



REPUBLIC OF KENYA



NATIONAL GUIDELINE ON IMPLEMENTATION OF IMO2020: MARPOL ANNEX VI REQUIREMENT FOR MARINE FUEL OIL

DECEMBER, 2019

FOREWORD

The Government of Kenya is committed to protection of the marine environment and promotion of good use of marine resources as a key pillar for sustainable development. To this end, the Government ratified the International Convention on Prevention of Pollution from Ships, MARPOL 73/78 (the Convention), which aims at protecting the environment from ship source pollution. More specifically, Annex VI of the Convention is meant to curb the adverse effects of emissions from ships on humans and vulnerable ecosystems in order to reduce Sulphur oxides from ships by 77% and avert the current annual global 157,000 premature deaths and 3.5million asthma cases related to the gases.

Among the measures stipulated in Annex VI of the Convention is the limitation of Sulphur content in marine fuel oil in order to reduce Sulphur oxides and particulate matter emitted by ships. The implementation was a phased approach in which the Sulphur content in marine fuel oil is capped at 0.5% m/m as from 1st January 2020 unless a ship has installed a scrubber to clean Sulphur oxides from engine exhaust gases.

It is in this regard that Government agencies comprised of Kenya Ports Authority, National Environmental Management Authority, Kenya Marine Fisheries Research Institute, Energy Petroleum Regulatory Authority, Kenya Bureau of Standards and Kenya Maritime Authority convened to jointly develop the national guidelines for implementation of the Annex VI of the Convention. The relevant International Maritime Organization (IMO) circulars were taken into account in the development of the guidelines for realization of global consistency in the implementation of IMO2020.

The guidelines stipulate the methodology and the inter-sectorial approach Kenya intends to pursue in regulating and enforcing the provisions of regulation 14, 17 and 18 of MARPOL Convention, Annex VI.

I therefore take this opportunity to thank everyone who was involved in the development of the guidelines and to call upon all stakeholders in the maritime sector to work together towards realizing successful implementation of the Convention.



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Appendix 1: FONAR

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ABBREVIATIONS AND ACRONYMS.

BDN	- Bunker Delivery Note
EPRA	- Energy and Petroleum Regulatory Authority
FONAR	- Fuel Oil Non-Availability Report
FSC	- Flag State Control
IMO	- International Maritime Organization
KEBS	- Kenya Bureau of Standards
KEMFRI	- Kenya Marine Fisheries and Research Institute
KMA	- Kenya Maritime Authority
KPA	- Kenya Ports Authority
MARPOL	- The International Convention for the Prevention of Pollution from Ships, 1973
MEPC	- IMO's Marine Environment Protection Committee
NEMA	- National Environmental Management Authority
PSC	- Port State Control
SMS	- Safety Management System

1.0 INTRODUCTION

- 1.1 The International Maritime Organization, adopted revision of MARPOL Annex VI on Prevention of Air Pollution from Ships on 10th October 2008. Regulation 14.1 of MARPOL Annex VI provides for that sulphur limit in marine fuel oil not to exceed,
- 4.50% m/m prior to 1 January 2012;
 - 3.50% m/m on and after 1 January 2012; and
 - 0.50% m/m on and after 1 January 2020.

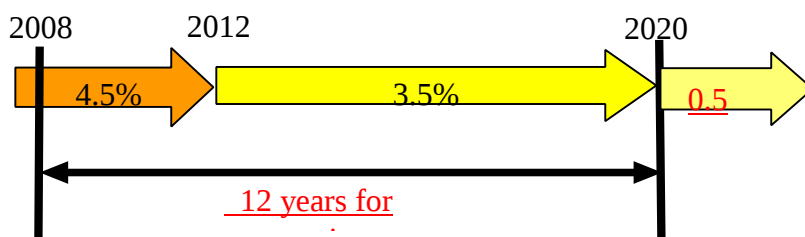


Figure 1: implementation phases of Sulphur limit in marine fuel

- 1.2 The sulphur content of any fuel oil used on board ships shall not exceed 0.50% m/m (Figure 1) on and after 1 January 2020 (for ships operating outside an emission control area.) This is commonly referred to as the IMO 2020 fuel oil sulphur limit.
- 1.3 In order to ensure level playing field, the IMO adopted amendments to MARPOL Annex VI Regulation 14.1 which shall prohibit the carriage of fuel oil with sulphur content exceeding 0.50% m/m for use on board ships after 1st March 2020. This is commonly referred to as the “carriage ban” of noncompliant fuel oil. The ban would not apply to carriage of non-compliant fuel oil as cargo.
- 1.4 The above requirements shall not apply to ships that use abatement technology as equivalent means of compliance, approved by the flag Administration under MARPOL Annex VI Regulation 4. One such abatement technology is the exhaust gas cleaning system (scrubber). Ships conducting trials for abatement technology may also be exempted.
- 1.5 Kenya will enforce the IMO 2020 requirement from 1 January 2020 as provided in this guideline.

2.0 SHIP PRE-ARRIVAL NOTIFICATION

- 2.1 With effect from 01 January 2020, owners, agents and masters of ship shall submit following information before the ship's arrival in Kenya:-
- i. The type of scrubber installed (open, closed or hybrid) where applicable;
 - ii. The sulphur content of fuel oil carried onboard for use as recorded in the Bunker Delivery Note
- 2.2 Ships reporting non-availability of compliant fuel oil are required to submit to Kenya Maritime Authority through email: info@kma.go.ke, a Fuel Oil Non-Availability Report (FONAR) form 24 hours before arrival, and would be subject to control measures, which are detailed in subsequent sections of this guidance.

3.0 SUPPLY OF COMPLIANT FUEL

- 3.1 The Kenyan Government shall promote the availability of IMO 2020 compliant fuel oil. With effect from 1st January 2020, the range of fuel oils that will be available in Kenya are as follows:
- i. Marine Gas Oil (MGO)
 - ii. Low Sulphur Fuel Oil (LSFO) (includes blended products (distillates or residual fuel oil-based)
 - iii. High Sulphur Fuel Oil (HSFO) (for ships fitted with scrubber)
- 3.2 The register of licensed marine fuel oil suppliers in the Port of Mombasa can be found on Energy Petroleum and Regulatory Authority website (www.epra.co.ke).
- 3.3 Licensed marine fuel oil suppliers are required to
- i. provide the bunker delivery note and sample to the ship;
 - ii. certify that the fuel oil meets the requirements of regulations 14 and 18 of MARPOL Annex VI;
 - iii. retain a copy of the bunker delivery note for at least three years for inspection and verification by the Port State as necessary.
- 3.4 Licensed marine fuel oil suppliers are urged to take into account the following guidelines in appendix 2
- i. Guidance on best practice for fuel oil purchaser/users for assuring the quality of fuel oil used on board ships (MEPC.1/Circ.875) and;
 - ii. Guidance on best practice for fuel oil suppliers for assuring the quality of fuel oil delivered to ships (MEPC.1/Circ.875/Add.1);

4.0 FUEL OIL NON-AVAILABILITY REPORT (FONAR)

- 4.1 Should a ship, despite its best effort to obtain compliant fuel oil, is unable to do so due to the unavailability of compliant fuel in Kenya it would have to inform Kenya Maritime Authority, KMA;
- i. record of actions taken to attempt to bunker correct fuel oil and
 - ii. 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.
- 4.2 KMA shall seek confirmation from Energy Petroleum Regulatory Authority on non-availability of compliant fuel oil in Kenya and issue the ship supporting document attesting the same.
- 4.3 On receiving the supporting document as provided in paragraph 4.2, the ship shall complete and submit a fuel oil non availability report form (FONAR) to the ship's flag Administration, KMA and the destination port authorities.
- Note: The intention of the FONAR is to report non-availability of compliant fuel oil in the last port of call. It should not be misconstrued as an exemption from compliance with the Sulphur limit.*
- 4.4 The format of the FONAR is provided in Appendix 1.
- 4.5 Masters of Kenyan ships shall submit FONAR to Kenya Maritime Authority and should retain a copy on board for at least 36 months.
- 4.6 The Kenya Ports Authority shall not approve bunkering operation until information relating to sulphur content of the fuel oil is provided. Approval shall only be granted if
- i. The sulphur content in marine fuel oil to be bunkered is not exceeding 0.5% m/m ;
 - ii. in case the of sulphur content above 0.5% m/m
 - a. A scrubber is installed;
 - b. Supporting documentation of non-availability of compliant fuel oil endorsed by KMA.

