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### Moving forward to 2020

Being the last issue of 2019, we have taken a look at the latest movement from the IMO towards GHG emission reduction goals and gained the opinion of a leading shipping research analyst on IMO2020.

As for the IMO, in November, it was announced that the Intersessional Working Group on Reduction of GHG Emissions from Ships had agreed the draft text of a resolution to be put forward to next year's Marine Environment Protection Committee (MEPC) for adoption (MEPC 75).

This urges member states to develop and update a voluntary National Action Plan (NAP) with a view to contributing to GHG emissions reduction from their ships.

The initial strategy lists a number of candidate measures, which could also be considered to further reduce emissions and help achieve the targets in the strategy, in particular 40% reduction of carbon intensity from shipping by 2030.

During the session, a number of proposals were discussed, which fell into two goalbased approaches - a technical approach and an operational approach. To develop them further, discussions will be needed at the next intersessional working group meeting.

Technical approach proposals included an Energy Efficiency Existing Ship Index (EEXI), which could require ships to meet set energy efficiency requirements after the measure takes effect. Other technical proposals relate to mandatory power limitation on ships.

Operational approaches include focusing on strengthening the ship energy efficiency management plan, as required in SEEMP, including proposals for mandatory carbon intensity reduction targets. They also included measures to optimise voyage speed and proposals to limit ship speed were also discussed.

In the longer term, and in order to encourage the uptake of alternative low- and zerocarbon fuels, the Working Group also agreed to establish a dedicated workstream for the development of lifecycle GHG/carbon intensity guidelines for all relevant types of fuels.

At the meeting, the importance was stressed of undertaking this work as soon as possible.

To keep the momentum going, a further meeting will be held next March just before and back to back with the next MEPC 75 (30th March - 3rd April, 2020).

Next October's MEPC 76 is expected to receive the completed Fourth IMO GHG Study, which will include an inventory of current global emissions of GHGs and relevant substances emitted from ships of 100 gt and above engaged in international voyages.

### IMO2020

Moving onto to 1st January, 2020, Shipping Strategy's Mark Williams said in the middle of November that prices for 0.5% sulfur content fuel were more readily available.

Refinitiv data showed that the average price of 0.5% sulfur fuel oil at the four main bunkering ports was \$536 per tonne, some \$255 more than the average price for 3.5% sulfur fuel oil - or a premium of 91%.

Williams said that at these prices, fitting a scrubber made economic sense. He assumed that a ship burns an average of 30 tonnes of fuel oil a day, while acknowledging that ships' consumption varies with operations, port days, non-operating days, etc.

At a net 30 tonnes per day consumption, and if bunker prices stayed at today's level for 12 months, fuel costs for a year would be just over \$3 mill for a ship burning 3.5% sulfur fuel oil, but nearly \$5.9 mill for a ship burning 0.5% sulfur fuel oil.

Double the net fuel consumption to 60 tonnes

per day for large tankers, etc, and the annual fuel costs vary from about \$6.2 mill for 3.5% sulfur fuel oil to nearly \$11.8 mill for 0.5% fuel oil.

If the projected annual capital+opex of a scrubber came out at below the difference between the annual 3.5% and 0.5% fuel oil – \$2.8 mill for a ship burning 30 tonnes per day, then the scrubber begins to look like a viable option.

There are of course some caveats, including the compatibility and reliability of the scrubber system chosen, how long the scrubber lasts, whether open or closed loop scrubbers will remain an acceptable route to compliance, whether the fuel price differential remains constant (it won't), whether refineries continue to offer sufficient supplies of high sulfur fuel oil and, if fuel oil over 0.5% content remains available.

He admitted that the situation was 'as clear as mud'. No wonder that more shipowners are investigating the alternatives: LNG, methanol, ammonia, batteries, etc, he said.

Taking LNG, liquefied natural gas bunkers are now available at major ports in the six leading nations that deliver two-thirds of global marine fuels – China, South Korea, Singapore, the UAE, the Netherlands and the US. It's too expensive to re-engine a ship to burn LNG, so its use will be confined to newbuildings.

Orders are growing. Crude oil tanker orders with LNG as primary fuel totalled 6 out of 26 in 2017, four out of 58 in 2018 and 10 out of 74 in the first nine months of 2019. About 15% of all orders are now specified with LNG as the primary fuel.

With such lasting uncertainty around fuel oil, that percentage is going to grow.

With that, *Tanker Operator* would like to wish everyone a good holiday break and that the 1st January, 2020 doesn't come as too much of a nasty shock.

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## **Product tankers -Winter projections**

### Tanker timecharter rates have looked stronger across all sectors this year.\*

s the trade war between the US and China continues to escalate, in August, Beijing announced that it would impose 5% tariffs on US crude, commencing on the 1st September in retaliation to Trumps latest tariff policies levied on China.

In the third quarter, the average timecharter rate for a VLCC for one year was up 53% compared with 3Q18 at \$32,464 per day, rates were also up 5% from the previous quarter's levels.

However, the crude tanker rate hike at the end of the last quarter was unprecedented thanks to a combination of factors restricting vessels supply: US sanctions on China that removed some Chinese owned tankers from the market, uncertainty in the Middle East and various vessels out of service whilst being installed with scrubbers, in order to comply with the 2020 IMO regulations.

Dirty tanker spot rates broke records, which consequently had a positive effect on the period market. In the weeks following the September drone attacks in Saudi Arabia, 12-month VLCC rates rose by over 109% to \$65,000 per day.

With winter approaching, sentiment is optimistic that rates will remain firm, due to weather delays and ongoing geopolitical pressures, although it is questionable if we will see the same record levels that the market experienced back in October.

However, concerns of an global economic slowdown that have long plagued the markets seemed to be softening and many major indices were in record territory this month, boosted by optimism that a resolution of the trade war between the US and China is on the cards, factors which in turn could boost oil demand.

Meanwhile, the spike in crude tanker rates has had a positive knock on effect on product tanker earnings with rates moving in the same direction, albeit at a slower pace lead by the LR2s.

The average rate for an LR2 for a 12-month charter in October increased by 29% to \$27,400 per day, compared to the average for the third quarter, which was \$21,098 per day. Year-on year, LR2 rates increased by 86% from an average of \$14,700 per day in October, 2018.

For the past month, product tanker rates in all sectors have been positive. MR rates showed substantial improvements, as the upcoming IMO2020 regulations were having a significant impact on product tanker demand and on rates. The average timecharter rate for an MR in October, for 12 months business



increased year-on-year by 28% to an \$16,030 per day, the highest levels seen since April, 2016.

### **Modest orderbook**

Overall, the current tanker orderbook is relatively modest and currently accounts for 8% of the trading fleet. The largest orderbook to fleet ratio is currently in the VLCC sector at 10%. This sector also saw the highest number of deliveries this year with 53 vessels delivered so far this year and 20 still on order for the remainder of 2019.

The smallest orderbook currently belongs to the LR1/Panamax sector that saw only nine deliveries this year with 26 vessels on order, this is in contrast to the MRs that witnessed almost 70 deliveries this year and also has the largest orderbook with 139 vessels slated for delivery between 2019-2023.

As for the tanker orderbook broken down by size, the sector with the largest number of vessels on order is the MR fleet that currently accounts for 32% of all tankers contracted, followed by the LR2/Aframax range that accounts for 21% of the overall orderbook. In contrast LR1/Panamaxes have fallen out of favour and with very few vessels on order with only 6% of the current orderbook is dedicated to this sector.

According to Alibra data, there were just over 430 tankers due for delivery in the next four years and 38% of this orderbook is scheduled to be built in South Korea, closely followed by China that accounts for 31% of the orderbook. Japan has fallen to third place with just 19% of tanker orders.

In the tanker sale and purchase market, there has been an increase in transactions over the last few weeks, following the unprecedented highs in the spot and period markets and although the freight market has dropped off somewhat, rates still remain at high levels.

MRs are again the vessels of choice, due to their versatility and in the past month over half of tanker sales recorded were in this size range.

\*This article was written by Rebecca Galanopoulos Jones, Head of Research, Alibra Shipping.

# All eyes on OPEC

### In a few weeks' time, OPEC and its allies will meet again to discuss the oil markets.

nalysts are mixed on what the decision will be, as the next few weeks have the potential to influence OPEC's final decision, Gibson Shipbrokers said in a report.

