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Historic IMO announcement wins plaudits

The IMO's announcement last month of the adoption of an initial strategy to reduce shipping's greenhouse gas (GHG) emissions by 50% by 2050, compared to 2008, brought almost universal praise from shipping organisations.

This is likely to stave off unilateral regulations by other state membership organisations, such as the EU, which has been threatening to take action on several fronts.

In an opinion piece, Poten & Partners said that the impact of the GHG strategy was likely to have a profound effect on shipping- both for shipowners/operators and shipyards. "The effect of the introduction of ballast water treatment systems and the reduction of sulfur content of bunker fuels, pales in comparison to the impact that the implementation of these rules will have on our industry," the broking house and consultancy said.

Following Kyoto in 1997, the IMO started to pay attention to shipping's emissions. The first IMO study in 2000 estimated that international shipping contributed around 1.8% of the world's anthropogenic CO2 emissions in 1996. A second IMO GHG study completed in 2009, estimated that shipping's contribution was 2.8% in 2007, while the most recent study undertaken in 2014, estimated the total at 2.3% in 2012.

In 2016, the IMO mandated that ships of 5,000 gt and above will have to collect consumption data on each type of fuel used. The IMO estimated that this vessel grouping accounted for around 85% of emissions from shipping. This mandation, which entered force in March of this year, should provide robust data on which future decisions can be made.

Collecting the correct data is a key first step in the process of measuring current emissions and tracking the progress towards reduction targets, Poten & Partners said.

There are two obvious avenues that shipping can take to meet the aggressive targets. 1) Improving ship efficiency and/or 2) switching to low or zero carbon fuels. The industry will need to pursue both options.

Since 2011, the IMO's MEPC has been focusing on guidelines to improve ship energy efficiency as a means to reduce GHG emissions. In July of that year, the IMO mandated the EEDI for all new ships and the SEEMP for all ships whether in operation or newbuilding.

EEDI requires a minimum energy efficiency level per capacity mile. This level is to tighten every five years incrementally. We are currently at Phase 1 (10% reduction). Phase 2 (20% reduction) will come into effect in 2020 and Phase 3, provisionally earmarked for 2025, will force all vessels built after that year to be 30% more efficient than the current fleet.

Several options

Meanwhile, the technology behind zero emissions vessels (ZEVs) is rapidly developing. A 2017 study conducted by LR and University Maritime Advisory Services (UMAS) identified several options, which included biofuels, fuel cells, batteries and synthetic fuels - hydrogen and ammonia. However, none of these options are expected to be competitive with conventional fuels within the next 10-15 years unless a significant carbon tax is introduced.

As agreed by most organisations and companies involved in ship efficiency, there is no 'silver bullet' to replace shipping's fossil fuels, as the LR/UMAS report pointed out. A combination of the available options looks to be best way ahead.

While there is still time, we need to start addressing these challenges sooner rather than later, Poten & Partners warned.

Also endorsing the IMO's decision was technology and service giant Wärtsilä.

"This long-awaited agreement represents an important milestone for global shipping. It is critical that we have an industry-wide framework for reducing emissions, and this sends a clear signal that we should all join forces in promoting carbon-free shipping," said CEO Jaakko Eskola. "The next extremely important step must be to define concrete abatement measures, and to establish a clear roadmap together with the industry and decision-making bodies."

"It is vital to note that there is no single solution for de-carbonising the shipping sector while also controlling the other pollutants," Eskola pointed out. "A clean-shipping future must be based on the combining of different technologies and various solutions. These will include cleaner fuels, efficient vessel designs, hybrid propulsion technologies, and intelligent vessels."

Digitalisation is benefiting society at large and will have a positive impact on shipping. "We should look beyond just vessel-level emissions. To be truly effective, we need to target everything involved in moving goods and passengers. At Wärtsilä, we envision a Smart Marine Ecosystem wherein smart vessels sail between smart ports in an environment of optimal efficiency and minimised emissions," Eskola explained.

In welcoming the IMO agreement, Wärtsilä urged all relevant parties to join forces in making shipping more sustainable.

This is especially true in today's climate of near bottom earnings, which hasn't given shipowners the financial muscle to cater for what will no doubt be a very costly business in coming up to the latest rules and regulations on GHG emissions, never mind the other regulatory initiatives underway.

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Future Energy Publishing Ltd
39-41 North Road
London N7 9DP
www.tankeroperator.com

PUBLISHER/EVENTS/ SUBSCRIPTIONS
Karl Jeffery
Tel: +44 (0)20 8150 5292
jeffery@d-e-j.com

EDITOR
Ian Cochran
Mobile: +44 (0)7748 144 265
cochran@tankeroperator.com

ADVERTISING SALES
Melissa Skinner
Only Media Ltd
Mobile: +44 (0)7779 252 272
Fax: +44 (0)20 8674 2743
mskinner@tankeroperator.com

PRODUCTION
Very Vermilion Ltd.
Tel: +44 (0)1253 812297
info@veryvermilion.co.uk

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Subscription hotline:
Tel: +44 (0)20 8150 5292
sub@tankeroperator.com

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Recycling up - floating storage down - ordering up

Tanker recycling has picked up this year to the end of April.

This follows a period of below average deletions due to favourable market conditions and a younger fleet profile, McQuilling Services said in an industry note.

A single market factor is not driving the increase in recycling, but rather several factors joining together, such as an ageing fleet, depressed freight rates, higher steel scrap prices and regulatory concerns, plus also owners' micro-considerations.

In the 2005-2008 period, McQuilling observed a rise in VLCC fleet removals with 39 vessels deleted in 2008. As we moved into 2011, volumes began to decline below the historical average sine 2001. The period up to 2008 was largely influenced by a combination of regulations for single hull tankers and the interest to convert large tankers for offshore projects.

In 2015, fleet removals totalled just five vessels, primarily due to low steel prices and a firm rate environment, which provided more incentive for owners to keep trading their vessels.

This year, the opposite has happened.

Thus far, steel scrap prices have averaged $434 per ldt, a 17% rise from the previous year's full average, while freight rates have been in decline since peaking in 2015 with the benchmark TD3C AG/East route averaging about $1.4 mill lumpsum through March, 2018, compared to $2.4 mill in the first quarter of 2017.

McQuilling claimed that this scenario was in line with expectations as forecast in its 2018-2022 Tanker Market Outlook, where an accelerated rate of deletions was predicted over the next five years. Through its proprietary process, McQuilling forecast that 120 tankers, excluding chemical carriers, were likely to be removed from the trading fleet this year with the majority sent to the breakers' yards. Of these 120 vessels, 29 are VLCCs, which is a rise from the 24 deletions recorded in 2017.

Through the first quarter of this year, McQuilling recorded 19 VLCCs sold for demolition or for conversion projects. However, not all of these have left the trading fleet thus far. McQuilling explained that further analysis of its fleet position list showed that on occasions, vessels that were thought sold will ballast into what the consultancy described as a designated load area, such as the Middle East, instead of going to a scrapyard.

This is largely down to two reasons. Either the vessel is being taken over by a new buyer in this region or the buyer is trying to trade the vessel before removing her from the fleet.

By 26th April, the date of this report, McQuilling counted VLCCs removed from the trading fleet, partly mitigated by seven deliveries through 1Q18 and another 15 conducting sea trials. However, at the same time, more demolition sales maybe under negotiation.

Healthy scrapping

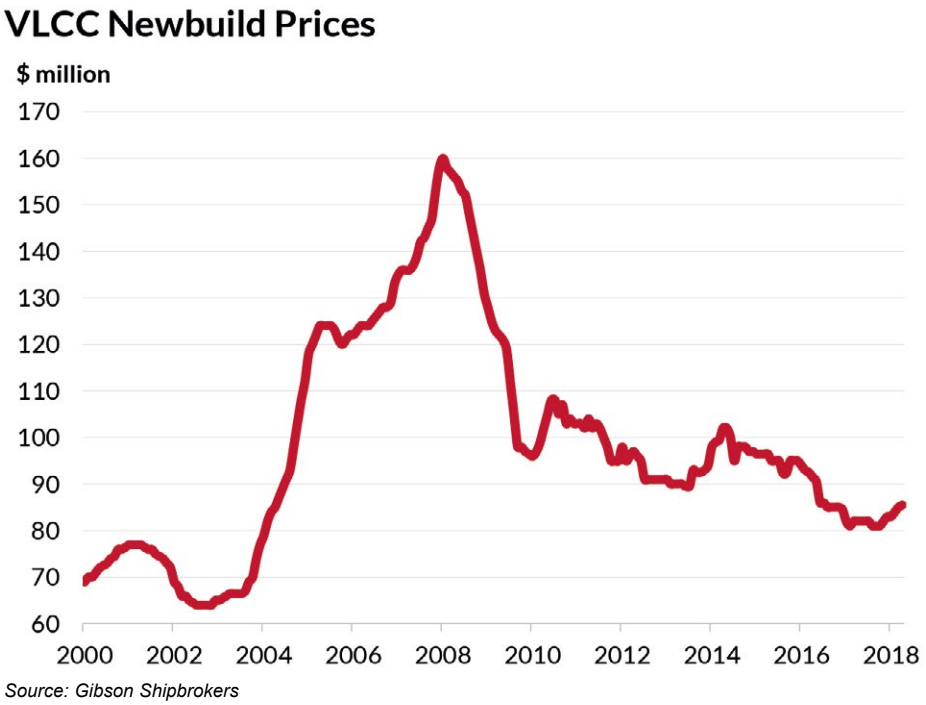
McQuilling quoted GMS as saying that roughly 25 VLCCs have been reported as sold for demolition year-to-date and activity is likely to remain healthy through the rest of this year, given that freight rates remain relatively weak and scrap prices remain firm.

Through the first quarter, steel scrap prices rose to an average of $432.5 per ldt, peaking at $445 per ldt in March - the highest month for VLCC deletions thus far.

Following this trend, both the Aframax and Panamax sectors have seen fleet contraction with a total of 12 vessels removed, while just seven Aframaxes were delivered. The Suezmax fleet was the only segment to experience net fleet growth thus far this year with 36% of the forecast additions and just two removed from the fleet.

In the clean sector, two opposing stories are being played out - growth in the LR fleet and contraction in the MR fleet. McQuilling counted 12 LRs delivered and just three deleted year-to-date, while the MR and IMO III fleets were reduced. However, the MR chemical carrier fleet continued to grow, which when combined, resulted in a net 12 vessel additions.

A traditional alternative to scrapping a revenue earning asset is to employ the asset on storage duties, which proves beneficial



Source: Gibson Shipbrokers

to freight rates as the vessels are taken out of the market. However, they can return to the spot market once their storage duties are over. Since 2016, McQuilling has seen a decline in the use of tankers for storage due to a backwardated crude futures market.

In 2016, McQuilling counted an average of 24 VLCCs per month conducting storage duties in the Middle East, a figure which has fallen to just one per month this year. This proved to be a headwind for the VLCC market, as supply growth of older tonnage (plus 15 years) outpaced demand in 2017. This trend has continued into this year bringing utilisation to some of the lowest levels seen since 2015. As a result, the increase in demolition has been offset by a dramatic decline in floating storage.

Given the current crude price environment, McQuilling expects limited interest in floating storage in the short term. However, this trend maybe reversed in the second half of 2018 and beyond. Indications that OPEC will ease productions caps and return more Middle East barrels to the market, are likely to put downward pressure on the front end of the forward crude curve.

A potential contango situation would likely push charterers towards seeking out older vessels for floating storage duties - a positive trend for tankers in terms of lower vessel supply in the spot market. At this time, OPEC intentions are pure speculation, however given the proper market factors, an increase in floating storage activity would likely support freight rates.

Through the balance of this year, McQuilling said it expected to see strength in tanker scrapping activity, however, the pace is likely to slow. At the time of writing, the consultancy forecast that another 77 tankers, both clean and dirty, will exit the trading fleet this year, including 11 VLCCs.

Weak freight rates are likely to persist throughout the year until a significant reduction in fleet supply is seen relative to tanker demand - a more promising story in the years to come, McQuilling concluded.

In a similar vein, Gibson Shipbrokers said the acceleration in VLCC demolition activity this year has frequently been in the headlines of late.

As more tankers head to the beaches, this gives shipowners some cause for optimism for the future, particularly taking into account the current depressing market.

However, quite a few of those units reported for scrap or viewed as likely demolition candidates in the short term, have been absent from the trading market in the recent past. Some have been involved in floating storage, others showed little signs of trading activity, at times for extended periods.

Newbuilding interest

Another area of concern is the robust interest in newbuild tonnage. During 2017, 57 VLCCs were ordered, marking the year as one of the highest over the past decade in terms of the volume of new tanker orders.

Strong investment in new tonnage has continued this year to date. For example, since the beginning of the year, 24 firm VLCC orders have been placed and indications are that there are more in the pipeline. Firm ordering activity keeps the VLCC orderbook at elevated levels despite a steady flow of new deliveries.

As of the end of April, VLCCs accounted for the largest orderbook segment of all tanker size groups, at 16% relative to the existing fleet. Over 40 tankers are scheduled for delivery during the remainder of this year and another 57 units in 2019.

Even with an anticipated slippage, next year will mark the fourth year in a row of heavy delivery profile. However, if scrapping continues at similar robust levels seen recently, fleet growth will slow in the near term. But once all the prime candidates have left the market, the pace of demolition will decrease.

Furthermore, ordering activity will not come to a complete halt going forward. Although newbuilding prices have firmed over the past 12 months or so, values still remain well below the averages seen over the past 15 years. The approaching 0.5% global sulfur cap on bunkers also offers additional savings for newbuildings with scrubbers, once the cost of the scrubber has been repaid.

On this basis, it is not surprising that we are starting to see speculative orders from investors with limited or no exposure to the shipping industry, Gibson said, given that low newbuilding values, a promise of a technology driven competitive advantage and a pick up of demolition, is an attractive story to sell.

For example, Norwegian investor Arne Friedly is behind four firm VLCCs placed at DSME, while Guggenheim Capital ordered another two at the same yard. Although these orders represent only a small percentage of the total VLCC orderbook, the key question is, is this just a 'one off' investment or a start of a new trend leading to many more?

We remember all too well the surge in tanker orders back in 2013-15, in part financed with the help of private equity and hedge funds. This eventually translated into over ordering in many segments.

Will history repeat itself?

ESHIPS - Room for expansion

Dubai headquartered Tristar, an integrated petrochemicals logistics firm, has, in a very short time, become the de-facto strategic partner in the region for various oil majors and chemical companies.

For example, it has entered into agreements with Shell, Dow Chemicals, Total, Adnoc and many others, writes Charlie Bartlett.

In this part of the world, the offshore and oil and gas industries in general are still feeling the pinch from the low crude price; the shoreline is littered with laid-up jack-ups, and DNV GL has even set up an agency, which specialises in how to keep ancient rigs on-station without spending any money on their upkeep.

In this setting, the market seems very unconducive to anything but consolidation, and in mid-2016, Tristar duly purchased Emirates Ship Investment Company (ESHIPS), an owner-operator of a fleet of seven product and chemical tankers.

Tristar also took delivery of six chemical tankers from Hyundai Mipo Dockyard through 2016. But Shailesh Bildikar, ESHIPs COO, had some interesting news for *Tanker Operator*. "We have completed the consolidation stage, and are now ready for expansion," he says. "I have a mandate to double our fleet by 2020."

For ESHIPs part, Bildikar insists that his company specialises in inorganic growth; his company is looking to buy, and none of the new chemical tankers it acquires will be newbuildings. With this in mind, it is hard to imagine a company for which the outcome of the 0.5% sulfur cap will be of greater importance.

At Goltens' nearby retrofit and repair facility, the experts say that scrubbers projects will take at least 11 months for mapping, planning, delivery, and installation, adding that owners must get moving now if they want to have their ships ready for the January, 2020 deadline.

