

# Critical mass

The mandatory use of mass flow meters for heavy fuel oil deliveries in the Port of Singapore is aimed at increasing the transparency and efficiency of bunkering operations.

**Rhys Berry** examines the effectiveness of the measure and asks whether more ports could follow suit

Introduced at the beginning of 2017, the Maritime and Port Authority of Singapore's (MPA) requirement for the use of mass flow meters (MFM) in heavy fuel oil deliveries has been widely expected to enhance transparency in the bunkering process as well as improve operational efficiency. All MFMs are calibrated in accordance with ISO/IEC 17025 requirements, and all MFM systems onboard bunker tankers are evaluated and approved by MPA before they are allowed to be used in Singapore. The integrity of the systems themselves has been broadly welcomed and acknowledged. However, concerns have been expressed over the potential for MFM systems to be compromised, perhaps through circumvention, and this was perhaps borne out in March when it emerged that the MPA had temporarily suspended the harbour craft licences of five bunker tankers belonging to a Singapore-based bunker supplier.

'During one of our checks, we found irregularities with the piping fixtures of five bunker tankers,' a MPA spokesperson told *Bunkerspot* at the time.

Unsurprisingly, the MPA issued swift and forceful response, stating that it 'will not hesitate to take action against any bunkering malpractices'. It also threatened to suspend or cancel the licences of operators who contravene the terms of their agreement. Investigations into this incident are still ongoing so further details of how the MFM system was perhaps bypassed are expected to be revealed in due course.

However, while many involved in the industry would have expected certain issues to crop up, the general consensus has been that the mandatory measure has been a positive step for the port and for the bunker industry as a whole. Carrying out bunker deliveries with MFMs invariably shaves precious time off the operation, thus benefitting both par-

ties: reduced port stay time for the receiving vessel; increased commercial potential for the supplier; and less likelihood of becoming embroiled in costly legal disputes for both sides.

Speaking to *Bunkerspot* prior to the incident in Singapore, one European-based ship operator admitted to being 'a bit sceptical' about the introduction of mandatory MFM use adding that they were not convinced 'it would make sure that all quantity issues will be solved at delivery'. These comments turned out to be prescient.

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While Paul van Breemen, Bunker Manager at Norway-based Kristian Gerhard Jebsen Skipsrederi AS, does not share the scepticism of his European colleague, he does believe that the recent incident is a timely reminder that MFM use will not necessarily guarantee the veracity of a bunker delivery.

'It could show that [MFMs] could be potentially manipulated but I'm sure the MPA are taking control of the situation.'

However, van Breemen notes that: 'We've always specified in our enquiries that mass flow [measurement] would be the preference because it cuts out a lot of the arguing, disputes and the wasting of time. It seems to be a very clear and fair way of doing [the bunker delivery].'

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world, especially ARA where they're seeing an increase in quantity disputes.'

Looking beyond the Singapore market, the use of MFMs is beginning to gain traction in other parts of the world. In January, for example, the Bomin Group announced it had time-chartered two new bunker barges in the ARA region each with a Coriolis Mass Flow Meter installed 'to guarantee customers receive the quantity of products that they order, and to drive further operational efficiencies'.

In southern Europe, CEPESA announced

in October 2016 it was to become the first bunker supplier in the Strait of Gibraltar with MFMs installed on all of its vessels. The Spanish-owned company installed and certified Endress + Hauser Promass flowmeters on two of its barges, and within the coming months it will be available on its entire fleet in the Bay of Algeciras. CEPESA also plans to extend this system to its supplies in other ports, such as Barcelona, Las Palmas, Tenerife, Huelva and Gibraltar.

'We decided to go on with the project, basically because it increases our connection and credibility with customers, says Daniel de Miguel, Head of Operations and Quality for CEPESA Bunker.

Notably, the use of MFM technology has significantly reduced discussions and mistakes, says de Miguel.

'Everything is running smoothly,' says de

Miguel. 'Chief engineers, captains, inspectors – everybody is really happy with how the mass flow meter is calculating supply. Big customers such as Hapag-Lloyd, CMA and Maersk in Algeciras and Gibraltar are really happy.'