At this stage (mid-November) it would seem likely that the current agreement, which expires in March, 2020, will be maintained. However, several events taking place over the coming weeks could influence the decision-making process.

Pricing signals will be key. With the meeting taking place on the 5th-6th December and Aramco's IPO due in early December, Saudi Arabia will be keen to see stable oil prices.

If oil prices begin to slide in the weeks approaching the meeting, then the rhetoric may well shift towards deeper cuts or stricter compliance. Similarly, any progress (or lack of) with regards to trade talks between the US and China will be pivotal.

A major breakthrough could see demand expectations revisited upwards, giving the cartel and its partners confidence to stay the course; equally, the lack of progress will only add further downwards pressure on prices.

### Uncertainty

The possibility of a Trump-Xi meeting just days before the OPEC conference creates

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Source: Gibson Shipbrokers

additional uncertainty, Gibson said.

Eyes will be heavily focused on US crude production and exports. The market expectations for US output have been pared back over the course of the year, although the latest forecast from the EIA is still expecting growth of 1 mill barrels per day for 2020, despite the ongoing decline in US rig count.

This may give OPEC+ confidence to maintain output. However, the group also must consider output increases from other countries, such as Brazil, Norway and Guyana, which together contribute 800,000 barrels per day.

Without any OPEC cuts, global crude production growth is expected to average 1.8 mill barrels per day. Unless any major outages occur, US production growth stalls, or demand surprisingly increases, OPEC will surely have to act eventually.

OPEC's decision may also be influenced by the pending IMO2020 regulations, with the group waiting to see the impact on demand, refining margins and crude prices, before making a premature decision.

For the tanker market OPEC cuts always tend to strike fear into owners' hearts, however, the oil market has to find a balance.

Cuts from OPEC Middle East producers should be more welcome than a slowdown in

production from the US, which

is the only other

have abandoned

it's market share strategy in 2017

in favour of one

which supports prices and may

well stick to this

approach for

future.

The organisations'

the foreseeable

future may also

be in question. Ecuador will

real 'swing'

producer. OPEC may leave at the end of 2019, just 12 months after Qatar's withdrawal, further reducing the group's control on global oil output.

Brazilian President, Jair Bolsonaro, suggested earlier this month that he would like to join OPEC, but such a move is considered unlikely, given Brazil's desire to expand production.

There lies the group's core issue, how to grow production and maintain prices in a mutually acceptable range, whilst also tackling slower longer-term demand growth, Gibson concluded



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### OPEC+ Crude Production (000 b/d)

# Gibraltar very much 'open for business'

As the UK awaits the result of the General Election on 12th December and how this result will affect Brexit, it is very much business as usual in the Gibraltar maritime sector.

n October, the local ruling GSLP/Liberal alliance won a third term in office and, thus, the Government of Gibraltar's position remains unchanged.

The best deal for Gibraltar would be to remain in the EU together with the UK, HM Government of Gibraltar commented in a statement, which is in line with the views of 96% of the voting electorate in Gibraltar, as expressed in the 2016 Referendum.

However, the Gibraltar Government also said it would continue to prepare for every eventuality. This includes preparing to leave with, or without, an agreement.

If the UK leaves with an agreement, Gibraltar is fully protected as part of the Withdrawal Treaty, through a Protocol, four MoUs and a Tax Treaty. This means that in the event that a new UK Parliament ratifies the deal by the end of January 2020, the transitional period would automatically apply to Gibraltar at least until the end of 2020. There is also a provision for an extension to the end of 2021 or 2022.

In the event that no deal is signed, then Gibraltar will continue to work to mitigate the effects of a 'no deal' Brexit, as much as it can. This will include the deployment of the



different contingency plans that have been put in place over the past year, the Gibraltar Government said.

These plans obviously depend on the UK election result, (with *Tanker Operator* being published before the result is known).

However, one of the initiatives already put in place, should border problems occur for any reason, has been the building of a vehicular



access ramp at the Port in order to allow cargo trucks on and off ro-ro ferries direct by sea, as opposed to goods going through the border to and from Algeciras and beyond.

CEO and Captain of the Port, Capt Manuel Tirado told *Tanker Operator* that the ramp was capable of servicing different types of ro-ro's.

### **Maritime Academy**

In another separate move, as a result of the establishment of a Maritime Academy in Gibraltar which will be based at the University as from September 2020, the University of Gibraltar will offer four undergraduate maritime degrees.

This will include a BSc (Hons) in Maritime Science (Nautical) with deck cadetship and a BSc (Hons) in Maritime Science (Engineering) with engineer cadetship. These will lead to a deck officer of the watch certification or engineer officer of the watch certification, allowing entry into the maritime profession as officers.

In addition, the University will offer both degrees entirely online so that the studies can be undertaken through distance learning. This will be of particular interest to those already working at sea who wish to gain an undergraduate degree whilst continuing to work.

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Depending on qualifications and experience, current officers may be eligible for credit towards some of the degree modules through Recognition of Prior Learning, the Gibraltar Government said.

All of the degrees will be aligned to the UK's Merchant Navy Training Board (MNTB) and Maritime and Coastguard Agency (MCA) standards.

### LNG terminal

Earlier this year, Gibraltar officially opened a new LNG regasification terminal built by Shell and operated by its subsidiary Gasnor. As a result, Gibraltar has now switched from dieselfuelled power generation to cleaner-burning natural gas, using an 80 MW gas-fired power plant.

Construction of the terminal followed an LNG supply agreement signed in 2016 between Shell and the Gibraltar Government.

LNG is delivered to the terminal by ship twice per month and at night, minimising disruption to the neighbouring Port and Airport.

The LNG will be stored in five double-walled stainless steel tanks, each able to hold 1,000 cu m of LNG. The first LNG cargo arrived in January to support testing and commissioning of the power plant.

The first LNG bunker operation was undertaken within British Gibraltar Territorial Waters (BGTW) in August 2019 with the arrival of the world's largest dual-fuel crane vessel, 'Sleipnir'.

Heerema Marine Contractors' new semisubmersible crane vessel (SSCV) was bunkered with more than 3,000 tonnes of LNG in a ship-to-ship operation carried out at one of the bunker slots in the Western Anchorage. The bunkering vessel was Titan's LNGC 'Coral Fraseri'.

The SSCV anchored at Gibraltar on 23rd August 2019, after leaving Singapore on July 5, briefly calling at Cape Town, South Africa, before heading for the Mediterranean. Once bunkering was complete and other supply services carried out, she sailed for West Africa.

Overall, the number of bunker calls at the Western Anchorage is slightly down this year to the end of September at 3,973 vessels, according to the Gibraltar Government's statistics.

In September, there were 398 bunker calls at the anchorage, compared with 516 recorded in April of this year.

Vessels arriving off-limits for services from

Gibraltar were at 102 during September, giving a total for the year of 836 up to the end of September.

However, the number of ship-to-ship cargo transfers in Gibraltar waters reached 50 up to end of September, not including bunkering operations.

Capt Tirado said he was optimistic that bunkering operations would continue to dominate the maritime scene in Gibraltar well into next year.

At present, there are 17 bunker tankers employed by the various suppliers in the Bay, using the 14 bunker slots available. Although bunker supplier Macoil withdrew during the year, its affiliate, Vemaoil, was reported to be looking for another partner to restart operations.

Capt Tirado also said that more business was welcome but stressed that any new fuel supply entrant would be vetted and proper due diligence undertaken before a Licence to handle bunkers was granted.

As for the LNG bunkering operation carried out at one of the slots on the SSCV, meetings were held with all those involved, including the Master, Mooring Master and other stakeholders to enable a plan to be put in place to ensure a safe transfer of product.

This also occurs before a large vessel ship-toship cargo transfer is undertaken at one of the slots, as was the case with both the Suezmax and Handysize product tankers during *Tanker Operator*'s visit.

As for the possibility of using drones for ship-to-shore supplies and vice versa (see page 11), Capt Tirado said that preliminary meetings were being scheduled with a well known local agent and that this could lead to local trials in the future.



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### **INDUSTRY- GIBRALTAR REPORT**



Peninsula Petroleum has come a long way since it started operations in 1996 when owner and CEO John A Bassadone identified an opportunity to offer bunker supplies in Gibraltar.

oday, the company is the leading global integrated marine fuel supplier operating from 18 global offices and employs 350 people worldwide and has grown its physical supply network to 16 ports around the world.

