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**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.