Despite the positive reception, de Miguel cannot see Algeciras or Gibraltar making MFMs obligatory.

'In terms of mandatory regulations, you need a port authority with enough resources and mandatory instructions. In the case of Singapore, this is a fact. They are legally allowed to have different regulations and to create different legal scenarios for their own port.'

As an example, de Miguel highlights Algeciras, a publically owned port which has no legal jurisdiction to implement such a requirement. Gibraltar has more autonomy but de Miguel is not convinced.

'In our opinion, we don't see that any port authority will go on the same basis [as Singapore]. The first port [for bunkering] in the world is Singapore and the second is Fujairah and frankly speaking we don't think Fujairah will follow.'

Like Singapore, the Emirati port of Fujairah is a global bunker hub and is as well-placed to introduce the mandatory use of MFMs as any. In June 2016, Gulf Petrol Supplies L.L.C (GPS Bunkers) claimed to be the first physical supplier in the Middle East to use MFMs, having fitted an Endress + Hauser system onboard its 6,456 dwt barge *FNSA 10*. The company is said to be mulling another MFM, this time onboard its 6,472 DWT *FNSA 11* vessel. Four months later, Chemoil Middle East DMCC followed suit, announcing that its three time-chartered and owned barges in Fujairah had been equipped with Endress + Hauser MFMs systems that meet Singapore's TR48 standard.

'Faster turnarounds and the elimination of quantity disputes will offer major value and benefits to our clients,' said Henry Lancaster, Trading Manager Chemoil DMCC, explaining the reason for the company's decision in November 2016.

Several months on and Lancaster speaks enthusiastically about the effect MFMs have had on the group's operations in Fujairah.

'The beauty of MFMs is that it really takes the emotion out of the delivery,' says Lancaster, noting that in the years prior to installing the technology there was often a 'battle of wills' between buyer and seller. This discord would regularly result in long delays but the arrival of MFMs has eradicated any cause for suspicion.

'The owners have all accepted that there's not going to be any negotiation.'

Each of Chemoil's barges supply, on average, around 40,000 metric tonnes of bunkers

per month in Fujairah. According to Lancaster, the company's total monthly volumes have shown to be accurate to within 5,000 mt.

'We'd certainly encourage for TR48 to be adopted [in Fujairah],' says Lancaster, though he doubts that this is likely to happen any time soon at the world's second-largest bunker port.

Likewise, there does not seem to be a strong appetite for the mandatory use of MFMs in the ARA region. This is most likely due to geographical factors as much as anything else. Less than 100 kilometres separates the ports of Antwerp and Rotterdam. Any measure which could prompt suppliers or vessels to bunker at a rival port is likely to dissuade port authorities. Speaking to *Bunkerspot* in May, Ronald Backers, Business Intelligence, Liquid Bulk, at the Port of Rotterdam said a mandatory regulation, such as the one introduced in the Port of Singapore earlier this year, is not currently on the cards, but instead suggested that an ARA-based initiative could be more appropriate.

'Antwerp, Zeebrugge, Ghent, Flushing, also Amsterdam, because a lot of the barges go up and down [the coast].'

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And while much has been spoken about the effect MFMs will have on the transparency and accuracy of volumes, Backers suggested that the speed of delivery 'is very important'. Indeed, the Port of Rotterdam has seen bunker volumes tail off in the last two quarters while Singapore already looks set to break its annual record this year. Although he did not see a parallel between the Southeast Asian hub's mandatory MFM regulation and its soaring volumes he admitted that 'speed of business is also something which you can translate commercially'.

Those involved on the supply side are equally unsure about a mandatory MFM measure at other ports.

'I think it's completely up to the governments of those ports because [the Singapore MFM requirement] would not have happened if it wasn't for the support of the port authority,' says Timothy Cosulich, CEO of Fratelli Cosulich. 'You

need an institution to drive the project.'

As with the establishment of the sulphur emission control areas (SECA), it is also vital that the MFM requirement is enforced adequately in order to have the desired effect of enhancing transparency in the sector. Like van Breemen, Cosulich 'has full confidence' in the MPA to crack down on those who flout the rules, and believes that the market will eventually become more regulated and cleaner. Indeed, he suggests that it is already showing signs of developing into several tiers since the adoption of the requirement.