In the Mediterranean/Atlantic region, where Peninsula is the largest physical supplier, the company operates in eight ports; Algeciras/Gibraltar, Las Palmas/ Tenerife, Malta, Barcelona, Cadiz and Malaga. Elsewhere, the company is the primary physical bunker supplier in Houston, New Orleans, the Antwerp, Rotterdam and Amsterdam (ARA) range, Los Angeles/Long Beach and in Panama with operations at both ends of the canal in Balboa and Cristobal.

As mentioned, Peninsula commenced



Peninsula Petroleum's Owner and CEO John A Bassadone

supplying bunkers at Gibraltar in 1996 and is now the largest supplier by volume in the area. In May 2013, the company expanded



into the adjacent Algeciras market to also offer physical supplies, giving access to vessels calling at Algeciras Port in addition to Gibraltar's Western Anchorage.

To fully prepare for the IMO's cleaner air aspiration with the 0.5% global sulfur cap on 1st January, 2020, Peninsula has further invested in and expanded its global physical supply and reselling capability over the past decade. This is in line with the company's long-term business strategy built on conservative risk management, which puts Peninsula in a predominant position of 2020 readiness ahead of time.

Peninsula's focus on the importance of supply chain control and logistics has seen the group increase its strategic global storage positions during 2019, which today includes over 400,000 tonnes of terminal capacity in Europe.



'Hercules 8000' is fitted with twin propellers and rudders for extra manoeuvrability

Algeciras is Spain's busiest port and an important transhipment hub for the Iberian hinterland. Peninsula is the largest volume occupant of the Vopak terminal (over 200,000 cu m) and sources cargoes from far afield to supply its regional operations.

In the Mediterranean/Atlantic region, the company also has 75,000 cu m of storage capacity at Las Palmas, 40,000 cu m at Barcelona and 85,000 cu m at Marsaxlokk (Malta).

In conversation with John A Bassadone at Peninsula's well-appointed office suite in Gibraltar, *Tanker Operator* was told of one of the company's continuing diversity in the form of its recent shipping expansion. As well as the acquisition of five product tankers, Peninsula has just received the first of a six newbuild programme.

Furthermore, Peninsula is moving into the purchase of large tankers as part of its expansion to carry its own cargoes at source. This started with the purchase of the 2004-built LR1 'Conqueror' formerly Enterprises Shipping & Trade's 'Energy Conqueror', which is providing increased operational flexibility for product procurement and cargo transhipments. The company is also currently in the market for a Handymax, MR or another Panamax to enable its sourcing and product delivery operations.

Flying the Gibraltar flag, she now trades for Peninsula, is classed by DNV GL and has a CAP 1 certificate. The 'Conqueror' has been vetted by most of the oil majors, as has the in-house management team. Product cargoes are sourced on the open market and Peninsula has good lines of credit (see below).

Seeing a gap in the market for low sulfur fuel, particularly in the Mediterranean where there is a dearth of product, this vessel, delivered to Peninsula in September, now carries fuel oil to areas of demand undergoing ship-to-ship cargo transfer operations. At the time of *Tanker Operator*'s visit, she was in Skikda loading a VLSFO cargo.

For its sourcing and product delivery operations, Peninsula timecharters tankers, but this is the first large vessel, apart from the product tankers, that the company technically and commercially manages and owns outright.

#### **Newbuilding programme**

Peninsula has seven product tankers of between 5,500 and 9,500 dwt operating in the Bay, which will soon be joined by the 8,000 dwt newbuilding 'Hercules 8000' - the first of this newbuilding programme - designed to offer more segregation, enhanced quality control and optionality.

In total, the company now operates around 36 vessels worldwide, of which 10 are owned and the rest chartered-in.

*Tanker Operator* was told by Peninsula's shipmanagement team that the bunker barges' crew was of prime importance and it was imperative to have trained seafarers with high experience in bunkering operations. To accomplish this, the focus has been on crew competence and retention, among other needs.

At Gibraltar's Western Anchorage, which has around 13-14 slots available for bunkering, there has been a noticeable increase in the amount of VLSFO specified by owners and operators ahead of IMO2020.

Bassadone said, "By engaging our customers early on in the 2020 planning phase to better understand their fuel strategies, demands and concerns, we've expanded key customer relationships across our entire blue-chip portfolio. This has enabled us to develop a comprehensive supply offering, which is relevant and competitive."

To ensure quality control and allay customer concerns, Peninsula's operations, logistics and supply chain control allow the purchase of products and components for the production and delivery of compliant fuels well within ISO 8217:2017 specifications, backed up by in-house technical expertise.

As to future supply in the Mediterranean/ Atlantic areas, Bassadone ventured that Peninsula had multiple options for sourcing good quality product and saw no quality issues emerging given the groundwork already done to ensure full compliance. All of the barges operating in the Gibraltar Bay areas are fitted with electronic measuring devices and are vetted by the Port of Gibraltar and their respective flag state.

Pressed on the future of bunkering the group expressed its strong commitment to reducing shipping emissions and providing cleaner air in line with the IMO roadmap. In the medium-term, Peninsula is dedicated to LNG bunkering via an agreement with a large reputable organisation.

Bassadone pointed out that the IMO's stated strategy was the reduction of greenhouse gases and that LNG produced methane (which is a GHG). Some studies consider LNG to be a stop-gap solution before bio-fuels become the fuel of choice by 2050 by when the IMO has decreed that shipping should operate a carbon zero policy.

The availability of finance is important to a bunker supply operation. Recently, Peninsula renewed and increased its Asian receivables finance facility taking the group's bank liquidity to over \$800 mill.

This Asian facility, led by HSBC, in participation with United Overseas Bank, saw the total facility amount rise from \$225 mill to \$285 mill with both lenders increasing their respective ticket sizes and renewing the committed tranche of the facility by a further two years.

Earlier this year, Peninsula renewed,

### **INDUSTRY- GIBRALTAR REPORT**

increased and added new participants to its European receivables facility together with the addition of inventory finance solutions.

These increased lines enhance the diversity and sophistication of its funding package beyond 2021, whilst further enabling the business to provide unique global solutions to clients in the higher price environment expected, due to IMO 2020, the company said.

Commenting on the latest finance deal, Bassadone said, "We are confident that we have the right infrastructure and logistics in place and our worldwide platform is well positioned to face the challenges and opportunities which 2020 brings.

"We are also grateful for the endorsement of our business model received once again from our two long standing Asian banking partners and from our entire banking group. We have aligned ourselves with the right strategic partners who share our vision. We are optimistic about the challenges and opportunities 2020 brings and our focus of delivering global solutions that add value to our clients remains unchanged." he concluded.



First of many?



## Service companies abound

**Wilhelmsen Ships Service** has introduced a new software operating system - Asensi WASP – which has replaced VOSS.

alking with Nicholai (Nico) Bado, Wilhelmsen's Ships Agency Manager at Gibraltar, he told Tanker Operator that this system was introduced in June and the software was being updated while being used.

He claimed that the company could analyse data more efficiently and said that the operations department was now building up the data by inputting all the operational info into the new system.

The Gibraltar agency handles over 130 vessels per month, an increase from 110 previously handled, at the two anchorages and those arriving for services off-limits. The agency also works closely with Las Palmas and Malta offering bunker services, which is one of its key services.

Wilhelmsen has a Ships Agency Service Agreement, a Bunker Service Agreement (BSA), as well as a Bunker Quantity Surveys (BQS).

The BSA is offered in co-operation with the local suppliers. Bado, who is also the BSA Regional Ambassador - Europe, said that he would like to see more bunker suppliers become active in Gibraltar since Macoil left.

From Gibraltar, BQS is offered to five ports as a package. To ensure quantity surveys, the company has contracted the services of cargo and bunker survey company Port Auxiliary Services (PAS). Bado said that the service was offered for a unique lumpsum fee.

This service has been trialled for the past three years and has now been expanded to Singapore, Fujairah and Hong Kong with South America on the cards. It is scheduled to be launched globally next year.

Bado described the key locations of Las Palmas, Malta, Gibraltar straits and Greece as a type of Mediterranean mini global service.

He described the ships' agency 'bread and butter' business as tramp shipping where a company needs to be competitive on volumes and have a good system in place. "Technology keeps the momentum growing," he explained.

