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**COMMISSION STAFF WORKING DOCUMENT**

**For the Council Shipping Working party**

**IMO - Union submission to be submitted to the Intersessional Meeting of the IMO on the Consistent implementation of Regulation 14.1.3 of MARPOL Annex VI in London 9 – 13 July 2018 – Testing and verification procedures**

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**For the Council Shipping Working party**

**IMO - Union submission to be submitted to the Intersessional Meeting of the IMO on the Consistent implementation of Regulation 14.1.3 of MARPOL Annex VI in London 9 – 13 July 2018 – Testing and verification procedures**

**PURPOSE**

The document in Annex contains a draft Union submission to the Intersession Meeting of the IMO on the Consistent implementation of Regulation 14.1.3 of MARPOL Annex VI, taking place in London 9 – 13 July 2018. It is hereby submitted to the appropriate technical body of the Council with a view to achieving agreement on transmission of the document to the IMO prior to the required deadline of 25 May 2018<sup>1</sup>.

MARPOL Annex VI requirements, with regard to limitation of SO<sub>x</sub> emissions, are implemented in EU law in Directive (EU) 2016/802 of the European Parliament and of the Council of 11 May 2016 relating to a reduction in the sulphur content of certain liquid fuels<sup>2</sup>.

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<sup>1</sup> The submission of proposals or information papers to the IMO, on issues falling under external exclusive EU competence, are acts of external representation. Such submissions are to be made by an EU actor who can represent the Union externally under the Treaty, which for non-CFSP (Common Foreign and Security Policy) issues is the Commission or the EU Delegation in accordance with Article 17(1) TEU and Article 221 TFEU. IMO internal rules make such an arrangement absolutely possible as regards existing agenda and work programme items. This way of proceeding is in line with the General Arrangements for EU statements in multilateral organisations endorsed by COREPER on 24 October 2011.

<sup>2</sup> OJ L 132, 21.5.2016, p. 58.

## DEVELOPMENT OF DRAFT AMENDMENTS TO MARPOL ANNEX VI

Submitted by the European Commission on behalf of the EU

### SUMMARY

*Executive summary:* This document provides input to agenda item 3 on the development of draft amendments to MARPOL Annex VI, in particular to Appendix VI. It introduces in Appendix VI a new testing and verification procedure for the onboard in-use fuel oil samples in alignment with widespread and updated best practices by administrations and industry. It also amends accordingly the existing procedure for fuel oil samples as delivered to the ship. The intent is to bring a robust and uniform approach for the verification of the sulphur content in marine fuel oil by competent inspection authorities of the Parties in a more cost effective and unambiguous manner.

*Strategic Direction, if applicable:* 7.3

*Output:* 7.3.1

*Action to be taken:* Consider the revision of Appendix VI of MARPOL Annex VI based on Annex

*Related documents:* PPR5/WP6 (Annex 6), MEPC 71/5/9, MEPC.1/Circ 864, , MEPC.182(59), PPR 5/12/1, PPR 5/13/12, PPR 5/13/11, PPR 5/13/5

### Introduction

1 This document is submitted in accordance with the provisions of paragraph 6.12.5 of the *Guidelines on the organization and method of work of the Maritime Safety Committee and the Marine Environment Protection Committee and their subsidiary bodies* (MSC-MEPC.1/Circ.5) and provides input to agenda item 3 on the *Development of draft amendments to MARPOL Annex VI* to support the consistent implementation of regulation 14.1.3 of MARPOL Annex VI.

### Background

2 During MEPC 70, the Committee agreed that the effective date of implementation of the fuel oil standard in regulation 14.1.3 of MARPOL Annex VI should be 1 January 2020. At MEPC 71, the Committee further approved the new output on “Consistent implementation of regulation 14.1.3 of MARPOL Annex VI”, for inclusion in the PPR Sub-Committee’s biennial

agenda for 2018/2019 and the provisional agenda for PPR5, with a target completion year of 2019.

3 IMO Assembly 30 approved the request from MEPC 71 for an intersessional working group meeting in 2018 due to the urgency of the work. Subsequently, PPR 5 prepared the terms of reference for the intersessional meeting and agreed the outline of the draft guidelines of consistent implementation of regulation 14.1.3 of MARPOL Annex VI. Item 2 of the draft terms of reference refers to the testing and verification procedure of in-use fuel oil samples, including the consequential amendments to regulation 14 and associated consequential amendments to regulation 18 and appendix VI, as elements to be considered at the intersessional meeting.