ESHIPS Shailash Bildikar

But Bildikar intends to take a more relaxed approach to the cap, and is waiting to see how the reduced demand for heavy fuel oil affects the cost and the payback time for scrubbers. Like many in his arena, Bildikar isn't expecting to see the same robustness of governance everywhere in the world. "We expect regional compliance," he said. "It depends where I want to trade but if I'm going into SECA areas I will already have to be compliant, so it isn't a worry. In the US and Europe, we'll probably see 80-90% compliance, Asia a bit lower, maybe 75%. The Middle East will be a bit lower than that."

Many shipowners also anticipate that, closer to the time of implementation, the IMO will take a softer line, like with ballast water and, more recently, CO2, despite the fact that the IMO has already reiterated its commitment to the 2020 date. Bildikar is one of them. "Somehow, I do not think IMO will cut off all ships and demand they go to a yard straight away. I read somewhere there is capacity for around 700 installations a year – so when we're talking about 15,000 ships, it's impossible."

Fines unknown

As to the question of getting caught: "We still don't know what the fines are, and the fines will be defined by the port states," Bildikar said. "But if they decide to [implement the cap] on the 1st January, 2020, probably 40-50% of the fleet will have scrubbers. That is our expectation.

"We don't see ourselves taking vessels off-hire to go and have a scrubber fitted, as most of our vessels won't need another drydocking until after 2021," he added. "Because of the increase in the number of ships using MGO, the cost of bunkers will go up. So, you're in a similar situation as when crude cost $150 a barrel. If charter rates don't pick up, we will start slow steaming.

"Once that happens, the capacity levels off, and the rates climb. So, in the worst-case scenario that's what we'll see.

"It is true that we are not geared for [0.5% sulfur]. But that's not so much of a worry because unlike with ballast water there is a payback. You will install a scrubber only if it makes sense for you, and that payback period might be two years, or five years – the bigger the ship the faster the payback," he said.

Opinion is divided as to whether the price of heavy fuel oil will increase or decrease following the cap. Many expect it to decrease with demand; but others anticipate that the portion of the world fleet with scrubbers fitted will create a captive market for bunker suppliers.

By 2021, it will be clearer how the economics of the post sulfur-landscape stack up; but if ESHIPS has doubled its tanker fleet just as the market has become favourable for scrubbers, it will have a lot of work to do.

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Tristar/ESHIPS history

In March 2016, UAE-based logistics group Tristar announced that it had agreed to acquire 100% ownership of Abu Dhabi-based Emirates Ship Investment Company (ESHIPS) from Egon Oldendorff for $90 mill.

At the time, Tristar acquired a fleet of seven ocean going chemical tankers, which included two LPG carriers under long term time charter to an oil major. These vessels were phased into the company's fleet and then fixed out long term in line with company policy.

"This acquisition is a perfect fit to our longer term plans to diversify revenue and make shipowning an integral part of our strategy to build a fully integrated liquid logistics business," said Eugene Mayne, Group CEO of Tristar at the time of the purchase.

In May of the same year, Tristar started to take delivery of six new 50,000 dwt clean petroleum product tankers from Hyundai Mipo Dockyard, ordered at cost of $200 mill in total.

This acquisition of ESHIPS and the newbuilding programme, together with its existing coastal fleet, brought the Tristar-owned shipping fleet up to more than 20 vessels at the time.

Together with the other vessels in Tristar's fleet, the six 2016-built Hyundai Mipo-built MRs are managed by Fleet Management of Hong Kong are are believed to be on long term charters to Shell.

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IACS becomes more transparent

As DNV GL's Knut Ørbeck -Nilssen's time as IACS chairman draws to a close, it is time to reflect what has been achieved during his tenure at the helm of the 12-member association, which classes just over 90% of the world's fleet.

At a recent presentation in London, he said that quality, modernisation and transparency were the three fundamental themes during DNV GL's chairmanship.

Looking back at IACS' development and successes over the past year, Ørbeck-Nilssen said that during these dynamic times, both IACS and its members needed to act as a guide for the shipping industry, identifying the path for others to follow.

Highlights for 2017 included achieving full compliance with the IMO's Goal Based Standards for tankers and bulkers; ongoing industry involvement in cyber security and autonomy; and the launch of new membership criteria.

He foresaw the current technological soft trends growing saying that digital transformation will dominate the next decade as it is gradually taking hold in the maritime sector today. This will also drive an increase in connectivity on board and ashore giving all vessels the opportunity to take advantage of more efficient services.

Transparency, plus improved environmental and safety performance will each go together to modernise class. The use of the digital twin concept will increase enabling virtual reality testing in facilities such as laboratories. On the starting blocks are additive manufacturing, the 3D printing of spare parts and on board sensor information with data streaming. By combining sensors and connectivity, this enables the use of 'big data', he explained.

This innovation will naturally mean that class society rules and requirements will have to reflect the rapid advance in technology. There are a lot of specific rules and regs, which currently won't adapt to modern technologies on this scale.

IACS Chairman Knut Ørbeck-Nilssen outlines achievements

For autonomous shipping in all its forms, by the mid 2020s and 2030s, regulatory requirements will have to be in place and as a result, cyber resilience will become even more important, he explained.

IACS is working on an ongoing review of ship autonomy with a dedicated working group, which has examined all the relevant resolutions to identify which standards are potential regulatory obstacles to autonomous ship operations.

In addition, IACS is supporting the industry by leading the work on the development of common terminology for the different levels of autonomy envisaged.

In total, IACS is working on 12 recommended practices this year, which should be in place by the end of 2018.

As part of the push for more transparency, new membership criteria was introduced on 1st January this year.

In a nutshell, the changes include simplifying the application procedure, requiring members' class rules to be compliant with the IMO's Goal Based Standards for bulkers and tankers of over

IACS Members data (as at 31st December 2017)

Class society	Total classed fleet	Tankers*	Tankers mill dwt	Total surveyors
ABS	9,444	1,864	180.8	1,860
BV	9,450	1,478	51.9	1,328
CCS	3,241	716	39.4	1,183
CRS	307	18	1.1	50
DNV GL	10,694	1,662	127.7	1,960
IRS	1,025	168	11.8	201
KR	1,747	627	32.6	691
LR	6,445	1,817	155.5	1,364
NK	7,897	1,399	70	1,274
PRS	307	17	0.16	102
RINA	3,243	591	13.6	487
RS	2,568	542	5.6	723

**Includes crude, products and gas*

Source: IACS

150 m in length, introducing a requirement for members to have had at least five years experience working as a 'recognised organisation' (RO) for IMO flag state members, enforcing a more robust 'quality system certification scheme' approval process and providing a better identification system for non-compliant ships, ie those built and/or operated outside IACS requirements.

High quality

The criteria also takes in the need for members to be of high quality but also with experience, especially in classing newbuildings. For example, taking the case of cyber security, IACS members should concentrate on newbuildings, rather than on vessels in service

Ørbeck -Nilssen said these measures will lead to a more agile IACS, able to address relevant industry topics. However, he stressed that industry was changing but that class would continue along the same lines.

Secretary general, Robert Ashdown stressed that IACS was further supporting the IMO and its member flag states as an organisation that sets technical standards, and as an external advisory group in an attempt to further engage with the industry. He gave an example of cyber security saying that IACS' work dovetails with the operational work being undertaken by BIMCO and OCIMF.

He stressed that IACS was not a trade association and therefore is not seeking new members at present out of the 130 or so class societies in existence.

At the presentation, Ørbeck-Nilssen also commented on the publication of the '2017 Annual Review': "2017 was a year in which the maritime world's key players had to get to grips with tectonic changes in markets, regulations and technology. I am proud to say that both IACS and its member societies rose to that challenge with their work across the year: Together we achieved significant progress in modernising the concept of class and in adapting to the digital transformation of our industry.

"In IACS, we strive to ensure that our own standards allow for innovative practices that utilise the flexibility available within ship regulations while maintaining high-quality and delivering on our unceasing commitment to a safer and more secure maritime world. IACS' '2017 Annual Review' testifies to these endeavours, as well as offering a roadmap for how the organisation and its members will ensure they continue to provide, openly and transparently, the highest quality classification services to the maritime industry," he said.

"With the maritime industry facing complex and competing demands, IACS continues to play a leading role by bringing familiar technical assurance processes to bear against new and unfamiliar technologies," added Ashdown. "Our '2017 Annual Review' showcases the work that IACS' member societies have undertaken in this respect, while also emphasising our continuous commitment to quality operations and, by way of the class data provided, to acting in an ever more transparent way."

This is the second Annual Review published by the association as part of its increased transparency drive.

Dialogue

Last year saw an increased focus on the commitment to transparency and the enhancement of the level of dialogue with other industry sectors. IACS has launched a new website, as well as publishing its second Annual Review, together with the development of the IACS 'Green Book' and improved mechanisms to alert stakeholders pro-actively to resolution updates.

As well as various technical articles on pertinent topics in the Review, there is a summary of both new and revised provisions to IACS recommendations introduced last year and for the first time, specific data on each member class society,

including total size of class fleets, types of vessels by number, the total number of surveyors, plan approval engineers, exclusive ship surveyors and the number of flag states with which the class society has agreements in place, as at the end of last year.

As already mentioned, Ashdown was at pains to point out that IACS is not a trade association or a traditional NGO, rather a not-for-profit membership organisation of 12 class societies that establishes minimum technical standards and requirements.

Clearing up any misunderstandings of IACS role, the Annual Review also stressed that it is not a commercial organisation and does not seek to improve its members operations.

Diversification

Down the years, several class societies have diversified into consultancies, as well as keeping the traditional class work up to speed. It was stressed that IACS does not get involved in these extra services, as they are considered ancillary to IACS role. The organisation also does not get involved in the RO aspect of class society work, despite all of the members acting for various flag administrations. Enforcement and policing is left to flag states and port states.

To sum up, IACS is purely a technical standards setting body and it is crucial that that the organisation maintains an independent and apolitical position to develop these standards.

One of its major roles is to establish IACS resolutions - unified interpretations, unified requirements and procedural requirements. Given that IACS members class more than 90% of the worlds tonnage, the adoption of any resolution has a considerable impact on the shipping community, the organisation explained. TO

IACS - supporting regulators

The organisation listed four areas where it can offer regulators, such as the IMO and ILO, plus other industry sectors, support -

1) Leadership - the ability to be ahead and to co-operate and industry on initiatives that can effectively promote maritime safety, protection of the environment and sustainability.

2) Technical knowledge - collective and individual knowledge and experience leading to the development, adoption and implementation of technical rules and requirements reflecting current current practice and changing demands of society, supporting innovation and new technologies.

3) Quality performance - commitment of members to define and adhere to to the highest global quality standards.

4) Transparency - the ability to provide advice on the implementation of regulations, interpretation of enhancements, as necessary, enabling practical solutions to be effectively developed in co-operation and with the support of other stakeholders, increasing the trust in class.

Greece on path to redemption

Greece has recorded a primary surplus of 4% of GDP, or €7.080 bill, in 2017, according to data released recently by the country's independent statistical authority (ELSTAT).

This is the third year in a row that Greece has outperformed the target outlined under the bailout agreement. The target for 2017 was set at 1.75%.

A government official, speaking to Reuters, said increased social security contributions, income tax and Value Added Tax receipts had led to a cash windfall.

ELSTAT's figures also showed that the country's massive debt burden has eased slightly from €315.009 bill (180.8% of GDP) in 2016 to €317.407 bill (178.6% of GDP) last year.

Talking a couple of days later, Greek Prime Minister, Alexis Tsipras stressed that the country would make a "clean exit" from the bailout era and the strict supervision of its creditors by August of this year.

He underlined that the exit from the bailouts will mark the country's return to normality. He also dismissed concerns that Greece may need a a precautionary credit line after its bailout exit.

However, Tsipras warned that the clean exit would not mean that all the problems were solved or that the government would not still have serious issues to deal with, nor that Greece won't have to meet fiscal targets and service its debt.

Greece officially presented its own post-bailout policy plan at a meeting of eurozone finance ministers towards the end of April and Tsipras said that he hoped that negotiations on the terms of the post-bailout period would be concluded by the end of June this year.

Tsipras also ruled out any trade-off with Turkey in efforts to secure the release of two detained Greek soldiers and claimed that Ankara appeared to be moving further away from Europe.

In March, ELSTAT, said that the Greek economy grew by 1.4% in 2017, totalling €187.1 bill, from €184.6 bill. The statistics service, in its first estimate report, said that at current prices, the Greek GDP totalled €177.7 bill in 2017, from €174.2 bill in 2016, resulting in an increase of 2%. The statistics service is due to release its second Greek GDP estimate this October.

Greek GDP grew by 1.9% in the fourth quarter of 2017, compared with the same period in 2016 and by 0.1% compared with 3Q17. Based on non-seasonally adjusted figures, Greek GDP grew 1.8% in 4Q17, compared with the same period in 2016.

Greece exceeded its bailout target in 2016 when it announced a primary surplus of 4.19% versus a target of 0.5%, according to a Reuters report. The primary balance does not include interest payments on debt, which as mentioned, represents about 178% of GDP.

The country had received €260 bill financial aid from eurozone countries and the IMF since 2010. Its third bailout, agreed as the country neared bankruptcy in 2015, is worth up to €86 bill and is due to expire on 20th August.

However, none of this appears to have affected Greek shipowners and operators, as hardly any companies have appeared to relocate as first predicted when it was thought that stringent taxes would be brought to bear on Greek-domiciled shipowners to help prop up the country's beleaguered finances.

However, this proved not to be the case and it is business as usual.

According to the annual statistics released by the Greek Shipping Co-operation Committee (GSCC) and compiled by IHS Markit, during the year to 19th March, 2018, the Greek controlled fleet increased to record numbers, both in terms of vessel numbers and deadweight tonnage.

The figures released on that date showed that Greek interests controlled a total of 4,148 vessels of all types of over 1,000 gt, compared with 4,085 recorded in March, 2017.

In deadweight terms, this total amounted to 341.9 mill tonnes, compared with 328.8 mill dwt as of March, 2017. The latest figures also included 200 vessels of 24 mill dwt on order.

Declining flag

However, the number of vessels flying the Greek flag continued to decline in all categories, dropping to 723 ships (24 lower than the 2017 figure), of 74.5 mill dwt (down 670,000 dwt).

The Greek controlled fleet is registered under 41 flag administrations. Liberia had 19% of the total fleet having gained another 49 vessels up to March this year. Also on 19% was the Marshall Islands, which gained a further 33 ships over the previous year. Malta gained 23 ships to put the flag state up to 17% of the total, the same as the domestic registry, which showed a loss of 24 ships, while Panama lost 22.

In deadweight tonnage terms, the domestic registry was number one with 74.5 mill dwt but third by number of vessels. The Marshall Islands was number two in deadweight terms with 65.9 mill tonnes, closely followed by Liberia on 65.1 mill dwt and each having 824 Greek controlled ships in their fleets. Malta registered 694 vessels of 63.9 mill dwt.

Orderbook

As for the order book, the figures published by GSCC show that the number of crude tankers including the orderbook increased by 63 of 11.4 mill dwt, while chemical and products tankers increased by just two but the deadweight fell by 434,000 tonnes. As of March, there are 74 crude carriers and 29 chemical and products tankers on order for Greek interests.

It was notable that Greeks controlled 26.4% of the world tanker fleet by the middle of March this year, GSSC said. According to IHS Markit's figures, the world's crude fleet stood at 3,036 vessels, out of which Greek interests controlled 801. For chemical/products tankers, the figures were 7,386 and 549, respectively.

Overall, the Greek-owned fleet comprised 7.6% of the world's total ships and 16.4% of the total deadweight, slightly up on March, 2017.