5.0 RECEPTION FACILITIES FOR SCRUBBER RESIDUE

- 5.1 Regulation 17.2 of MARPOL Annex VI mandates each Party to the Convention undertakes to ensure the provision of facilities adequate to meet the needs of ships using its ports, terminals or repair ports for the reception of exhaust gas cleaning residues from a scrubber, without causing undue delay to ships.
- 5.2 The exhaust gas cleaning residues are produced as a result of the use of hybrid/closed-loop scrubber by ships to comply with the IMO 2020 fuel oil sulphur limit and may contain sulphates, ash/soot, metals and hydrocarbons removed from the wash water. Specifically it may contain sulphite salts (CaSO_x) and may also include other metal sulphites (NaSO_x and KSO_x) and metal oxides and including Vanadium (V), Nickel (Ni), Magnesium (Mg), Aluminium (Al), Iron (Fe), and Silicon (Si)..
- 5.3 As a Party to the Convention, Kenya will strive to provide reception facilities to receive the residues generated from the operation of hybrid/closed-loop scrubber.
- 5.4 When a ship is at berth, the residues can be offloaded in packaged forms or in intermediate bulk container tanks directly to port waste reception facilities designated by KPA and authorized by NEMA in accordance with the Environmental Management (Prevention of Pollution in Coastal Zone and Other Segments of the Environment) Regulation 2003
- 5.5 Ship repair yards and certified port waste reception facilities are urged to take into account the following IMO Guidelines available from KMA website:-
 - i. 2011 Guidelines for Reception Facilities under MARPOL Annex VI (Res. MEPC.199 (62));
 - ii. Consolidated Guidance for Port Reception Facility Providers and Users (MEPC.1/Circ.834/Rev.1)

6.0 DISPOSAL OF NON-COMPLIANT FUEL OIL

- 6.1 There are various scenarios whereby a ship may end up with non-compliant fuel oil on board post 01 March 2020, e.g. the ship has received non-complaint fuel oil due to the non-availability of compliant fuel oil at the bunkering port, or the ship has received compliant fuel oil as per the Bunker Delivery Note but subsequently received a fuel test report indicating non-compliance.
- 6.2 Ships that have on board non-compliant fuel oil post 1st March 2020 would be required to dispose the non-compliant fuel oil to a certified port waste reception facilities.
- 6.3 De-bunkering is only allowed if the vessel had received wrong grade(s) of bunker fuel from her last call to Kenyan port.

7.0 SCRUBBER WASHWATER DISCHARGE

- 7.1 The discharge of wash-water from open-loop scrubbers is prohibited in the Kenyan Ports limits. This is to maintain the standard of Kenya marine water quality.
- 7.2 While in the port of Mombasa, ships fitted with hybrid type of scrubbers shall switch to the closed-loop mode of operation. Ships fitted with open-loop scrubbers shall switch over to compliant fuel oil.
- 7.3 It is advisable to carry out the switch to either closed-loop mode or to compliant fuel oil well in advance of the vessel's arrival at the port waters, so that any operational issues can be identified and dealt with promptly prior to entering Kenya port limits. For ships fitted with open-loop scrubbers and calling into ports where discharge from open-loop scrubbers is prohibited, appropriate procedures in the safety management system should be established to ensure that the changeover to compliant fuel oil is carried out safely. Such procedures should take into consideration the mode of engine operation, traffic density, and duration of passage etc., including identifying locations where such changeover to compliant fuel is to be carried out. The company's Safety Management System (SMS) should also ensure that the ship's crew is properly trained.

8.0 ENFORCEMENT MEASURES

- 8.1 With effect 01 January 2020, ships that call Kenyan ports may be subjected to verification on compliance with the IMO2020 during PSC and FSC inspections.
- 8.2 Ships are selected for PSC/FSC inspections based on a risk matrix, which takes into account whether a FONAR has been submitted.
- 8.3 In case where a ship is using non-compliant fuel without having a scrubber installed, port state control officer shall take into account the IMO Guidance for port state control on contingency measures for addressing non-compliant fuel oil (MEPC.1/Circ.881).
- 8.4 Marine fuel oil suppliers who are found to deliver fuel oil that does not comply with that stated on the bunker delivery note shall have action taken on them in accordance with the Energy Act, 2019.



APPENDIX 1

FUEL OIL NON-AVAILABILITY REPORT (FONAR)

Note:

1 This 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 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 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.

1 Particulars of ship

- 1.1 Name of ship: _____
1.2 IMO number: _____
1.3 Flag: _____
1.4 (if other relevant registration number is available, enter here): _____

2 Description of ship's voyage plan

2.1 Provide a description of the ship's voyage plan in place at the time of entry into "country X" waters (and ECA, if applicable) (Attach copy of plan if available):

2.2 Details of voyage:

1 – Last port of departure

2 – First port of arrival in "country X":

3 – Date of departure from last port (dd-mm-yyyy):

4 – Date of arrival at first "country X" (dd-mm-yyyy):

5 – Date ship first received notice that it would be transiting in "country X" waters
(and ECA, if applicable) (dd-mm-yyyy):

6 – Ship's location at the time of notice:

7 – Date ship operator expects to enter "country X" waters (and ECA, if applicable)
(dd-mm-yyyy):

8 – Time ship operator expects to enter "country X" waters (and ECA, if applicable)
(hh:mm UTC):

9 – Date ship operator expects to exit "country X" waters (and ECA, if applicable)
(dd-mm-yyyy):

10 – Time ship operator expects to exit "country X" waters (and ECA, if applicable)
(hh:mm UTC):

11 – Projected days ship's main propulsion engines will be in operation within
"country X" waters (and ECA, if applicable):

12 – Sulphur content of fuel oil in use when entering and operating in "country X"
waters (and ECA, if applicable):

3 Evidence of attempts to purchase compliant fuel oil

3.1 Provide a description of actions taken to attempt to achieve compliance prior to entering "country X" waters (and ECA, if applicable), including a description of all attempts that were made to locate alternative sources of compliant fuel oil, and a description of the reason why compliant fuel oil was not available:

3.2 Name and email address of suppliers contacted, address and phone number and date of contact (dd-mm-yyyy):

Please attach copies of communication with suppliers (e.g. emails to and from suppliers)

4 In case of fuel oil supply disruption only

4.1 Name of port at which ship was scheduled to receive compliant fuel oil:

4.2 Name, email address, and phone number of the fuel oil supplier that was scheduled to deliver (and now reporting the non-availability): _____

5 Operation constraints, if applicable

5.1 If non-compliant fuel has been bunkered due to concerns that the quality of the compliant fuel available would cause operational or safety problems on board the ships, the concerns should be thoroughly documented.

