement by the flag State or a recognized organization (RO). However, flag State Administrations and port State control (PSC) may consider the preparatory actions described in the SIP, such as modifications to fuel oil systems, fuel oil capacity and segregation capability, tank cleaning and bunkering plans, complemented with the record of implementation in the lead-up to the compliance date, when verifying compliance and determining any action to take.

## **5. What are the fuel oil types available to meet the 2020 Sulphur content limit?**

1. Distillate marine fuels (DM)- MGO and MDO – ISO 8217:2017
2. ULSFO (Max 0.1% S DM/RM)- ISO 8217:2017
3. VLSFO (Max. 0.5% S DM/RM) – ISO 8217:2017 with ISOs Publicly Available Specification (PAS)
4. Alternate fuel – LNG, Methanol, Ethanol, Bio-Fuel

## **6. Do fuel oil tanks have to be cleaned before switching to compliant fuel?**

Tank cleaning is basically done for the following reasons:

- To avoid operational issues with purifiers and filters, as new fuel blends and distillates may, due to their physical properties, be prone to dissolve and dislodge sludge and sediment build up in the fuel oil storage and service tanks
- To avoid separation and sludge formation due to incompatibility with remaining tank content, as new FO blends may carry a higher risk of incompatibility
- To avoid contamination of the VLSFO, potentially exceeding the required sulphur content

The decision on tank cleaning should be taken based on the amount of sediments inside the tank and the type of fuel to be used. An alternative to manual tank cleaning may be using ship-specific changeover procedures to load on top and gradually flush through the fuel system until the sulphur content is within the compliant level. Another alternative is to gradually clean the sediments and asphaltic sludge from HSFO tanks and the fuel system by dosing additives to the HSFO used prior to the switch. .

## **7. If we still use only MGO as a bunker, should we prepare Ship Implementation Plan?**

The purpose of the voluntary SIP is for preparing the ship in order to comply with the required Sulphur content limit of 0.50% by 1 January. If solely using fuel with less than 0.50% Sulphur, the vessel is already compliant and there is no need to prepare a SIP.

## **8. How do we record the cleaning of fuel oil tanks, collection and disposal of sludge in drums in the ORB Part I and oily rags in the GRB?**

To the best of our knowledge the standard ORB form does not expressly provide for such a specific operation for collecting sludge in drums, but still there is a need to keep records of any onboard “transfer” from storage tanks to drums. We would recommend C11.4, since this operation is a transfer for collection, no matter if drums are stored outside the E/R, and then in the weekly C11.1/2/3 records the total number of drums and location.

We recommend:

Code I: for describing the purpose of storage tank cleaning (compliance with 2020);

followed by

Code C.11.4: for the transfer of sludge/unpumpable fuel oil in the bottom of storage tank to drums and then to an IOPP section 3.1 tank;

followed by:

Code F: in the Garbage record book in case of use of rags.

**9. How do we record the de-bunkering of non-complaint fuel oil in the ORB Part I?**

Consistent with example #22 in MEPC.1/Circ.736/Rev.2, de-bunkering of any fuel oil should be recorded using Code ‘I’. The receipt and certificate from receiver for amount and type of fuel oil de-bunkered should be included with this entry.

Example #22

De-bunkering of Fuel oil

<i>Date</i>	<i>Code</i>	<i>Item No.</i>	<i>Record of operations/signature of officer in charge</i>
dd-MONTH-yyyy	I		xxxx MT of ISO-xxxxx HFO x.x % S de-bunkered from tanks: xxxx MT removed from [Tank Name & Designation] now containing xxx MT
			De-bunkered to "identity or name of receiver i.e. barge, tank truck or shore facility" in "Name of Port"
			Start dd-MONTH-yyyy; hh:mm Stop dd-MONTH-yyyy; hh:mm
			signed: (Officer-in-charge, Name & Rank) dd-MONTH-yyyy

Note: Include receipt & certificate from receiver for amount & type of fuel oil de-bunkered.

