

Owners need accurate monitoring come 2020

As the 2020 0.5% sulfur cap on marine fuel looms, shipowners and operators are left with a short window to decide which path they will take in complying with MARPOL's Annex VI regulations.*

Although the reduction in the sulfur content of marine fuel from the current 3.5% has been known since October, 2016, many within the industry are adopting a wait and see approach.

To ensure compliance, shipowners must decide between the three main commonly accepted compliance options – switching from HFO to distillates, using LNG as a marine fuel, or installing exhaust gas emission cleaners (scrubbers).

There are benefits and disadvantages to each, with the size and age of vessel impacting on suitability. LNG still needs significant investment in infrastructure and bunkering standards and is primarily suited for newbuildings. LNG installation also requires substantial upfront capital investment, which is unlikely to be an issue for major operators, but might influence smaller companies.

Distillate, or distillate-based low sulfur fuel, is expected to be the most widespread option, although its future cost and availability is unknown. There are also concerns about the commingling characteristics of blended fuels and the impacts on engines.

Scrubbers could be an attractive compliance option that affords the owner/operator the opportunity to continue to burn lower cost HFO. Scrubbers are a costly capital expenditure, with installation costs ranging from \$2 mill - \$6 mill per unit. However, the wide spread between the price of HFO and the more expensive MGO means that the cost of installing scrubbers could be recouped in just a few years.

Conversely, estimates tagging the fuel spread between HFO and distillates post 2020 range between \$150 and \$400 per tonne depending upon the port, according to Platts and Bloomberg data, which will not be cost effective for many shipowners.

According to Clarkson's Research, the number of vessels reported to be fitted with scrubbers has risen to 240 as of 1st December, 2017. The sentiment among many in the industry is that scrubbing will play a significant role in meeting post-2020 emissions regulations standards.

About a third of commercial shipping will install a scrubber system and will continue to burn sulfur fuel oil by 2030, according to a recent report by naval architecture and engineering consultants, Foreship.

Well suited

Tankers are well suited to scrubber technology, installed either inline or outside the funnel. Indeed, BP has already installed scrubbing technology on two LR2s, and scrubber systems will be installed on seven Inventor Chemical Tankers (ICT) vessels built between 2015 and 2017.

It is crucial for shipowners that they take the best option for their vessels and operations to ensure compliance with the regulations. For those looking to scrubbers as a solution, they will need to fully understand both the regulatory and operational implications, and will need accurate monitoring to ensure compliance with associated regulations.

Wet scrubbers use wash water to 'clean' emissions before they are released into the atmosphere. It is this water that must be accurately monitored at all times to avoid discharges that may exceed regulations. If wash water monitoring is not accurate, owners are risking significant fines or even detention.

For example, Chelsea Technologies Group's (CTG) Sea Sentry scrubber wash water monitoring system can measure the required parameters of water in closed loop scrubbers, providing accurate data that proves compliance with wash water regulations.

Sea Sentry monitors both the water inlet

and outlet of wet exhaust gas scrubber systems. It analyses wash water to ensure that it is compliant with environmental regulations, which reduce potentially high levels of contamination in exhaust gas scrubber wash water discharge.

Closed loop scrubber systems present a unique challenge when monitoring water as the recirculation process darkens the water, making it difficult to obtain an accurate PAH measurement.

It is by adapting the monitoring process to not only measure the turbidity and absorbance levels, but to apply these values as a correction to the PAH measurements, that accurate readings can be taken.

It is essential that crews have a thorough understanding of the regulations, monitoring procedures, and the analysis and interpretation of the data. CTG works closely with shipowners, the leading scrubber manufacturers and the Exhaust Gas Cleaning System Association (EGCSA) to provide them with the knowledge they need to prove compliance under the IMO criteria.

Sea Sentry is certified by DNV-GL and ClassNK and is a solution, which measures the polycyclic aromatic hydrocarbon, absorbance, turbidity (to ISO 7027: 1999), temperature and pH of scrubber washwater.

The installation of scrubbers will allow tanker operators to continue using existing HFO and benefit from the anticipated spread between the cost of HFO and distillates. But with increasing environmental regulation, accurate monitoring will be essential to provide operators with confidence in the reliability and accuracy of their systems to remain compliant and preserve market opportunities.

**This article was written by Dr Brian Phillips, Managing Director, Chelsea Technologies Group.*