The average age of the Greek controlled fleet in ship numbers increased slightly to 10.6 years, but still 2.8 years below the world average.

Finally, there are six class societies which are responsible for the Greek-controlled fleet -

- Lloyd's Register - 836 ships (up 2)
- ABS - 781 (up 13)
- ClassNK - 746 (up 2)
- BV - 677 (down 11)
- DNV GL - 655 (down 13)
- RINA - 205 ships (up 14)

Percentage of world fleet

Number of ships 2017	25.2%
Number of ships 2018	26.4%
Total dwt 2017	24.7%
Total dwt 2018	25.9%

Number of ships 2017	7.5%
Number of ships 2018	7.4%
Total dwt 2017	13%
Total dwt 2018	12.7%

Source- GSCC/IHS Markit

An example of Greek-based tanker owners recent investments is the delivery of the first of two VLCCs to Almi Tankers.

On 13th March of this year, the 315,221 dwt 'Almi Atlas' was delivered by Hyundai Samho from its Mokpo shipyard.

According to an Almi Tankers statement, the VLCC was designed in accordance to the latest regulations and industry requirements in order to satisfy customers' needs, therefore special emphasis was placed on creating an environmentally friendly design.

Among the so called eco-friendly technologies on board, 'Almi Atlas' is fitted with the Hyundai-B&W 7G80ME - C9.5 - EGRTC (Tier III) Green-type engine, rated at 26,000 kW mcr. She is one of the first vessels of her size with a Tier III engine.

The G-type is an ultra long stroke engine, which, in conjunction with a larger diameter propeller, offers significant fuel savings and produces less emissions than engines with the same output, thus classifying it as one of the most environmentally efficient propulsion systems, Almi Tankers claimed.

She is also equipped with a Hyundai HiBallast HiB 6000ex ballast water treatment system (BWTS) and is one of the first vessels worldwide to be fitted with an SOx scrubber -an Alfa Laval PureSOX BCS open loop

U-type.

'Almi Atlas' is registered in Monrovia, Liberia and is classed by DNV GL.

Principal Particulars - 'Almi Atlas'	
Length, oa	336.1 m
Beam	60 m
Draft	22.6 m
Dwt	315,221 t
Gross	162,306 t
Net	111,896 t
Cargo pumps	3 x 5,000 cu m/hr
Cargo tanks capacity	350,622 cu m @ 98%
Slop tanks capacity	9,584.4 cu m @ 98%
Hose handling cranes	2 x 20 t

Dynacom's 2010-built VLCC 'Yiangos' seen in drydock at the Ras Laffan facilities

In the repair and service sector, Nakilat-Keppel Offshore & Marine (N-KOM) shipyard continues to see strong interest from Greek shipowner clients, with a variety of tankers, gas tankers and bulk carriers calling for repairs at the giant facility.

About 70% of its tanker repair business comes from repeat clients, such as Dynacom, Euronav, Maran Tankers, Chandris (Hellas), Samos Steamship and Eurotankers.

Strategically located at the heart of oil and gas activities in the Arabian Gulf, N-KOM is one of Middle East's leading shipyards, offering a comprehensive range of marine services, as well as solutions for the oil and gas industry.

The shipyard has built up a wealth of experience and expertise from its parent companies - Qatar Gas Transport Company (Nakilat) and Singapore's Keppel Offshore & Marine (KOM), to provide repair, conversion and construction services for ships, offshore and onshore structures.

N-KOM has been designed with a large infrastructure and modern facilities spanning over 50 hectares, to service sophisticated and complex vessels, such as the world's largest gas carriers. The shipyard includes three VLCC-size docks (two graving docks, one floating dock), 15 cranes of varying capacities alongside the repair docks and quays (30 t, 50 t, 100 t capacity), afloat berthing capacity of 3,150 m and comprehensive workshops and facilities.

In addition, there is also a growing number of maritime service providers at the shipyard, including Goltens, Wärtsilä, Wilhelmsen Ships Service, Turbo Technik and Cargotec, plus others.

N-KOM boasts a team of experienced industry professionals, extensive infrastructure and a strong track record of safe, quality and timely project executions, the company claimed. To date, N-KOM has completed more than 770 marine and offshore projects, with a significant number of drydockings and repairs undertaken for various types of tankers. In 2017, N-KOM saw an almost 20% increase in the number of repairs handled at the shipyard, compared to 2016, most notably for LNGCs, tankers and offshore vessels.

Extensive routine inspections, thorough maintenance and wide-ranging repair works have been conducted for other vessels arriving at the shipyard over the past few months. These activities include hull treatment and coating, cargo tank examination, overhauling of LNG cargo tanks, spray pumps, main engine auxiliary blowers and steering gear pumps, propeller cleaning and polishing, piping modification, cold box repair, main and cargo switchboard, renewal of platform support in water ballast tanks, main engine exhaust pipes renewal, lifeboat testing, various deck outfitting repairs and more.

Growing partnerships

N-KOM continued to grow its partnership base with an ever-growing list of local and international clients. The shipyard has a number of fleet agreements in place for vessel repairs from shipping companies, such as Greek-based interests - Samos Steamship Co and the Angelicoussis Shipping Group of companies (for all vessels managed by Maran Gas Maritime, Maran Tankers Management and Anangel Maritime Services).

The yard claimed an impressive track record of delivering marine and offshore projects completed in a safe, quality and timely manner. For example, N-KOM received an award for 'Best Behavioural Safety Initiative' recently during a safety workshop organised by Shell International Trading and Shipping Co (STASCo) for its contractors, and was lauded for deploying effective strategies and achieving successful measurable results with specific focus on safety and quality.

This award is testament of the high safety standards at the Erhama Bin Jaber Al Jalahma shipyard and a recognition of N-KOM's successful approach towards improving behavioural safety, the yard said.

BWTS retrofits

Equally important to the yard is the IMO's Ballast Water Convention. In support of this, N-KOM continues to promote its capabilities in BWTS installation for shipowners. Thus far, the yard has carried out installations involving three different BWTS – namely, Samsung, OceanSaver and Alfa Laval.

N-KOM is also under discussions for a number of scrubber retrofits on large tankers. The yard's facilities with three VLCC-dimensioned docks and its affiliation with Keppel, plus its location, are claimed to be ideal for scrubber retrofits on large tankers, such as VLCCs and Suezmaxes.

The shipyard's representatives will be on hand at the forthcoming Posidonia exhibition with a stand. TO

Greek shipping exhibition gears up for its largest show

Over 1,850 companies from a wide range of maritime industry sectors are to exhibit at Posidonia, which is to take place between 4th to 8th June this year at the Athens Metropolitan Expo.

The exhibitor floor space will span 40,000 sq m and the organisers have said that they expect over 22.000 shipping people to attend during the five day event.

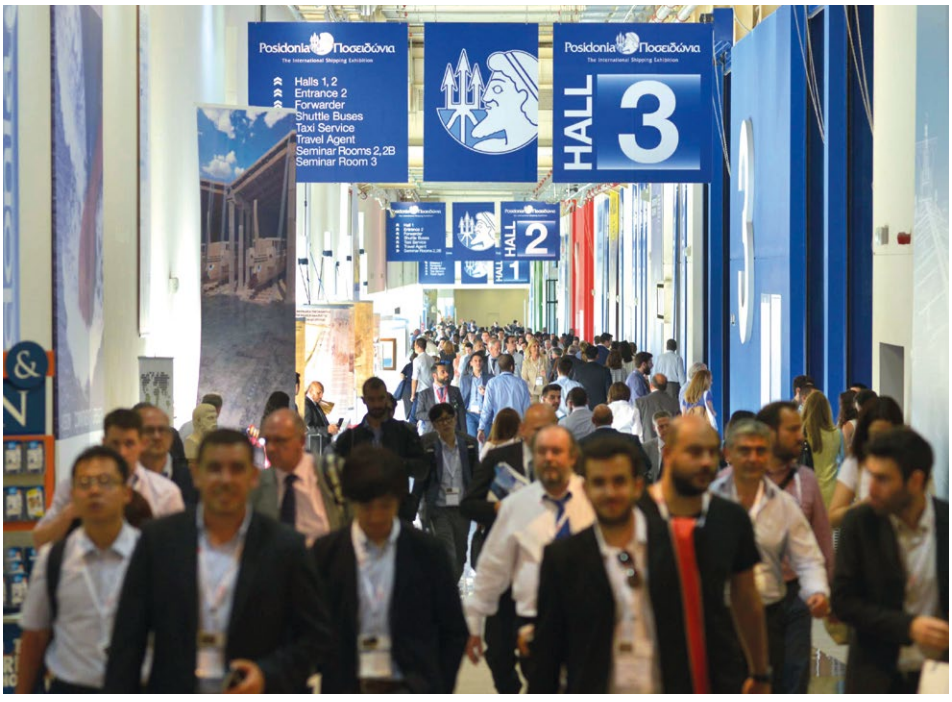
"Posidonia's strength is drawn by the collective quality and buying power of its exhibitors, delegates and visitors, debutants or repeaters, who commit funds and resources every two years to be part of a signature industry event that is a true celebration of everything shipping stands for," said Theodore Vokos, Executive Director, Posidonia Exhibitions, the biennial event's organiser.

"A key attraction remains the strong presence of the powerful Greek shipowning community at every Posidonia, which is leading global newbuilding activity with 61 Greek companies having ships on order worth an estimated $16 bill," he claimed.

Over 260 ships, many of which are Tier II and Tier III compliant, are on order for Greek interests this year, 105 of them contracted in 2017.

This spending spree is regulation driven and stems from the recent ratification of the ballast water treatment treaty and type approvals by the US Coast Guard, as well as new regulations regarding SOX and NOX emissions and Monitoring, Reporting and Verification (MRV) requirements, which have speeded up investment in scrubbers, LNG fuelled ships and digitalisation of operations.

Some shipping companies, such as Capital Maritime & Trading, predict that new environmental regulations will make a quarter of today's global fleet obsolete, resulting in the company investing $1.1 bill in upgrading 71 ships and ordering new ones.



With space bookings already increased by 10%, compared to the same time two years ago and over 80% of the exhibition floor already committed, the organisers had to add another 1,000 sq m of exhibition space to meet the demand.

Once again, Posidonia's exhibition space will be dominated by around 20 national pavilions and especially the leading shipbuilding nations, such as the traditional Far Eastern power houses of China, Japan and South Korea.

Maritime centres, such as Hong Kong, Singapore, Dubai and others will be present and long-standing exhibitors such as the US, Denmark and Holland will field greater numbers than before.

Posidonia will also welcome newcomers, such as landlocked Luxembourg and agricultural economies like Georgia, while Poland will also make her debut. The majority of flag states will also be present, with Panama, Liberia, the Marshall Islands, Malta, Cyprus, the Bahamas, the Cayman Islands and Palau, among others who are returning.

Among the new highlights will be the Greek pavilion organised by HEMEXPO, the association of Hellenic Marine Equipment Manufacturers and Exporters, which will span over 400 sq m of exhibition space to promote Greek engineering and experienced maritime solutions for the global shipping industry.

The Greek presence is complemented by a second Greek pavilion, organised by the Worldwide Industrial & Marine Association (WIMA), representing Greek companies active in ship construction, ship spare parts & supplies, technical and general services and marine equipment manufacturing.

And while oil continues to fuel the world's transportation needs, data is fast

becoming very important where artificial intelligence (AI) and smart shipping will dominate. The drive for digitalisation, the increased needs for smart shipping solutions and high demand for constant fleet connectivity has led to many companies in the ICT sector confirming their participation in order to compete for a bigger slice of the ever-growing cake (see page 16).

Conferences

The Posidonia conference and seminars programme will once more include over 30 conferences, product presentations, technical seminars and press conferences, all taking place at the Metropolitan Expo. The conference programme will start with the Tradewinds Shipowners Forum, which will tackle current issues facing shipping.

A new event will be the HEMEXPO backed 'Support the Local Maritime Industry Summit', organised by Newsfront – Naftiliaki, to take place under the auspices of the Marine Technical Managers Association (MARTECMA). This will give shipping companies the opportunity to familiarise themselves with HEMEXPO's products and services.

Another new feature of the conference and seminar programme will be the 4th Energy & Shipping Seminar, organised by the Institute of Energy for South East Europe (IENE), which will provide an in depth analysis of the global oil and gas market outlook and analyse the factors that define the correlation between energy cargoes and shipping.

Among the major presentations panned is Saudi Aramco and its partners-Lamprell, the National Shipping Company of Saudi Arabia (Bahri) and Hyundai Heavy Industries (HHI) - unveiling the International Maritime Industries (IMI) shipyard joint venture.

When the yard is fully operational in 2022, IMI will offer newbuild and maintenance, repair and overhaul of vessels, including VLCCs. Spread over 11.8 sq km, IMI will be one of the world's largest service maritime facilities.

To date, IMI has committed orders for 20 offshore rigs and 52 VLCCs to be built over the next decade.The organisation is also establishing a supply chain ecosystem adjacent to the yard to drive localisation, agility and efficiency.

"We have chosen to participate at Posidonia 2018 to showcase International Maritime Industries' position as a global competitor and regional hub for maritime industries and services. Given our geographic location and our proximity to strategic shipping routes, IMI is well positioned to be the partner of choice for newbuild ships and rigs, as well as maintenance, repair and overhaul services.

"Utilising the strengths and expertise of the four partners, we are able of offer customers optimum lifecycle cost, efficiency, and leading-edge technology," said Fathi K Al-Saleem, IMI CEO.

Another Middle East-based company will be celebrating its sixth Posidonia.

Exhibiting in Greece has contributed to establishing Nico International as one of the key players in the marine and industrial engineering sector thanks to a diverse portfolio of drydocking, steel fabrication and ship and boat repair and maintenance services.

Established 44 years ago in the UAE,

Nico International plans to display its wide poertfolio of marine repair services.

Prakash Kumar, General Manager said: "NICO successfully provides essential, efficient and reliable services and total solutions through its technically competent, highly skilled and effective workforce, who are dedicated to meet and exceed customer expectations. The commitment to continued investment in infrastructure development and equipment enables NICO to remain ahead of the growing market needs."

ICT prevalent

The organisers have claimed that over 60 ICT companies have confirmed their participation.

"During the last decades, little has changed in the way ocean going vessels dock, load and transport their cargoes to ports around the world, in comparison to other industries where the advent of digital technologies has brought about a profound transformation," said Vokos.

"But in recent years, we have seen an ever-growing number of ICT companies coming to Posidonia with solutions designed specifically to address the maritime sector's challenges and help it make the transition from tradition to a digitally transformed future," he said.

This year's Posidonia ICT participants will come from 18 countries.

Their services and products include solutions from the realms of AI, big data and automation to the more general ICT topics of cyber protection and computer applications. While the majority of these solutions are already helping shipping improve in critical areas, such as satellite communications, cargo tracking, navigation, crew management and energy efficiency, others are designed with the future in mind aimed at redefining the way shipping companies conduct their business.

According to Andreas Xirocostas, Managing Director, SAP Hellas, Cyprus and Malta: "In an age of increasing expectations and complexity, it is required to re-evaluate today's business and adopt strategies that enable maritime industry to scale, while at the same time be more reliable, cost-effective, and customer-centric.

"To meet the demand, companies have to recognise the importance of being a part of the digital world and incorporating digital strategies. SAP can help shipping companies to create a competitive advantage through innovation and digital transformation with digital core, business networks, supply chains and Internet of Things (IoT) technology," he said.

Greek end-to-end shipping software solutions and professional services provider Fortune Technologies, is gearing up for yet another Posidonia, which it sees as a platform for global brand awareness and the launch pad for its international expansion plans. "Posidonia is a great opportunity and the right place to demonstrate our award-winning solutions to a wide range of relevant customers, share our deep expertise and state-of-the-art offering and demonstrate to the international maritime community the reasons why we have gained such momentum and recognition," explained George Frydas, Fortune Technologies managing director.