**10. Is there IMO Guidance for fuel oil purchasers?**

**MEPC.1/Circ.875: Guidance on best practices for fuel oil purchasers/users** addresses the following best practices for assuring FO quality:

1. choice of fuel oil supplier;
2. contracting;
3. documentation;
4. fuel oil receiving on board,
5. sampling and testing; and
6. dispute resolution

**11. Is there IMO Guidance for fuel oil suppliers?**

**MEPC.1/Circ.875/Add. 1: Guidance on best practices for fuel oil suppliers** addresses the following best practices for assuring quality of FO delivered:

1. quality control during production of bunkers;
2. quality control in the supply chain;
3. bunker transport, storage and transfer
4. Delivery to ship (bunkering operations),
5. representative sampling
6. Sampling in the supply chain
7. Sampling during delivery to ship
8. testing and interpretation of test results in the supply chain
9. Supporting documentation
10. Fuel properties/handling advice
11. contracting and dispute resolution.

## **12. Is there IMO Guidance for best practices for coastal/member States?**

**MEPC.1/Circ.884: Guidance on best practices for coastal/member States** addresses best practices for assuring fuel oil used on board ships meets statutory requirements:

1. Regulation 18.1: Promote availability of compliant fuel and inform IMO (**MEPC.1/Circ.880**)
2. Regulation 18.2: Report non-availability of compliant FO to IMO (with use of FONAR)
3. Regulation 18.3: Take action against suppliers that fail to deliver FO that comply with qualitative requirements
4. Regulation 18.3: Encourages suppliers to use detailed fuel specifications
5. Regulation 18.7: Verify availability and compliance of BDN with appendix V - PSC
6. Regulation 18.8.2: When an Administration requires MARPOL delivered sample (representative sample from September 2021) to be analyzed
7. Regulation 18.9: Maintaining a register of local suppliers of FO
8. Regulation 18.9: FO suppliers provide a BDN in accordance with appendix V with MARPOL delivered sample
9. Regulation 18.9: Take action against FO suppliers that deliver FO not complying with BDN
10. Regulation 18.9: Inform other Party/Flag State in case of delivery of proven non-compliant FO

**MSC-MEPC.5/Circ.15** – Member States should urge FO suppliers to take into account best practices for fuel oil purchasers/users and fuel oil suppliers.

## **B. Operational Issues**

### **13. What are the possible safety implications relating to fuel oils meeting the 0.50% m/m Sulphur limit ?**

**Resolution MEPC.320(74)** identifies in section 6.2, potential safety implications including, but not limited to, the following:

1. Stability – precipitation of asphaltenes resulting in sludge formation in filter/purifiers
2. Compatibility – Mixing paraffinic and aromatic fuels – Should be segregated in tanks to minimize co-mingling
3. Cold flow properties and pour point – Heating of fuel oil when operating in colder regions resulting in reduced viscosity
4. Acid number – Should be free from strong inorganic acids
5. Flashpoint – fire hazard (shall be 60 deg.C or less)
6. Ignition and combustion quality
7. Cat fines – abrasive wear of cylinder liners, piston rings and fuel injection equipment
8. Low viscosity – less than 2 cSt at engine inlet
9. Unusual components



#### **14. What is the risk of bunkering incompatible fuel?**

When mixing e.g. an aromatic fuel with a paraffinic fuel there is a risk of experiencing incompatibility causing excessive sludge formation which again can block filters and separators. New bunkers should be loaded into empty tanks to the extent possible.

#### **15. Can a ship have fuel oil exceeding 0.50% sulphur content limit remaining on board on or after 1 January 2020?**

Unless the vessel is fitted with an approved Exhaust Gas Cleaning System (EGCS), fuel oil exceeding 0.50% sulphur content can't be used after 1 January 2020. All remaining non-compliant fuel oil must be removed before 1 March 2020 when the carriage ban for fuel oil with Sulphur content exceeding 0.5% enters into force. To avoid having non-compliant fuel on board on 1 January 2020, it is important to work out a bunkering strategy ahead of the 2020 deadline.