As mentioned in the November/December 2018 issue, Wilhelmsen together with Airbus has been trialling the use of drones in Singapore under the watchful eye of the Maritime and Port Authority of Singapore (MPA) to supply spares to vessels in the anchorages.

The trials were witnessed by Gibraltar's Minister for Education, Employment, Utilities and the Port, the Hon Gilbert Licudi.

Signing a MOU with aeronautics company Airbus in June, 2018, Wilhelmsen was tasked with setting up the necessary maritime and port operations, gaining relevant approvals from port authorities, with Airbus the Skyways system architect and provider, contributing its expertise in aeronautical vertical lift solutions to develop the UAS for shore-to-ship deliveries.

A number of customers have already committed to the project and Bado is marketing the service from the Gibraltar office. He told Tanker Operator that he had been offered an area within Gibraltar airport in which to operate.

#### **GAC** moves in

As part of its ongoing European growth strategy, the GAC Group has opened an office in Gibraltar.

GAC Gibraltar offers a full range of ship agency, husbandry and freight services, as well as ship-to-ship transfers and bunkering through GAC Bunker Fuels.

Sergio de la Torre, GAC Gibraltar's Manager, explained: "This new office is the latest stage of GAC's expansion plan to add value to our global services for both existing and new customers. I am proud to represent the GAC Group in this historic and key shipping hub and look forward to working with customers calling here."

### **Navaids repairs**

Despite bridge electronics repair and maintenance specialists Sandvik seeing recent success in the LNGC sector, tankers still form an important part of the business.

Sandvik has won contracts to service and repair Viken Shipping's Suezmaxes. For example, 'Erviken's' bridge equipment was recently serviced in Istanbul. She is managed by Wallem's German office.

Long term deals have proved popular with owners and managers and come in the form of shore-based maintenance (SBM) and fleet agreements contracts, which were beneficial, both from a Sandvik perspective and for the client, Sandvik's World Service Manager, John King, explained.

Around 125 vessels have taken advantage of this service thus far, whereby the equipments' condition is constantly monitored enabling any repairs or services to be undertaken before problems arise.

Sandvik is the official agent for JRC equipment through Alphatron and has technicians trained to maintain and repair the supplier's bridge equipment. The company also undertakes Furuno equipment training in Spain.

King, told Tanker Operator that today, bridge electronic technicians were difficult to come by and that the necessary training was proving expensive, a cost that could not be passed onto the customer.

### **Port Auxiliary Services (PAS)**

Port Auxiliary Services Ltd (PAS) was established in 1999 in Gibraltar to represent VPS (Veritas Petroleum Services). All of the company's surveyors are VPS approved.

PAS began its expansion in the Mediterranean and Atlantic regions in 2013 with the creation of PAS (Spain) servicing Algeciras, Ceuta, Las Palmas, Tenerife and other Iberian ports.

In 2015, a Piraeus office was established to service Greek islands, including Crete. PAS further expanded in 2016 to offer services in Malta and in 2019 in Turkey and Egypt.

The company offers a 24/7 service in bunker/cargo surveys, harbour craft services and other port auxiliary services, including D&A collection, chemist services and water analysis, etc.

# Ensuring tanker safety is ahead of regulations

News that life safety appliance supplier Survitec has opened an integrated facility in Algeciras, prompted *Tanker Operator* to ask the company for a safety update.

s a result, Survitec offered an insight into the continuous improvements the company makes to meet the ever-evolving regulatory landscape.

Ever-evolving safety regulations mean safety systems need to be continuously updated, upgraded, or new products and solutions developed to keep pace with and exceed the regulatory requirement. However, this is not without its challenges.

One challenge that had safety specialist Survitec thinking outside the box was to develop an extended service liferaft (ESR) for safe application on board oil or gas carriers. ESR allows liferafts to be serviced every 30 months, rather than the 12 months under the servicing model required by SOLAS up until 2009.

For these ship types, the company had to ensure liferafts were hermetically sealed in a water-tight silver foil bag inside an environmentally-controlled container.

To ensure that correct ambient conditions are maintained – a key requirement of the regulation and vital to raft reliability, operability and deployment – the container incorporates humidity and CO2 sensors. This also means that crews can take humidity and CO2 readings directly from a USB port on the side of the container using a handheld device.

Adopting ESR allows liferafts to be serviced every 30 months, rather than the 12 months under the servicing model required by SOLAS up until 2009, and allows operators to monitor the condition of the liferaft in real-time, explained Tommy Scott, Head of Engineering – Survitec Liferafts.



Safety should not be an after thought

"From the sensors, crews can take readings once a year to ensure the liferaft is in good working order. However, to comply with European standards for oil and gas carriers and platforms governed by ATEX (Atmospheric Explodables), we had to create a low powered CO2 sensor to ensure that the use of an electronic device would not ignite or interfere with the ship's cargo," he said.

#### **Polar Code**

As part of International Life-saving Appliance Manufacturers' Association (ILAMA), Scott provides input to the IMO working groups involved in establishing safety guidelines and rules and continues to provide input for the IMO Polar Code, the mandatory requirement for the safe ship operation and environmental protection in the Polar regions.

"More shipping routes are being developed and so more tankers are transiting Polar waters," said Scott, a Chartered Engineer and a Fellow of the Institute of Mechanical Engineers.

"Special equipment should be carried on board to ensure that lifesaving appliances (LSA) work as planned. We have been instrumental in providing expertise on the performance of inflatable LSAs in sub-zero temperatures.

"With average temperatures in the North Pole around -34 deg C, the essential components on liferafts can freeze, impacting system integrity. Equipment such as Survitec's Heating Blanket System have been developed, which wraps around the liferaft container, ensuring this critical system can function in temperatures as low as -70 deg C," he explained.

#### **Ship Design**

Scott believed that the robust product design and manufacturing processes Survitec undertakes across its product portfolio is vitally important to maintaining, improving and delivering quality solutions that enhance the users' safety.

"Feedback from customers, suppliers, service engineers, industry groups, research facilities,



Servicing liferafts at Dunmurry

universities, legislation making activities, search and rescue organisations, training facilities, the whole gamut, is essential," he stressed.

In the same way, he believed that early consultation with naval architects during the ship design process can maximise a LSA's performance and reduce last minute design changes.

"The oil and gas carriers in operation today are subject to a vast array of regulations and standards covering every aspect of ship construction and operation. This includes those relating to fire safety measures, such as escape routes, fire protection systems and life-saving appliances and arrangements. It is therefore essential to safety that a safety specialist is involved right from the start of the ship design process. Safety shouldn't be an afterthought," he asserted.

"The information and knowledge we impart influences policies at both a regional and international level. If we can impact how the industry moves forward and help take safety to the next level, then we are on the right track. After all we are here to save lives," Scott concluded.

# Stream offers various tanker courses

UK-based Stream Marine Training (SMT) was founded in 2014 to provide training programmes to the global maritime, oil and gas, industries.

eadquartered at Glasgow International Airport, SMT offers seafarers STCW approved courses in fire-fighting, sea survival, survival craft and a range of advanced technical courses designed for industry and blended HSE training.

Courses are designed to take into account different sector types, such as tanker firefighting and basic oil, chemical & liquefied gas cargo operations (TBOC). A range of new training programmes in advanced oil and chemical cargo operations is due to be launched in the New Year.

Most of the training is carried out on-site at SMT's purpose-built facility, where all PPE is provided and the practical sessions are carried out in a controlled environment using the same equipment that crew will use when on board ship. Simulation training is also available on-site along with emergency response courses.

There are some instances when trainers will conduct off-site training with larger organisations, such as oil majors or tanker operators with large fleets. For example, to introduce students to LNG, they will travel to the nearby BOC facilities.

SMT uses experienced Chief Engineers and Masters, who are experienced in the tanker sector having worked on VLCCs, product and LPG carriers, plus chemical and gas tankers.

Some of the lecturers also have shoreside experienced, which helps when teaching the trainees about ship operations.



STCW approved firefighting course

All SMT's trainers have recent on board experience and are familiar with the latest equipment and technologies found on the latest tankers, such as dynamic measuring equipment, tank management systems, gas meters, and gauging systems.

#### Competencies

However, SMT believes that seafarers need more than just training, they also need competencies that can be used on board. With this in mind, SMT was quick to identify a training gap with operators switching to LNG as a fuel to comply with the 2020 sulfur cap.