5.2 Describe any operational constraints that prevented use of compliant fuel oil available at port:

5.3 Specify steps taken, or to be taken, to resolve these operational constraints that will enable compliant fuel use:

6 Plans to obtain compliant fuel oil

6.1 Describe availability of compliant fuel oil at the first port-of-call in "country X", and plans to obtain it:

6.2 If compliant fuel oil is not available at the first port-of-call in "country X", list the lowest sulphur content of available fuel oil(s) or the lowest sulphur content of available fuel oil at the next port-of-call:

7 Previous Fuel Oil Non-Availability Reports

7.1 If shipowner/operator has submitted a Fuel Oil Non-Availability Report to "country X" in the previous 12 months, list the number of Fuel Oil Non-Availability Reports previously submitted and provide details on the dates and ports visited while using non-compliant fuel oil, as set out below:

Report: _____
Date (dd-mm-yyyy): _____
Port: _____
Type of fuel: _____
Comments: _____

8 Master/Company information

Master name: _____
Local agent in "country X": _____
Ship operator name: _____
Shipowner name: _____
Name and position of official: _____
Email address: _____
Address (street, city, country, postal/zip code): _____
Telephone number: _____

Signature of Master: _____

Print name: _____
Date (DD/MM/YYYY): _____

4 ALBERT EMBANKMENT
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MEPC.1/Circ.875
26 April 2018

**GUIDANCE ON BEST PRACTICE FOR FUEL OIL PURCHASERS/USERS FOR
ASSURING THE QUALITY OF FUEL OIL USED ON BOARD SHIPS**

1 The Marine Environment Protection Committee, at its seventy-second session (9 to 13 April 2018) approved the *Guidance on best practice for fuel oil purchasers/users for assuring the quality of fuel oil used on board ships*, as set out in the annex.

2 Member Governments are invited to bring the annexed Guidance to the attention of their Administration, industry, relevant shipping organizations, shipping companies and other stakeholders concerned, as appropriate.

ANNEX

GUIDANCE ON BEST PRACTICE FOR FUEL OIL PURCHASERS/USERS FOR ASSURING THE QUALITY OF FUEL OIL USED ON BOARD SHIPS

1 INTRODUCTION

1.1 MARPOL Annex VI contains requirements that apply to fuel oil used on board ships. Regulation 14 of MARPOL Annex VI sets limits on the sulphur content of fuel oil used on board ships, both within designated SO_x Emission Control Areas (regulation 14.4) and outside those areas (regulation 14.1). Regulation 18.3 contains requirements that fuel oil delivered to and used on board ships shall not jeopardize the safety of ships or adversely affect the performance of machinery.

1.2 Fuel oil purchasers are responsible for correctly specifying the fuel oil which is to be supplied. It is the responsibility of the supplier to deliver fuel oil which is compliant with the agreed specification.

1.3 These best practices are intended to assist fuel oil purchasers/users in assuring the quality of fuel oil delivered to, and used on board ships, with respect to both compliance with the MARPOL requirements and the safe and efficient operation of the ship.

1.4 These best practices are recommended for all ships and should also be taken into account in those cases where fuel oil purchasing decisions are made by the ship charterer pursuant to a chartering agreement. Under such a charter agreement, communication between the owner and the charterer is paramount. It is recommended that clear requirements on these communications should be included within the appropriate charter party clause.

1.5 It should be noted that, under MARPOL Annex VI, compliance with regulation 14 begins with sourcing and purchasing compliant fuel oil and mitigating the risk of poor quality fuel oil being delivered to the ship.

1.6 These best practices do not comprehensively address fuel oil handling procedures subsequent to fuel oil loading:

- .1 on board fuel oil management is an important element of preventing operational issues and sulphur non-compliance. Improper handling of fuel oil on board may lead to non-compliance with MARPOL requirements, even if the fuel oil received was compliant;
- .2 marine fuel oil completely meeting a recognized standard, such as ISO 8217 purchase specifications, still requires fuel oil treatment before it meets most manufacturers' requirements for combustion, particularly residual grades;
- .3 to ensure continued compliance once compliant fuel oil is delivered on board, ships should have suitable procedures and documents for use and safe handling of fuel oil on board. These procedures should form part of the company's Safety Management System (SMS) as required by the ISM Code, supported by equipment operating and maintenance manuals; and
- .4 each ship should be provided with on board fuel oil change over procedures (where applicable). Crew members should receive appropriate familiarization in implementing these procedures.

1.7 When developing their onboard procedures, ship operators should also consider the guidance provided by existing industry practices and standards, for example those published by the International Organization for Standardization (ISO).

1.8 There is increasing interest in low sulphur fuel oils, which are being developed as an alternative to conventional marine heavy fuel oils or low sulphur distillate oils specified by ISO 8217 Petroleum products – Fuels (class F) – Specifications of marine fuels. These fuel oils may be blends which carry a higher risk of incompatibility with other fuels than is the case with more traditional fuel oils, and therefore it may be necessary to clean storage tanks and fuel piping before handling such fuel oils. Machinery and fuel oil handling systems may require modification in order to use such fuel oils safely and reliably.

1.9 Fuel oil purchasers considering the use of such fuel oils should engage with suppliers to establish any special requirements for such products and perform a detailed technical analysis, including issues of compatibility and whether it will be necessary to make modifications and adjustments to machinery and fuel oil handling systems before ordering the product.

1.10 It should be noted that unintended contamination of a product may happen in any part of the supply chain, including on board bunker barges. This is especially important for 0.10% sulphur fuel oil since any contamination with higher sulphur content fuel oil is likely to result in that batch of fuel oil becoming non-compliant.

2 DEFINITIONS

2.1 *SOLAS Convention*: International Convention for the Safety of Life at Sea, 1974, as amended.

2.2 *MARPOL Convention*: International Convention for the Prevention of Pollution from Ships, 1973, as amended.

2.3 *ISM Code*: International Safety Management Code.

2.4 *Fuel oil purchaser/Purchaser*: Secures and pays for bunkers delivered to a ship at the operator side (user) and not a trader. Can be a shipowner's operator or a charterer's operator; and often used in contracts as counterpart of the supplier.

2.5 *Trader*: The trader buys bunkers from a physical supplier and sells to a purchaser without holding the product physically.

2.6 *Broker*: The broker is used by purchasers and physical suppliers to facilitate buying and selling of fuel oil.

2.7 *Physical supplier/Supplier*: Buys, owns and stores fuel oil and sells bunkers. Distributes bunkers from pipelines, trucks and/or barges. May blend products to meet the customer's specifications. May own or charter a distribution network or may hire a barge provider from supply to supply. Issues the bunker delivery note (BDN).

2.8 *Shipowner*: The company which holds the International Safety Management Document of Compliance for the ship under the ISM Code.

2.9 *Quality-oriented fuel oil supplier*: A fuel oil supplier with a quality management system certified in accordance with an internationally recognized standard (ISO 9001 or equivalent),

and which may be registered with the Member State and/or licensed, where such licensing/accreditation schemes are in place; and therefore can be expected to be on time, meet the statutory requirements, supply the quantity and quality stated on the BDN, provide support and be able to address relevant issues.

3 GOALS

3.1 The best practices set forth in this document reflect a set of goals intended to assure the quality of fuel oil used on board ships, as follows:

- .1 support informed decision-making by fuel oil purchasers;
- .2 guide fuel oil purchasers in ordering fuel oil of the correct specification and implementing measures to confirm that the fuel oil delivered is compliant with this specification;
- .3 encourage proper interactions between the ship crew responsible for fuel oil handling and all other parties (including the fuel oil supplier) from when fuel oil is ordered up to the point of delivery;
- .4 mitigate or minimize risk for technical or administrative problems emanating from bunkering of fuel oil;
- .5 avoid disputes in the supply process; and
- .6 promote compliance with all aspects of regulations 14 and 18 of MARPOL Annex VI which specify the permissible sulphur content in fuel oil and the quality of marine fuel oil.

3.2 The best practices provided in section 4 are intended to assist fuel oil purchasers to achieve the above goals.

3.3 Where a ship is exempted from some of the provisions of MARPOL Annex VI under regulation 3 of the Annex, or will comply with the requirements of the Convention using an equivalent means under regulation 4 of the Annex, fuel oil purchasers should consider any conditions attached to the exemption or equivalent means which may affect fuel oil purchasing.