If the port State is made aware that a ship is carrying non-compliant fuel oil, which is not for use through an equivalent method under regulation 4 or a permit under regulation 3.2 of MARPOL Annex VI, the port State could take action to confirm the fuel is not being used. Action to confirm could include but is not limited to the examination of the oil record book and the record of tank soundings. Where necessary the port State may require tank soundings to be undertaken during the inspection. Where it is determined that the fuel has been used the port State may prevent the ship from sailing until the ship takes any suitable measures to achieve compliance which may include de-bunkering all non-compliant fuel oil. It will be important to maintain appropriate records of plans and actions.

#### **16. Can a ship blend or dilute any remaining fuel oil on board exceeding the 0.5% Sulphur content limit with ultra-low Sulphur content fuel to achieve 0.5% or less Sulphur content in the fuel oil?**

Notwithstanding safety implication related to stability and compatibility, on-board blending of fuel to arrive at 0.5% sulphur m/m or less is not recommended due:

1. There is no ISO standard or procedure for in tank sampling at this time; and
2. bunker delivery note required by regulation 18 of Annex VI is required for all fuel oil supplied to the ship.

Any mixing to achieve compliance with reg.14 should be done by the fuel oil supplier only. It is expected BDNs will have a high focus with PSC after 1 January 2020. Hence, our recommendation is to have a strategy for consuming all HSFO before 1 January 2020.

**17. What action should the ship take, in the case where the bunker delivery note or the representative sample as required by regulation 18 of MARPOL Annex VI presented to the ship are not in compliance with the relevant requirements (the BDN is set out in appendix V of MARPOL Annex VI)?**

The ship's master or officer in charge of the bunker operation should document this through a Notification to the ship's flag Administration with copies to the port authority under whose jurisdiction the ship did not receive the required documentation pursuant to the bunkering operation and to the bunker deliverer.

**18. What action should the ship take if the BDN shows compliant fuel, but the master has independent test results of the fuel oil sample taken by the ship during the bunkering which indicates non-compliance?**

The ship's master should document this through a Notification to the ship's flag Administration with copies to the competent authority of the relevant port of destination, the Administration under whose jurisdiction the bunker deliverer is located and to the bunker deliverer.

**19. What action should the ship take if the ship is running low or used all its 0.1% ultra-low Sulphur fuel oil (ULSFO) when operating or anchored within a designated emissions controlled area (ECA)?**

It is recommended that the local port State authority be immediately notified and the Administration copied, of the steps the shipowner/operator is taking to arrange for delivery of the appropriate fuel to the vessel. The Liberian Administration can issue an acknowledgement of these actions if you feel that will be of assistance.

The Administration recommends the following action:

1. Prepare a statement of facts (SOF) with details of ULSFO bunkered for the voyage taking into account:  
  
ships speed, length of passage through the ECA, estimated anchorage time at the designated ECA, any correspondence with the shipowner/operator or ship's agents regarding berthing prospects and anchorage, the amount of ULSFO upon entering the ECA and the amount consumed upon anchoring and daily consumption at the anchorage.
2. Any efforts made to reduce consumption at the anchorage by shutting down unessential equipment will help.
3. All efforts made to obtain ULSFO at the anchorage and response from bunker suppliers/customs/agent.
4. Submit the SOF to the port State authority, with copy to the Administration.

If the vessel has exhausted all effort to obtain ULSFO and the safety of the ship is at risk, then MARPOL Annex VI, regulation 3.1 does provide for limited exceptions.

## **20. Can a ship incinerate sludge generated on board from purifiers in a designated ECA, after using non-compliant fuel oil in conjunction with an EGCS?**

Currently, there is no regulation that prohibits incineration of such sludge in a designated ECA except as noted below:

- IMO – Incineration of such sludge by main or auxiliary power plant or boiler is prohibited at berth, anchorage, port limits or at estuary as per Reg. 16.4 of MARPOL Annex VI
- EU – No restriction in addition to IMO
- US EPA – USCG/EPA FAQ dated 3 Dec. 2014 permit the incineration of sludge generated on board ship, including in the ECA.
- However, there may be local restrictions on the use of incinerators in some ports. Ports may have domestic laws for additional air emission restrictions. The use of a shipboard incinerator needs permission, for example:
  - *California EPA (Environmental Protection Agency) prohibits onboard incineration between the California coast and the Three Nautical Mile Line*
  - *The Helsinki Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1992 which requires contracting parties to prohibit any incineration of ship generated wastes on board ships, operating in their territorial seas. Using MARPOL Annex V type approved incinerator for incinerating ship-generated wastes outside the territorial sea waters / in the EEZ is allowed in the Baltic Sea*

Regulations 14 of MARPOL Annex VI however, applies to the incinerator pilot fuel.

