

MARPOL emission controls (Regulation 14)

The International Convention for the Prevention of Pollution from Ships (MARPOL) will apply new controls in 2015 in the ongoing quest for improved air quality

GERRY HERMAN REPORTS



THE INTERNATIONAL MARITIME Organisation (IMO) is the United Nation's specialised agency with responsibility for shipping. IMO operates through a number of committees, including the Marine Environment Protection Committee (MEPC), which deals with the prevention of pollution from ships.

It has been long established that Sulphur Oxides (SOx) and Particulate Matter (PM) emissions have a detrimental effect on human health. Over the years these pollutants have

been subject to increasingly stringent controls in shore side industry and transport applications. In January 2011 EU directive 2009/30/EC introduced new standards for Non Road Mobile Machinery (NRMM) and Marine Diesel used in Inland Waterways and Recreational Craft when Not at Sea.

This legislation reduced the sulphur content in these arenas to 10ppm (0.001%). Sulphur is naturally present to some degree in all crude oils. During the refining process this

Many superyacht operators are looking to secure fuel prices

sulphur is distributed somewhat unevenly throughout range of products. The residual fraction will retain most but significant amounts of sulphur can still be found in the distillate products. Due to the fact that residual fuels have comparatively high sulphur content, it is logical to apply some similar degree of control to sea going shipping; a healthy and sensible approach to the overall 'green' quest for improved air quality.

Regulation 14 of MARPOL Annex VI controls SOx and PM emissions through limits on

the maximum sulphur content of the fuel oils used. These limits vary depending on where vessels are operating. Allowable levels of emissions are lower in regions termed Emission Control Areas (ECAs). On 1 January 2015, the SOx emissions limit requires all vessels operating within defined ECAs to use fuel containing no more than 0.10% sulphur or to operate with exhaust gas scrubbing systems to limit emissions.

The ECAs are the Baltic Sea, North Sea, North American area and United States Caribbean Sea.

More specifically these areas are defined as:

The Baltic Area

The Baltic sea proper with the Gulf of Bothnia, the Gulf of Finland and the entrance to the Baltic Sea bounded by the parallel of the Skaw in the Skagerrak at 57°44'8"N.

The North Sea Area

The North Sea proper including the seas therein with the boundary between:

- i) The North Sea southwards of latitude 62°N and eastwards of longitude 4°W.
- ii) The Skagerrak, the southern limit of which is determined east of the Skaw by latitude 57°30'N.
- iii) The English Channel and its approaches eastwards of longitude 5°W and northwards of latitude 48°44'8"N.

The North American and United States Caribbean Sea Emission Control Areas are not

so easy to describe but are defined by a list of coordinates forming a line surrounding its three constituent areas: the Pacific coast, the Atlantic and Gulf of Mexico coast, and the Hawaiian Islands. These coordinates create a line 200 nautical miles from the coastline.

Further ECAs seem likely for Norway and Japan and possibly for the Mediterranean.

While this new regulation will have no direct operating impact on superyachts, which already run on marine gas oil (MGO), it will impact on commercial shipping. All vessels operating within the ECAs will be required to burn low sulphur fuel containing no more than 0.10% sulphur by weight. The sulphur limit within the ECAs since July 2010 has been 1.00% so this is a considerable reduction.

The challenges for the commercial shipping fleet do not end with the 2015 ECA regulations. Reductions in allowable sulphur content in fuels in all other sea areas also are set to reduce under Regulation 14.1.

Outside ECAs the maximum sulphur limits are currently 3.50% but by January 2020 this is set to reduce to 0.50%. However, this is subject to review for possible postponement to 2025.

Forward planning

The impact of the upcoming changes to the superyacht operator can be mitigated by forward planning and working with fuel suppliers to guarantee fuel supply.

The very fact that the commercial fleet will be bunkering and burning greater amounts of lower sulphur distillate (MGO) will cause pressure throughout the supply chain. The demand generated by the merchant vessels that will be forced to comply with the changes will significantly increase the amount of low sulphur fuel required. The

short-term result is very likely to be an initial rise in the price of MGO, a factor that will financially affect the superyacht fleet.

