INTERNATIONAL MARITIME ORGANIZATION

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MARINE ENVIRONMENT PROTECTION COMMITTEE
82nd session
Agenda item 5

MEPC 82/INF.2
10 June 2024
Original: ENGLISH
Pre-session public release: ☒

AIR POLLUTION PREVENTION

Information related to the global 0.50% sulphur limit (IMO 2020) and outcome of the sulphur monitoring for 2023

Note by the Secretariat

SUMMARY

Executive summary:	This document summarizes relevant information reported to IMO related to the global 0.50% sulphur limit (IMO 2020) and presents the results of the sulphur monitoring programme for 2023.
Strategic direction, if applicable:	6
Output:	6.8
Action to be taken:	Paragraph 24
Related document:	MEPC 80/INF.4

Reporting categories to be used for fuel oil data reported after 1 January 2020

1 On 1 January 2020, the global 0.50% sulphur limit (IMO 2020) came into force under regulation 14.1 of MARPOL Annex VI for fuel oils used outside Emissions Control Areas (ECAs), except in case of use of an approved equivalent means under regulation 4 of MARPOL Annex VI.

2 This document summarizes the following information related to the implementation of IMO 2020:

.1 reported Fuel Oil Non-Availability Reports (FONARs) under regulation 18.2.5 of MARPOL Annex VI in the relevant module in GISIS;

.2 reported equivalent means of compliance under regulation 4.2 of MARPOL Annex VI in the relevant module in GISIS; and

.3 results of the IMO sulphur monitoring programme for 2023.

Reported FONARs

3 The regulation 18.2.5 tab in the MARPOL Annex VI module in GISIS allows Parties to report to the Organization when a ship has presented evidence of non-availability of compliant fuel oil and allows FONARs to be uploaded to GISIS.

4 The Secretariat has been continually monitoring the number of FONARs reported to IMO since 1 January 2020. By 25 April 2024, 67 FONARs related to non-availability of compliant fuel oil with a sulphur content not exceeding 0.50% had been reported. Two FONARs were uploaded to GISIS in the last year.

Reported equivalent means of compliance

5 The regulation 4.2 tab in the MARPOL Annex VI Module in GISIS allows for a Party to MARPOL Annex VI to report on the use of Exhaust Gas Cleaning Systems (EGCS) or any other equivalent means under regulation 4.2 of MARPOL Annex VI.

6 Table 1 summarizes all the data that has been reported under the regulation 4.2 tab up until 25 April 2024. In total, 4,915 reports for 4,890 ships have been submitted to the GISIS module. The vast majority of these reports relate to the use of EGCS.

7 4,813 out of the 4,915 reports relate to ships reported using EGCS (compared to 4,194 in March 2023, 3,765 in February 2022 and 3,161 in March 2021, see documents MEPC 80/INF.4, MEPC 78/INF.4 and MEPC 76/5/2, respectively). In addition, by 25 April 2024, there were 70 reports of ships using biofuels (compared to 33 by 8 March 2023, see document MEPC 80/INF.4).

Table 1: Summary of data reported in the regulation 4.2 tab in the MARPOL Annex VI module in GISIS up until 25 April 2024

Notifications from	EGCS	LNG and fuel oil mixture	Sulphur emissions averaging scheme	Biofuel	LPG
Antigua and Barbuda	9				
Australia	2				
Bahamas	118	14			
Belgium	8				
Canada	12				
Cyprus	75	2			
Denmark	104			1	
Finland	30				
France	11				
Germany	20				
Greece	134	1			
India	8				
Italy	106				
Japan	103				
Liberia	884			6	
Lithuania	6			3	
Luxembourg				2	