Also, as MARPOL Annex I defines sludge as “the residual waste oil products generated during the normal operation of a ship such as those resulting from the purification of fuel or lubricating oil for main or auxiliary machinery, separated waste oil from oil filtering equipment, waste oil collected in drip trays, and waste hydraulic and lubricating oils”, bunkers/fuel oil, regardless of its Sulphur content, would not be considered sludge. Therefore, non-compliant fuel oil cannot be incinerated.

## **21. Can a ship incinerate residues generated on board from EGCS?**

Reg. 16.2 of MARPOL Annex VI prohibits onboard incineration of sludge generated from EGCS. It should be delivered ashore to adequate reception facilities (10.4.1 of IMO 2015 Guidelines for EGCS and 2.2.26 of U.S. EPA 2013 VGP)

Regulation 17 of MARPOL Annex VI requires Parties to MARPOL Annex VI to have reception facilities to meet the needs of ships using its ports, terminals or repair ports for the reception of exhaust gas cleaning residues from an EGCS, without causing undue delay to ships.

## **22. Does regulation 14.1 of MARPOL Annex VI for the prohibition on carriage of non-compliant fuel oil apply to the fuel oil of emergency equipment?**

Regulation 14.1 of MARPOL Annex VI should be applied to ships emergency equipment such as emergency diesel generator or lifeboat engine. If the emergency device itself is unable to be operated with the low sulphur fuel oil, the instruction manual of the equipment should be checked or written evidence provided by the manufacturer stating that low sulphur fuel oil cannot be used in the emergency equipment that should be kept on board. Manufacturers' instructions should also be taken into account when determining the Sulphur content of fuel oil to be used.

## **23. When should a ship complete a fuel oil non-availability report (FONAR)?**

Regulation 18.2.1.2 of MARPOL Annex VI requires that evidence be provided to support a claim that all efforts were made to obtain compliant fuel oil.

Should a ship, despite its best effort to obtain compliant fuel oil, be unable to do so, the master/company must:

1. present a record of actions taken to attempt to bunker correct fuel oil and provide evidence of an attempt 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; and
2. best efforts to procure compliant fuel oil include, but are not limited to, investigating alternate sources of fuel oil prior to commencing the voyage. If, despite best efforts, it was not possible to procure compliant fuel oil, the master/Company must immediately notify the port State Administration in the port of arrival and the flag Administration (regulation 18.2.4 of MARPOL Annex VI).

In order to minimize disruption to commerce and avoid delays, the master/company should submit a **FONAR (format available in Appendix 1 of Resolution MEPC. 320(74))** as soon as it is determined or becomes aware that it will not be able to procure and use compliant fuel oil.

A fuel oil non-availability report is not an exemption. 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.

In case PSC determines a FONAR is invalid- PSC may enforce action such as a Notice of Violation under Regulation 11 of MARPOL Annex VI.

## C. Enforcement

### 24. What control measures will be in place to enforce the 0.50% global sulphur requirements from 2020?

The Marine Environment Protection Committee adopted **MEPC Resolution 321(74)** to provide basic guidance on the conduct of port State control inspections for compliance with MARPOL Annex VI and afford consistency in the conduct of these inspections, the recognition of deficiencies and the application of control procedures.

During the initial inspection, PSC will check the IAPP certificate, ship's log books (ORB Part I, records of navigational activities, written procedure for fuel oil change over including records), together with the Bunker Delivery Notes (BDNs) filed on board. They could also use surveillance, for example air surveillance to assess smoke plumes, and other techniques to identify potential violations.