As a result, the company developed a training programme to teach seafarers how to handle LNG, to cover what the industry needs for competencies and for training beyond STCW – to ensure people know about LNG as a product and as a fuel.

SMT's CEO, Martin White, explained, "STCW is a minimum for safety. We supplement this with technical and typespecific courses and for training seafarers to company-specific procedures covering their safety management systems and competency frameworks."

This training starts with the practical handling of LNG, due to the uncertainty and anxiety among some seafarers when faced with changes in fuel type.

Tony in't Hout, Director of Marine and Technical business explained: "We provide live cryogenics training at our facilities because there is often a concern amongst seafarers about handling LNG. We get people used to cryogenic systems, so they get experience in handling LNG and then they have less fear of using it as a fuel. Then people can learn better and become more confident of using it safely."

Some of the courses on offer from SMT are:

### STCW 2010 BASIC Training in Liquefied Gas Tanker Cargo Operations – MCA Approved.

The aim of this course is to give seafarers the essential education and training in tanker cargo operations to meet the knowledge, understanding and proficiency (KUP) requirements of the following:

- Function: Liquefied gas tanker cargo operations.
- Competence: Contribute to the safe cargo operation of a liquefied gas tanker.
- Take precautions to prevent hazards.
- Apply occupational health and safety precautions and measures.
- Carry out firefighting operations.
- Respond to emergencies.
- Take precautions to prevent pollution of the environment from the release of liquefied gases.

### STCW 2010 BASIC Training in Oil & Chemical Tanker Cargo Operations – MCA Approved.

The completion of this course will cover the following aspects:

- Function: Oil & chemical tanker cargo operations.
- Competence: Contribute to the safe cargo operation of oil and chemical tankers.
- Take precautions to prevent hazards.
- Apply occupational health and safety precautions and measures.
- Carry out firefighting operations.
- Respond to emergencies.
- Take precautions to prevent pollution of the environment from the release of oil and chemicals tankers.

**Advanced Training** for Service on Ships using Fuels Covered within the IGF Code.

This course is designed to give seafarers the education and training required to carry out shipboard operations on vessels using field covered within the IGF Code.

### STCW Tanker Fire Fighter Training

Students will learn about fire-fighting and operations on board tankers (oil, chemical, liquefied gas).

This STCW 2010 course meets the essential knowledge, understanding and proficiency requirements set out in Tables A-V/1-1-1 and A/V/1-2-1 for oil and chemical tankers and liquefied gas tanker cargoes.

# Training in a new age

### *Tanker Operator* asked Videotel Managing Director, Raal Harris about the changing face of training given the advance of digitalisation and optimisation.

e said that the company was seeing an increasing need to educate seafarers about the technology they use on board and how it can impact on their work and life on a vessel.

Cyber security is a very obvious new area that requires training, but there are things, such as alarm management and ECDIS, where the technology may not be new, but there is a re-focussing on how human beings are interfacing with the technology and how their behaviour and well-being can be affected by it, he said.

"There is also the outright need to receive training on specific sets of equipment. Ballast water, scrubbers, etc are all presenting challenges to our customers and many have asked us to lend a hand and work with manufacturers to assist. Thus far we have nothing type specific on these systems in the library, but we have produced bespoke programmes for individual customers at their request," he said.

He also explained that the IMO sulfur cap has required some new titles, including an awareness piece, which was launched earlier this year and is intended as an introductory guide.

"We are also working with a joint industry partnership on an e-Learning course primarily aimed at ships' Chief Engineers - but also applicable to technical departments and suppliers -, that presents the key points of the MARPOL requirement, including implementation planning, that they will need to be aware of and apply



Videotel's managing director Raal Harris

to the ordering, receiving, processing and consumption of compliant fuels ahead of and following the deadline," he explained.

"Lastly, we are also updating our MARPOL, bunkering and fuel switching materials to make reference to the new legislative requirements," he added.

### **Digital literacy**

He continued by saying that digital literacy is becoming increasingly important. "It is very important that we do not take it for granted, whilst we spend a lot of time talking about the new generations as 'digital natives', we must also remember that it is a very mixed picture out at sea and we have to cater for those that are not

so comfortable with technology," he said.

The pace of change is also a factor and new technologies and revisions to existing software, etc are happening all the time. "We all need to prepare for lifelong learning," he stressed.

*Tanker Operator* then asked about the problem of a vessel being ordered today and having a lifecycle of at least up to 2040 with nobody really knowing what ships will look like by then. Is this reflected in Videotel's thinking on future training packages?

Harris answered; "Again it is a mixed picture out there for our customers in terms of age of the vessels and technology adoption. We try to allow for multiple pathways within the learning we develop, so that we can still cater for those that want to push the envelope with smart phones, etc but still have a route for traditional users that still want to use DVDs.

"It is a balancing act and it requires more effort from our teams, but increasingly we see the need for flexibility as to how the training can be used," he said.

Since the split, with KVH, we asked how closely was Videotel working with the satcoms provider today.

Harries replied that KVH and Videotel have worked very well together for many years and will continue to do so. "We have many mutual clients and we are both very keen to continue to benefit from our collaboration," he concluded.

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# Generic ECDIS training now equal to type specific offerings

Running on from our Training feature and crossing over into navigation, we contacted UK-based eMaritime for an update on ECDIS training.

oday, the company offers an annual ECDIS Generic Annual Competency Assurance Training (ACAT) scheme, which was designed to ensure that navigation officers were competent in the key areas of ECDIS operations.

It is aimed at ensuring that the officers when operating an ECDIS, use its navigational functions, select and address all the relevant information and are able to take proper action in case of a system malfunction.

Officers should be able to identify the potential errors of the data displayed and the usual interpretation errors. In addition, they should be able to explain why and ECDIS should be relied upon as the sole aid to navigation.

Regardless of where and when previous ECDIS training had taken place, ACAT is designed to consolidate officers' knowledge, eMaritime explained.

As each officer completes the course, the shipowner or manager will see a green light next to his or her name. Once all of the navigating officers have completed the course, the vessel will turn 'green'.

Talking with Training and Production Manager, Robyn Harrigan, *Tanker Operator* was told that the online Type Specific courses eMaritime delivers was still very popular.

"We charge per hull but monitor the amount of seafarers that undertake it and this averages 30 per year, for a vessel with probably only



eMaritime regularly holds in-house training, seminars and workshops

five officers.

"This gives you an indication of crew turnover, and the issues companies face keeping new crew trained on type specific systems.

"We have also noticed that many ships change their type specific system every few years. It's difficult to give an exact number but I would say about 10%.

"The online generic is just as popular as its used as both an ECDIS and navigation refresher. Naturally, it takes much longer to complete, some recorded at over 40 hours on-line, but at least it can be completed from the comfort of your own home in your own time," she explained.

She also said that around 50% of training is now conducted online, compared with the more traditional hands on training at eMaritime's premises or elsewhere.

### **Huge problems**

eMaritime has identified 'huge problems' in training and Harrigan cited the case of the company's Managing Director, Mark Broster, who completed his course in 2004, before even using ENCs, but his ticket is technically still valid.

"It's evolved a lot. This is probably why our online generic refresher is so popular especially post 4.0 updates," she said.

eMaritime also offers bridge management team courses among others, which most of the time is concerned with effective team management, colregs, decision making, stress management, etc.

She also said that cyber security is a huge worry and most report that they have survived by luck. "It's so sad that the industry only responds when something goes wrong. The average time to complete our online course is 25 hours, so there is an indication that the user is learning and therefore there must be gaps in their cyber awareness knowledge.

"The test results are also quite telling, as

they often fail the tests when they jump straight to it, instead of going through the modules," she explained.

In another move, a large number of recent observations and detentions due to lack of certificated training, or, navigation incidents based on poor knowledge have led ECDIS Ltd to launch a 'Peace of Mind' service.

It offers each ship unlimited crew training and certification for the on-line 1.27 Generic, Type Specific and Familiarisation training, regardless of crew turnover for one price of  $\pounds1,200$  per year.

It also offers ships that subscribe a free help address for all Type Specific questions or assistance in procedures/best practice.

Earlier this year, a series of shipping company workshops highlighted the reasons for ECDIS detentions and groundings.