4 BEST PRACTICES

General

4.1 The fuel oil purchaser should ensure that the fuel oil ordered is correctly specified considering the ship's known technical capabilities and intended area of operation. These requirements should be communicated to the charterer in those cases where the charterer purchases the fuel oil (see paragraph 1.4).

4.2 In addition to these guidelines, fuel oil purchasers should also refer to ISO 13739 Petroleum products – Procedures for transfer of bunkers to vessels, relevant national standards such as SS 524: 2014 – Singapore Specification for quality management for bunker supply chain (QMBS), SS 600 – Singapore Standard Code of Practice for Bunkering, and to industry best practices such as recommendations published by CIMAC¹.

¹ See <http://www.cimac.com/publication-press/publications/wg-publications350/index.html>

4.3 It should also be noted that engine and equipment manufacturers may have set additional requirements for the quality of fuel oil to be used and those should also be taken into account.

Choice of fuel oil supplier

4.4 Fuel oil purchasers should strive to purchase fuel oil from quality-oriented fuel oil suppliers. The following questions are intended to help fuel oil purchasers to identify quality-oriented fuel oil suppliers:

4.4.1 Is the fuel oil supplier included in a local or national registry?

Verify that the supplier is listed on the register of local suppliers of fuel oil required to be maintained by the Parties to MARPOL Annex VI pursuant to regulation 18.9.1 of MARPOL Annex VI. Inclusion on such a register is not a substitute for purchaser due diligence since the regulation 18.9.1 register is simply a list of local fuel oil suppliers and the qualifications for inclusion on the register may vary significantly between ports and Administrations. This information should be easily accessible, in most cases the information should be available on the internet.

4.4.2 Does the fuel oil supplier have a license issued by the coastal State or a local port authority?

In those States/ports that operate established licensing regimes for fuel oil suppliers, a quality-oriented fuel oil supplier will provide evidence to confirm that it is licensed.

4.4.3 Does the fuel oil supplier have a quality management system (QMS) in place?

A quality-oriented fuel oil supplier should have a QMS meeting the requirements of ISO 9001 Quality management systems – Requirements and ISO 14001 Environmental management systems – Requirements with guidance for use (or equivalent national standards). The QMS should include references to the standards which the supplier will adhere to along with any independent third party accreditation of the QMS or elements of the QMS.

4.4.4 Does the fuel oil supplier have procedures for fuel oil transfer operations?

Request documentation from the supplier with regard to their fuel oil transfer procedures, including certification under local authorities' quality procedures for bunkering, where applicable.

4.4.5 If fuel oil will be delivered using barges or tankers, fuel oil purchasers should request that information on quality assurance for these vessels should be included within the information provided on their QMS (see paragraph 4.4.3).

4.4.6 Fuel oil purchasers should consider utilising other sources of information, assessment methods and the reviews and experiences of other purchasers. Although third party reviews and information may be of assistance to fuel oil purchasers, caution should be exercised in placing undue reliance on third party opinion since it may be incomplete or contain errors. These other sources of information and assessment methods may include:

- .1 consulting the reviews of others (where available) and seeking the views of other purchasers of fuel oil;

- .2 requesting that the supplier provides references from existing customers;
- .3 use of local knowledge, consulting local agents;
- .4 use of statistics. Various sources collect data concerning fuel oil supplier activities which may be used by fuel oil purchasers to help them ascertain if a fuel oil supplier is quality-oriented;
- .5 reviewing information made public by Member States pursuant to regulation 18.9 of MARPOL Annex VI, in particular any information submitted to the Organization regarding failures by fuel oil suppliers to meet the requirements of regulations 14 and/or 18 of MARPOL Annex VI;
- .6 where available, consulting lists which grade suppliers by the quality of the fuel oils supplied through testing agency data; and
- .7 any other sources of information and assessment procedures a purchaser may have in defining the reputability of the fuel oil supplier within the context of this guidance.

4.4.7 Fuel oil testing statistics may help identify supplier-specific trends for sulphur compliance and other quality parameters. Note, however, that caution is needed when using this data, for example, samples which are tested above the specification limit but within ISO 4259 Petroleum products – Determination and application of precision data in relation to methods of test - are sometimes incorrectly reported as off-specification, resulting in the statistical analysis being misleading.

4.4.8 It should be noted that testing agencies may not necessarily have information on supplier quality of service or ability to deliver the right quantity.

Contracting

4.5 The contract specifies the fuel oil to be supplied, and how the supplier will fulfil the contractual agreement.

4.5.1 Where the charterer supplies the fuel oil it should be recognized that the "purchaser" (the charterer) is not the same as the "user" (the ship), and their interests are not necessarily aligned. In these cases, the technical requirements of the user/ship should be communicated to, and taken into account, by the purchaser even when the commercial interests of the "purchaser" and "user" differ.

4.5.2 Fuel oil purchasers may purchase fuel oil directly from a physical supplier or they may utilize the services of traders or brokers when purchasing fuel oil. Traders buy and sell fuel oil and carry the financial risk associated with buying and selling. A broker usually works on commission and does not buy and sell the bunkers, hence they do not carry the financial risk associated with buying and selling.

4.5.3 Purchasers should require that suppliers follow best practices with regard to fuel oil quality, including a quality assurance system (see paragraph 4.4.3), and confirm that procedures are in place if non-compliant fuel oil is detected or delivered.

4.5.4 Bunker specifications and any requirements for bunkering procedures should be stated in the contract. The contract should:

- .1 state the quantity ordered. This is usually in metric tonnes by mass; however, other units are sometimes used. The unit used should be clearly stated. The required maximum sulphur content of the fuel oil should meet the applicable requirements of regulation 14 of MARPOL Annex VI;
- .2 include a detailed technical specification for the fuel oil along with acceptable quality parameters;
- .3 where the fuel oil is to be specified with reference to ISO 8217 Petroleum products – Fuels (class F) – Specifications of marine fuels, clearly state which edition is to be used (i.e. 2005, 2010, 2012 or 2017; use of the latest edition of specification is encouraged but this may not be practical in all countries) or, when available, ISO/PAS 23263; and
- .4 for non-ISO 8217 standard fuel oils, as a minimum the specification should require that the fuel oils need to meet the requirements of regulations 18.3.1 and 18.3.2 of MARPOL Annex VI, and SOLAS chapter II-2.

4.5.5 If fuel oil which is outside the requirements of regulation 14.1 or 14.4 of MARPOL Annex VI is ordered for use with an approved alternative means of compliance such as exhaust gas cleaning systems, this should be communicated to the supplier.

4.5.6 Fuel oil purchasers should include a requirement in their Quality assurance (QA) system to check and approve the quantity to be ordered and quality requirement prior to transmitting their order to the supplier.

Documentation

4.6.1 Bunker delivery notes (BDNs), as required by regulation 18 of MARPOL Annex VI, should be provided by the supplier. Text on the BDN should as a minimum include the requirements of appendix V of MARPOL Annex VI.

4.6.2 In case the product supplied differs in handling characteristics from traditional/mainstream fuel oils, the supplier should provide a guide/publication of best practice which includes recommendations for storage and handling of the supplied product.

Fuel oil receiving on board, sampling and testing

4.7.1 There should be appropriate record keeping on board, especially with regard to maintaining the oil record book required by MARPOL Annex VI and MARPOL Annex I, regulation 17. Detailed guidance for making entries into the oil record book is provided in MEPC.1/Circ.736/Rev.2 on *Guidance for the recording of operations in the Oil Record Book Part I – Machinery space operations (all ships)*, as revised.