Notifications from	EGCS	LNG and fuel oil mixture	Sulphur emissions averaging scheme	Biofuel	LPG
Malaysia	3				
Malta	328	1	5	8	
Marshall Islands	818	3		4	
Netherlands (Kingdom of)	96			1	
Norway	49				
Panama	775	2			3
Poland	1				
Portugal	93				
Republic of Korea	32				
Saudi Arabia	3				
Singapore	392			36	
Spain	3	1			
Sweden	10				
Türkiye	20				
United Kingdom	102				
United States	9				
Cayman Islands (United Kingdom)	9				
Faroes, Denmark	6				
Gibraltar (United Kingdom)	1			1	
Hong Kong, China	414			8	
Isle of Man (United Kingdom)	19				
Total	**4,813**	**24**	**5**	**70**	**3**

IMO sulphur monitoring programme for 2023

Background

8 In accordance with regulation 14.2 of MARPOL Annex VI and the *2020 Guidelines for monitoring the worldwide average sulphur content of fuel oils supplied for use on board ships* (resolution MEPC.326(75), hereinafter "2020 Guidelines"), the results of sulphur monitoring should be presented to a subsequent session of the Committee every year.

9 In accordance with the 2020 Guidelines, three providers of sampling and testing services, namely Lloyd's Register EMEA, Veritas Petroleum Services B.V and Viswa Lab, have been contracted by the Secretariat to provide the necessary data to calculate the worldwide average sulphur content of fuel oils.

Reporting categories to be used for fuel oil data reported after 1 January 2020

10 On 1 January 2020, the 0.50% sulphur limit came into force under regulation 14.1 of MARPOL Annex VI, i.e. fuel oils used outside ECAs shall not exceed a sulphur content of 0.50%. This, coupled with the requirements for ECAs under regulation 14.4 of MARPOL Annex VI and the provisions for the use of equivalent means under regulation 4 of MARPOL Annex VI, means that fuel oil supplied to a ship falls into one of the following three categories:

.1 fuel oil used inside an ECA;
.2 fuel oil used outside an ECA; or
.3 fuel oil used in conjunction with equivalent means.

11 In accordance with paragraph 4 of the 2020 Guidelines, the three following categories, based on sulphur content, should be used for monitoring the worldwide average sulphur contents of fuel oils:

.1 fuel oil not exceeding 0.10%;
.2 fuel oil not exceeding 0.50%, but above 0.10%; and
.3 fuel oil exceeding 0.50%.

12 The term fuel oil includes both "distillate fuel" and "residual fuel" as defined in the 2020 Guidelines. The Guidelines reflect that either distillate fuel or residual fuel may be used to meet each requirement. Furthermore, due to the use of EGCS or any other equivalent means under regulation 4 of MARPOL Annex VI, for those fuel oils reported that exceed 0.50% sulphur content, the sulphur content values reported do not represent the actual quantity of sulphur discharged to the atmosphere in the form of sulphur oxides or particulate matter.

Sulphur data for residual fuel oil

13 In 2023, as shown in annex 1 to this document, 162,083 samples were taken from a total of 119,570,277 tonnes of residual fuel oil supplied for use on board ships.

Distribution of residual fuel oil samples

14 As mentioned in paragraph 10 of the 2020 Guidelines, a graphical representation of the distribution with a breakdown of the data provided per increment of 0.10% of sulphur for sulphur content below 1.00% and per increment of 0.50% of sulphur for sulphur content above 1.00%, is shown in annex 1 to this document.

15 In terms of the sulphur contents of the tested residual fuel oils, by quantity, 1.53% (compared to 1.35% in 2022) were not exceeding 0.10%, 66.18% (compared to 69.65% in 2022) were not exceeding 0.50%, but above 0.10%, and 32.29% (compared to 29.00% in 2022) were exceeding 0.50%. As shown, the bulk of the residual fuel oils that were tested were in the range of 0.40% to 0.50% sulphur content.

Sulphur data for distillate fuel oil

16 In 2023, as shown in annex 2 to this document, 91,691 samples were taken from a total of 16,325,454 tonnes of distillate fuel oil supplied for use on board ships.

Distribution of distillate fuel oil samples

17 As mentioned in paragraph 10 of the 2020 Guidelines, a graphical representation of the distribution with a breakdown of the data provided per increment of 0.10% of sulphur for sulphur content below 1.00% and per increment of 0.50% of sulphur for sulphur content above 1.00%, is shown in annex 2 to this document.