First-time Posidonia exhibitor, ShipServ, a provider of procurement, e-commerce, online trading services, has lined up a week full of product demonstrations. For example, the UK-based company, which has offices in Athens, London, Copenhagen, Hong Kong, Singapore, New Jersey and Manila, will present its newly developed supplier performance report, which helps clients analyse trends and identify where

improvements can be made.

Shipserv will also host a seminar entitled: 'Practices in digital procurement & category management. Reduce time, save money, optimize suppliers'.

Technology consultants Socius is preparing for its first standalone participation at Posidonia. The Croatian tech expert, which provides planned maintenance system databases and related technical support, will be presenting Generic PMS databases, which can be imported into any computerised maintenance management system, claimed to be a completely new concept in the European market.

As a regular Posidonia exhibitor, marine electronics specialist TNL Group has five participations under its belt.

According to Evangelos Andriotis, TNL Group CEO: "The Posidonia exhibition has always been a milestone in the international market development towards innovation and its adaptation to the everyday business of the maritime sector. We expect this year's participation to magnify the fact that the integrated solutions we offer are aiming to serve real needs.

"Posidonia is nothing less than the opportunity to improve your knowledge, keeping up with the latest technological developments and explore your chances of becoming part of the big changes that are shaping the market.

"Most importantly though, Posidonia is the perfect meeting place where partners and friends have the time to discuss and exchange opinions, and set the new market trends," he said.

TNL has recently opened a new Cyprus office.

An unexpected, but by now regular exhibitor is Vodafone, which will return to Posidonia for the second time where it plans to share trends and services that can help maritime companies effectively meet current and future telecommunications needs.

Katherine Stathaki, enterprise unit director, said: "Vodafone has always been present and active in serving shipping industry needs by offering credible and flexible solutions. In this regard it is essential for us to stay up to date on trends and issues that affect the industry in order to be able to continue to support shipping companies with meaningful, innovative and relevant integrated solutions."

Among the many other exhibitors which are too many to mention, is UK's Survitec, which is also making its Posidonia debut with the dual objectives of showcasing its portfolio to new and existing customers and launching new products and services to the market.

Support of its Greek distributor Marita Hellas is also one of the aims of the Merseyside-based company, which specialises in the design and manufacture of marine safety equipment.

Its services range from the provision of marine lifesaving equipment for ships through to the total supply and management of marine safety equipment for emergency services and local government.

"We are delighted to be attending Posidonia 2018. The exhibition itself is a great opportunity for those within the maritime industry to discover new and innovative forms of best practice as well as showcase their own outstanding work. As Survitec's boots on the ground in Greece, I'm proud to represent an international brand at Posidonia," said Stavros Fountas, sales director – Continental Europe.

Marine chemicals specialist Chemo Hellas plans to launch a new boiler chemical cleaning solution at Posidonia 2018.

The Greek company will return to Posidonia for the fifth time to gain strong industry support and market endorsement, as it expects to meet with existing clients in the region and to obtain new ones.

"Through our participation at Posidonia and other international exhibitions, Chemo gains recognition of its products and services along with new customers. International exhibitions give us the chance to establish new business contacts locally and internationally along with wide marketing and media outreach," said Stavros Karapanagiotis, managing director.

Romanian crew manning, recruitment and crew management company, Stargate Crewing, is exhibiting for the first time, as it hopes to showcase its brand capabilities and services to the Greek maritime sector, in particular to shipowners, shipmanagers and the Greek maritime cluster at large.

The company is already in the process of opening a new office in Athens for a joint venture enterprise, Crewseas Management, a newly established crew management company with offices in Athens, Romania and the UK.

"We are new to participating in international exhibitions, but we do expect to do some networking with the Greek shipping community with our participation at Posidonia 2018, where we hope to build long-standing business relationships," said Ionut Rusu, Stargate Crewing's managing director. "We are providing the best crew from Romania to our clients, and this is because we are the first choice for the best talent in our market due to our outstanding professional reputation."

Palau calls for more technology

Smart shipping needs smarter support and at Posidonia 2018, Palau International Ship Registry (PISR) said it thought that the industry has an ideal opportunity to showcase the best that technology can offer.

Panos Kirnidis, PISR CEO, said that he believed the next decade in shipping will be dominated by smart technology and increasing concerns about cyber-security – both featuring on the agenda at this year's Posidonia.

"We are the 'smart' registry and we have taken a strong position in supporting the increasing use of technology in the shipping world. The days of paper charts and certificates are on the way out, as more of the shipping sector comes to terms with the necessity of technology.

"Our registry is built on this and being 'smart' in shipping will be the only way to go in the very near future," he stressed.

PISR will be giving a live demonstration of its deficiency preventions system (DPS) at Posidonia showing how through a dedicated department monitoring all Palau ships, they can reduce deficiency and casualty rates.

"Posidonia 2018 will be one of the best showcases for demonstrating how technology benefits shipowners, managers, operators and anyone connected with world shipping. This will be a good opportunity for Palau to demonstrate that not only do we have the 'smart' registry as our slogan, we also have the systems and knowledge to make them work," Kirnidis concluded.

Piracy – the problem that doesn't go away

Had Captain Philips and a number of his officers been Ukrainian or Filipino, rather than US citizens, the story of the 'Maersk Alabama' would have been no different to that of the 75 other vessels attacked or seized by Somali pirates in 2009.*

The news from the International Maritime Bureau (IMB) that first quarter 2018 pirate attacks were markedly up when compared with the preceding four years is of concern and begs the question is anyone looking at the stats? Does anyone outside shipping care?

For the first three months of 2018, 66 merchant ships were reported to have been the victims of an actual or attempted attack, with a third of the incidents taking place off Nigeria – more than double the highest number of incidents in the preceding four years. And the number of attacks off Benin stood at five when none had been reported for the first quarters of the previous four years.

The situation off West Africa is clearly of concern and has prompted the IMB to issue a warning. Ships at anchorage are particularly vulnerable to attack and the IMB's advice is to, if at all possible, to proceed directly to berth, and if this is not possible, to drift 250 nautical miles offshore hopefully out of reach of shore-based gangs.

More recent commentators observe that the first three months of the year have historically always been the most active in the region and that a reduction in such activity should now occur. Well maybe. Much will depend on the ability of the Nigerian Navy to regain the initiative and that in part is dependent on the Nigerian government addressing the lack of technical expertise available to it.

The announcement that Nigeria will spend $186 mill to combat piracy in a bid to safeguard its waters and vessels moving in and out of the country is welcome - if overdue; and the measures announced – new warships, small craft, aircraft and amphibious vessels - whilst impressive, will take time to acquire and deploy.

The new Marine Domain Awareness for Trade – Gulf of Guinea (MDAT-GoG), which replaced MTISC-GoG, appears to be functioning much better than its predecessor and ships transiting the area should register with it and if attacked, file a report.

North P&I's Mike Salthouse

Initial take up had been slow but the sponsoring French and UK governments are hopeful that confidence in the new agency will build over time.

Elsewhere, the good news over the past few years has been the decline in piracy incidents in the Gulf of Aden.

The reasons behind this success lie not in a single measure but in a combination of circumstances and actions, including a more stable political environment created in Somalia, which when coupled with experienced armed guards, a significant naval presence and a very large specialist prison, combined to suppress the problem.

Risk remains

The risk though remains and vessels in the region should continue to observe the recommendations contained within BMP4. The reduction in naval forces should be viewed against the continuing threat posed by pirates in the region. Recent incidents notified to the IMB include a product tanker, which was fired upon and chased by two skiffs around 160nm south east of Hobyo and at the end of March, a Suezmax, which was fired upon whilst transiting the Maritime Security Transit Corridor.

The presence of ladders on board the skiffs involved and the distance from land at which the attacks occurred showed that Somali pirates can still pose a significant threat to merchant shipping within the Gulf of Aden.

Elsewhere in the region, the civil war in Yemen continues to threaten to spill over into mainstream merchant shipping. To date, it is largely Saudi interests, which have been targeted but sophistication of the weapons and techniques - missiles and drones for example - are of concern.

The Gulf of Aden shipping crisis, which peaked in 2010, taught governments and others a great deal about the nature of modern piracy and the threat it poses. The use of security detachments and advisors, coupled with developments in vessels' protective measures, standardised recommendations (such as BMP4) and reporting, resulted in an industry both hardened to the problem and better able to deal with it.

Businesses, such as my own, have played their part first offering owners access to vetting programmes for armed maritime security providers and then more recently partnering with others, such as Gray Page and the Company Security Officers Alliance (CSOA) to make available real time intelligence on threat levels.

But the problem persists. TO

**This article was written by Mike Salthouse, Deputy Global Director (Claims), The North of England P&I Association.*

Don't discharge cargo without bills of lading/LOIs

Discharge of cargo without original bills of lading and letters of indemnity (LOI) is one of the biggest risks a shipowner or charterer can take, warned law firm HFW, formerly Holman Fenwick Willan*.

LOIs are an essential document to help world trade run smoothly. They are given by cargo interests and parties above them in the contractual chain to obtain cargo at a discharge port without delay in circumstances where the original bills of lading are not immediately available.

However, LOIs are fraught with danger and have lead to much recent litigation - the latest reported case being the 2009-built 19,954 dwt chemical tanker 'Songa Winds' discussed below.

If delivery is not made in compliance with bills of lading then an owner may face a claim from the lawful holder of the bills for conversion. The owner may then have a liability for the full value of the cargo, with no applicable defences or standard P&I insurance cover (although the International Group have recommended LOI wording there is still no club cover).

The LOI will effectively be the owner's only 'insurance' and if the LOI provider does not arrange security the owner may be unable to release the vessel and could face a forced sale. In the liquid or drybulk trades, the value of cargoes could be tens of millions of dollars. If the LOI cannot be enforced an owner may become insolvent.

Quick action is needed to pursue recourse against all parties in the charter and LOI chain if issues arise and to defend or delay the claim from the bill of lading holder to the extent possible.

The following English Court cases, including the 'Songa Winds' published last month, all consider situations where an owner has agreed to release cargo without production of original bills of lading only for a third party (usually the bank financing the purchase of the cargo) to later arrest the owner's vessel claiming to be the lawful holder of the bills and that the cargo has been mis-delivered.

The third party's motive for pursuing the owner is usually that they are an easier (and more solvent) target than the cargo interest who defaulted under a financing or sale agreement. This means the owner and parties below them then have to rely on their LOIs.

Relevant cases -

- THE SONGA WINDS (Songa Chemicals AS v Navig8 Chemical Pool Inc [2018] EWHC 397).
- THE ZAGORA [2017] 1 Lloyd's Rep. 194.
- JAG RAVI [2012] EWCA Civ 180.
- THE BREMEN MAX [2009] 1 Lloyd's Rep. 81.
- THE LAEMTHONG GLORY [2005] 1 Lloyd's Rep. 632.

In addition, an owner needs to consider if the issuance of an LOI is being used to defraud the original consignee of the cargo. The owner should be particularly alert if the party named in the LOI does not match, or is not related to, the original consignee. If an LOI is found to assist in defrauding the original consignee then it may not be enforceable.

An owner can run into problems when attempting to call on the LOI they have accepted to protect themselves from this very scenario. It is now very clear (the 'Bremen Max' case) that if the cargo is not delivered to the party stated in the LOI then the LOI will not normally respond.

This principle has been tested and upheld in more recent cases (the 'Zagora' and the 'Songa Winds'), which found that delivery to an agent of the consignee complied with the usual wording in an International Group LOI permitting delivery to the consignee 'or to such party as you believe to be or to represent [the consignee] or to be acting on behalf of [the consignee]'.

Whether a party is an authorised agent of a consignee at the discharge port is a matter of fact, but this is rarely an easy task for a Master particularly if parties at the discharge port have ulterior motives. Good evidence retention concerning what happened at the discharge port, including who the cargo was released to, is essential.

There is generally no P&I Club cover for LOIs and so the recipient must carry out due diligence checks on the financial standing of the issuer before acceptance. However, as the diagram on page 21 shows, frequently there is a chain of LOIs that mirrors the charter chain.

Even if the issuer of the immediate LOI to the owner is not 'good for their money', HFW's Rory Butler and William Gidman have recently acted in two cases where owners/ charterers have successfully relied on the Contracts (Rights of Third Parties) Act 1999 and the principle in the 'Laemthong Glory' to secure the release of the vessel and avoid all liabilities by directly enforcing an LOI issued by a more financially sound party further down the LOI chain.

This approach is possible if an LOI not immediately issued to the owner is nevertheless addressed to 'The Owners/ Disponent Owners/Charterers of the [vessel]'. This wording has been found to confer a benefit on an owner permitting third party enforcement.

The flip side is that a party further down the LOI chain who does not want to have any direct liability to an owner should consider excluding the Contracts (Rights of Third Parties) Act and restricting the beneficiaries of the LOI.

Electronic bills

It has been suggested that e-bills of lading will solve this problem once and for all. While this may ultimately prove to be correct, some technical solutions present their own problems.

On a related note, the recently published judgment in 'MSC Eugenia' [2017] EWCA Civ 365, highlights the danger of cyber fraud, which is also not usually covered by P&I insurance, and of releasing cargo against pin codes rather than bills of lading.

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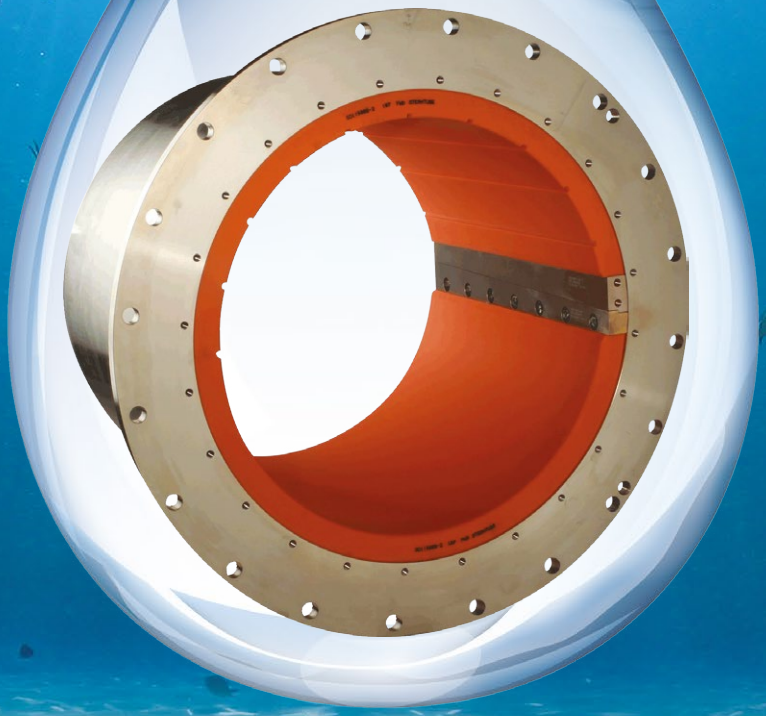

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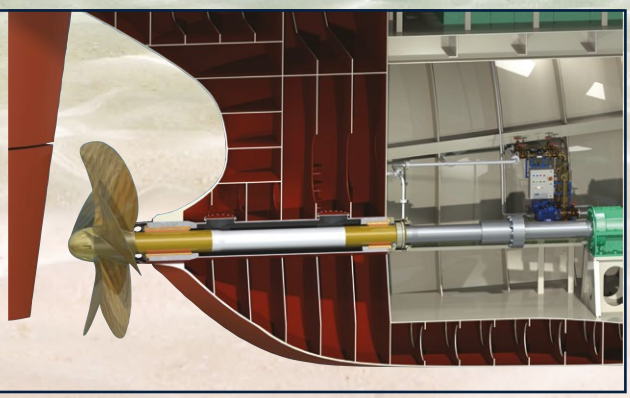