4.7.2 The receiving ship should have procedures for bunkering, fuel oil handling, and storage of fuel oil, including spill, pollution and emergency response. Shipboard emergency plans addressing different categories of emergencies are required under the provisions of both the SOLAS and MARPOL Conventions, the ISM Code and supporting guidance, including:

- .1 resolution A.1072(28) on *Revised guidelines for a structure of an integrated system of contingency planning for shipboard emergencies* provides guidance for integrated emergency response planning; and

- .2 regulation 37 of MARPOL Annex I requires ships to have a shipboard oil pollution emergency plan (SOPEP), guidance for developing the SOPEP is provided by resolution MEPC.54(32) on *Guidelines for the development of shipboard oil pollution emergency plans*, as amended by resolution MEPC.86(44).

4.7.3 Detailed guidance for bunkering procedures, including a sample bunkering checklist, may be found in various available guidance documents, for example chapter 25 of the International Safety Guide for Oil Tankers and Terminals (ISGOTT).

4.7.4 Clear communications should be established between the receiving ship and supplier (bunker barge, truck or terminal) and emergency stop and response actions agreed prior to any bunkering activities commencing.

4.7.5 Handling onboard should, so far as is possible, avoid co-mingling of fuel oils in tanks or fuel oil lines in order to minimize cross contamination.

4.7.6 A representative fuel oil sample should be collected during the bunkering process. Guidelines for collecting the MARPOL sample are provided in resolution MEPC.182(59) on *2009 Guidelines for the sampling of fuel oil for determination of compliance with the revised MARPOL Annex VI*.

4.7.7 The use of cameras arranged to witness and record bunkering and sampling processes could be considered.

4.7.8 It is recommended that the fuel oil purchaser has a sample of fuel oil collected during bunkering analysed to confirm that it complies with the agreed specification in the contract. Sample analysis should be performed by an independent laboratory and according to relevant international test standards accredited to ISO/IEC 17025 General requirements for the competence of testing and calibration laboratories or an equivalent national standard. Accredited laboratories in a particular country should be listed on the national accreditation bodies' website. It is also recommended that laboratories have an ISO 9001 Quality management systems – Requirements, or equivalent, quality management system. Where possible, it is recommended that fuel oil should not be used until this analysis has been completed.

4.7.9 Purchasers should confirm the accreditation or certification of the laboratory they intend to use, in particular they should check whether any accreditation is general in nature (overall lab practices) or for specific analytical methods.

4.7.10 The contract terms and conditions should stipulate how the laboratory analysis will be carried out in the case of disputes.

4.7.11 In some circumstances it is not necessary to make full laboratory analyses before using the fuel oil which has been delivered (e.g. fuel oil is frequently supplied on contract with same supplier).

4.7.12 Where an analysis is required by the Administration then the analysis should be carried out in accordance with the verification procedures of the Administration.

4.7.13 While a fuel oil purchaser/user may choose to use ISO 13739, ISO 4259, or other testing protocols, it should be mindful that MARPOL Annex VI sets out the procedures for compliance and enforcement, including Appendix VI fuel verification procedure for MARPOL

Annex VI fuel oil samples. Guidance is also provide in resolution MEPC.182(59) on *2009 Guidelines for the sampling of fuel oil for determination of compliance with the revised MARPOL Annex VI*, and the *Guidelines for onboard sampling for the verification of the sulphur content of the fuel oil used on board ships* (MEPC.1/Circ.864). If a different test or a different accreditation is desired, it can be specified in the fuel oil purchase contract itself. However, that contract will not override the requirements of MARPOL Annex VI with respect to determining compliance with the mandatory standards in a compliance or enforcement action brought by a flag, port, or coastal State.

Dispute resolution

4.8 Dispute handling/resolution arrangements in case of dispute should be specified in the contract.

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**GUIDANCE ON BEST PRACTICE FOR FUEL OIL SUPPLIERS FOR ASSURING
THE QUALITY OF FUEL OIL DELIVERED TO SHIPS**

1 The Marine Environment Protection Committee, at its seventy-third session (22 to 26 October 2018), approved the *Guidance on best practice for fuel oil suppliers for assuring the quality of fuel oil delivered to ships*, as set out in the annex.

2 Member Governments are invited to bring the annexed Guidance to the attention of their Administration, industry, relevant shipping organizations, shipping companies and other stakeholders concerned, as appropriate.

ANNEX

GUIDANCE ON BEST PRACTICE FOR FUEL OIL SUPPLIERS FOR ASSURING THE QUALITY OF FUEL OIL DELIVERED TO SHIPS

1 INTRODUCTION

1.1 MARPOL Annex VI contains requirements that apply to fuel oil used on board ships. Regulation 14 sets limits on the sulphur content of fuel oil used on board ships, both within designated SO_x emission control areas (regulation 14.4) and globally (regulation 14.1). Regulation 18.3 contains requirements that fuel oil delivered to and used on board ships should not jeopardize the safety of ships or adversely affect the performance of machinery. Regulation 4.2.1.1 of SOLAS II-2 stipulates that except as otherwise permitted, no fuel oil with a flashpoint of less than 60°C shall be used.

1.2 Fuel oil purchasers are responsible for correctly specifying the fuel oil which is to be supplied. It is the responsibility of the supplier to deliver fuel oil which is compliant with the agreed specification and statutory limits.

1.3 These best practices are intended to assist fuel oil suppliers to ensure the quality of fuel oils delivered to ships which is compliant with the agreed specification and statutory limits.

1.4 When developing their procedures, fuel oil suppliers should also consider the guidance provided by existing industry practices and standards, for example those published by the International Organization for Standardization (ISO).

1.5 This guidance does not apply to supply of low flashpoint fuels such as LNG, LPG or methyl/ethyl alcohols, nor to pure biofuels.

2 DEFINITIONS

2.1 *SOLAS*: International Convention for the Safety of Life at Sea, 1974, as amended.

2.2 *MARPOL*: International Convention for the Prevention of Pollution from Ships, 1973, as amended.

2.3 *Bunker(s)*: Hydrocarbon based fuel for ship consumption. Primarily derived from petroleum sources, may also contain hydrocarbons from synthetic or renewable sources. Bunkers are chiefly classified as distillate or residual fuel oils usually referred to as "fuel oils" in IMO documents.

2.4 *Bunker supplier/Supplier*: Manufactures or buys, owns, stores and sells bunkers. Distributes bunkers from pipelines, trucks and/or barges. May blend products to meet the customer's specifications. May own or charter a distribution network or may hire delivery services from a third party. Issues the bunker delivery note (BDN).

2.5 *Bunker barge provider*: Owner/operator of tankers or barges providing transportation services for a physical supplier. Usually issues the BDN on behalf of the supplier.

2.6 *Truck provider*: Owner/operator of tank trucks. Usually issues BDN on behalf of the supplier.

2.7 *Cargo officer/Supplier's representative*: Person appointed by the bunker supplier to be responsible for the delivery of bunkers to the ship and is responsible for the completion of the documentation to be provided to the receiving ship.

2.8 *Bunker buyer/Purchaser*: Secures and pays for bunkers delivered to a ship at the operator side (user) and not a trader. Can be a shipowner's operator or a charterer's operator; and often used in contracts as counterpart of the supplier.

2.9 *Quality-oriented fuel oil supplier*: A fuel supplier with a quality management system certified in accordance with an internationally recognized standard (ISO 9001 or equivalent), and which may be registered with the Member State and/or licensed, where such licensing/accreditation schemes are in place; and therefore can be expected to be on time, meet the statutory requirements, supply the quantity and quality stated on the BDN, provide support and be able to address relevant issues.