Over 10 sessions, dozens of shipping companies gathered to discuss and review several thousand observations, detentions and groundings. Significant work was undertaken to break down the results of the Concentrated Inspection Campaign (CiC), and the results of thousands of inspections.

Incidents involving several recent high profile groundings were cross related to the observations and detentions. The same themes and trends were noticed. Training appeared to not be the end solution, as almost all the cases reviewed had received training.

There are naturally varying standards of training but moreover the term 'skill fade' became evident, meaning continual training and robust procedures are becoming more of a priority.

Managing Director, Mark Broster, said, "We now have the top 19 failings of either the equipment, or lack of understanding of safety critical features that contribute to over 95% of all incidents."

These free workshops are part of the large not-for--profit services ECDIS Ltd provides for the shipping community.

### Digital nautical publications – how to stay compliant

### DNV GL recently said in a statutory news report that it had experienced an increased number of queries related to nautical publications in digital form.

he Background is - Regulation 27, Chapter V of SOLAS provides that nautical charts and publications must be kept up to date. Furthermore, Regulation 19.2.1.4, Chapter V of SOLAS states that:

'All ships, irrespective of size, shall have nautical charts and nautical publications to plan and display the ship's route for the intended voyage and to plot and monitor positions throughout the voyage.'

Electronic forms of nautical publications can be used provided suitable backup arrangements are in place. In other words, the IMO allows digital publications without stating the requirements to the hardware itself.

Many flag states have issued guidance on the carriage of digital products. Such guidance

refers to the main computer and the backup arrangements provided on board. Individual flag state requirements, which might be given, must be observed.

There are two options for having the nautical publication available on the bridge in digital form: **1) Included in ECDIS -**

An ECDIS capable of accessing appropriate digital nautical publications may be used as the 'workstation' for the use of such publications.

However, digital nautical publications may only be used on ECDIS if the ECDIS equipment has been approved for this purpose. This means:

• The effective size of the chart presentation is at least 270 by 270 mm and is not or only temporarily effected. If temporarily effected, it shall be subject to removal by a single operator action.

- The software complies with at least MSC.191/5.2 (IEC62288 4.4) for readability and MSC.191/5.3 (IEC62288 4.5) for colours and intensity.
- The software is free of reactive effects to the ECDIS software.
- The software is added as an additional module in the ECDIS type approval certificate.

### 2) Installed on dedicated computer -

It has already been noted that there is a gap in the rules regarding nautical publications in digital form, with the result that these publications were installed on a normal computer and display for many SOLAS vessels.

From a class perspective, DNV GL requires nautical publications as described in Regulation V/19.2.1.4, considering that applicable computers and displays are navigational equipment.

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### **ChartCo joins Marine Press**

### ChartCo has merged with the Canadian navigation solutions provider, Marine Press.

his move will create a new company called OneOcean, which will offer what is claimed to be the largest range of navigation and compliance solutions to the maritime sector.

Martin Taylor, ChartCo CEO, said: "Following the success of three recent acquisitions, we have been looking to further expand our business. We identified Marine Press as a like-minded partner that would complement our own business and expand the offerings to our growing international client base.

"Marine Press has created game-changing navigation software and award-winning products

and services that will complement our own integrated digital navigation products to really create a huge step forward for both of our customer bases.

"The new OneOcean business will reflect the collaboration, knowledge and expertise of both companies and build on our individual strengths of research and development, service and support and territorial reach. I believe clients of both companies will see an immediate and comprehensive benefit to the move, and I am really looking forward to working with Nicholas and his team as part of this merger," he said.

Nicholas Bourque, Marine Press President,

added: "This is a great opportunity for the Marine Press team and our clients, and I am looking forward to the creation of this new global company and the joining of our two businesses. OneOcean will have, by far, the largest R&D capability in the sector and will offer the most innovative solutions for maritime compliance and digital navigation.

"The technology roadmap that the combined group is working on is really exciting, building on 'best in class' solutions from both organisations, and will take shipmanagement into a new digital era," he claimed.

# NAVTOR and ScanReach in co-operative pact

### NAVTOR and ScanReach have signed an agreement to enable shipowners to have a connected real-time view of vessel and fleet operations.

his agreement will allow the connection of an on board wireless IoT platform to a secure channel for sharing data between ship and shore. The result is a stream of information taken from on board sensors, which can be fixed to almost any piece of equipment, system or individual, to land-based facilities, and back, enabling optimal decision-making, 24/7.

NAVTOR is a developer of e-navigation, while. ScanReach was officially launched at Nor-Shipping 2019, having devised and tested a plug and play solution that creates a robust on board network capable of transmitting data throughout complex and confined steel environments, with no need for expensive cabling.

According to NAVTOR CCO, Børge Hetland, "Both ScanReach and NAVTOR share the vision of utilising technology to enable smarter shipping, and by that I mean safer, more efficient, more environmentally friendly and, at the end of the day, more cost effective maritime operations for shipowners and society itself.

"With our advanced ENC-based services as the foundation we have built an infrastructure that allows the seamless sharing of data between vessels and shore, giving bridge officers the very latest information (for example, up to date charts, weather data and regulatory alerts), while owners and operators access vital fleet management information.

"ScanReach have created a breakthrough on board infrastructure whereby sensors share realtime information from equipment, systems and even personnel with the bridge, giving the crew genuine insight of current vessel operations.

"This agreement puts those two infrastructures together. So suddenly it's not just the bridge officer that knows the latest performance data from 'sensor x' in the engine room, it's the team in the office on shore. This gives close to real-time 360 deg awareness like never before. The potential is really only limited by the ambition and imagination of this industry. This is the definition of a game changer," he said.

The technology is currently undergoing full scale testing on board a subsea construction vessel, with a view of launching it onto the market by the end of this year.

ScanReach's system will connect with NAVTOR's communication and pre-processing hub, NavBox, with all information relayed to land securely through this DNV GL certified cyber secure gateway.

Jacob Grieg Eide, Chief Business Development Officer, ScanReach, added. "When you have two breakthrough technologies coming together in this way the possibilities are huge. Suddenly we have the ability to develop a wide range of services, and quickly, directly addressing client needs and effectively switching vessels from 'analogue' to smart, connected, digital empowered ships – without having to install expensive cabling."

In addition, automated and on demand reports of emissions and fuel consumption could be produced for complete regulatory compliance. Weather data could also be captured from weather stations on each ship (NAVTOR services a fleet of several thousand vessels) and streamed to land, providing real-time weather reports from exact vessel locations – calibrating existing weather models and helping other ships adjust routes and optimize performance and safety.

On the subject of safety, Eide said. "We've already launched In:Range, allowing those on vessel bridges to see the exact location of all personnel on board in emergency situations. With NAVTOR's infrastructure that information can be combined with their data, for example on routing, weather and navigation, to enable a new generation of emergency response services, both on board and on shore," he claimed.

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# Impact of Laytime and Demurrage clauses

Laytime disputes and demurrage claims under charterparties are the stable diet of shipping and maritime lawyers globally, writes Leena Asher.

he payments and receipts of monies as demurrage, or post fixture claims being recognized well both by tanker owners and charterers not only as devices encouraging efficient usage of time in loading and discharging operations but also as hedges against fluctuating freight markets.

The Maritime law reports and the literature are replete with decisions and guidance on the application and construction of the Laytime and Demurrage (L&D) clauses in charterparties.

These have attracted much attention and analysis in their original base contracts, ie charterparties. They also exist in International Sales Contracts where two issues are raised.

First, what is the link between an L&D clause in a sales contract and its relevant charterparty. Second, when the interpretation of the clauses is applied, are we guided by charterparties or court decisions?

A new approach is been taken towards the drafting of such clauses separately in the contracts, keeping the verbiage, precise and accurate. Charterparties are concluded in most cases in order to perform obligations under sale contracts and charterers find themselves liable under charterparties for delays caused by their counterparties under their sales contracts.

This brings us to the two points of discussion, both of which related to the link between L&D clauses in sales contracts and charterparties.

Tanker owners have a vested interested in ensuring that their voyage charterer do not delay their asset - the tanker. Time delays caused have a direct impact of prolonging the duration of the voyage beyond the profit margins allowed by the tanker owner in settling of the final freight. Tanker owners enforce this interest by stipulating for L&D in the agreed charterparty.

Where the charterer is also a CIF or CFR seller of the commodity, demurrage might be paid on account of a delay caused by the

buyer during the discharge operation. This is co-relation of capital cash flow in the oil trading market. The reverse my occur where the charterer is the FOB buyer.