4 The sulphur content of certain liquid fuels including marine fuels used by ships operating in waters falling under the jurisdiction of EU Member States is regulated through Directive (EU) 2016/802. In order to determine whether marine fuel delivered to and carried for use on board a ship is compliant with the sulphur limits, the verification procedure set out in Appendix VI to MARPOL Annex VI is required under Directive (EU) 2016/802 to be followed.

5 The EU legislation also contains provisions on the yearly number of ship inspections, including on board fuel sampling and analysis, to be carried out by Member States to verify the sulphur content of marine fuels delivered to or being used by ships operating in the waters falling under their jurisdiction. Between 1 January 2015 and 31 December 2017, over 28.000 specific inspections have been carried out in the EU, more than 20% of those included sampling.

6 The frequency of relevant inspections including on board sampling of the fuel oil in-use is expected to increase in 2020. A uniform and unambiguous approach to sampling and analysis offered through the proposed revision of Appendix VI is needed by both inspectors and ship operators, since the lack of common and clear procedures across all signatory ports worldwide, may affect the observed sulphur content of the samples and cause unnecessary disputes. IMO already adopted the 'Guidelines for on-board sampling and verification of the sulphur content of fuel used on-board ships'<sup>3</sup> and the proposed amendments to the Appendix VI may be considered to complement these guidelines.

7 The EU Member States have started to work on core items of the draft guidelines for the implementation plan and have also held discussions with industry stakeholders on the proposals submitted in this document, under the European Sustainable Shipping Forum<sup>4</sup>. The Annex to this document introduces a new testing and verification procedure for the onboard in-use fuel oil samples aligning with widespread and most updated administration's and the industry's best practices. It also amends accordingly the existing procedure for fuel oil samples as delivered to the ship and ensures that the controls of the limits required in regulation 14 are not compromised.

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3 MEPC.1/Circ.864 of 9 December 2016

<sup>4</sup> The European Sustainable Shipping Forum is an expert group of the European Commission, bringing together 28 EU Member States and 32 maritime organisations. The forum aims at enabling, inter alia, a structured dialogue on the monitoring of compliance with the sulphur regulations with focus on the consistent implementation of the 0.50% sulphur limit, creating the framework conditions for the use of liquefied natural gas (LNG) as a ship fuel, the increasing use of EGCS technology in shipping, in particular its technical, economic, environmental and operational aspects, coordinating research and development activities and encouraging innovation, exploring all available financing opportunities, ensuring compatibility with the EU's broader environmental protection objectives, and on identifying potential improvements in sustainability and competitiveness.

## Main elements of the verification procedure development

8 The Committee has instructed the PPR to develop verification procedures for the on board in-use sample. At PPR5 a strong support was expressed for the ban on the carriage of non-compliant fuel oil. It was also highlighted that samples of fuel oil would need to be drawn from more than one sampling point since the use of different locations in the ship's fuel oil piping and tank arrangements could affect the observed sulphur content in the fuel oil samples tested. Therefore, it is proposed that the term 'on board' fuel oil sample should now reflect fuel oil samples drawn from throughout the fuel system in addition to the fuel oil in-use.

9 It is proposed for consideration that the term 'MARPOL Sample', commonly used for the bunker delivered representative statutory sample, now should effectively apply to two types of samples: the sample of fuel oil "delivered" during the bunkering process and the "on board" sample of the fuel oil carried for use and or in use<sup>5</sup>. Being aware of the differences in the sampling methods and locations between the two types of samples, it is proposed that the Appendix VI addresses the verification procedures of the two types of samples separately by introducing a new section for the "on board sample" whilst also amending the original text.

10 The concerns expressed at both MEPC 71 and PPR5<sup>6</sup> over the different approaches taken by inspectors and the lack of clarity expressed by ship operators and administrations in the application of the Appendix VI verification procedure for fuel testing, reporting of the test results and their interpretation against the statutory limits, have been taken into consideration. The differences between current statutory approach and that used for commercial transactions of marine bunkers which is based on ISO 8217 specifying the fuel grade and defining the sulphur test methodology and making reference to test precision measurements and results defined in the most recently updated ISO 4259:2017-2<sup>7</sup> is also acknowledged.

