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MARPOL CIRCULAR

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TO: The Fleet

Subject: LS Fuel Oil Requirements in Emission Control Area

Ships face lower sulphur fuel requirements in emission control areas from 1 January 2015

Ships trading in designated emission control areas will have to use on board fuel oil with a sulphur content of no more than 0.10% from 1 January 2015, against the limit of 1.00% in effect up until 31 December 2014.

The stricter rules come into effect under the International Convention for the Prevention of Pollution from ships (MARPOL) Annex VI (Regulations for the Prevention of Air Pollution from Ships), specifically under regulation 14, which covers emissions of Sulphur Oxides (SOx) and particulate matter from ships. These requirements were adopted in October 2008 by consensus and entered into force in July 2010.

The emission control areas established under MARPOL Annex VI for SOx are: the Baltic Sea area; the North Sea area; the North American area (covering designated coastal areas off the United States and Canada); and the United States Caribbean Sea area (around Puerto Rico and the United States Virgin Islands).

Outside the emission control areas, the current limit for sulphur content of fuel oil is 3.50%, falling to 0.50% m/m on and after 1 January 2020. The 2020 date is subject to a review, to be completed by 2018, as to the availability of the required fuel oil. Depending on the outcome of the review, this date could be deferred to 1 January 2025.

Ships may also meet the SOx requirements by using gas as a fuel or an approved equivalent method, for example, exhaust gas cleaning systems or “scrubbers”.

Read more:

[Annex VI regulation on SOx emissions.](#)

[Frequently Asked Questions about sulphur limits in emission control areas in 2015.](#)

Sulphur oxides (SOx) – Regulation 14

SOx and particulate matter emission controls apply to all fuel oil, as defined in regulation 2.9, combustion equipment and devices onboard and therefore include both main and all auxiliary engines together with items such as boilers and inert gas generators. These controls divide between those applicable inside Emission Control Areas (ECA) established to limit the emission of SOx and particulate matter and those applicable outside such areas and are primarily achieved by limiting the maximum sulphur content of the fuel oils as loaded, bunkered, and subsequently used onboard. These fuel oil sulphur limits (expressed in terms of % m/m – that is by weight) are subject to a series of step changes over the years, regulations 14.1 and 14.4:

Outside an ECA established to limit SOx and particulate matter emissions	Inside an ECA established to limit SOx and particulate matter emissions
4.50% m/m prior to 1 January 2012	1.50% m/m prior to 1 July 2010
3.50% m/m on and after 1 January 2012	1.00% m/m on and after 1 July 2010
0.50% m/m on and after 1 January 2020*	0.10% m/m on and after 1 January 2015

* depending on the outcome of a review, to be concluded in 2018, as to the availability of the required fuel oil, this date could be deferred to 1 January 2025.

The ECA established are:

1. Baltic Sea area – as defined in Annex I of MARPOL (SOx only);
2. North Sea area – as defined in Annex V of MARPOL (SOx only);

3. North American area (entered into effect 1 August 2012) – as defined in Appendix VII of Annex VI of MARPOL (SO_x, NO_x and PM); and
4. United States Caribbean Sea area (expected to enter into effect 1 January 2014) – as defined in Appendix VII of Annex VI of MARPOL (SO_x, NO_x and PM).

Most ships which operate both outside and inside these ECA will therefore operate on different fuel oils in order to comply with the respective limits. In such cases, prior to entry into the ECA, it is required to have fully changed-over to using the ECA compliant fuel oil, regulation 14.6, and to have onboard implemented written procedures as to how this is to be undertaken. Similarly change-over from using the ECA compliant fuel oil is not to commence until after exiting the ECA. At each change-over it is required that the quantities of the ECA compliant fuel oils onboard are recorded, together with the date, time and position of the ship when either completing the change-over prior to entry or commencing change-over after exit from such areas. These records are to be made in a logbook as prescribed by the ship's flag State, in the absence of any specific requirement in this regard the record could be made, for example, in the ship's Annex I Oil Record Book.

The first level of control in this respect is therefore on the actual sulphur content of the fuel oils as bunkered. This value is to be stated by the fuel oil supplier on the bunker delivery note and hence this, together with other related aspects, is directly linked to the fuel oil quality requirements as covered under regulation 18 – see below. Thereafter it is for the ship's crew to ensure, in respect of the ECA compliant fuel oils, that through avoiding loading into otherwise part filled storage, settling or service tanks, or in the course of transfer operations, that such fuel oils do not become mixed with other, higher sulphur content fuel oils, so that the fuel oil as actually used within an ECA exceeds the applicable limit.