The very purpose of the L&D clause in the sales contract is the ability to pass on to the counterparty, the cost of demurrage paid to the shipowner by the charterer, which has been in the first place, caused by the counter party.

### **Financial link**

The financial link between the two clauses – is the L&D clause in the sales contract intended simply to indemnify the party to the sales contract against losses suffered under the counterpart clause in the charter party or, does the clause in the sales contract stand quite independently of the liability under the charterparty?

What is the legal link between these clauses: when applying and construing the L&D clause in a sales contract, do we need to transplant in the sales contract all the law surrounding similar clauses created in the context of charterparties?

The L&D clause in a sales contract stands free and independent from their counterparties' charterparty. L&D clauses in sales contracts should be construed and applied as clauses in sales contracts, not as adjuncts to charterparties. Their interpretation should therefore be coloured not by direction of the charterparties but by their relationship to the contractual duties of being a FOB or a CIF buyer or seller.

Of specific interest here is the start of laytime. A valid Notice of Readiness (NOR) may not necessarily be the same of what the charterers have been charged by the tanker owners, compared to what can be onward charged to the counterparty. The commencement of laytime in the charterparty or a valid NOR may depend on various factors, which the charterers can use to accept as avalid NOR.

A valid NOR from tanker owners to charterers may not necessarily be the same valid NOR from charterers to their buyers. Also worth a mention is the commencement of laytime is relevant at the first discharge port but not at the second and third port, where the laytime is to start at arrival immediately at arrival at the port.

### **FOB** loading duties

While we are aware that the CIF buyer is under no obligation to discharge the cargo, it is impossible to suggest that an FOB seller is under no implied obligations to lead – and, if the FOB seller is obliged to load, he must be under the obligation to do so within a specific time.

It is of the essence in the FOB sales contract that the seller performs his obligation to deliver by loading the goods free on board. The obligation is also of the essence in the sense that the seller must deliver the goods within the shipment period stipulated in the sales contract subject to of course the buyer making the arrangements for the engagement of shipping space allowing the seller to ship within the shipping period where the sales contract leave such arrangements to the buyer.

However, to say that the FOB seller is under an implied duty to place the cargo free on board the vessel within the period stipulated in the sales contract does not mean so necessarily that the FOB seller is bound to load within the stipulated time to avoid the buyer's potential liability to the tanker owner for demurrage.

### **Laytime starts**

Where the charterparty names a port as the terminal for loading or discharging operation, then subject to any term in the charterparty stipulating for the giving of a NOR, laytime starts as soon as the vessel reaches the named terminal. ie once the tanker has 'arrived' at the port. The precise ambit of the port consequently becomes an issue between owner and charterer ie any time spent idle between 'arrival' and berthing for the benefit of the charterers eats into the laytime agreed in the charterparty and brings closer the moment at which the owner starts earning demurrage.

It is interesting to identify who bears the risk of congestion between the arrival and berthing of the vessel. Who bears this risk? Is it between tanker owner and charterer or between buyer and seller in the sales contract?

To undertake a liability for demurrage while the vessel is in port but waiting for berth would be an open-ended commitment in a contract for the purchase of what must probably be a part cargo. In fixing the start of laytime in a sales contract, overriding regard should be had to the nature of the sales contract rather than to the charter party origins of laytime.

### Valid NOR

In the case where there is ambiguity towards start of laytime, this runs from the moment the seller places the cargo at the disposal of the buyer. Even when the contract provides for a NOR to be provided, laytime still runs from the moment when a valid NOR has been provided, such that the risk of congestion remains with the CIF seller or charterer.

In conclusion, although the points of reference discussed above are all interlinked and related, the ultimate interest is the ability to dissect and clarify the risk to which any particular party is exposed because all of this translates into a dollar value which makes the L&D industry worth billions of dollars annually.

Traders and execution officers responsible for carrying out the trade deal are to be familiar with the interstices of the law of L&D in the charterparty, as it has been evolving and developing in the commercial courts and beyond.

### Lessons learnt from a collision while overtaking

Stuart Edmonston, the UK P&I Club's Loss Prevention Director, discusses an incident which occurred when a bulk carrier tried to overtake a small tanker.:

"In conditions of good weather and visibility, a small tanker and an overtaking Capesize bulk carrier were proceeding in a north easterly direction towards a traffic separation scheme. The tanker was steering a course of 0340(T) at a speed of 10.5 knots and the overtaking bulk carrier was steering 036o(T) at a speed of 12.5 knots. The tanker's OOW went onto both bridge wings during this period, but did not notice the bulker approaching from astern as his attention was directed forward of the beam.

"As the vessels came into close proximity, the effect of hydrodynamic interaction pushed the tanker's stern to starboard, resulting in the bulker colliding with the port side of the tanker. The collision caused serious damage to the tanker's hull structure and consequential flooding.

"The collision was principally caused by the failure of the overtaking bulker to comply with her obligation under Rule 13 of the COLREGS to keep clear of the vessel being overtaken. A proper lookout was not being maintained on either vessel.

"In the case of the tanker, the OOW failed to keep a proper lookout by all available means over a full 360 deg arc of the horizon and as a consequence, did not take the appropriate avoiding action required of a stand-on vessel under Rule 17 of the COLREGS."





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# Gulf of Guinea firmly back in the limelight

During November a drybulk carrier and a tanker were the subject of attacks in the Gulf of Guinea region, bringing the area firmly back into focus.

owever, the month before, an International Chamber of Commerce International Maritime Bureau's (IMB) report issued at the end of the third quarter of this year showed fewer incidents of piracy and armed robbery against ships worldwide than the first nine months of 2018.

Some 119 incidents were reported to the IMB Piracy Reporting Centre (IMB PRC) up to the end of September, compared to 156 incidents for the same period in 2018.

Overall, the 2019 incidents included 95 vessels boarded, 10 vessels fired upon, 10 attempted attacks, and four vessels hijacked. The number of crew taken hostage declined from 112 in 2018 to 49 in 2019.

In the report, the IMB confirmed that the Gulf of Guinea was a high risk area for piracy and armed robbery. The region accounted for 86% of crew taken hostage and nearly 82% of crew kidnappings globally in the first nine months of this year.

For example, in July, a general cargo vessel was hijacked about 120 nm SW of Brass with the result that 10 crew members were kidnapped from the vessel and released four weeks later. In August, a bulk carrier and a general cargo vessel were boarded within hours of each other at Douala anchorage, Cameroon and a total of 17 crew were kidnapped from the vessels. Within six weeks all kidnapped crew were released.

This incident demonstrated the range of piracy activity in the Gulf of Guinea and that all types of ships were vulnerable to attack, the IMB warned. Lagos recorded 11 incidents in 2019, the highest number for any port.

"Although incidents are down, the Gulf of Guinea continues to be a concern for piracy and armed robbery-related activities with kidnappings of crew members increasing in both scale and frequency," said Pottengal Mukundan, Director, ICC IMB in the report. "It is important that Masters and owners continue to report all actual, attempted, and suspected incidents to ensure that an accurate picture of these attacks emerge and action is taken against these criminals before the incidents further escalate."

Following the November attacks, the International Transport Worker' Federation (ITF) called for urgent global and regional co-operation to fight piracy in the region.

On 2nd November, pirates kidnapped nine crew members from the Norwegian-flagged bulk carrier 'Bonita' while she was at anchor off the coast of Benin in West Africa, and two days later, four crew members were taken hostage off the coast of Togo from the Greek-flagged 2003-built Aframax 'Elka Aristotle'.



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### **TECHNOLOGY- BALLAST WATER TREATMENT**

# Sampling and performance monitoring – a question of compliance

Ballast water management is no stranger to contention.\*

here has been much discussion and debate regarding the superiority of different system types, rapidly approaching deadlines, total project timelines, availability of parts, and lest we forget, cost of implementation.

What is becoming increasingly more prevalent is that there really is no 'one size fits all' solution. The constant, however, is that whatever solution an owner or operator decides to go for, whether it's for a tanker, container or tug, compliance is non-negotiable. There will be instances of non-compliance, and there could be punitive repercussions and reputational fall-out for all parties.

What the industry now needs is clarity is how compliance will be measured, who will be responsible for enforcing it and how this ought to look in a steadfast, regulatory framework. A type-approval certificate is all well and good, but it is not a guarantee for compliance.