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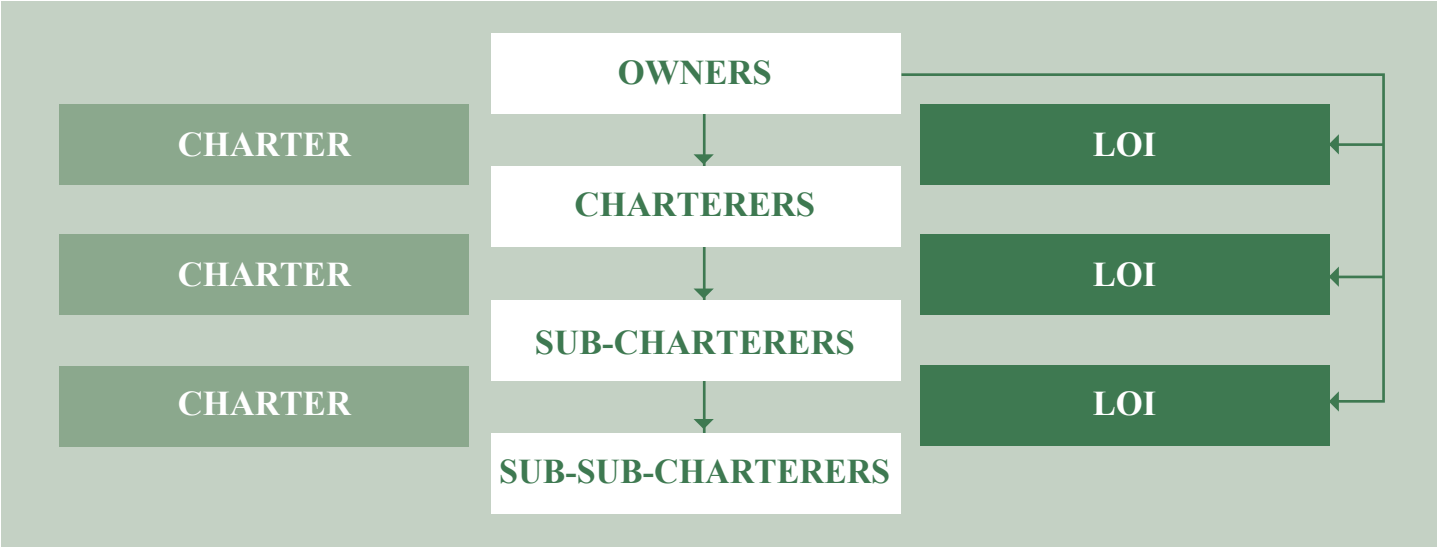

LOI Checklist. Source: HFW

Getting an LOI right at the time of issuance and acting fast to enforce its terms is vital. Below is a general checklist of steps to consider, but specific legal advice should always be sought given the level of potential exposure.

For party receiving LOI - when drafting the LOI -

- Is there a legitimate reason for the LOI?
- Is the issuer of the LOI of good financial standing and in what jurisdiction are their assets located?
- Is the recipient of the cargo under the LOI the same as the consignee under the bill of lading?
- Include wide wording 'or to such party as you believe to be or to represent [the receiver] or to be acting on behalf of [the receiver]' as per International Group recommended text.
- Ensure LOI addressed to a wide range of parties - 'The Owners/Disponent Owners/ Charterers of the [vessel]'.
- Ensure Contracts (Rights of Third Parties) Act is included (or at least not excluded).
- Ensure the validity of the LOI not time limited.

At delivery -

- Ensure delivery is to the party named in the LOI or their agent.
- Obtain evidence confirming the identity and capacity of the party taking delivery.
- Ideally do not release the cargo from the port until the original bills of lading have been collected.

Enforcement -

- Did delivery take place in compliance with the instructions in the LOI?
- Can an owner rely on the Contracts (Rights of Third Parties) Act?
- Anti-suit injunction required to prevent claim by third party in foreign jurisdiction contrary to law and jurisdiction of the bill of lading?

For party giving LOI - when drafting the LOI -

- Exclude or narrow the wording thus do not use 'or to such party as you believe to be or to represent [the receiver] or to be acting on behalf of [the receiver]'.
- Only address LOI to a single named party, normally your direct counterparty.
- Exclude the Contracts (Rights of Third Parties) Act.
- Time limit the validity of the LOI.
- Limit the level of liability.

Enforcement -

- Did delivery take place in compliance with the instructions in the LOI?
- Ask owner for evidence confirming the identity and capacity of the party who took delivery.
- Can an owner rely on the Contracts (Rights of Third Parties) Act?

TO

**This article was written by HFW's Partner Rory Butler and Associate William Gidman.*

Rarely used legal structure

As outlined in Lukoil v Ocean Tankers ([2018] EWHC 163 (Comm)) charterers successfully identified a claim as demurrage, thus time-barring it under a standard clause (see *Tanker Operator*, April, page 14)

As outlined in Lukoil v Ocean Tankers ([2018] EWHC 163 (Comm)) charterers successfully identified a claim as demurrage, thus time-barring it under a standard clause (see *Tanker Operator*, April, page 14)..

The 23rd April decision in Glencore Energy v OMV ([2018] EWHC 895 (Comm)) involved a similar approach, but this time the claimant prevailed under a rarely used legal structure.

This dispute concerned a sale contact but could easily have arisen under a charterparty, C Demurrage reported.

In the later case, during the carriage of oil sold under a CFR contract there was congestion at the discharge port and the sellers agreed to the buyers' request for the tanker to wait offshore until a berth became available. This is commonplace and happens many times daily and worldwide.

When the sellers later claimed for the time and also the bunkers used, the buyers argued that it was a demurrage claim and so time-barred, citing a provision reflecting familiar charterparty terms, that; 'Any claim for demurrage [was] to be received latest 90 days from completion of discharge otherwise it [would] be deemed to have been waived …'

As in the Lukoil case, everything depended on the nature of the claim.

Perhaps partly seeking to adopt the description and invoicing of the claim elsewhere as one for demurrage, the buyers urged that it was precisely that and had come about by either (a) straightforward application or (b) variation of the contract, and either way the 90 day deadline was intact and barred the claim.

The sellers rejected that, but they still needed to be able to point to a contract. Somehow they had to show that the buyers had agreed to pay for the time and bunkers used, and in a way that did not involve the time bar. They argued for an implied contract.

Application, or variation?

The court rejected the buyers' arguments because (a) the operational events while and after the vessel waited simply did not fit within the contract terms and (b) similarly, to cover what had happened, any contract variation would have needed major change to several clauses, and there was no such thing.

The sellers said the correspondence showed that, due to their agreeing that the vessel would wait, there was an implied contract that they would be paid - for what was a period of detention - at the demurrage rate, and that they would also be reimbursed for the additional bunkers.

The buyers argued that the courts only imply a contract when it is necessary, and do not when the matter is already covered, which they had said it was.

The judge said this was a straightforward case of an implied contract for what has been called 'delay by agreement'.

The buyers had asked the sellers to do something outside the contract terms and the sellers had agreed. It was wrong to describe the extra performance as falling under the contract (as it did not), and there was an implied contract that the vessel would wait as asked and the buyers would meet the cost of that. This included the additional bunkers, as shown by the buyers' unusual request for related ROB figures.

An implied contract was necessary here, to give effect to a business reality, which anticipated enforceable obligations, without which the sellers would not have been paid for what they had agreed to.

The claim was for detention, not

demurrage, though as here it was acceptable to use the demurrage rate, and moreover it did not matter how things had been described and invoiced by owners under the charterparty.

The sellers were not time-barred and their claim succeeded.

Discussion

Many fixtures contain what are often lengthy provisions on for example waiting, diversion, contra-rotation, extra steaming and additional bunkers, and commercial analysts are used to applying these and calculating the resulting costs.

However, this case shows that:

1. Amid the heat of detailed operations, it is sometimes essential for parties to take time to think about how requested changes might affect arrangements, and how that will be paid for.
2. It might be necessary to set out what has been agreed, so that all is captured, in the moment, rather than having to tackle it afterwards and perhaps face ingenious and motivated argument.
3. As ever, time bar should be watched carefully, and the arguable nature of each aspect of a claim should be checked against the wording of the relevant clause.
4. Though readily found here, implied contract is by no means common and parties should not rely on it.

In analysing another case, C Demurrage said that with charterparty chain issues a regular theme, judicial resistance to Arbitration appeals is a traditional one and examination of post breach events an emerging one.

The decision in ST Shipping & Transport Pte Ltd v Space Shipping Ltd (The "CV Stealth") (No.2) [2018] is an example of all three.

The story begins with voyage charterers' illegal attempt to export oil from Venezuela. The facts are mired in a tangle of local criminal and civil law and the procedural history is long and involved, but the essence is that:

(a) the vessel was bareboat chartered from the owners to Space Shipping, timechartered from Space to ST Shipping & Transport and voyage chartered out.

(b) On 4th September, 2014 she was ordered to proceed to load. The order originated from the voyage charterers, and caused her to be detained in Venezuela until 21st July, 2015, and continuing, while the authorities sought to investigate. Wrongdoing by the owners, Space and ST Shipping was never suggested.

(c) The Arbitrator found ST Shipping liable to Space for the financial consequences of the detention up to 21st July, 2015.

(d) ST Shipping's appeal failed. The judge agreed that the 4th September order was at least an effective cause of the detention. This was a valid factual finding, which could not be appealed.

(e) By a second Award, the Arbitrator rejected Space's claim against ST Shipping for (i) trading losses from 21st July, 2015 and (ii) expenses due to the detention.
This was because (i) Space would have redelivered the vessel to the owners on 22nd July, 2015, so there could have been no trading losses and (ii) though $800,000 was recoverable in principle, Space had to give credit for what would have been a $1.4 mill drydocking in June, 2015.

(f) For a further lengthy period, the Arbitrator later ordered ST Shipping to pay Space hire, as payable to the owners under the bareboat charterparty, and additional detention expenses.

He ruled that, despite the often contradictory behaviour of the Venezuelan authorities and courts, nothing had changed : the 4th September order was still an effective cause of the detention.

The appeal

ST Shipping said the Arbitrator had got that wrong. The detention was no longer due to the 4th September order but was caused by the perverse local judiciary, who (all seemed to agree) should long since have released the vessel.

The judge rejected that. The Arbitrator had reached a valid conclusion, and the appeal was another attempt to dress up an impermissible attack on a factual finding as an error of law, but it was nothing of the kind.

In analysing this case, C Demurrage said that it remained true that it is hard to challenge an Arbitration Award.

The permission usually needed is difficult to get, and the commercial judges who hear the appeals do not readily interfere. They frequently cite the reasons for what is plainly an established policy, and the fact that we have mentioned this in several recent commentaries highlights rather than dilutes this.

Although this largely involved bareboat and time charterparties, similar issues could arise in the common situation of a voyage fixture from timecharterers - indeed this whole thing started with an (albeit illegal) order from voyage charterers.

Orders as to the vessel's employment mostly originate from voyage charterers, and if those are in breach of charter, demurrage and later detention liability can be the first issues.

In addition -

1. Voyage charterers could face timecharterers' recourse claims for their own losses and liabilities;
2. In response, they might seek to make use of anything that crops up - sometimes by sheer luck - with the passage of time. They could argue that some later event lessens their demurrage or detention liability, or reduces or eliminates a recourse claim, or might do.

Under English law, damages are (a) assessed at the time of the breach (b) restricted by what usually happens, or what the parties must reasonably have reckoned is the probable result of the breach and (c) to put the claimant in the same position as if the fixture had been performed.

Sometimes, though, (c) overrules (a), so things that happened after the breach can be important. The "GOLDEN VICTORY" [2007] heralded a trend of respondents seeking to use later developments to defend claims.

These arguments do not always succeed, but the courts increasingly listen to them.

Conclusions

Parties should remember that some locations can be less straightforward than others, and that even routine orders can have lengthy and costly consequences.

Recourse will be (a) sought under express or implied charterparty indemnity (b) often difficult to resist under established principles of causation and (c) increasingly met with defences based on what has happened since. If the claim might involve a long time period, both sides should look carefully in case something relevant to damages has happened - or might do.

In all cases, an Arbitration Award will usually prove final, C Demurrage warned.

TO

Low sulfur cap - do your homework!

In an opening keynote address on the second day of the 2020 Sulfur Cap Conference held in Amsterdam last month, Don Gregory, Director of the Exhaust Gas Cleaning Systems Association (EGCSA) & Technical Director, Gulf Oil Marine, extolled the virtues of installing scrubbers.

He claimed that the only commercial technology solution currently available to meet compliance with MARPOL Annex VI Regulation 14 is an exhaust gas cleaning system, namely scrubbing.

"Remember Regulation 14 requires ships to use 0.1% sulfur fuel in ECAs and 0.5% sulfur fuel globally from 2020. There are also regional ECAs with slight variations. Examples include the 0.5% sulfur cap in some Chinese rivers and coastal areas.

"EGCSA was formed in 2008 to protect the industry in its fledgling state at that time. Today, I believe and attempt to ensure, it represents high standards, quality, ethical behaviour and honesty. EGCSA offers impartial technical information, advice and opinions on many current and future issues and challenges related to emissions reduction," he said.

In reality, there are about 17 months left to prepare strategies and implement actions to be ready for the global sulfur cap around September, 2019. "Leave it any later than that and there is a considerable risk that a fleet will not be in compliance on 1st January, 2020," he warned.

In another presentation, Reederei Nord's technical manager David Cox said that his company had no idea what their compliance will look like. His remarks are a common theme heard over and over again, Gregory said.

"There are four areas that seem to be part of the reason for the continuing hiatus of activity to meet compliance. In my view, these are uncertainty, quality of information, IMO regulations and, lastly, opportunity or possibly lost opportunity," Gregory explained.

Uncertainty

Starting with uncertainty, there are many questions we continue to hear. For example, an EGCSA member emailed asking if it was true the MEPC 72 had agreed to postpone 2020. That was a rumour in his market. Let us be clear: there is no postponement planned.

Other uncertainties include -

- Will 2020 be enforced?
- Will high sulfur fuel oil (HSFO) be available? There is no question it will be in surplus and available at rock bottom prices. However, the supply chain may have to be re-started if demand drops in 2020 and does not resume for a year or two.
- Should we choose alternative fuels?
- Do scrubbers work and can they really be installed in a retrofit situation?
- How long does a retrofit take?
- Aren't scrubbers banned in open loop mode in European ports and don't they simply transfer pollution from air to sea?

Quality of information

Uncertainty can also be considered as affecting the quality of information in shipowner's hands. It could also be labelled lack of real research on the part of shipowners or opinion sourced data. Too often, a throw away comment such as, 'open loop scrubbers are banned in Europe' becomes the factual position.

The facts are that open loops scrubbers are used in all of Europe, except Belgium where government legislation imposed a ban on all water discharges long before scrubbers came to the market. Germany also has a partial ban in some of its rivers but not everywhere.

"The facts are that there is no evidence whatsoever that scrubber discharges have or do cause harm to the aquatic environment. There is a large body of research on this from land-based scrubbers, such as those at the Mongstad refinery in Norway or the scrubbers installed at Longannet Power Station in the Firth of Forth, near Edinburgh," Gregory said.

Ship operators need to improve their information base and ensure it is reliable and factually accurate in order to make informed choices and the best decisions possible.