11 The proposed amendments and additions to the Appendix VI given in this Annex, addresses these different approaches which are taken between the primary check on the "delivered" fuel oil sample and on any "on board" fuel oil samples taken for subsequent verification checks. With regards to the interpretation of the test results a uniform and consistent approach is given as follows:

- For the 'delivered' statutory fuel oil sample, equivalent to the supplier's sample in commercial transaction terms, the test result must not exceed the required limit. However, for the "on board" fuel oil sample, for the verification check, the precision is applied differently whereby the sulphur test result does not meet the limit only when the result exceeds the applicable limit plus the level of precision defined in ISO 4259:2017-2, the terms being expressed in the Annex of this document.

12 The working group is requested to consider the necessity of retaining or not the existing Part 1 Stage 2 of the verification procedure for the "delivered" sample (paragraph 3

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<sup>5</sup> Samples of fuel oil carried for use or in use drawn on board for the purposes of sulphur content verification.

<sup>6</sup> PPR5/12/1 and PPR5/13/12

<sup>7</sup> ISO 4259:2017-2 Application of precision of measurement methods and result

of the Annex). In that regard, stage 2 should be deleted (as it is already reflected in the new section's single stage approach for the on-board sample) for the following reasons:

- .1 There is statistically proven evidence that repeat testing, required by Stage 2, will not provide any greater degree of certainty over the concluding test results in the context of the requirement of this verification process.
- .2 Member States have expressed the increased complexity and costs of having to apply the Stage 2 procedures and the lack of suitably accredited laboratories in some countries and ports, which therefore means that Stage 2 remains a discretionary option as given in the Appendix VI, this leads to a lack of uniformity of approach to the verification procedure.

13 If it will be agreed to remove Part 1 Stage 2, then the average test result of the sample of "delivered" fuel oil, from the Stage 1 procedure, shall not exceed the applicable limit. This will bring the interpretation of the "delivered" fuel oil sample test result, by an administration, in alignment with that applied to a "delivered" fuel oil supplier's commercial sample, where the limit shall not be exceeded as defined by ISO 4259:2017-2.

### **Action requested by the Intersessional Working Group**

The Intersessional Working Group is invited to take the Annex of this document into consideration and take action as appropriate.

## **ANNEX**

### **Appendix VI**

#### **Fuel-Verification procedures for a MARPOL Annex VI fuel oil sample (Regulation 18.8.2 or Regulation 14.1 or 14.4)**

The following relevant verification procedure shall be used to determine whether the fuel oil delivered to and used or carried for use onboard a ship is compliant with the applicable sulphur limits required by regulation 14 of Annex VI.

This appendix refers to the following representative MARPOL Annex VI fuel oil samples:

Part 1- sample of fuel oil delivered<sup>8</sup> in accordance with 18.8.1 thereafter referred to as the "delivered" sample.

Part 2- sample of fuel oil in use<sup>9</sup>, intended to be used or carried for use on board, hereafter referred to as the "on board" sample.

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<sup>8</sup> Samples taken in accordance with the 2009 Guidelines for the sampling of fuel oil for determination of compliance with the revised MARPOL Annex VI (resolution MEPC.182(59)).

## Part 1 – (Representative) Sample of fuel oil ‘delivered’

### 1 General Requirements

1.1 The representative fuel oil samples, which is required by paragraph 8.1 of regulation 18.8.1 (the MARPOL “delivered” sample) shall be used to verify the sulphur content of the fuel oil delivered supplied to a ship.

1.2 An Administration, through its competent authority, shall manage the verification procedure.

1.3 A laboratory undertaking the sulphur testing procedure set forth in this appendix is to have valid accreditation<sup>10</sup> in respect of the test method to be used. ~~The laboratories responsible or the verification procedure set forth in this appendix shall be fully accredited\* for the purpose of conducting the tests.~~

### 2 Verification procedure Part 1 [Stage 1]

2.1 The MARPOL “delivered” sample shall be brought delivered by the competent authority to the laboratory.

2.2 The laboratory shall:

- .1 record the details of the seal number and the sample label on the test record;
- .2 record confirm that the condition of the seal on the MARPOL sample has not been broken as received on the test record; and
- .3 reject any MARPOL sample where the seal has been broken prior to receipt and record that rejection on the test record.

2.3 If the seal of the MARPOL sample has not been broken, the laboratory shall proceed with the verification procedure and shall:

- .1 unseal the as delivered sample
- .2 ensure that the MARPOL sample is thoroughly homogenized;
- .3 draw two sub-samples from the MARPOL as delivered fuel oil sample; and
- .4 reseal the MARPOL as delivered fuel oil sample and record the new reseal details on the test record.