If there are "clear grounds" to do so, PSC may conduct a more detailed inspection, including on-board sampling or analysing of a representative sample (MARPOL delivered sample or in-use/on-board sample). "Clear grounds" may be indications from remote sensing devices or portable sulphur content measuring devices that the fuel used on board may be non-compliant.

Where designated sampling point(s) are installed, and in-use fuel oil sample is collected by PSC, this should be done taking the **2019 Guidelines for onboard sampling for the verification of the sulphur content of the fuel oil used on board ships (MEPC.1/Circ.864/Rev.1)** into consideration. The sample bottles should be sealed by the inspector with a unique means of identification installed in the presence of the ship's representative. The ship should be given the option of retaining a sample. The flag State Administration should be informed.

The label should include the following information:

- .1 sampling point location where the sample was drawn;
- .2 date and port of sampling;
- .3 name and IMO number of the ship;
- .4 details of seal identification; and
- .5 signatures and names of the inspector and the ship's representative.

Where the fuel oil sample is tested using Part II (In-use and on board fuel oil samples) of the revised verification procedures in Appendix VI set out in **annex 13 to document MEPC 74/18/Add.1** (expected to be adopted in Spring 2020 and enter into force on 1 September 2021) and the sulphur content is greater than the applicable limit required by regulation 14 (0.5% or 0.1%) + 0.59R, the Sulphur content of the fuel oil as represented by the tested sample shall be considered to have not met the requirement.

Port States will take into account evidence presented to determine action to take, including not taking control measures.

If non-compliance is established:

1. the port State may prevent the ship from sailing until the ship takes any suitable

measures to achieve compliance which may include de-bunkering all non-compliant fuel oil.

2. Port and flag States may permit, with agreement of destination PSC, single voyage to the nearest bunkering facility for bunkering compliant fuel.

Using non-compliant fuel without an EGCS in use, or failing to provide the necessary evidence that fuel oil was not available at the port of bunkering (FONAR), may result in fines, detention and de-bunkering. As sanctions are established by the individual States, the imposed sanctions will vary from port to port.

## **25. Where and when should in-use fuel oil sampling points be installed on the ship?**

Draft amendments to regulation 14 require sampling point(s) to be fitted or designated for the purpose of taking representative samples of the fuel oil being used or on board the ship taking the Guidelines in [MEPC.1/Circ.864/Rev.1](#) into consideration.

For a ship constructed before entry into force of these requirements in September 2021, the sampling point(s) shall be fitted or designated no later than the first renewal survey that occurs 12 months or more after the entry into force of this regulation on 1 September 2021.

The requirements above are not applicable to a fuel oil service system for a low-flashpoint fuel for combustion purposes for propulsion or operation on board the ship.

## **26. Will fitting of sampling point be subject to approval?**

A formal approval will not be required unless any modifications are done to the piping system other than fitting the sampling points, e.g. if additional drainage is needed for the sampling arrangement. The number and location of the sampling points will however be confirmed by the attending surveyor according to the Guidelines ([MEPC.1/Circ.864/Rev.1](#)) at the first IAPP renewal survey on or after 1 September 2021. The designated sampling points will be reflected in the new IAPP certificate issued on completion of the renewal survey.

## **27. Can Member Governments apply the revised verification procedures for a MARPOL Annex VI fuel oil sample set out in annex 13 to document MEPC 74/18/Add.1 earlier than the expected entry into force on 1 September 2021?**

To ensure a consistent approach to verifying the sulphur limit of the fuel oil delivered to, in-use or carried for use on board a ship until the entry into force of the approved amendments to appendix VI of MARPOL Annex VI related to the verification procedure for a MARPOL Annex VI fuel oil sample (regulation 18.8.2 or regulation 14.8), the Committee approved [MEPC.1/Circ.882](#) - Early application of the approved amendments to the verification procedures for a MARPOL Annex VI

fuel oil sample. The Circular invites Member Governments to apply the approved amendments, in advance of their entry into force in 2021.

**28. How will unused non-compliant fuel after a FONAR is completed be dealt with?**

The Liberian Administration and PSC will take into account **MEPC.1/Circ.881: Guidance for Port State Control on Contingency Measures for Addressing Non-Compliant Fuel**.