EGCSA's Donald Gregory

Some of the information they should be clear on would include -

- How are scrubbers installed in a retrofit situation? Ship operators could talk to some of the specialist installer companies and ask to see case studies. They could also talk to some of the ro-ro companies in Europe. What were their main problems? Are they still a risk?
- When do scrubbers become cost effective? Is there an engine size or fuel consumption minimum to make the payback period for an installation cost effective? If the payback is short and there are no other downsides, then there is a real incentive to fit scrubbers.
- Ethically, are scrubbers likely to be better than a fuel switch? Prof Ralf Zimmermann, Full Professor of analytical chemistry at the University of Rostock has suggested that, at worst,

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both solutions have similar health effects in highly populated ports. At best, scrubbers may result in slightly less harmful emissions than using 0.1% sulfur distillates.

- What are the real implications of the fuel compliance route? Is it simply using gas oil at 0.1% sulfur for a few bunker stems? Shipowners should talk to Danny Evans of AW Shipmanagement, whose company has done the changeover for its ECA fleet. It has secured its long-term fuel supply, but it has also experienced non-compliance detentions. It is for shipowners important to examine real case studies and the facts. The fuel switch option may not be as simple as we think.

The paucity of real facts and the extent of opinion driven data is worrying. Those who don't research the facts but rather provide their top management with information based on hearsay or assumptions may find they have made the wrong choices come 2020.

The EGCSA website can be used to source some of the information the industry may need, Gregory advised. Access and use of the material is free to all. If data from the website is used in public, source acknowledgement would be appreciated.

IMO regulation

There has been a lot of press coverage of the ban on the carriage of HSFO on ships not fitted with scrubbers. MARPOL Regulation 14 was poorly written in terms of compliance enforcement. The carriage ban is trying to fix that with more poor and not very well thought through regulations, he said.

The only benefit of the carriage ban is that is will give Port State Control (PSC) the legal power to tackle non-compliance rather than simply report it to the FSC. That is assuming that PSC has the resources needed to undertake the carriage ban inspection – a difficult and very demanding inspection.

As always with IMO regulations, there is an attempt to be fair and allow for circumstances outside the control of the ship operator to comply with the regulations.

"This brings me on to the 'Fuel Oil Non Availability Report' (FONAR). On the face of it, it seems a simple idea to implement. All that shipowners need to do is, just state in the report why they could not obtain the compliant fuel and hand it to the PSC and FSC.

"Well, life it not that simple. How many ship operators accept a charter to anywhere without working out things like: is this a war zone?, can victualling be done?, are fuel and lubes available?, what are the berths like?, do we have a ship's agent, etc?... FONAR is not a get out of jail free card and certainly needs to be used sparingly or perhaps not at all," he stressed.

Similar to the uncertainty surrounding ship operator decisions, the IMO has not yet prepared the ground for effectively managing the implementation of the global sulfur cap. Hence, there is a week long intersessional meeting in July to propose, discuss and resolve the what-ifs.

Ship operators and others in the industry are encouraged to contribute to this meeting. "I would therefore urge you to talk with your representing organisations and governments as soon as possible," he advised.

Opportunity

As for opportunity, the shipping industry has lost an opportunity to make the transition to lower sulfur emissions much less painful and much more gradual. That would have been the effect if the industry had embraced an emissions trading scheme. This would have worked a little like banking and trading; a scheme that makes it possible for emissions allowances and reductions in emissions beyond the set limit to be monetised. Such a scheme would have allowed a much more cost effective and practical transition to take place, Gregory explained.

"But that is history. The opportunity we have now is a choice between ensuring that compliance choice results in, at worst, a neutral outcome, or to strive for a better outcome that results in a competitive advantage," he said.

In conclusion, Gregory said that the street market trader lives on his or her knowledge of the competition and the customers.

The ship operator needs to invest in building that same awareness based upon facts and not opinion. All ship operators should:

- Understand the most cost effective and secure method of achieving compliance for their fleet.
- Be able to be in compliance well before the 1st January, 2020.
- Work out how they can demonstrate compliance so their ships do not need to be inspected. Emissions monitoring and the availability of that data seems a sensible and rational option.

Once the strategy and plans have been crafted and are ready for implementation, shipowners need to be sure to let their key stakeholders know. If they need HSFO in certain ports or 0.1% sulphur fuel in others, it would be wise to advise the bunker suppliers of their estimated demand. Likewise, they may need to make changes to their lubricant stems.

Ship suppliers can only make preparations if they know what is going to be required.

"There is a lot more to reflect on concerning the situation we are facing as 1st January, 2020 looms, but I hope the topics of uncertainty, information, IMO regulations and the real opportunities to be had provide some food for thought," he concluded. TO

About the EGCSA

The Exhaust Gas Cleaning Systems Association (EGCSA) was established in 2008 to help create a sustainable operating environment within the marine and energy industry sectors for exhaust gas cleaning system technologies.

It aims to provide clarity and a rational voice for those companies interested in reducing marine exhaust gas emissions.

EGCSA offers impartial technical information, advice and opinion on the many current and future issues and challenges related to emissions reduction and marine exhaust gas cleaning systems.

Member companies are involved in the development, design and final installed configuration and design approval and acceptance of turnkey exhaust gas cleaning systems to meet the IMO's current and future emissions regulations and, where applicable, additional regulations introduced by regional and national authorities.

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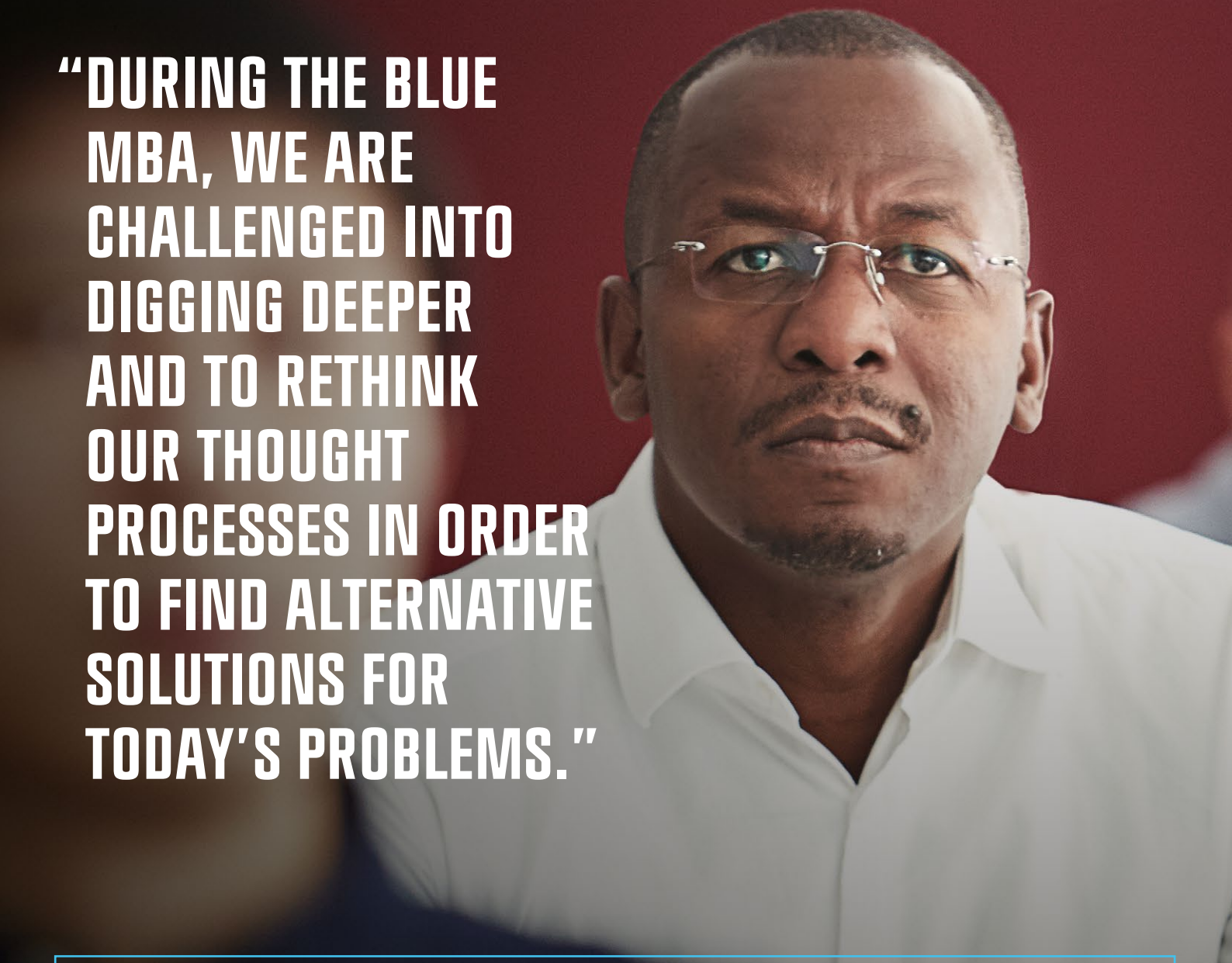
Amado Mabasso, CEO, Corredor de Desenvolvimento do Norte, SA (CDN), Mozambique (class of 2019)



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Supporting navigational safety: High-density ENCs

Advances in digital technology have had a significant impact on commercial shipping, with increasing ship-to-shore connectivity helping to improve on board processes and crew welfare.*

Big data technologies also have a big part to play, creating opportunities to manage larger sets of marine data and generate new insights into the marine environment; this, in turn, can support infrastructure development, the sustainable use of marine resources and unlock the potential of navigational tools.

Electronic Navigational Charts (ENCs) are one such tool, giving ships highly accurate, up-to-date navigational information to support safe passage. When nautical charts were transferred into these digital formats, many of the industry standards for creating a clear visual guide were adopted 'as is'.

One of these was marking depth contours at mainly 5 m intervals. Using information input by the mariner, an ECDIS will set a safety contour at a level that corresponds to these depth contours - demarcating a boundary between what is deemed to be safe water and shallow. The ECDIS will then alarm if a ship is approaching this line to help prevent groundings.

Issues can arise when mariners want to set a safety contour depth between two 5 m intervals, as the ECDIS will default to the next deeper contour if the value entered by the mariner is not available on the ENC.

This means that a clear route could be displayed as very narrow when it is in fact safe to navigate the ship through much larger areas, or a mariner may need to knowingly cross a safety contour to reach a destination.

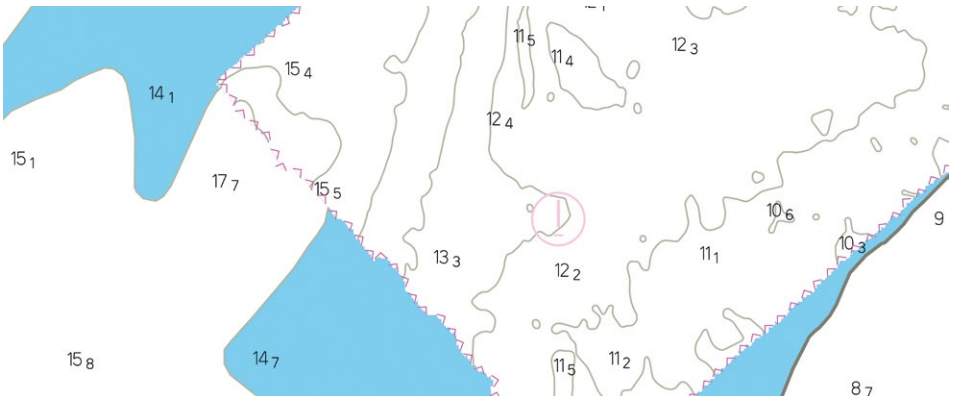
For instance, there is a point in the UK's Bristol Channel called 'the bridge', where silt collects to form an area of water that is far shallower than the rest of the channel. Ships must pass over this area to get to the Port of Bristol, or to continue to Sharpness. However, even though they can safely transit this area, it is beyond the safety contour for most ships.

Relieving stress on the bridge

This could result in those entering the Port of Bristol may need to knowingly cross the contour – setting off multiple alarms, causing disruption on the bridge, and creating significant paperwork for the Master to then explain.

To overcome this challenge, the UK Hydrographic Office (UKHO) used a new data processing tool to deliver charts for this area containing 1 m contours. Available through the ADMIRALTY Vector Chart Service (AVCS), these new high-density charts contain much more information about the seabed relative to charts of the same area; allowing ECDIS to set safety contours at 1 m intervals and help ships to reach the Port of Bristol safely, without having to override alarms and break safety protocol.

This helps to reduce stress on the bridge and can give crews a greater degree of confidence on the approach for the safety of cargo and ship.



ENC with 1 m contour

The creation of these charts was achieved by the UKHO through the development of a new software tool that automatically processes billions of bathymetric data points to draw 1 m contours. These are then confirmed within the software to ensure compliance with strict international standards for all ECDIS systems and then manually checked by a cartographer to confirm accuracy.

This means that data, collected from this area by the Port of Bristol Authority via multi-beam sonar, can now be quickly processed to deliver up-to-date charts to ships navigating the channel. In turn, this now opens the opportunity to create more charts for similar areas in UK waters, giving mariners additional detail to support safe navigation.

The potential of big data technology and marine geospatial information to support commercial shipping is growing, and the pioneering research in data and information gathering demonstrated by the UKHO is just one example of how this can support innovation within the industry.

By expanding this technology, the UKHO can help tankers travelling in UK waters using ECDIS to transit with greater certainty as to the safety of their crews and cargoes, and the protection of the marine environment. TO

**This article was written by Chris Berkley, UK Hydrographic Office.*

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Explore ECDIS more confidently

Hamburg-based Safebridge has launched a new training course - ECDIS Basics.

It is claimed to cover the lack of knowledge in general navigation with the objective of imparting practical hands-on knowledge about the most common ECDIS features and functionality.

Since ECDIS has become an essential tool for watchkeeping officers, a sound knowledge of the system's limitations and possibilities, including its strengths and weaknesses, is a prerequisite.

The new training course is based on the book 'ECDIS Basics' written by Prof Ralph BeckerHeins.

The course was designed for a web-based learning environment. It is divided into seven modules, which cover ECDIS common features and functionalities.

Starting from a basic ECDIS overview to familiarisation with international and national requirements, course participants will become acquainted with the objectives of each module by following the units. Each unit is subdivided into the topics illustrated with animation and video.

The user may strengthen his/her understanding by completing a questionnaire after each module. At the end of the course, the student can take an online self-assessment in order to obtain a certificate of completion.

This course is delivered via an advanced e-learning platform, which enables a participant to learn at anytime and anywhere that is most convenient for the student, regardless of geographical location.

Confidence

After successful completion of the training, he or she will be able to start exploring the new ECDIS interface more confidently and allocate the newly-found type specific control elements in a proper way to his/her general picture of ECDIS operability, Safebridge claimed.

TO

Navigational warnings in ECDIS reduce accident risk

The STM Validation project has helped to reduce the navigator's workload and decrease the risks of accidents and misunderstandings.

With the new Baltic Navigational Warning service, navigational warnings can be sent directly to the ECDIS on board through digital communications from machine to machine.

This service allows warnings to be sent only to those affected and to be deleted when no longer relevant thus creating greater accuracy, relevance and lessen the administrative burden leading to increased safety at sea.

Its purpose is to provide the ship with only those warnings that are relevant for the route taken and for the time they are sailing on that route. The warnings will be displayed directly in the ECDIS on board and automatically deleted when they are no longer valid.

This reduces the workload on board as there is no need to manually plot positions or areas received by NAVTEX or voice communication. Warnings are provided digitally and shown directly on the ECDIS, thus avoiding human errors, misunderstandings and manual plotting errors.

Björn Andreasson, the testbed manager for the STM Validation project said: "The new service is being verified by ships in the STM Validation project and also in the European maritime simulator network.

"The mariners participating in the simulations were very positive. Not having to receive navigational warnings by Navtex only and manually transfer them was a great relief for the participants. An Officer on Watch said in the debriefing afterwards that he now could fully focus on safe navigation knowing that the navigational warnings of relevance would show up directly in the ECDIS on board," he explained.