Consequently, regulation 14 provides both the limit values and the means to comply. However, there are other means by which equivalent levels of SO_x and particulate matter emission control, both outside and inside ECA, could be achieved. These may be divided into methods termed primary (in which the formation of the pollutant is avoided) or secondary (in which the pollutant is formed but subsequently removed to some degree prior to discharge of the exhaust gas stream to the atmosphere). Regulation 4.1 allows for the application of such methods subject to approval by the Administration. In approving such equivalents an Administration should take into account any relevant guidelines. As of October 2010 there are no guidelines in respect of any primary methods (which could encompass, for example, onboard blending of liquid fuel oils or dual fuel (gas / liquid) use). In terms of secondary control methods, guidelines (MEPC.184(59)) have been adopted for exhaust gas

cleaning systems which operate by water washing the exhaust gas stream prior to discharge to the atmosphere, in using such arrangements there would be no constraint on the sulphur content of the fuel oils as bunkered other than that given the system certification.

FREQUENTLY ASKED QUESTIONS ABOUT SULPHUR LIMITS IN EMISSION CONTROL AREAS.

- **What are the new requirements relating to sulphur emissions?**

Ships trading in designated emission control areas will have to use fuel oil on board with a sulphur content of no more than 0.10% from 1 January 2015, against the limit of 1.00% in effect up until 31 December 2014.

The interpretation of “fuel oil used on board” includes use in main and auxiliary engines and boilers. Exemptions are provided for securing the safety of the ship or saving life at sea, or as a result of damage to a ship or its equipment. Also, provisions for trials for ship emission reduction and control technology research provide for a time limited exemption.

- **What treaty do these new rules come under?**

The stricter rules come into effect under the International Convention for the Prevention of Pollution from ships (MARPOL) Annex VI (Regulations for the Prevention of Air Pollution from Ships), specifically under regulation 14, which covers emissions of Sulphur Oxides (SO_x) and particulate matter from ships. These requirements were adopted in October 2008 by consensus and entered into force in July 2010.

- **Where are the emission control areas referred to?**

The emission control areas established under MARPOL Annex VI for SO_x are: the Baltic Sea area; the North Sea area; the North American area (covering designated coastal areas off the United States and Canada); and the United States Caribbean Sea area (around Puerto Rico and the United States Virgin Islands).

- **How can ships meet the new requirements?**

Ships can meet the new requirements by using low sulphur fuel oil such as Marine Gas Oil (sometimes called distillates). An increasing number of ships are also making use of gas as a fuel as this contains no sulphur and when ignited leads to negligible Sulphur Oxide emissions. This has been recognised in the development by IMO of the International Code for Ships using Gases and other Low Flashpoint Fuels (IGF Code), which has been approved in principle and is expected to be adopted in 2015.

Under “Equivalent” provisions also adopted in 2008, ships may meet the SO_x requirements by using approved equivalent methods, such as an apparatus or piece of equipment (for example, Exhaust Gas Cleaning Systems or scrubbers”, which “clean” the emissions before they are released into the atmosphere). In this case, the equivalent arrangement must be approved by the ship’s Administration (the flag State) that is a State Party to MARPOL Annex VI.

- **What is the best way to meet the requirements?**

It is up to the ship operator to decide. If an alternative method is used, this has to be approved by the Administration (flag State) that is a State Party to MARPOL Annex VI.

- **What controls will there be?**

Flag States must issue an International Air Pollution Prevention (IAPP) Certificate to the ship. This includes a section to state that the ship uses fuel oil with a sulphur content that does not exceed the applicable limit value as documented by bunker delivery notes; or uses an approved equivalent arrangement.

Ships taking on fuel oil for use on board should have a bunker delivery note, which states the sulphur content of the fuel oil supplied. Samples may be taken for verification.

Port and coastal States can use port State control to verify that the ship is compliant. They could also use surveillance, for example air surveillance to assess vessel smokestack plumes, and other techniques to identify potential violations.

- **What sanctions will there be for not complying?**

Sanctions are established by individual Parties to MARPOL, as flag and port States. There is no established fine or sanction set by IMO – it is down to the individual State Party.

- **Can switching fuel cause problems?**

If a ship is switching fuel as it goes into an emission control area then this needs to be done safely and cleanly, to avoid any technical problems and to ensure that the emission limits are not breached inside the ECA.

MARPOL Annex VI regulation 14.6 requires ships using separate fuel oils to carry a written procedure showing how the fuel oil change-over is to be done, allowing sufficient time for the fuel oil service system to be fully flushed of all fuel oils exceeding the applicable sulphur content prior to entry into an Emission Control Area. The volume of low sulphur fuel oils in each tank as well as the date, time, and position of the ship when any fuel-oil-change-over operation is completed prior to the entry into an Emission Control Area or commenced after exit from such an area, must be recorded in such log- book as prescribed by the Administration.

Industry organizations have issued guidance notes on the need for care and attention when switching fuel, to avoid any potential problems that could result from fuel switching.

- **How many Parties does MARPOL Annex VI have?**

Currently, MARPOL Annex VI has 77 Parties, representing 94.77% of world merchant shipping tonnage.

- **What about outside these ECAS?**

Outside the emission control areas, the current limit for sulphur content of fuel oil is 3.50%, falling to 0.50% m/m on and after 1 January 2020. The 2020 date is subject to a review, to be completed by 2018, as to the availability of the required fuel oil. Depending on the outcome of the review, this date could be deferred to 1 January 2025.