Having considered all of the options in paragraph 1 of the above Circular, the non-compliant fuel oil may be discharged to the port or retained on board, as acceptable to the port State. Port State consideration may include environmental, safety, operational and logistical implications of allowing or disallowing the carriage of non-compliant fuel oil. The carriage of non-compliant fuel oil is subject to any conditions of the port State.

The port State, the Liberian Administration and the ship will work together to agree on the most appropriate solution, taking into account the information provided in the Fuel Oil Non-Availability Report (FONAR), to address the non-compliant fuel oil.

After the non-compliant fuel oil is completely used or discharged, such actions should include the possibility of cleaning and/or flushing through or dilution of remaining residues by using compliant fuel oil with the lowest sulphur content.

**D. Exhaust Gas Cleaning Systems**

**29. Does the carriage ban of fuel oil with Sulphur content greater than 0.5% m/m from 1 March 2020 make exceptions for scrubbers and if so, where is this regulated?**

Yes, ships with an equivalent arrangement or alternate compliance method approved in accordance with regulation 4.1 of MARPOL Annex VI (e.g. an EGCS) that is at least as effective in terms of SO<sub>x</sub> emission reductions as compared to using max 0.50% sulphur fuel, can still carry fuel oil exceeding 0.50% Sulphur content limit after 1 March 2020. This will be reflected in the new IAPP certificate form to be used after 1 March 2020, where a new checkbox is added for ships without equivalent arrangements, stating that the Sulphur content of fuel oil carried for used shall not exceed 0.50%. The new format of the IAPP certificate will be issued no later than the first IAPP periodical survey after 1 March 2020.

**30. What is the procedure for the issuance of IAPP certificate to include use of the approved exhaust gas cleaning (EGC) system?**

As for the EGC system installation approval, each installation is necessary to be approved by the Flag Administration as an equivalent of MARPOL Annex VI Regulation 14 (SO<sub>x</sub> and PM regulation) under Regulation 4.1 (Equivalents) of Annex VI, taking into account **IMO Guidelines for EGCS (Resolution MEPC.259(68))**.

The Administration will confirm compliance with the IMO guidelines by document examination and relevant surveys, and the equivalent approval would be granted by Liberian Administration

based on submitted reports. For the approval, project information and reporting shall be provided by the recognized organization (RO) to include:

1. Onboard approved documents (SECP, ETM, OMM and EGC Record Book);
2. Statements which show compliance with the IMO guidelines on documents, test report and monitoring systems;
3. emissions verification and survey report and copy of the SO<sub>x</sub> emission compliance certificate (for certification under scheme A) upon completion on installation and survey at sea trials;

Upon satisfactory review, the Administration will issue a letter accepting the equivalent arrangement to the ship and same will be communicated to IMO GISIS under Annex VI/Regulation 4.2 module.

As for the approval of the above onboard documents, the onboard documents (SECP, ETM, OMM and EGC Record Book) are required to be approved by the Flag Administration according to the IMO guidelines. In that regard, the RO is authorized to review and approve these.

Pending washwater analysis for Nitrates, the Administration will authorize the RO to issue a short term IAPP Certificate with record of equipment for 5 months accepting the equivalent arrangement to the ship and same will be communicated to IMO GISIS under Annex VI/Regulation 4.2 module. Upon completion of washwater analysis for Nitrates, the Administration will authorize the RO to issue a full term IAPP Certificate.

The owners are encouraged to collect washwater sample data as provided for in Appendix 3 of attached Resolution 259(68) and send to the Administration. It is recommended to send samples at 12 month intervals for a period of at least 2 years (minimum of 3 samples). It is recommended that the ship that has provided this information to the satisfaction of the Administration should be granted a waiver for compliance of the existing installation(s) to possible future stricter washwater discharge standards.

### **31. Can fuel exceeding 0.50% sulphur be carried on board and used for testing and commissioning of scrubbers during sea trail after 1 January 2020?**

There is no exemption from compliance from 1 January 2020, due to delays in installation of a scrubber.