According to London P&I Club, insurance inspections regularly find deficiencies in managing navigation warnings and notices to mariners, as officers fail to implement navigational safety notices. By providing the notices directly to the ship's ECDIS, manual work and risk of missing important information is reduced.

This service has been developed within the STM Validation project, funded by the European Union and led by the Swedish Maritime Administration. The warnings are sent to the ships using the draft S-124 format. The S-124, navigational warnings, product specification is currently being developed by an IHO correspondence group.

Malin Liljenborg of the Swedish Maritime Administration is participating in the IHO´s sub-committee on the worldwide navigational warning service. She said; "The S-124 format presents the information in a way that can be distributed by different means of communication allowing all types of navigational warnings to use this in the future. Both STM Validation project in the Baltic Sea region and the SMART Navigation project in (South) Korea are working together to test this new format.

"The two projects give us an opportunity to test the format at an early stage, which is a great advantage, as we can use the experience in our continuous international work with improving navigational warnings globally," she said.

TO

Seagull now offers JRC type-specific training

One of the challenges that navigating officers' face is a large number of ECDIS systems found on vessels, all with different user interfaces.

However, on boarding vessels officers need to be able to competently use the ECDIS, as it could be their main source of navigation.

In order to assist the shipping industry, Seagull Maritime has partnered with ECDIS developers to create cost-effective ECDIS type-specific training for several of the widely used models.

Seagull has collaborated with Japan Radio (JRC) for several years and is now able to deliver type-specific familiarisation on JRC ECDIS JAN-7201, JAN-7201S, JAN-9201, JAN-9201S.

JRC approved familiarisation is already delivered on JRC ECDIS models JAN-701, 901 and JAN-2000, illustrating Seagull's strong links with JRC.

Japan Radio is one of the world's oldest established companies in the field of marine electronics. The company has a rich heritage in maritime satellite communications, dating back to the world's first Marisat terminal in 1975.

From then on the rest is history taking the development through the Inmarsat alphabet. Since its founding in 1915, JRC has pursued an independent path as a leading company in information technology and wireless communication equipment.

Training imperative

With ECDIS being now mandatory on vessels, it has become even more important to ensure that navigating officers are well trained both in their generic knowledge of ECDIS functions, but also the type of ECDIS they are using on board.

The IMO recognised the importance of ECDIS familiarisation training with the amendments introduced to STCW.

There is also the requirement in the ISM Code for officers to be fully trained to approve standards.

Seagull Maritime's ECDIS courses are based on the requirement for type-specific familiarisation and are approved by the ECDIS developers themselves.

For several years, Port State Control (PSC) inspectors have continued to target ECDIS use as part of their ship inspections. In some cases, this has led to ships being delayed for crew training when they were found deficient in ECDIS operations.

TO

Data management platform success

DNV GL's data management platform, Veracity, is closing in on a million service subscriptions.

Users from 1,500 different companies are now accessing multiple products in the marketplace.

Veracity acts as a safe ecosystem for companies to manage their big data. Users can store data and access analytical tools or other standalone digital services on the platform.

There are almost 150 services offered from both DNV GL and external providers and this number is growing with a recent flurry of additions from companies operating in the oil & gas, renewables and maritime sectors, as well as new specialised data analysis tools covering all industries.

From its launch in February, 2017 to the middle of April this year, the platform's full range of services have been restricted to a selected number of clients but it has now transitioned to the 'public preview' phase, allowing customers to start using/exploring the advanced data sharing functionality - also known as the Data Fabric.

Even with these limitations, 900,000 services have been subscribed to by 120,000 active users, many of whom previously used the portal My DNV GL, the class society claimed,.

"The strong take-up of services on Veracity is indicative of a hunger in many industries for solutions which explore and create value from data," said Remi Eriksen, DNV GL Group CEO and President.. "Our partners value DNV GL's trust position and our emphasis on safety, and together with the strong framework provided by Microsoft Azure and our own technical expertise, the platform is delivering real value for the 1,500 companies that are already using it."

A number of new providers and services have recently been added to the marketplace or will soon come online.

These include:

- A tool by SteelCorr which co-ordinates complex industrial painting projects by using Veracity as the common platform, which also encourages the standardising of data.
- ScanReach's In:Reach solution, which uses wireless technology on board ships to transmit the location of crew, giving an instant overview of personnel during an emergency.
- DNV GL's Resource Compass gives customers access to long term wind and solar data.
- The AGR tool which contains information on 80,000 oil & gas wells.

Strong growth

As well as the different services offered, DNV GL expects strong growth in Veracity Data Fabric components, which connects customer's data with analytical tools. For example, Arundo Analytics recently joined the platform to offer industrial data science solutions.

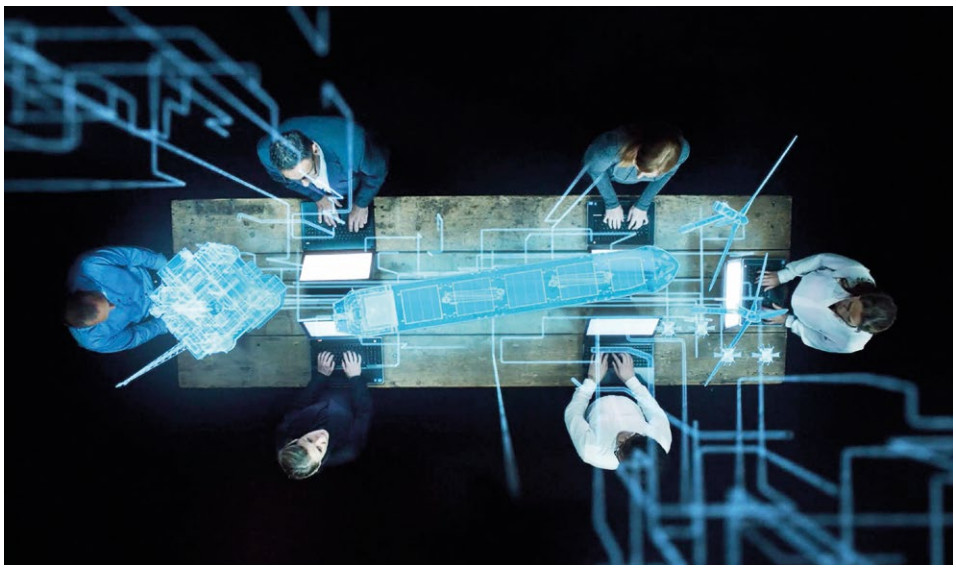
Veracity head Bjørn Tore Markussen

Bjørn Tore Markussen, Head of Veracity at DNV GL, said; "There is no panacea that will automatically create value from big data, which is why we have put an emphasis on making Veracity an ecosystem where companies can tap into relevant platform features and connect with each other.

"The buzz around the Industrial Internet of Things (IIoT) and big data often neglects that companies require both cost efficient digital infrastructure and the necessary tools to interact with customers and suppliers effectively. Veracity, however, is becoming the place to meet these digital aspirations," he claimed.

For more than 150 years, DNV GL has claimed to be an independent voice in the industries it operates in and the company is using the same approach to Veracity. The owner and provider of the data maintains full control of their data, unlike some other emerging platforms, and Veracity enables the safe access to third party services.

Veracity will continue in the public preview phase before entering general availability later this year. DNV GL will continue to verify the design and functionality of these elements of the platform, and explore how value can be best created for asset owners and analytic providers, the company concluded. TO



A Veracity schematic

Navios Maritime Acquisition Corporation

A Vertically Integrated Global Shipping Company

www.navios-acquisition.com

Tanker sector embraces Eniram's software

The particularly cyclical nature of the tanker sector, the present market volatility and low charter rates, have been raising the requirement for more efficient operations and optimised vessels.

Nick Pinkney, head of sales SEAF of Eniram – a Wärtsilä company - explained how the software company can help the tanker sector meet this goal going forward.

These market conditions have helped drive Eniram to develop both new products and services to support the tough trading conditions, he said.

The fundamental elements of digitalisation and data are nothing new to the tanker sector, who for decades have been facing a constant flow of analogue and manual technical and operational data with the requirement to sort through this data to the core value and make the best decisions.

What digitalisation has been bringing to the table is a double-edged sword; on the one hand for companies purely collecting the data electronically they are faced with even more data and potentially workload. "Eniram has been working hard on behalf of our customers to help isolate the single line of data amongst the thousands of lines of automatically collected data and ensure what is being flagged up can be trusted," Pinkney explained.

For Eniram this takes the form of providing trusted insight, flagging the data up via mobile applications, reports and analysis, and is one element we support our customers with, but this data needs to be trusted.

We have developed over the last 10 plus years a sophisticated data modelling capability to ensure that if a single key variable is received, it is automatically cross checked against numerous associated variables to ensure there is a consistent and reliable input for calculations.

A good example of this technology in practice would be the speed fuel and speed power curves, where in the case of speed we are cross checking and modelling the vessels speed input (from the speed Log) with both the GPS (speed over ground) and also the expected speed via cross checking against the historical weather, sea current, rev/min and torque to create a Eniram virtual speed log used in such speed fuel/oower calculations.

It is widely acknowledged that speed logs are prone to calibration drift and thus not always giving the correct speed through water. As all engineers know well, a small speed log offset translates to an even greater distortion (or misleading data) when looking at speed power/fuel curves. "By using the Eniram virtual speed log automatically in such calculations, we are able to ensure our customer are able to receive more accurate speed power/fuel curves ensuring stronger commercial decision making," he said.

"Whilst the above virtual speed log is a single example from the many models Eniram uses, it is representative of the value and way in which Eniram has been helping our tanker customers on their digital journey.

"Getting the data electronically is one element but when such data starts flowing into an already busy shipping office this can mean information overload; the core strength of Eniram has been to filter and validate data to help our customers play the complex commercial and operational game of chess that ensures they maintain a strong position.

"The digital journey for the tanker segment is both exciting and challenging; the role of Eniram is to help our customers avoid the pitfalls and mistakes that can be made on the journey and ultimately support our customers in their key decisions both on board and onshore," he said.

Buying in

He said that the tanker sector was now buying into this. "We are seeing a solid shift with the early pioneers now being followed by others in the market who are both keen and in need of maximising their operations and decision making from increased digitalisation in order to stay competitive," he explained.

It has been Eniram's experience that tanker people tend to be a bit more switched on than other sectors being ultimately driven by the charterers, especially the oil majors (OCIMF), with their numerous inspections. Digitalisation and the insight can help reassure and support the desire for greater visibility from charterers.

Some seven or more years ago, the actual costs of data transfer and restrictions as to available capacity within the communications contracts was a real issue. Today, however, the tanker market has benefited from the ongoing reduction in costs over the last seven years, and in Eniram's experience, data restrictions and costs in this area have not been a significant factor, in fact quite the opposite with more adoption driven by the reduced costs and more open (larger capacity) satcom costs.

As for analysing the data once produced, Pinkney said that tanker companies that Eniram has been working with to date, certainly have strong expertise in analysing the data when they have time; finding the time within their increasingly pressurised and time restricted schedules is not so easy.

Eniram's approach has been to provide as much analysis automatically for the customer with the insight and value from the data being flagged up to customers by a combination of both Eniram analysts and automated reporting deeper analysis.

In more tangible terms, this takes the form of KPI's, and a shift towards alerts and reports for commercial or operational conditions or situation that are defined by the tanker customers themselves. The use of mobile phone apps is also now being adopted by the digital pioneers in the tanker sector.

Answering the question of what makes Eniram different, he said that the company's approach has been as holistic as possible, as this is what its tanker customers have been asking for since the early days of establishing a digital partnerships with them. "Since the acquisition of Eniram by Wärtsilä, we have been further strengthening this holistic offering within Eniram," he explained.

Eniram also offers a subscription based service. Pinkney explained that this subscription model and in particular the Skylight product has seen a strong market adoption with the benefits of zero capex investment and low flexible opex costs

appealing to the dynamic nature of shorter term chartered vessels and vessels operating in the spot market.

"We have also been pleasantly surprised by the adoption of the subscription service by longer term chartered vessel owners and charterers who in the present commercial environment are under significant financial pressure to keep opex costs low whilst also optimising operations as much as possible.

"Skylight seems to appeal to both our owner customers, operators and charterers on this basis," he said.

He also explained that the very nature of Eniram's services and the time during which Eniram have been providing services to the tanker market means that the company has seen a natural shift from typical customer supplier relationships to a more partnership approach.

"If we take the Greek market as an example, leaders in the tanker sector, such as Maran Tankers, Tsakos and Olympic Shipping, are all good examples of customers where Eniram has been proud to become more connected and a key part of supporting them in their decision making and providing insight from the data and services," Pinkney concluded.

New software

Eniram recently launched Eniram SkyLight 3.0 for fleet performance monitoring and has partnered with Concirrus to deliver sophisticated solutions for marine insurance underwriting, based on accurate operational data.

Eniram SkyLight 3.0 is claimed to be a significant update to its subscription-based fleet performance monitoring service. This service now includes mobile notifications and virtual propeller RPM (revolutions per minute) sensing. This latest innovation supports Wärtsilä's intention to lead the marine industry's transformation towards a 'smart marine ecosystem' via improved connectivity and the use of real-time data.

This new software is claimed to be a cost-effective and highly accurate fuel performance monitoring solution for vessel owners, operators, or charterers, wishing to optimise their vessels' operation while accurately tracking their fuel costs. It has been designed to enable new data-driven business development opportunities across the marine sector, including flexible insurance solutions, maintenance monitoring, and vessel performance monitoring services.

The new feature sends notifications to mobile devices regarding speed over ground, speed through water, estimated time of arrival, and charterparty compliance, enabling better transparency and faster reaction times leading to smoother operations, Eniram said..

The new virtual propeller rev/min sensing is achieved without requiring integration with other ship systems. In addition to giving access to propeller rev/min data, this information will be used to further improve the accuracy of the speed/fuel curve calculated by the software.

In what is claimed to be a first for the marine industry, Eniram is partnering with Concirrus, to deliver connected insurance for the marine market. The partnership will see navigation and situational data supplied by the Eniram SkyLight 3.0 service integrated into Concirrus' marine insurance underwriters' application - Quest.

Quest enables marine insurers to actively manage their risks in real time, attaining operating efficiencies and insights that are otherwise impossible to achieve. Accurate, real-time operational data will be used to provide a transparent and shared view of risk, with tailored insurance that allows customers to pay only for what they need.

Concirrus was founded in 2012 and is based in London. TO

Control of biofouling on future green tankers

When the final report on the LEAF Project[1] was published by the European Union in July, 2016, it unveiled a new approach to one of the major problems faced by the commercial shipping industry.

Based on a novel system, LEAF paint, the acronym for low emission anti-fouling coating, when applied to a ship's hull will provide more than 10-years operation without needing to be cleaned. Sea tests have shown it to be easy to apply, inexpensive to purchase, prevents biofouling and has limited, or negative effect, on the local marine environment, writes Brian Warshaw.

From the moment a ship leaves the slipway and enters the water, the process of colonising the hull by marine organisms begins; the warmer the water, the quicker the process. Within the first days a layer of slippery microbial bacteria is formed over the submerged parts of the vessel.

In the following weeks this biofouling continues with a biofilm, referred to as 'slime', covering the bacteria and creating a foundation for algae and barnacle larvae among other creatures impinging themselves on the vessel. There are some 4,000 fouling organisms present in the waters of the world, which are classified into hard organisms, such as barnacles and tube worms, and soft organisms; the grasses and algae.

The problem that barnacles and other crustaceans cause on ships hulls is illustrated by figures from the IMO, and the US Environmental Agency (EPA):

- 90% of global trade is by ship transportation.
- In 2007 that trade used circa 370 mill tonnes per year of fuel, emitting 1,120 mill tonnes of CO2, forecast to rise to circa 500 mill tonnes of fuel, with 1,475 mill tonnes CO2 emitted by 2020.