18 In terms of the sulphur contents of the tested distillate fuel oils, by quantity, 97.58% were not exceeding 0.10%, 2.40% were not exceeding 0.50%, but above 0.10%, and 0.02% were exceeding 0.50%. As shown, the bulk of the distillate fuel oils were in the range not exceeding 0.10% sulphur content.

Average sulphur contents of fuel oils

19 For each of the three sulphur content categories the respective average sulphur content values, determined in accordance with paragraphs 8 and 9 of the 2020 Guidelines, are set out in annex 3 to this document.

20 Additionally, the quantities of fuel oil tested are divided into residual fuel oil and distillate fuel oil, and respective totals are also shown in annex 3.

21 As shown in annex 3 to this document, on the basis of tonnes of fuel oils tested, 28.41% (compared to 25.43% in 2022, 22.49% in 2021, and 17.80% in 2020) had a sulphur content exceeding 0.50%.

Yearly worldwide average sulphur contents of fuel oils and three-year rolling averages

22 In accordance with paragraph 6 of the 2020 Guidelines, yearly worldwide average sulphur content values for each of the sulphur content categories are set out in annex 3.

23 The rolling averages for each category have been determined based on three years of data reported under the 2020 Guidelines.

Action requested of the Committee

24 The Committee is invited to note the information contained in this document.

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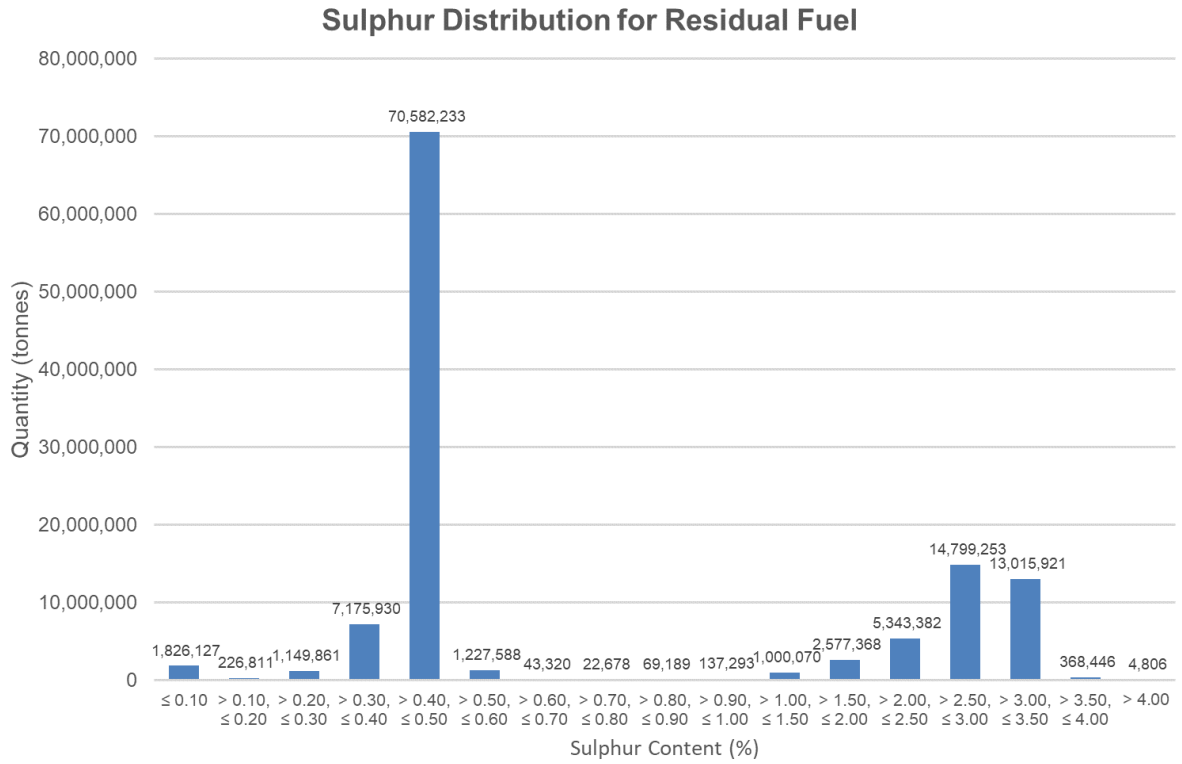
ANNEX 1