Although there is no guarantee of agreement by a port State, Liberia would be prepared to work with shipowners/operators and specific port States for a vessel to continue carriage of non-compliant fuel after 1 January 2020 for use ONLY after installation of the scrubber. It's believed this may only be considered by a port State, if there is a contract with a shipyard that confirms installation of the scrubber. If the port State in which the commissioning test is conducted allows the scrubber to be tested using non-compliant fuel after 1 January 2020, Liberia will accept it.

In addition, , until the scrubber is installed, it is believed the ship should have on board and use compliant fuel from 1 January 2020, unless compliant fuel is not available, in which case a fuel



oil non-availability report (FONAR) should be completed and submitted in accordance with **resolution MEPC.320(74), Appendix 1**.

Where non-compliant fuel is used for the commissioning test on or after 1 March 2020; Shipowners should provide the following information to the Administration:

1. detailed information on the EGCS commissioning schedule, date and location of commencement of sea trials, any records of compliant and non-compliant FO remaining on board on or after 1 March 2020, along with information on FO consumption records for any third party/PSC inspections.
2. Any tanks contained HSFO must be sealed and such arrangement duly witnessed and verified by Class surveyor.
3. Following the above, an attestation must be produced by the vessel's class confirming the verification and endorsement of such an arrangement. Such an attestation to be provided to this office.
4. At commencement of the EGCS commissioning process and respective sea trials, the breaking of the seals procedure shall be witnessed by a Class surveyor, whereby a statement to that effect must be produced and forwarded to this office, along with a copy of the BDN of this HSFO to be used and any available laboratory analysis results.

### **32. Are there any limitations on the fuel Sulphur content when using a scrubber?**

For scrubbers under Scheme B compliance is demonstrated by continuous exhaust gas monitoring, so as such there is no limit on the fuel sulphur content as long as the system can cope and all parameters are within the limits.

For scrubbers under scheme A, using parameter check, the Sulphur content should not exceed the certified maximum Sulphur content, which can be found in the SOx Emission Compliance Certificate (SECC).

### **33. What action should be taken in case of EGCS failure at sea?**

The Marine Environment Protection Committee approved guidelines for this in **MEPC.1/Circ.883**. A malfunction which can't be rectified is considered an accidental breakdown. The ship should then switch to compliant fuel if the scrubber can't be repaired within one hour. In case the vessel doesn't have compliant fuel or sufficient amount of compliant fuel on board, a proposed course of action, in order to bunker compliant fuel or carry out repair works, should be communicated to relevant authorities (the ship's flag administration, the destination port authorities and the coastal State authorities if applicable, which can be done by email), in order to bunker compliant fuel oil or carry out repair works at the earliest opportunity. The authorities need to approve the proposed course of action.

In this regard, the owner/operator should provide following information to the Administration:

1. What action has/is being taken to carry out repairs;

2. What action is being taken in order to bunker compliant fuel, in case EGCS cannot be repaired at the port agreed between port State, coastal State and Administration;
3. Information that class society has been contacted;
4. Copies of records in the EGCS record book showing details of corrective/planned maintenance; service records; details of current failure, etc.

The USCG in their CG-CVC Policy Letter 12-04, CH-1, provides the following guidance:

When equipment approved by an Administration under Annex VI Regulation 4 (equivalency – e.g., scrubber) for complying with the standards set forth in Regulation 13 and 14, experiences a failure the Coast Guard expects a certain degree of redundancy so that the ship may continue to operate in compliance with Regulation 13 or 14 (e.g. pumps, available spare parts onboard, or alternative arrangements (e.g. Low Sulfur Fuel Oil tanks)). The Coast Guard will take into consideration a ship which has reported an accident or a defect in accordance with Annex VI, regulation 5.5 whose flag Administration (or their representative) has issued an interim compliance scheme and an outstanding condition due to equipment casualty or failure.

It is recommended that Owners consider the USCG's suggestion to have a certain degree of redundancy for their EGCS.

#### **34. What action should be taken in case of EGCS sensor failure?**

A sensor failure doesn't necessarily qualify as malfunction as long as the EGCS performance can be verified by other parameters. In such case, records of interim indication for demonstrating compliance should be kept.