ABS claimed that "A tanker at its design speed will use the majority of its fuel overcoming frictional resistance when in calm water. …The size of the frictional resistance is dramatically impacted by the roughness of the surface exposed to the flow[2] ." While the IMO said that barnacle colonisation can cause a vessel to use up to 40% or 50% extra fuel due to drag, than if it had a clean hull[3].

Since the 1960s the maritime industry has had access to an effective anti-fouling (AF) hull coating. The problem was that the biocide added to the paint, Tributyltin (TBT), is a highly toxic compound that has a profound effect on non-target local populations of organisms, and can stay in the ecosystem for up to 30 years. In 2008, TBT was totally banned under Annex 1 of the IMO's International Convention on the Control of Harmful Anti-fouling Systems on Ships.

There are three sources of biocides:

- Metallic;
- Organometallic;
- Organic.

It is estimated that between 80 and 90% of the world's current marine fleet uses copper-based AF coatings, mainly in the form of copper oxide. Like TBT, coatings that include copper in combination with organic compounds, may not reduce the risk of toxins being released that will kill marine life other than those being targeted.

Emerging biocides

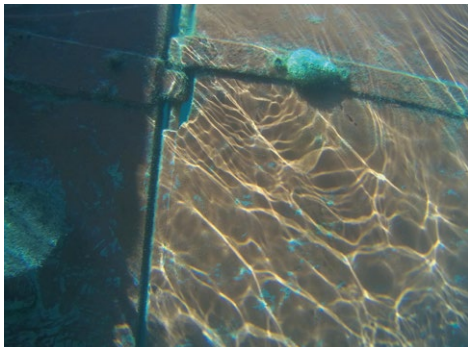
The race to produce an effective organic AF is underway, according to Francisco Antonio Guardiola[4], with Capsaicin, Econea® (Tralopyril), and Medetomidine, classified as 'emerging' biocides.

Capsaicin is a compound that may become a future AF biocide for the marine environment. In US Patent No. US5397385 A, it is claimed that the Capsaicin may be mixed with a silicon dioxide and converted into a free-flowing homogeneous liquid oleoresin composition by adding a solvent that increases solubility and facilitates mixing. The Capsaicin may also be formed into crystals, which are mixed with the coating material.

Econea is being marketed as a metal-free biocidal additive replacement for copper. Pettit Marine Paint's Hydrocoat Eco, is a dual biocides water-based, copper-free, self-polishing ablative AF coating. It includes Econea biocide in combination with a slime fighting inhibitor to provide multi-season protection in marine environments. The company claimed that tests show that anti-foulants made with 6% Econea are as effective as those made with 50% copper. The coating is currently only recommended for recreational boating.

Medetomidine is a synthetic drug used as both a surgical anesthetic and analgesic. It has, however, been shown to effectively prevent the barnacle larvae (cyprids), the penultimate stage of barnacle development, finding a suitable place to settle by interfering with its ability to secrete the cement that fixes it in place.

The paper concludes by saying that 'it is important to evaluate the effects of these compounds through the continuous monitoring of biocide concentration profiles in water, sediment and biota to provide information that could lead to concerted action to ban or regulate



Photos from left to right Port side shaft and propeller* ; Looking towards the port bow* ; Detail of port side rudder*

Photos taken by Giacomo de Stefano four years after applying LEAF

their use.'

The overall coating system to protect the hull consists of three or four coats. A primer coat, followed by a tie coat, and then one or two coats of the finish paint that include the AF biocide. The biocide is delivered through one of three systems — contact leaching; self-polishing copolymer; or controlled depletion polymer.

The significant similarity is that they release biocide continuously, even when not required; while the significant difference is that they disperse the biocidal toxin at different rates.

There is a fourth system— foul-release coatings (FRCs). These coatings do not contain biocides; but have a surface that is low friction, low surface energy or high hydrophobicity, resulting in reduced stiction for the fouling organisms. When the vessel reaches a prescribed speed, the biofilm and fouling organisms loose traction, and are swept from the hull.

There are three main media used for FRCs:

- Silicone is the basis for all the current FRCs providing both hard and soft finishes.
- Fluoropolymer is modified silicone, that through the addition of fluorinated oils produces a surface similar to 'Teflon'.
- Hydrogel-based FRCs contain a hydrophilic modified silicone polymer that when immersed in water moves to the edge of the coating and creates a unique marine surface that enables biofouling organisms to be shed at speeds as low as 8 knots.

Neither AF nor RFC technologies can be considered sustainable by virtue of continuous biocides dispersal by the first, and biofilm detachment by the second. In contrast, the biocide in LEAF is incorporated and immobilised within the coating. The barnacle cyprids are only exposed to the biocide after they have settled on and penetrated the coating, while the marine environment remains protected.

This feature will enable the use of non-erodible coatings giving a longer service life. For three years the LEAF concept, using an ivermectin biocide, was formulated in a variety of polymers, researched, tested and shown to be efficient in controlling barnacle fouling.

The part-EU financed LEAF project further developed and demonstrated an AF paint that showed excellent efficacy with very high user satisfaction in field tests undertaken by 55 boat owners in Scandinavia, Mediterranean, and Caribbean waters. Answering a questionnaire, all respondents reported that they had none or a low presence of hard fouling organisms; and 75% reported similarly in respect of soft foulers.

The final paint formulation with abamectin biocide at 1 g/L, is significantly cheaper to produce and has a lower CO2 footprint than current benchmark AF paints. On the basis of receiving positive results in terms of performance in the field, industrial feasibility and sustainability assessment, the project has taken measures to facilitate future product registration according to European regulations, a critical step to introducing the LEAF paint on the market.

Giacomo de Stefano, who participated in the LEAF project from the start with his ketch 'Memphis', built in 1928 by James Miller and Sons of Fife, Scotland, told *Tanker Operator* that, "LEAF is very effective. After four years there are no barnacles on the hull, and removing the algae is quite easy. There are some hard flat calcareous shapes that are more difficult to remove; I don't know what they are."

1 *https://trimis.ec.europa.eu/sites/default/files/project/documents/10051/final1-leaffinalreport-public.pdf*

2 *Ship Energy Efficiency Measures: Status and Guidance, ABS, page 64, May 2013*

3 *Anti-fouling Systems, Focus on IMO, 2002, http://www.imo.org/en/OurWork/Environment/Anti-foulingSystems/Documents/FOULING2003.pdf*

4 *Guardiola, Francisco Antonio, et al, Risks of Using Antifouling Biocides in Aquaculture, MDPI, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3291976*

TO

Liquid cargo sampling essential

A pro-active approach to cargo sampling on tankers can potentially save millions of dollars in claims and prevent delays to the vessel.

In this article, insurance and P&I service provider Gard recently looked at some critical aspects of cargo sampling on tankers.

Disputes relating to 'off-spec' or contaminated liquid cargoes are a recurring problem and shipowners may have no independent evidence as to the cause of an alleged cargo contamination.

The source of the problem could be in the shore tank at the load port, in the shore pipeline during loading or on board the vessel itself. The cargo could even have been manufactured out of specification prior to delivery to the terminal for shipment.

However, if the cargo is found to be 'off-spec' when the vessel arrives at the discharge port and there is no evidence of contamination from the load port, the vessel could be faced with a claim, even if the vessel was not at fault.

Samples drawn at the load port and retained on board showing that the condition of the cargo has not changed between loading and discharge provide the best defence against cargo claims.

It is therefore important that shipowners and operators implement proper procedures for taking, and retaining, own (duplicate) samples of all cargoes loaded on the vessel and train their crew in how to perform the sampling process. An experienced officer may be able to identify a poor-quality sample by visual inspection alone, and early intervention may prevent an expensive claim arising later.

Although substantial resources are used on board vessels in the preparation and cleaning of tanks and lines prior to loading, we see that samples are frequently not taken by the vessel at the start of loading. Alternatively, where samples are taken, they are not taken following the proper procedure or are discarded for one reason or another before they can be analysed, Gard said.

In a recent Gard case, a chemical carrier arrived at a terminal with its cargo tanks and lines cleaned and ready for loading. The vessel was inspected upon arrival and found to be suitable for the nominated cargo. No manifold samples were taken at the commencement of loading, but first foot samples were taken from the designated tanks that were being loaded.

Upon analysis of the first foot samples the cargo was found to be 'off-spec' resulting in stoppages and delays on the vessel's account for further tank cleaning. The vessel was held responsible for contaminating the cargo. The cargo in the vessel's tank was pumped back ashore and the vessel was instructed to leave the terminal to clean her cargo tanks and lines.

The chemical tanker returned to the terminal following the cleaning operations and loading was resumed. On this occasion, manifold samples were taken and analysed and everything was found to be in order. However, upon detailed analysis of the sample of the contaminated cargo, its cause was suspected to be from the remains of the previous cargo in the shore tanks and lines.

Given that there were no manifold samples on the first occasion, there was no way for the vessel to prove that the cargo received in the first instance may have been contaminated prior to loading.

Manifold samples

The transfer of custody of the cargo from one vessel or the terminal to another vessel, and vice versa, normally takes place when the cargo passes the vessel's manifold. A manifold sample taken at the start of loading and discharge can, in principle, determine who is responsible for the contamination of a cargo.

It should be noted that manifold samples should be taken outboard of the manifold valve. During this process, the loading rate should be very low, preferably by gravity, Gard said.

In some Gard cases, even where a manifold sample had been taken at the start of loading, samples have been known to have been disposed of by the crew if they do not appear to be of the expected quality.

A new sample is then drawn once the cargo quality appears as expected, and becomes the manifold sample 'on record' as having been taken by the ship at first loading. Thus, the only evidence available in this instance indicates that sound cargo was loaded and the evidence showing that the cargo had been contaminated ashore is lost. While this practice appears to be counter-intuitive, it is nonetheless, prevalent.

First foot samples should be taken to confirm that the vessel's systems and pipes are clean. This is particularly important where sensitive and/or expensive cargoes are loaded to reduce the risks associated with contamination of the entire cargo parcel.

Taking a final tank sample after completion of loading and prior to commencement of discharge will enable the vessel to determine the cause of any potential contamination on board. It can also be useful for the officer in charge to request specimens of samples taken by the terminal's surveyor at the terminal's manifold, as well as samples from the shore tank and shore line.

If the quality of the cargo samples from the ship and shore appear to be different, loading should be ceased for further investigation.

Recommendations

To ensure the best possible defence of a cargo claim against the vessel, it is recommended that shipowners create awareness among the crew of the problems related to improper sampling and have in place written procedures describing the sampling process in detail.

An improper sampling method can result in a poor-quality sample which is not necessarily representative of the cargo itself.

The procedures should include and emphasise the following points:

- **Involvement of vessels' crew**. The crew should participate in the taking of cargo samples, both during loading and discharge, and should be competent in checking and verifying the quality of the samples taken. The Chief Officer should preferably be involved in all cargo sampling whether it is taking samples for the vessel or for the charterers.
- **Independent cargo samples to be taken by the vessels' crew**. As a minimum, the crew should, for each grade of the cargo, take:
  - Manifold samples, taken at a vessel's manifold at the start of loading, preferably with the manifold valve in a closed position. Spot checks should

be carried out at the manifold during loading whenever practicable, eg after shore stops and/or change of shore tanks.
- Pump stack samples, if taken by a surveyor the vessel should take own/ duplicate samples.
- First foot samples, taken from the cargo tanks once cargo level reached the first foot in the tank(s).
- Final tank samples, taken from the cargo tanks after completion of loading.
- Cargo tank samples prior to commencement of discharge.

• **The importance of the manifold sample**, often referred to as the 'million-dollar sample'. Where a proper sample of the first products loaded has been drawn and retained on board, any uncertainty about the quality of the cargo at the time of loading can usually be clarified at relatively low cost. Vessel procedures should therefore be specifically formulated to avoid any misunderstandings when it comes to ensuring that this manifold sample is never disposed of, regardless of its apparent quality.

• **Handling of samples.**
- Always flush the sampling point prior to drawing a sample.
- Always use clean and appropriate sampling equipment and properly label, seal and store the samples in designated areas
- The labelling should always state where, what type and when the sample was drawn, eg 'manifold at commencement of loading' or 'final tank sample drawn in the middle of cargo tank 4P'.
- Ensure there is sufficient sample amounts for re-testing if necessary.
- For sample retention, Gard recommended members and clients have a clear policy taking into consideration the storage space, the vessel's schedule and the number of grades loaded for each voyage. Samples should be retained for at least three months after the completion of discharge. If the vessel has received complaints during a voyage, the samples should be retained for longer if possible, or ask the insurer if the samples can be disposed of.
- Recordings should be made in the cargo log-book to ensure traceability of samples taken.
- Sample bottles should, as far as possible, be suitable for the cargo in question. For example, use amber coloured glass bottles for UV sensitive cargo to prevent deterioration due to the effects of UV lights.
- For cargo that is oxygen sensitive the bottles should be purged with nitrogen prior to sampling.

• **Sample report:** On completion of sampling, a sample report should be produced by the vessel listing the unique identifier number of each sample retained on board and of the samples given to the charterers' surveyor. The sample report should be jointly signed by the vessel's Master, or his representative, and the charterers' surveyor.

Shipowners and operators should instruct their officers on board that whenever they are in doubt as to the apparent quality of a liquid bulk cargo, they should seek expert advice and have any samples analysed at the loading port.

Gard's posters addressing issues on board tankers, 'Manifold samples', 'Contamination by cargo vapours', and 'Are your valves marked?' are available for download at: http://www.gard.no/web/content/loss-prevention-posters.

2020 - A few thoughts from the ICS

In a recent industry note on the forthcoming low sulfur cap, the International Chamber of Shipping (ICS) said the cost of low sulfur fuels is today typically about 50% more than the cost of residual fuel.

If, in 2020, oil prices remain at around $70 a barrel, it has been estimated that the difference between compliant low sulfur and the current cost of residual fuels could be as much as $400 a tonne more.

This industry submission, which was also supported by a wide cross section of environmental NGOs, was considered by the IMO MEPC in April, 2018. Encouragingly, the industry proposal was accepted in principle by IMO member states, with a new amendment to MARPOL scheduled to be adopted for entry into force by March, 2020.

The IMO is considering other preparatory and transitional issues that need to be urgently addressed before January, 2020. These include the use of Fuel Oil Non Availability Reports (FONAR) and the development of standards for the new 0.5% fuels that might be used to comply with the sulfur cap.

However, it seems that the ISO is not expected to complete the development of these important standards until sometime after 2020.

There seems to be growing consensus within the bunker industry that sufficient quantities of compliant fuels will probably be available, although they are likely to be expensive.

If 0.5% sulfur fuel is not available in every port worldwide, ships will still be required to use other compliant fuels, such as 0.1% distillate.

It is currently understood that perhaps about half of the low sulfur fuels that will be available in 2020 may have a sulfur content of 0.5% – many being blends of distillate and residual fuels – with the remainder being 0.1% fuels as currently used in ECAs.

Concerns have also been raised about fuels, including blends, which will be compliant with the 0.5% sulfur limit but which may differ in their composition from supplier to supplier and port to port, potentially leading to compatibility and mechanical problems.

Although the use of LNG and exhaust gas cleaning systems (scrubbers) is predicted to increase, especially after 2020, for the immediate future this will almost certainly only involve a small percentage of the fleet, with the vast majority of ships expected to comply in 2020 using fuel oil with a sulfur content of 0.5% or less, the ICS said.

A complete version of this report is available on the ICS website.

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Direct Marine Printing Supply Ltd.

2004, 20/F., Centre Point, 181-185 Gloucester Road, Wanchai, Hong Kong

Tel: +852-3565-4415 and/or +30-210-643-5560

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