DISTRIBUTION OF RESIDUAL FUEL OIL SULPHUR CONTENT FOR 2023

Total number of samples tested : 162,083
Corresponding quantity of residual fuel oil : 119,570,277 tonnes
Distribution of sulphur content : as per graphical representation



Sulphur monitoring programme 2009-2023

Year	Document reference	Corresponding quantity of residual fuel oil (tonnes)	Number of samples tested	Tonnes per bunkering
2009	MEPC 61/4	94,323,860 tonnes	106,503	886
2010	MEPC 62/4	91,554,245 tonnes	101,894	899
2011	MEPC 64/4	87,730,775 tonnes	97,137	903
2012	MEPC 65/4/9	87,837,012 tonnes	102,113	860
2013	MEPC 67/4	84,239,352 tonnes	104,836	804
2014	MEPC 68/3/2	116,680,203 tonnes	153,719	759
2015	MEPC 69/5/7	114,344,642 tonnes	131,160	872
2016	MEPC 71/5/1	123,171,609 tonnes	143,141	860
2017	MEPC 72/5/3	121,428,910 tonnes	141,175	860
2018	MEPC 74/5/3	121,539,760 tonnes	143,311	848
2019	MEPC 75/5/9	118,963,976 tonnes	154,767	769
2020	MEPC 76/5/2	113,307,010 tonnes	137,306	825
2021	MEPC 78/INF.4	116,825,844 tonnes	136,938	853
2022	MEPC 80/INF.4	118,374,589 tonnes	141,657	836
2023	**MEPC 82/INF.2**	**119,570,277 tonnes**	**162,083**	**738**

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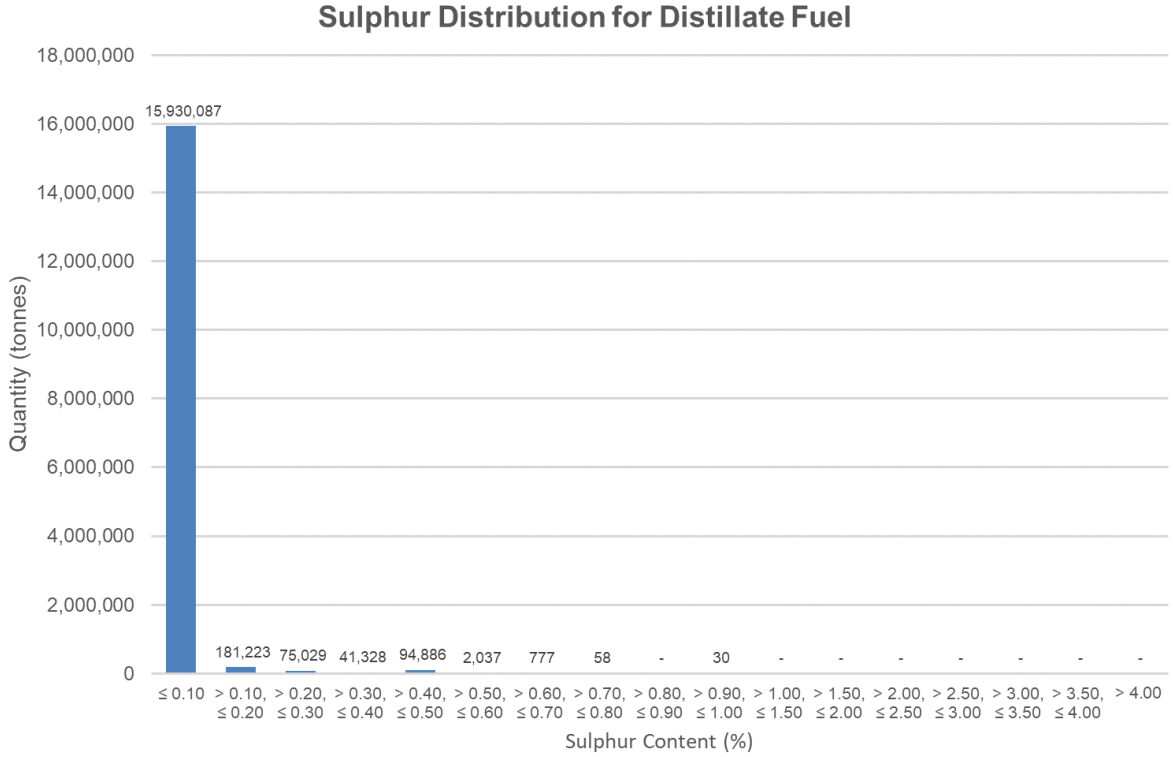
ANNEX 2