3 GOALS/OBJECTIVES

3.1 The best practices set forth in this document reflect a set of goals intended to assure the quality of fuel oil delivered to ships, as follows:

- .1 bunkers delivered at the point of custody, which can be the receiving ship's rail or manifold, to meet the buyer's ordered specifications;
- .2 bunkers delivered to be in compliance with sulphur limits specified by the buyer in accordance with regulation 14 of MARPOL Annex VI;
- .3 bunkers delivered to be in compliance with regulation 18.3 of MARPOL Annex VI which contains requirements that fuel oil delivered to and used on board ships shall not include any added substance or chemical waste that jeopardizes the safety of ships, adversely affect the performance of the machinery, is harmful to personnel or contributes to additional air pollution;
- .4 bunkers delivered to meet SOLAS Chapter II-2 requirements regarding flashpoint;
- .5 Safety Data Sheets (SDS, formerly known as MSDS – Material Safety Data Sheets) and other relevant documentation detailing the fuel properties to be provided to the buyer;
- .6 bunkers to be delivered to the ship in a safe and efficient manner, preventing practices that may compromise safety and crew health or the quality as delivered to the receiving ship;
- .7 representative samples to be taken during delivery in accordance with regulation 18.8.1 of MARPOL Annex VI, taking into account the *2009 Guidelines for the sampling of fuel oil for determination of compliance with the revised MARPOL Annex VI* (resolution MEPC.182(59));
- .8 seek transparency/traceability and ensure quality control throughout the bunker supply chain;
- .9 mitigating quality risks throughout the supply chain to avoid disputes;

- .10 encourage interactions and clear lines of communication regarding procedures to be followed between bunker suppliers and bunker buyers from the point of order up to the point of delivery; and
- .11 encourage effective dispute resolution through collaboration and communication between parties.

BEST PRACTICES

4 General

4.1 In order to ensure that the quality of bunkers delivered to ships meets the relevant specifications, suppliers should source from appropriate refinery streams and/or hydrocarbon streams from synthetic or renewable sources to produce bunkers meeting the relevant specifications. The end product should be homogeneous and stable.

4.2 To ensure that the product conforms to relevant specifications and statutory limits, the final blend should always be tested against the relevant standards and the test results should be documented.

4.3 In order to maintain quality control throughout the supply chain, it is important to have documentation to help identify product origins back to the manufacturing source and the various links in the chain to enable traceability, especially if problems arise to help pinpoint the source of the problem and take remedial action.

4.4 Once a bunker blend has been produced and tested, appropriate storage and cargo handling in shore tanks and onboard cargo and bunker supply tankers should be adopted to maintain product integrity.

4.5 The supplier is responsible for providing the required representative samples of the product delivered to ships to be taken at the ship's manifold and the required documentation including the bunker delivery note (BDN) and safety data sheets (SDS).

4.6 In addition to these guidelines, fuel oil suppliers should also refer to ISO 13739 Petroleum products – Procedures for transfer of bunkers to ships, relevant national standards such as SS 524: 2014 – Singapore Specification for quality management for bunker supply chain (QMBS), SS 600 – Singapore Standard Code of Practice for Bunkering, and to industry best practices such as guidelines published by CIMAC.

5 Quality control during production of bunkers

5.1 Blending should, in principle, only take place in shore tanks in order to ensure the end product is homogeneous. The quality of the resultant blends should be tested and confirmed prior to delivery to ship.

5.2 The bunker supplier should ensure control of individual blend component quality. This includes knowing their individual properties through accurate data, and the component origins, supported by relevant documentation.

5.3 Blend components should be tried and tested so that their typical properties and suitability for bunker fuel production, and how they combine with other components, is well understood, with particular attention being given to the compatibility between blend components. Blending operatives should have appropriate knowledge of blending bunkers.

5.4 Where there are any uncertainties as to the nature and quality of a blend component, any issue should be identified and resolved before its use in the production of bunkers.

5.5 The following are recommended for bunker suppliers to ensure the quality of blends:

- .1 maintain a database of suitable and unsuitable blend components based on experience, industry knowledge and reported incidents;
- .2 development and/or use of appropriate blend modelling tools; and
- .3 test new/unfamiliar blends rigorously to meet the requirements of regulation 18.3 of MARPOL Annex VI and recognized standards, such as ISO 8217 Petroleum products -- Fuels (class F) -- Specifications of marine fuels.

5.6 The blend should not contain extraneous, potentially deleterious, materials as defined in clause 5 in ISO 8217 and regulation 18.3 of MARPOL Annex VI. This does not preclude the use of additives intended to improve specific fuel characteristics such as cold flow properties or combustion properties.

5.7 Any additives used should be known and have a proven track record in marine fuel application. Any new additive should be thoroughly evaluated to ensure it is fit for use in marine fuel application (for example, be accepted by engine manufacturers).

5.8 Key data of the blend components include, but are not limited to, viscosity, density, flashpoint and sulphur. Sufficient data should be available on blending components to ensure the final blend fully meets the requirements of the grade of bunkers being made.

5.9 Blend proportions as determined from component data need to be correctly calculated and set and thereafter maintained during production of the specified product.

5.10 To ensure the end product is stable, the producer should ensure that all blend components are mutually compatible to avoid precipitation of solids. This can be done through testing compatibility of the blend components.

5.11 The final blend should be tested at a qualified laboratory. The sample sent for testing should be taken in accordance with guidelines for obtaining a representative sample (bottom, middle and top of the tank).

5.12 Blending during delivery should be avoided.

5.13 If it is anticipated that the product will be close to a limit maximum/minimum, the producer should keep in mind the precision of individual test methods when setting blend targets to ensure the product meets the specification limit with sufficient confidence. In the case of fuel oil sulphur content, producers are recommended to follow the guidelines provided in ISO 4259 Petroleum products -- Determination and application of precision data in relation to methods of test.

6 Quality control in the supply chain

6.1 Fuel quality can be compromised at several points in the supply chain, up to and including delivery to ship. It is therefore recommended that the supplier establishes, documents and maintains a quality management system (QMS) covering all stages from taking custody of the product until the product passes the point of custody transfer to the receiving ship.

6.2 If part of the supplier's supply chain is performed by other parties, such as terminal operators and bunker barge or truck providers, these should be identified in the QMS and the supplier should strive to ensure control and maintain oversight over the supply chain.

7 Bunker transport, storage and transfer

7.1 The quality of a bunker fuel or blend components may change compared to its origin during transport, storage and transfer. The supplier should seek to prevent the quality known from the original test report and/or certificate of quality (COQ) from being compromised through working closely with third parties as follows:

- .1 tankers intending to transport the fuels as cargo should demonstrate to the supplier that the tanker is certified to carry this type of cargo (e.g. clean/dirty petroleum products). Suppliers should seek information about previous cargoes in case remaining residues could contaminate the product. Suppliers should also seek guarantees that the cargo tank has been properly cleaned if the previous cargo presents a risk of cross-contamination;
- .2 ensure that storage tanks at refineries or at independent storage facilities are suitable for the type of cargo to be stored, and that storage tanks are in good condition (e.g. no rust) before a new cargo is loaded. If tanks are not empty before loading new cargoes, ensure the resulting blend is properly mixed so that it is homogeneous and stable and that the new blend is properly tested using samples from the bottom, middle and top of the tank;
- .3 ensure good housekeeping during storage. This includes keeping products at the right temperature and preventing water ingress into the tank. Any water that accumulates should be removed to avoid conditions leading to microbial/bacterial growth that can severely compromise the bunker quality;
- .4 if part of the supplier's supply chain is performed by other parties, such as terminal operators and operators of supply ships or trucks, these should be identified in the QMS and the supplier should strive to ensure control and/or maintain oversight over the supply chain;
- .5 pipelines at terminals may be used to transfer several types of cargo (known as multiproduct pipelines). If this is the case, seek verification that pipelines have been adequately cleared to prevent cross-contamination that may affect the overall quality or compromise the product specification;
- .6 prior to loading, barge providers should seek verification from the loading terminal that the product transfer pipelines have been properly cleared to prevent cross-contamination with the previous products transferred via the pipeline;