The documentation and actions should include (but are not limited to):

1. The manual or automatic recording of the data at the time of malfunction may be used to confirm that all other relevant data as recorded for the performance of the EGCS are showing values in line with values prior to the malfunction;
2. The ship operator should record the sulphur content of the various grades of fuel oil used in the affected fuel oil combustion units from the time when the malfunction started;
3. The ship operator should log the malfunctioning of the monitoring equipment

The EGCS record book Should be used for recording failures.

Please refer to [MEPC.1/Circ.883](#) for all details.

#### **35. Are vessels with EGCS installed required to have a compliant fuel onboard in case of EGCS failure?**

No, a vessels fitted with an approved EGCS is not required to have any compliant fuel onboard in case of EGCS failure.

“If the ship does not have compliant fuel oil or sufficient amount of compliant fuel oil on board, a proposed course of action, in order to bunker compliant fuel oil or carry out repair works, should be communicated to relevant authorities including the ship’s Administration, for their agreement.”

If compliant fuel is not available on board, the coastal State may require the ship to deviate within its territorial waters or stop outside port limits to receive compliant fuel, which may cause delays.

### **36. Are there any special requirements from the US Coast Guard?**

In accordance with the latest CG-CVC Policy Letter 12-04, CH-1 the USCG no longer requires that a formal submittal be made to them for their acceptance. As long as the regulation 4 equivalency is properly documented on the IAPP and Supplement, IMO has been notified of the equivalency and the ECGS is operated in accordance with the manufacturer’s instructions, the vessel can operate the EGCS in either US ECA.

With regard to US EPA Vessel General Permit (VGP) applies within 3 nm from the US coast. Under VGP regulations, the pH limit for the washwater effluent shall not be less than 6.0, while for the IMO (resolution MEPC.259[68]) the pH limit for the washwater effluent is to be no less than 6.5, measured at the overboard discharge or at a position 4 m from the overboard discharge point. Therefore, the owner needs to check with the vendor whether the EGCS on board is VGP compliant. If it is compliant, then the ship may operate the EGCS within 3 nm of the US coast but will need to carry out the annual sampling and analysis tests and submit the results in the annual VGP report. Most of the installed EGCS are not VGP compliant, and ships need to switch to MGO before approaching the 3 nm limit.

Please also note that California does not accept operation of scrubbers with non-distillate fuel oils and Connecticut prohibits EGCS discharge water.

### **37. Are there local restrictions for discharging washwater from EGCS?**

Some coastal States and ports have implemented local regulations with more stringent requirements that restrict or completely prohibit the discharge of washwater from open loop scrubbers or prohibit the use of scrubbers.

A non-exhaustive list of ports that have prohibited the discharge of scrubber wash water can be found at <https://safety4sea.com/list-of-countries-that-restrict-the-use-of-open-loop-scrubbers/>.

### **38. What are the requirements for using EGCS in Australian waters and reporting to ASMA?**

AMSA has issued **Marine Notice 02/2021**, which supersedes Marine Notice 05/2019. The EGCS must be approved by the vessel’s flag State Administration, or flag State recognised organisation. The EGCS must also be operated in accordance with IMO requirements, including the 2015 Guidelines for Exhaust Gas Cleaning Systems (resolution MEPC.259(68)).

Crew members must be properly trained in the use of the EGCS and the system must be kept in good working order, with maintenance up to date and monitoring devices fully operational. EGCS approval documents, as well as operational and maintenance records for it must be maintained on board the vessel and made available for inspection upon Port State Control Officer (PSCO) request.

A vessel using an EGCS is to notify AMSA before its first arrival at an Australian port, and provide the information requested in the Marine Notice to [EGCS@amsa.gov.au](mailto:EGCS@amsa.gov.au). There is no need to notify AMSA after the first time unless the information has changed.

AMSA follows MEPC.1/Circ.883 for any malfunction or loss of sensor. If a vessel has to change over to compliant fuel oil and doesn't have a sufficient quantity on board to reach an Australian port, a report outlining the vessel's proposed course of action is to be made to [reports@amsa.gov.au](mailto:reports@amsa.gov.au).

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