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<sup>9</sup> Samples taken in accordance with the Guidelines for onboard sampling for the verification of the sulphur content

of the fuel oil used on board ships (Circular MEPC.1/Circ.864) [as may be amended]

<sup>10</sup> Accreditation in accordance with ISO 17025:2005 or an equivalent standard

2.4 The two sub-samples shall be tested in succession, in accordance with the specified test method referred to in Appendix V<sup>11</sup>. For the purposes of this verification procedure, the results of the test analysis shall be referred to as “A” and “B”:

- .1 Results “A” and “B” shall be recorded on the test record in accordance with the requirements of the test method.
- .2 If the results of “A” and “B” are within the repeatability (r)<sup>12</sup> of the test method, the results shall be considered valid.
- .3 If the results of “A” and “B” are not within the repeatability (r) of the test method, both results shall be rejected and two new sub-samples shall ~~should~~ be taken by the laboratory and tested analysed. The sample bottle ~~should~~ shall be resealed in accordance with paragraph 2.3.4 above after the new sub-samples have been taken.

2.5 If the test results of “A” and “B” are valid, an average of these two results ~~should~~ shall be calculated thus giving the result referred to as “X”:

- .1 If the result of “X” is equal to or falls below the applicable limit required by Regulation 14 Annex VI, the fuel oil shall be deemed considered to have met meet the requirements.
- .2 If the result of “X” is greater than the applicable limit required by Regulation 14 Annex VI, [the fuel oil shall be considered to have not met the requirement]. [~~Verification Procedure Stage 2 should be conducted~~]; however, if the result of “X” is greater than the specification limit by  $+0.59R$ <sup>13</sup> (where R is the reproducibility of the test method), the fuel oil as sampled shall be considered to have not met the requirement ~~non-compliant~~ and no further testing is necessary.

Table 1. Summary of Part 1 [Stage 1] “delivered” fuel oil sample Procedure

<ul style="list-style-type: none"> <li>On basis of Appendix V test method</li> </ul>				
<ul style="list-style-type: none"> <li>Applicable limit %m/m: <ul style="list-style-type: none"> <li>V</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Test margin value <math>+0.59R</math>: <ul style="list-style-type: none"> <li>W</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Result 2.5.1: <ul style="list-style-type: none"> <li><math>X \leq V</math></li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Result 2.5.2: <ul style="list-style-type: none"> <li><math>V &lt; X \leq W</math></li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Result 2.5.2: <ul style="list-style-type: none"> <li><math>X &gt; W</math></li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>0.10</li> <li>0.50</li> </ul>	<ul style="list-style-type: none"> <li>0.11</li> <li>0.53</li> </ul>	<ul style="list-style-type: none"> <li>Met the requirement</li> </ul>	<ul style="list-style-type: none"> <li>[Should go to Stage 2]</li> <li>Not met requirement</li> </ul>	<ul style="list-style-type: none"> <li>Not met requirement</li> </ul>
		<ul style="list-style-type: none"> <li>Result “X” reported to 2 decimal places</li> </ul>		

[3] — Verification Procedure Stage 2

<sup>11</sup> Appendix V footnote: Fuel oil shall be tested in accordance with the ISO 8754:2003

<sup>12</sup> Repeatability (r) calculation defined in the test method in accordance ISO 4259:2017-2

<sup>13</sup> the level of confidence applied to ISO test Methods defined ISO 4259:2017-2

Application of precision of measurement methods and results.



~~3.1 — If Stage 2 of the verification procedure is necessary in accordance with paragraph 2.5.2 above, the competent authority shall send the MARPOL sample to a second accredited laboratory.~~

~~3.2 — Upon receiving the MARPOL sample, the laboratory shall:~~

- ~~.1 — record the details of the reseal number applied in accordance with 2.3.4 and the sample label on the test record;~~
- ~~.2 — draw two sub-samples from the MARPOL sample; and~~
- ~~.3 — reseal the MARPOL sample and record the new reseal details on the test record.~~

~~3.3 — The two sub-samples shall be tested in succession, in accordance with the test method specified in appendix VI. For the purposes of this verification procedure, the results of the test analysis shall be referred to as “C” and “D”:~~

- ~~.1 — If the results of “C” and “D” are within the repeatability ( $r$ ) of the test method, the results shall be considered valid.~~
- ~~.2 — If the results of “C” and “D” are not within the repeatability ( $r$ ) of the test method, both results shall be rejected and two new sub-samples shall be taken by the laboratory and analysed. The sample bottle should be resealed in accordance with paragraph 3.2.3 after the new sub-samples have been taken.~~