'Some players have left the [Singapore] market – some were caught doing illegal things – and those who belong to the lower tiers are sort of eliminating themselves from the market.'

The introduction of mandatory MFMs in Singapore has brought the role of bunker surveyors, and specifically their value, into focus. Yet the incident in Singapore illustrates the importance of having an experienced surveyor onboard, who is able to detect any malpractice when monitoring fuel tanks during bunkering.

'There will always be a guy with too much time on the vessel who thinks about how he can manipulate [the system],' Jeroen de la Bella of Petro Inspect BV told *Bunkerspot* earlier this year. 'Nothing is 100% sure.' Cosulich agrees.

'The flow meter is not the solution to every problem in the world. For sure, the flow meter can be modified, it can be tampered with and if there're people hacking into the CIA's system, I'm pretty sure there's someone who'll be able to hack a flow meter!'

So while the role of the bunker surveyor may change, the need for having one onboard during fuelling will not. Indeed, the International Bunker Industry (IBIA) welcomed the efforts of the MPA to ensure the integrity of MFMs following the Singapore incident but also highlighted the role of the surveyor.

'They can help ship operators ensure all the relevant checks are performed when receiving bunkers via MFM approved barges, and help document any potential irregularities that may compromise the integrity of the MFM system.'

This stance was echoed by the North of England P&I Club which recommended 'the use of a reputable bunker surveyor who can inspect the bunker barge lines for any irregularities in addition to cross checking the seal verification report, inspecting the seals and taking MFM readings'.

And in March, Singapore-accredited bunker supplier Sinanju announced it was to provide an 'added service' by engaging independent MPA-licensed bunker surveyors over a three-month period to assist the crew of visiting ships in familiarising themselves

with the new MFM bunkering procedures.

'Through time and familiarity of TR48:2015 procedures, we hope to see more confidence when using MFM for bunkering,' Desmond Chong, general manager of Sinanju said.

Veritas Petroleum Services (VPS) has monitored MFM deliveries in Singapore since 2015. Comparing a vessel's manual received measurements versus the delivery barge MFM readings, the fuel testing and inspection company found that in 2015, 43% of deliveries were within the 0.5% range, while 69% were within 1% range. By Q1 2017, 42% of deliveries were within the range of 0.5% and 71% within the range of 1%.

According to Steve Bee, Group Commercial & Business Development Director, VPS, where there is a quantity dispute, the resolution has now shifted from traditional gauging methodology to one where the MFM's 'Black Box' or the meter profile and associated technical settings require expert evaluation.

'This is where the answers lie as to whether the MFM meets the working conditions or not,' says Bee. 'The meter profile is a complex area and requires expertise in evaluating and interpreting the data.'

In December 2016, VPS employed its own 'Flow Technologist', whilst introducing two

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new services: MFM Quick-Screen analysis and a more detailed MFM investigation service.

'It is important to state that MFM is not a 'plug-and-play' technology, but a fully integrated fuel delivery system,' says Bee. 'During the first months of introduction, the VPS Flow Technologist's experience and associated services have been key in identifying cases of malpractice against the delivery criteria set out in TR48. In such cases and others, the MPA have been incredibly swift to take decisive and necessary action against those proven to breach TR48.'

Like many other sectors of the bunker industry, VPS welcomes the arrival of MFM technology with regard to fuel delivery measurement. Nevertheless, while

the fuel testing and inspection company envisages more ports will employ the technology, it does not expect to see mandatory requirements implemented soon.

'MFM usage will increase across the globe, for similar reasons to Singapore going down this route,' says Bee. 'Plus we will see further complementary developments such as electronic BDNs introduced and as the industry's knowledge and expertise of MFM technology grows, so will all stakeholders understanding and appreciation of the benefits MFM can bring.'

For bunker suppliers seeking to enhance existing reputations and establish new ones, MFMs seem likely to become *de rigour* in an industry aiming to become more transparent. Technology which is able to generate substantial savings, both in terms of time and money, will always be important to an increasingly squeezed market. It is also notable that across the multi-national marine fuels sector, a tool which helps to create a sense of trust between buyer and seller will be valuable.

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