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Suppliers must play a critical role in driving compliancy

Switching to low-sulphur fuels poses technical challenges. Bunkerworld asked Steffen Kortegaard, Technical Director, OW Bunker to outline what shipowners need to know.

The main concerns about the build-up to new sulphur regulations has been whether there is enough supply in the industry to meet the increase in demand for 1.0% sulphur fuel oil following the revision to MARPOL Annex VI, which comes into force in ECAs from 1 July 2010.

From OW Bunker's perspective, supply is not an issue, and we are confident of providing customers with as much product as they need.

Where customers should be concerned is in relation to the technical issues that many shipowners and operators face when switching from high-sulphur fuel oil, to low-sulphur fuel oil.

The recent statistics from California are compelling. Following Californian Air Resources Board's July 2009 low sulphur regulation, loss of propulsion incidents skyrocketed in 2009 moving from an average of 23.6 incidents per year for all of California between 2004 and 2008 to 67 in 2009.

It is a real concern for shipowners and operators who are under enough pressure as it is to increase efficiencies and reduce costs; the last thing they need is the worry and cost of downtime associated with failing to cope with the many operational challenges of switching fuels. Loss of propulsion, engine failure, filter blockages, damage to auxiliary pumps are just a few of the hazards that come as part of the 'compliancy package'.

Responsible role

But these incidents can be avoided if a number of critical steps are observed, and fuel suppliers take on a more responsible role.

Firstly, shipowners and operators must view low sulphur legislative compliance with the same significance, and as part of a holistic risk management strategy. There must be an understanding of an appropriate fuel procurement strategy depending on a vessel's trading routes, as well as the 'green' profile of the shipowner's brand. Only once this is established, should they go through the process of understanding the potential operational challenges associated with switching fuels.

From a technical perspective, there is much to consider: it requires a change in the relationship between the fuel supplier and the shipowner/operator, moving from a supplier-based relationship to one of partnership, based on a mutual understanding of the challenges involved, and a focus on the effective implementation of preventative solutions. This requires a change in mindset, where the customer and the success of their operations are put first; the supplier must understand that their success is directly influenced by the success of their customers.

Secondly, suppliers must have a total knowledge of their customer's business and the challenges they face. It is about providing knowledge, expertise and counsel that add tangible value to their operations. It is not just about supplying the physical product, a philosophy that we have long since advocated at OW Bunker, but the drive towards embracing a more consultative and collaborative approach to working with customers.

Once this relationship is created, the responsibility that is required from both parties to achieve low sulphur compliance is wholly achievable. It is understandable to take a defensive position when there are operational issues; blaming quality is easy, but in the majority of cases, it is not the problem. Ultimately, switching to low-sulphur fuels and distillates is a complex issue and it is up to suppliers who have a deep technical knowledge of the product to work with the shipowners and operators to manage the 'switching' process.

Engine risk

Understanding the risk and potential impact on the performance of diesel engines and boilers is central to instigating appropriate preventative measures. For example, when changing fuels, the delivery pump is capable of a pressure of more than 400 bar; however, the tolerance between the barrel and the plunger is very fine where the maximum change in temperature can be no more than 2 degrees C. The engine fuel pump is also designed for high-viscosity fuel oil for the majority of hours that it is in operation.

Therefore, the challenge when switching to a low-viscosity fuel oil is the risk of excessive wear, as well as ensuring that the appropriate injection pressure is maintained in the fuel pump. When the pumps are worn, the internal leakage can increase to a level where starting the engine is virtually impossible, because the correct pressure cannot be achieved.

Viscosity and appropriate lubrication is a critical element of successfully switching to low-sulphur fuel grades. Indeed, MAN Diesel recommends that prior to using distillate fuels with less than 0.05% SOx, the lubricity is tested by an HFRR (High-Frequency Reciprocating Rig) test. This can be performed by an independent laboratory, according to ISO 121156-1 standards, which dictates that the maximum wear scar diameter should not exceed 460 mm.

The low viscosity of distillates and low-sulphur fuel grades can also impact technical equipment such as gearless screw spindle pumps, which can suffer serious wear and damage. This can be a significant safety problem for tankers producing inert gas while operating their cargoes. Auxiliary engines designed for heavy fuel oil operation might also face problems due to the discrepancy between sulphur content and lube oil alkalinity. It is therefore critical that shipowners and operators consult their lube oil suppliers, as the BN number should correspond to the new fuel conditions.

Cost savings

These are just a few of the possible challenges. But identifying potential problems before they happen and implementing appropriate solutions are central to minimising downtime and saving costs. From ensuring that the fuel pumps are good quality and appropriately cooling the gas oil, to implementing the right training procedures for crews, or ensuring that there is a good length of time between changing the fuel oil and gas oil and analysing the filter pressure, as well as only using duplex filters and making sure that there is compatibility with the blended fuels.

Steffen Kortegaard.

The same principles of risk should be applied to boilers: the potential for a low flash point, filter blockages, or damage to auxiliary pumps. Similarly, there needs to be a knowledge of the potential solutions: never taking on bunkers where the oil cannot be stored with a 15 degrees C safety margin; fitting a flame screen onto the rotary cap burner; fitting a low heat exchange steam injection burner; ordering fuel oil and distillates with a high enough flash point; ensuring that the cooler is fitted with sufficient capacity in the low viscosity line; and the list goes on.

When a shipowner's primary goal is servicing their customers and getting goods where they need to be as efficiently as possible, worrying about technical and operational issues associated with legislative compliance can be a costly distraction. And while the supply of fuel is viewed as a commodity market, it does not mean that suppliers should just abandon their customers once the product is delivered. If there is an opportunity to add value based on the knowledge and technical understanding of the product, and to provide advice and counsel that enables shipowners and operators to maintain and improve their levels of efficiency, and increase their competitive advantage, it must be taken.

This requires a change in the relationship and a shift in mindset where partnership, responsibility and collaboration are embraced, and most importantly, where the customer is put first. ■

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