- .7 bunker tankers/barges should avoid loading cargo from different shore tanks into the same cargo tank, unless the shore tanks contain products of the same grade and with the same certificate of quality;
- .8 a representative sample should be taken during the loading of the bunker tanker/barge. The sampling should be witnessed and countersigned by a representative from the bunker tanker/barge and a representative of the loading terminal. The sample should be taken in accordance with recognized standards, such as ISO 3170/ASTM D4057 (manual sampling standard) or ISO 3171 (pipeline auto-sampling);
- .9 ensure good housekeeping during product storage and handling on the barge. This includes keeping fuels at the right temperature and preventing water ingress into the tank from external sources or condensation;
- .10 suction line strainers on cargo pumps should be cleaned periodically, and always cleaned before changing to a different grade of cargo; and
- .11 when loading the bunker supply tanker/barge (or truck), the following precautions are recommended:
 - .1 avoid loading different product batches into the same cargo tank;
 - .2 ensure the cargo tank is empty before loading a new cargo into it; and
 - .3 seek information about previous cargoes in case residues from a previous cargo could contaminate the product. Seek guarantees that the cargo tank has been properly cleaned if the previous cargo presents a risk of cross-contamination.

8 Delivery to ship (bunkering operations)

8.1 Delivery to ship can be directly from a shore tank (at refinery or terminal) via pipeline, from a bunker tanker/barge coming alongside the ship at berth, at anchorage or off-shore, or from a road truck or rail car at berth.

8.2 Detailed guidance for bunkering procedures, including a sample bunkering checklist, may be found in various available guidance documents, for example chapter 25 of the International Safety Guide for Oil Tankers and Terminals (ISGOTT).

8.3 Clear communications should be established between supplier (bunker barge, truck or terminal) and the receiving ship and emergency stop and response actions agreed prior to any bunkering activities commencing.

8.4 In order to address the health and safety risk to crew on both the supply ship and receiving ship, all parties involved in the bunkering operation should wear adequate personal protective equipment (PPE) and take due care to prevent skin contact with bunkers and exposure to hazardous fumes.

8.5 If more than one grade of bunkers is to be supplied, the order in which the grades are to be supplied should be agreed between the cargo officer and the receiving ship's chief engineer. To avoid contamination of product during delivery, it is recommended that the lighter/lowest sulphur grade is supplied first followed by the heavier/higher sulphur grade.

8.6 Ensure that all supply pipelines and hoses are thoroughly cleared of residue prior to every new delivery, especially if the supply pipeline/hose is going to be used to supply a different product specification than the previous delivery.

8.7 Carry out line clearing of bunker hose(s)/pipelines at the end of the pumping operation. Once line clearing is completed, the contents in the hose should be drained back into the bunker tanker's cargo tank.

8.8 There should be segregated pipelines/hoses and bunker connections for supply of materially different types of product, e.g. for residual and distillate grades, and for high and low sulphur bunkers to prevent cross-contamination of products.

8.9 Collection of a representative sample should be performed for each separate grade being delivered. If more than one tanker/barge or truck is used to supply the ship, a separate set of representative sample(s) should be taken and a separate BDN issued for each tanker/barge or truck.

9 Representative sampling

9.1 Sampling is an integral part of quality control and vital in protecting the interest of all parties involved. Samples may be used as evidence both for commercial, regulatory or even criminal disputes and in court cases. The objective is to obtain samples that are truly representative of the product being transferred, both during delivery to ship and upstream in the supply chain as appropriate prior to the bunker delivery.

9.2 To ensure samples are representative, a single primary sample for each grade of fuel delivered from each tanker/barge or truck should be drawn continuously throughout the entire product transfer by either an automatic sampler or manual continuous drip sampler.

9.3 While a fuel oil supplier may use ISO 13739 and ISO 3171 for automatic pipeline sampling, ISO 3170 for manual methods or some other protocol for obtaining samples, it should be remembered that MARPOL Annex VI sets out the procedures for compliance and enforcement which includes resolution MEPC.182(59) on the *2009 Guidelines for the sampling of fuel oil for determination of compliance with the revised MARPOL Annex VI*.

9.4 The sample taken during delivery or from a tank should be collected in a clean container of sufficient quantity to be divided into the required number of sub-samples which in turn should be sufficient to carry out the required tests, typically 500-750 ml per sub-sample and in any case no less than 400 ml.

9.5 The contents of the single original sample should be decanted into the required number of clean sub-sample containers. This will typically involve agitating the bulk container and partially filling each sub-sample container in turn to a quarter or a third of their capacity, then repeating the process (agitating and decanting) until all the sub-sample containers have been filled.

9.6 The entire process, including sealing and labelling the sample containers, should be witnessed by representatives for both parties (the party supplying a cargo or product and the receiving party) and the resulting unique sample seal numbers recorded on the relevant documentation (e.g. the BDN) and countersigned by representatives for both parties.

9.7 Employing the services of an independent surveyor to oversee and witness the process may also be considered, in which case all sample seal numbers pertaining to the sampling should be recorded by the bunker surveyor in the sample witnessing and receipt.

Sampling in the supply chain

9.8 Sampling and testing should be carried out and documented at each point of product custody transfer throughout the supply chain.

9.9 A representative sample should be collected when loading bunker supply ships from shore tanks, floating storage facilities and tankers. The recommended method is a sample drawn throughout the loading at the point of custody transfer. The sampling should be witnessed and the resulting sample containers sealed, labelled and countersigned by representatives for both the cargo recipient and the tank terminal.

9.10 The supplier should retain the cargo transfer samples for at least 30 days. In the event of a quality dispute arising, samples should be kept until the dispute has been resolved.

Sampling during delivery to ship

9.11 Suppliers should follow the *2009 Guidelines for the sampling of fuel oil for determination of compliance with the revised MARPOL Annex VI* (resolution MEPC.182(59)) which states that the supplier should provide a MARPOL sample drawn by the supplier's representative at the receiving ship's bunker inlet manifold.

9.12 If for safety or practical reasons the supplier's representative cannot move between the barge and the receiving ship to be physically present, the process may be observed visually by alternative means.

9.13 To facilitate effective remote witnessing of drawing of commercial samples, visibility of the sampling equipment on bunker barge can be improved by marking the sampling zone with high visibility tape or paint.

9.14 The final resulting sample containers should be sealed, labelled and countersigned by representatives for both parties.

9.15 The supplier's representative commercial samples should be retained by the supplier for a minimum of 30 days. In the event of a quality dispute arising during the sample retention period, the samples should be retained until the dispute has been resolved.

10 Testing and interpretation of test results in the supply chain

10.1 Testing should be carried out on samples from each point of product custody transfer throughout the supply chain and documented so the analysis report is matched to the product origin. This is a key part of a QMS to enable transparency and traceability and assist the supplier to identify the origin of potential problems and take steps to remedy and prevent further quality issues.

10.2 The testing analysis should be done according to the relevant internationally recognized test methods.

10.3 For the bunker producer/supplier, the recommendation is that the blend target should not be the actual specification limit, but rather the limit minus (or plus if it is a minimum limit) an appropriate safety margin. For the bunker producer/supplier to ensure that the product meets the specification limit with 95% confidence, the blend target should be the limit minus 0.59R for a maximum limit (or plus 0.59R for a minimum limit).

10.4 Further information can be found in a 2016 guidance document from CIMAC freely available online at the following link: http://www.cimac.com/cms/upload/workinggroups/WG7/CIMAC_WG07_2016_Feb_Guideline_Interpretation_Fuel_Analysis_Test_Results_Final.pdf and Section 8 of ISO 8217, precision and interpretation of test results.

11 Documentation

11.1 Documentation is a crucial part of the QMS in order to achieve transparency and traceability in the supply chain. This includes records of custody transfer of cargoes, certificates of quality (COQ), sample seal numbers and quality analysis reports.