~~3.4 — If the test results of “C” and “D” are valid, and the results of “A”, “B”, “C”, and “D” are within the reproducibility ( $R$ ) of the test method then the laboratory shall average the results, which is referred to as “Y”:~~

- ~~.1 — If the result of “Y” is equal to or falls below the applicable limit required by Annex VI, the fuel oil shall be deemed to meet the requirements.~~
- ~~.2 — If the result of “Y” is greater than the applicable limit required by Annex VI, then the fuel oil as sampled fails to meet the standards required Annex VI.~~

~~3.5 — If the result of “A”, “B”, “C” and “D” are not within the reproducibility ( $R$ ) of the test method then the Administration shall may discard all of the test results and, at its discretion, repeat the entire testing process.~~

~~3.6 — The results obtained from this verification procedure are final.]~~

## **PART 2 - The “on board” fuel oil sample**

### **1 General Requirements**

1.1 The on board fuel oil sample shall be used to verify the sulphur content of the fuel oil as represented by that sample fuel at the point of sampling.

1.2 An Administration, through its competent authority, shall manage the verification procedure.

1.3 A laboratory undertaking the sulphur testing procedure given by this appendix is to have valid accreditation in respect of the test method to be used.

## 2 Verification Procedure

2.1 The oil sample shall be delivered by the competent authority to the laboratory.

2.2 The laboratory shall:

- .1 record the details of the seal number and the sample label on the test record;
- .2 record the condition of the seal on the sample as received on the test record;
- .3 reject any sample where the seal has been broken prior to receipt and record that Rejection on the test record

2.3 If the seal of the sample as received has not been broken, the laboratory shall proceed with the verification procedure and shall:

- .1 unseal the sample;
- .2 ensure that the sample is thoroughly homogenized;
- .3 draw two sub-samples from the sample; and
- .4 reseal the sample and record the new reseal details on the test record.

2.4 The two sub-samples shall be tested in succession, in accordance with the specified test method referred to in appendix V. For the purposes of this verification procedure, the results obtained shall be referred to as “S<sub>1</sub>” and “S<sub>2</sub>”:

- .1 Results “S<sub>1</sub>” and “S<sub>2</sub>” shall be recorded on the test record in accordance with requirements of the test method.
- .2 If the results of “S<sub>1</sub>” and “S<sub>2</sub>” are within the repeatability (r) of the test method, the results shall be considered valid.
- .3 If the results of “S<sub>1</sub>” and “S<sub>2</sub>” are not within the repeatability (r) of the test method, both results shall be rejected and two new sub-samples shall be taken by the laboratory and tested. The sample bottle shall be resealed in accordance with paragraph 2.3.4 above after the new sub-samples have been taken.

2.5 If the test results of “S<sub>1</sub>” and “S<sub>2</sub>” are valid, an average of these two results shall be calculated. That average value shall be referred to as “S<sub>ave</sub>” and shall be recorded on the test record:

- .1 If “S<sub>ave</sub>” is equal to or less than the applicable limit required by regulation 14, the sulphur content of the on board fuel oil as represented by the tested sample shall be ~~deemed~~ considered to meet the requirement.
- .2 If “S<sub>ave</sub>” is greater than the applicable limit required by regulation 14 but less than or equal to that applicable limit + 0.59R (where R is the reproducibility of the test method)<sup>14</sup>, the sulphur content of the on board fuel oil as represented by the tested sample shall be considered to have met the requirement.

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<sup>14</sup> defined in the test method in accordance with ISO 4259:2017-2

2.3 If “S<sub>ave</sub>” is greater than the regulation 14 applicable limit value + 0.59R, the sulphur content of the on board fuel oil as represented by the tested sample shall be considered to have not met the requirement.

Table 2. Summary of on board fuel oil sample procedure <sup>15</sup>

• On basis of Appendix V test method				
• Applicable limit %m/m: • V	• Test margin value: • W	• Result 2.5.1: • S <sub>ave</sub> ≤ V	• Result 2.5.2: • V < S <sub>ave</sub> ≤ W	• Result 2.5.3: • S <sub>ave</sub> > W
• 0.10	• 0.11	• Met the requirement	• Met the requirement	• Not met requirement
• 0.50	• 0.53			
•	•	• Result “S <sub>ave</sub> ” reported to 2 decimal places		

2.6 The results obtained from this verification procedure are final.

<sup>15</sup> Results of testing undertaken by the ship or other parties are outside the MARPOL process and hence should be consider within the given approach of the ISO 4259:2017-2 regarding recipient drawn samples.