Marpol Annex VI – Challenges in operating on low sulphur fuel

Background
International regulations to control harmful emissions from ships’ exhausts entered into force on 19 May 2005. MARPOL Annex VI contains provisions allowing special "SOx Emission Control Areas" (SECAs) to be established with more stringent controls on sulphur emissions. In these areas, the sulphur content of fuel oil used onboard ships must not exceed 1.5% m/m. Alternatively, ships must fit an exhaust gas cleaning system or use other methods to limit SOx emissions. The regulation requires any such alternative methods to be approved by the relevant flag state. Sanctions for Marpol violations are becoming increasingly severe around the world, and there is no reason to believe Annex VI will not be treated to the same scrutiny.

The regulation allowed for a 12-month period from the date of entry into force before the limits within a SECA could be enforced, and they will thus be enforced from 19 May 2006. The Baltic Sea Area is the first area designated as a SECA under the Protocol and will permit a maximum 1.5% sulphur content in any fuel used onboard. In 2007, the second SECA, covering the North Sea and English Channel, will be come into force, requiring similar sulphur levels.

The effects of low sulphur fuel
There are several implications of operating on low sulphur fuel or altering between high and low sulphur fuels. The issues listed below are some of the most common challenges that must be considered by the shipowners and operators to avoid problems related to operation and maintenance of the ship engines.

Fuel related issues
- Incompatibility of different fuels
- Combustion characteristics and impact on engine deposits and wear
- Varying fuel viscosity, and impact on fuel injection
- Low sulphur fuel having less anti-wear capability
- Supply and storage for low sulphur fuels

Lube oil related issues
- Matching cylinder oil BN fuel sulphur level across operating conditions
- Possible additional storage tanks
- Cylinder lubrication monitoring
- Cylinder oil feed rate

Operations related issues
- Monitoring sulfur content in fuel
- Engine load
- Cylinder Liner Temperature
- Water content in scavenge air

Recommendations
Shipowners and operators should thoroughly consider all undesired effects of operating on low sulphur fuel. It is recommended that the engine makers and the lube oil suppliers are contacted to obtain their detailed instructions and guidelines. Specifically worded charterparty clauses regarding bunkers supplied by Charterers are important to ensure that any problems are avoided.

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