11.2 Suppliers are responsible for providing bunker delivery notes (BDNs) to the receiving ship and safety data sheets (SDS) in line with the requirements of SOLAS regulation VI/5-1. It is the supplier's responsibility to ensure that the bunkers delivered to ship are in conformity with the details provided on the BDN and SDS.

11.3 In addition to the minimum requirements (BDN and SDS), suppliers are recommended to provide other supportive documentation such as copies of COQs and quality analysis reports and information on properties that may affect how the bunkers behave during storage and handling on the receiving ship. This might assist the ship to store and handle the fuel in a safe and efficient manner.

Cargo custody transfer

11.4 For cargo custody transfers, documentation should include at least the following:

- .1 certificate of receipt identifying the owner of the cargo prior to custody transfer and the new owner;
- .2 name of tanker or tank terminal supplying the cargo to the new owner;
- .3 certificate of quality accompanied by laboratory analysis report; and
- .4 sampling sheet recording sampling location(s), sampling method(s) and all sample seal numbers.

Sample labels

11.5 Sample labels should comply with regulation 18.8 of MARPOL Annex VI, as detailed in the *2009 Guidelines for the sampling of fuel oil for determination of compliance with the revised MARPOL Annex VI* (resolution MEPC 182(59)). The following information is required on all sample labels:

- .1 location at which, and the method by which, the sample was drawn;
- .2 date of commencement of delivery;
- .3 name of bunker tanker/bunker installation;
- .4 name and IMO number of the receiving ship;
- .5 signatures and names of the supplier's representative and the ship's representative;
- .6 details of seal identification; and
- .7 bunker grade.

11.6 Details of the sample seals should be recorded on the bunker delivery note.

Safety data sheets – SDS (Formerly known as material safety data sheets – MSDS)

11.7 SOLAS regulation VI/5-1 requires that safety data sheets are provided to a ship prior to loading MARPOL Annex I type cargoes and marine fuel oils.

11.8 SDS are intended to inform crew on the receiving ship of all health, safety, handling and environmental risks associated with the cargo/product. Details of the required information are set out in resolution MSC.286(86) on the *Recommendations for material safety data sheets (MSDS) for MARPOL Annex I oil cargo and oil fuel*.

Bunker delivery note – BDN

11.9 The bunker delivery note (BDN) is the official receipt stating the grade and quantity of bunkers supplied to the receiving ship. Regulation 18.5 of MARPOL Annex VI and appendix V of MARPOL Annex VI stipulates information to be included in the BDN.

11.10 Additional details, beyond the MARPOL requirements, may be included on the BDN according to local requirements and the commercial requirements of the supplier.

11.11 The BDN should be signed by both the supplier's representative and the representative of the receiving ship and retained by the supplier for at least three years as per regulation 18.9.3 of MARPOL Annex VI.

Supporting documentation

11.12 Suppliers should, where possible, provide bunker buyers with copies of the product's certificate of quality (COQ) and associated laboratory analysis reports verifying the details on the COQ. These may include more detailed information on specific quality parameters which would be helpful to the crew on the receiving ship in applying appropriate fuel management, including pre-treatment prior to use.

Fuel properties/handling advice

11.13 The supplier should provide information on properties that may affect how the bunkers behave during storage and handling on the receiving ship, if the product supplied differs in handling characteristics from traditional/mainstream bunkers.

11.14 This information should include any special fuel management and handling requirements such as heating, special attention to pre-treatment in separators and centrifuges, and any known compatibility issues particular to the product.

11.15 For distillate fuels, suppliers should report cloud point (CP), cold filter plugging point (CFPP) and pour point (PP). ISO 8217 fuel oil specifications require these fuel oil cold characteristic to be tested. This information helps the ship's crew determine if the fuel will need heating. The responsibility for ordering a product with appropriate CP, CFPP and PP for the ship's operational needs rests with the buyer.

Licensing

11.16 In those States/ports that operate established licensing regimes for bunker suppliers, the bunker supplier should provide evidence to confirm the licence(s).

Quality management systems (QMS)

11.17 Suppliers should have quality management systems (QMS) in place and be able to provide evidence to bunker buyers if required. In cases where a supplier has its own internal QMS, it should be able to provide a summary to bunker buyers upon request. The QMS documentation should include references to the standards which the supplier will adhere to along with any independent third party accreditation of the QMS or elements of the QMS.

12 Contracting

12.1 Selling and buying bunkers is a commercial activity involving contracting parties, which in the case of bunker suppliers and bunker buyers can include a variety of parties. The "contract" in this instance covers both the supplier's general terms and conditions and the actual purchasing order.

12.2 The contract specifies the product(s) to be supplied, quantity and details of how the supplier will fulfil the contractual agreement, and should include claim/dispute clauses. Dispute handling/resolution arrangements in case of dispute should be specified.

12.3 Bunker specifications and any requirements for bunkering procedures should be stated in the contract. The contract should:

- .1 state the quantity ordered, the required maximum sulphur content and that the fuel is to meet the applicable requirements in regulation 18 of MARPOL Annex VI;
- .2 include a detailed technical specification for the fuel along with acceptable quality parameters;
- .3 where the fuel is specified with reference to ISO 8217 Petroleum products -- Fuels (class F) -- Specifications, the contract should clearly state which edition is to be used (i.e. 2005, 2010, 2012 or 2017). Using the latest edition is encouraged where possible; and
- .4 for non-ISO 8217 standard fuel oils, as a minimum the contract should specify that the bunkers provided meet the requirements of regulations 18.3.1 and 18.3.2 of MARPOL Annex VI, and SOLAS chapter II-2. If the product is close to an ISO 8217 grade, but will not meet specific parameters, those exemptions should be mutually agreed in advance and specified in the purchase order and contract.

12.4 If the bunker buyer orders fuel with a sulphur content exceeding the limit in MARPOL Annex VI, the supplier should obtain a notification from the bunker buyer that the fuel will be used with an approved alternative means of compliance such as exhaust gas cleaning. The supplier should ensure the notification is communicated to the supplier's representative overseeing the physical delivery (e.g. the cargo officer).

12.5 Unless otherwise permitted by MARPOL Annex VI and confirmed by supporting documentation, e.g. ships installed with an alternative means of compliance with the fuel oil sulphur content limit, the supplier should not supply fuel oil which is not compliant with relevant statutory requirements and specifications.

12.6 The contract terms and conditions should stipulate how the laboratory analysis will be carried out in the case of disputes.

12.7 The contract should specify that the laboratory should be independent and certified to ISO 17025 or an equivalent standard.

13 Dispute resolution

13.1 Dispute handling/resolution arrangements in case of dispute should be specified in the contract.

13.2 Following the ship's own testing programme, if the results lead to a quality dispute where the suppliers retained commercial sample is to be tested, it is recommended that breaking the seal of that sample is witnessed by representatives for both the supplier and the buyer. If the test on the supplier's retained commercial sample fails to meet the specified maximum/minimum limit, the product has not met that specification limit.

13.3 If the cause for the failure of the product to meet specification lies with parties other than the contracting bunker supplier, for example the original bunker blend provider or the bunker tanker/barge operator delivering the product on the contracting supplier's behalf, it is up to the supplier to seek compensation from these parties.

13.4 If a product that has been delivered is proven by test results to be off-specification, but has not yet been used, the supplier should enter into constructive dialogue with the buyer and support the buyer with regards to remedial action including debunkering, if required.

13.5 In cases where a ship experiences operational problems suspected but not specifically proven to be caused by the fuel, the supplier should offer any assistance they are capable of to the buyer in trying to determine the root cause. This may involve, for example, information on product origin to help build knowledge of cargo sources that may be associated with unusual or unexpected operational issues.