Merchant fleet operators currently burning heavy fuel oil (HFO) or intermediate fuel oil (IFO) who will be forced to bunker MGO will suffer a direct impact to operating costs in that the price differential between heavy fuel and distillate which is likely to be around \$300 a tonne more expensive.

Danish freight operator DFDS Seaways and Sweden-based Stena Line are both predicting that the new legislation will raise European ferry freight rates by around 15%. Many companies expect to recover these costs by passing them onto customers by way of a low sulphur surcharge. British operator P&O Ferries believes that the increased charges may give incentive for freight customers to turn to other modes of transport, such as cargo trucks. This could benefit Eurotunnel as its truck shuttle services are not affected by the low-sulphur rules and the commercial advantage could generate new business for them.

Where MGO has been in short supply or unobtainable some operators have already resorted to using EN590 road diesel in contravention of The Safety of Life at Sea (SOLAS) directive of the IMO.

MGO should have a flash point no less than 60°C i.e. the lowest temperature at which fuel can vaporise to form an ignitable mixture in air. Road diesel however has a lower flash point of 55°C making it more volatile and potentially dangerous. Many suppliers around the Mediterranean supply road diesel with this lower flash point so ships' engineers need to be assiduous when checking the fuel specifications before bunkering. The operator's insurance policy could be

invalidated by use of lower flash point fuels.

Three simple steps while ordering and receiving fuel could avoid this problem.

1. When ordering bunkers, state clearly what you need, buy it from a reputable source and document that order.

2. Ensure a properly completed Bunker Delivery Note (BDN) is supplied and retain it for three years.

3. Continuous sampling during delivery is recommended, or at the very least samples should be obtained directly from the truck or barge. IMO guidelines recommend two samples should be obtained and placed in clean 400ml bottles, sealed and labelled. One sample for analysis either onboard or sent to a laboratory and another to be retained onboard for at least a year.

Many superyacht operators are looking to secure future price and guaranteed continuation of supply by the use of fixed priced agreements (FPA) with their fuel suppliers. This simple form of hedging could be attractive to management companies and charter fleets who could then offer it to all yachts under their operating umbrella.

The sulphur naturally present in distillate fuels, even at low levels, can act as a biostat helping to inhibit the growth or reproduction of hydrocarbon-utilising microorganisms. Operating on even lower sulphur fuels creates engineering challenges onboard. Changes to biodiesel

and sulphur levels in modern bunker fuels are rapidly increasing the likelihood of encountering microbiological fuel contamination, also known as 'the diesel bug'.

Obtaining fuel from reputable, trusted suppliers and rigorous onboard fuel husbandry regimes such as fuel tank water monitoring and draining and regular fuel testing can go a long way to eliminating this problem. Treating the problem early once encountered is preferable to prophylactic treatment of the fuel tanks.

Biocides are expensive, hazardous to handle and unless the dosage rate is continuously monitored over or under application of treatment are both potential problems. Too little and the possibility of encouraging resistant strains of organisms exists. Over treating can lead to engine operating problems and a build-up of sludge in the tank bottoms, eventually causing filter and fuel system problems.

The drive for improved air quality will continue to provide challenges for the maritime community in the years to come. Supply shortages and increasing price of low sulphur distillate fuels may be apparent as the commercial operators demand a greater amount of MGO than previously. Superyacht operators, while not directly impacted by the January 2015 regulation changes, need to keep abreast of legislation to ensure an uninterrupted, high quality and cost efficient fuel supply. **SB**

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CONIDIA IS AN internationally recognised organisation within the Bioscience sector. The Fuelstat range of rapid testing technologies for the detection of microbial contamination in light distillate hydrocarbon fluids (specifically diesels

and kerosene) can be used throughout the fuel supply chain. Test capability applies in the aviation, marine and land environments, wherever kerosene or diesel is used, stored or transported.

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