DISTRIBUTION OF DISTILLATE FUEL OIL SULPHUR CONTENT FOR 2023

Total number of samples tested : 91,691
Corresponding quantity of distillate fuel oil : 16,325,454 tonnes
Distribution of sulphur content : as per graphical representation



Sulphur monitoring programme 2010-2023

Year	Document reference	Corresponding quantity of distillate fuel oil (tonnes)	Number of samples tested	Tonnes per bunkering
2010	MEPC 62/4	2,396,849 tonnes	26,189	92
2011	MEPC 64/4	2,768,350 tonnes	25,415	109
2012	MEPC 65/4/9	3,229,380 tonnes	26,979	120
2013	MEPC 67/4	3,318,740 tonnes	26,754	124
2014	MEPC 68/3/2	4,144,945 tonnes	37,973	109
2015	MEPC 69/5/7	11,387,079 tonnes	62,555	182
2016	MEPC 71/5/1	11,362,954 tonnes	71,901	158
2017	MEPC 72/5/3	12,173,450 tonnes	72,286	168
2018	MEPC 74/5/3	12,904,924 tonnes	79,494	162
2019	MEPC 75/5/9	14,449,641 tonnes	93,034	155
2020	MEPC 76/5/2	16,339,873 tonnes	84,373	194
2021	MEPC 78/INF.4	15,050,370 tonnes	85,097	177
2022	MEPC 80/INF.4	16,671,955 tonnes	91,116	183
2023	**MEPC 82/INF.2**	**16,325,454 tonnes**	**91,691**	**178**

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ANNEX 3

AVERAGE SULPHUR CONTENTS OF FUEL OILS FOR 2023

Sulphur monitoring programme 2023

		Sulphur content categories			Totals
		≤ 0.10%	> 0.10 to ≤ 0.50%	> 0.50%	
Residual Fuel Oil	Quantity (millions of tonnes)	1.83	79.13	38.61	119.57
	Number of samples	3,373	120,062	38,648	162,083
Distillate Fuel Oil	Quantity (millions of tonnes)	15.93	0.39	0.00	16.33
	Number of samples	89,845	1,817	29	91,691
Total Fuel Oil	Quantity (millions of tonnes)	17.76	79.53	38.61	135.90
	Number of samples	93,218	121,879	38,682	253,779
	Average sulphur content (%)	**0.06**	**0.45**	**2.67**	

Yearly worldwide average sulphur contents of fuel oils and three-year rolling averages

Year	Document Reference	Average yearly sulphur content in each category			Three-year rolling average sulphur content in each category		
		≤ 0.10%	> 0.10 to ≤ 0.50%	> 0.50%	≤ 0.10%	> 0.10 to ≤ 0.50	> 0.50
2021	MEPC 78/INF.4	0.07	0.45	2.70			
2022	MEPC 80/INF.4	0.06	0.46	2.73	**0.06**	**0.45**	**2.70**
2023	**MEPC 82/INF.2**	**0.06**	**0.45**	**2.67**			