There was much anticipation in the run up to MEPC 74, with 36 documents listed for discussion at the Ballast Water Review Group, along-side outputs from previous meetings. When it came down to talks about



De Nora's Dr Stelios Kyriacou



#### A BALPURE treatment system

regulatory compliance based on ballast water indicative sampling and monitoring, IMarEst submitted a very thorough paper: 'Harmful aquatic organisms in ballast water, a summary of currently available ballast water indicative analysis instruments' (MEPC 74/4/INF.18).

This served as an excellent primer, outlining all the options available, summarising the technical differentiates between the instruments. However, we are still waiting for a consensus from the IMO as to how the industry should move forward in regard to a universal standard for sampling and performance monitoring of ballast water.

The challenge as it stands is that ballast water is a product of complex biological and biochemical processes. And with at least 12 portable ballast water fast evaluation kits currently on the market, each with their own unique methodologies based on sound science and rigorous testing, the same sample delivered to each of these individual instruments will return differing results. This is not to say that one is more accurate than the next. But rather that each are testing for different things in different ways.

Without a standardised benchmark

for sampling and testing protocol, it is impossible for these testing kits to provide insights of consequence that can be used to authoritatively assess compliance.

In order for there to be any chance of standardisation, there first needs to be greater clarity on what it is exactly that these testing kits need to be ruling out. In-line with current IMO D2 and USCG Discharge Standards, the cell density of phytoplankton may be examined. Does this mean to say that the presence of other anaerobic organisms in a ballast tank, such as non-photosynthesising zooplankton, are not considered a compliance risk?

This is just one of many cases that have the potential to disrupt due process on the basis of trying to match science with underdeveloped legislation.

### **Semantics**

There is also a question of semantics. The language used to define the processes needs to be implemented consistently. Gathering, sampling, analysing and evaluating have different connotations and should not be confused.

Effective analysis and evaluation are not possible without clearly defined parameters for sample size and frequency of data collection. We can use the testing kits to assess levels of organisms in different samples of water, but this is not necessarily indicative of the total sum of ballast water in that tank. And of course, when you bring multiple tanks into the equation, this is further amplified.

Once clarity around testing and sampling methodology is ascertained, there is still the question of accountability when it comes to sample collection. There is really only one way to guarantee true impartiality in these instances; through independent assessors trained in the not-yet-established methodology.

The role of Port State Control officers also needs to be defined, in order to ensure effective communication between ports, shipowners, sample testers and scientific assessors. If a ship is found to be noncompliant, to what extent will they be expected to intervene?

At De Nora, we pride ourselves in giving honest, expert advice to shipowners on compliance beyond the certificate. With 95 years of experience in electrolytic disinfection, our patented BALPURE treatment system has superior safety credential alongside its USCG Type Approval.

Our commitment to developing longterm partnerships in order to support customers with their ongoing project needs necessitates this call to the IMO to provide some clarity and guidance when it comes to the future testing and performance monitoring of ballast water.

Without answers, compliance still feels very conceptual and the potential for confusion is rife.

\*This article was written by Dr Stelios Kyriacou, General Manager of BALPURE BWMS, De Nora.



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## Latest BWTS initiatives

BAWAT, the Danish manufacturer of opex-neutral ballast water treatment system (BWTS), has won an IMO Type Approval for its technology.

his BWTS uses only ship waste heat to kill off the invasive species.

Type Approval certification was issued by Lloyd's Register on behalf of the Danish Maritime Authority and makes the BAWAT system one of the first to be tested and issued with approval under the new stricter mandatory requirements of the IMO's BWMS Code.

"To be one of the first systems to be awarded type approval under these new tougher conditions is a confirmation of the hard work we have put into what is the most sustainable treatment system on the market," said BAWAT head, Marcus Hummer. "It gives our customers the confidence that we have a product for their future needs."

The BWTS design is claimed to be unique by using a vessel's own waste heat from the main engine or other heat sources to neutralise through pasteurisation any organisms in the ballast water.

"It does not require any chemicals, filters or energy consuming ultra-violet lights," Hummer explained.

By using pasteurisation, BAWAT's system can be used to treat ballast water in all water conditions, regardless of salinity, turbidity and temperatures, and has no holding time restrictions. Water is treated in one pass only.

The system is also unique in that components, such as the heat exchangers and pumps, are all standard as found on board vessels today, and therefore well known to the crew.

Another difference with the BAWAT system, compared with other BWTS, is the ability to undertake in-voyage treatment, thus a vessel's cargo and ballasting operations are not impacted, due to slow water treatment.

"There are thousands of vessels that will require effective, simple and efficient solutions installed between now and 2024 when the last IMO deadline comes around," Hummer explained. "For some owners the schedule will be tough and if taken at the



**BAWAT's Marcus Hummer** 

last minute, costly. An easy to install, easy to manage, and net-zero energy consuming system is going to make sense".

BAWAT is also waiting to hear from the US Coast Guard (USCG), which has been putting the system through its own Type Approval system and the company said that it expected to get confirmation in the near future.

The company has also recently finalised the provision of capital equal to more than DKK20 mill from new and existing shareholders.

The new shareholders include Selfinvest Family Office as a key stakeholder, and previous TORM CEO and current SKULD chairman, Klaus Kjærulff. Former Sondex owner Åge Søndergaard of SonFlow has also invested.

With the aim of strengthening the company, the board and management have undergone significant changes. Marcus Hummer, former COO at Kelvion, a manufacturer of heat exchangers, has taken up the post as the company's new managing director. He replaced Kim Diedrichsen, who was managing director since 2013.

Thomas Knudsen, former CEO of MAN Energy Solutions and chairman of Maritime Denmark, has also been appointed to the board of directors, together with Charlotte Hummer Vad, former Head of Customer Communication, Novozymes, and Peter Stokbro, Head of Technical Department, Uni-Tankers.

Klaus Nyborg, chairman of Dampskibsselskabet NORDEN, among others, continues as BAWAT chairman.

Flow Water Technologies, developer of the ballast water management system (BWMS), FlowSafe, has proved that its system is carbon neutral, the company said.

Research by an independent university has verified that the Cyprus-based company's BWMS delivers a fuel saving, in energy terms, in any configuration on board a vessel.

"Our sales targets are nearly met, and with overwhelming interest, I am confident that FlowSafe will be saving 1.3 bill kg of CO2 per year," said Mark Hadfield, Flow Water CEO. "That is the equivalent CO2 saving of



FlowSafe broken down into its component parts (see page 28)

222,000 average family cars' use per year."

This system will be primarily installed on tankers fitted with Framo pumps and pump rooms and can be installed at sea without the need to change existing pipework, substantially reducing costs.

Modular installation also means the components can be fitted between the engine room and steering gear room without having to move the existing machinery.

There is no filtration on the ballast line and the system is explosion-proof as standard.

"International Maritime Organisation (IMO) G9 Basic Approval has been awarded, IMO G9 Final Approval has been submitted, and we are soon to be submitting for US Coast Guard (USCG) Type Approval," Hadfield said.

"We have a healthy pre-order book and are confident that our unique solution is the best, most cost-effective, and most environmentally responsible BWMS for tankers," he added.

**Norwegian Greentech** (NGT) is experiencing massive sales growth for its ballast water treatment systems, especially on the retrofit market.

From 8th of September this year, it

became mandatory to install ballast treatment systems on all ships with ballast tanks. Subsequently, this involves installing a treatment system to treat the ballast water on ships by their first renewal of environmental approval which is normally undertaken every five years.

Norwegian Greentech has developed a treatment system that is particularly suitable for small and medium-sized vessels. Since its establishment in 2010, the company has built slowly. Much of this time was dedicated to product development, testing and type approval.

"Our product is a perfect fit for small and medium-sized vessels. Our product has the smallest footprint and the lowest energy consumption on the market. In addition, having competitive prices makes customers choose us.

"We are very proud to report an increase in sales by almost 350% from 2018 to 2019. Patience in the development phase, incredibly talented employees, as well as a strong owner behind us, are important factors that helped us develop such a good product," claimed Børge Gjelseth, Sales and Marketing Director.

Today there is a clear shift in the market

towards shipping companies focusing on securing good fleet agreements with predictable prices. Gjelseth pointed out that there are many competitors that have been fighting for several years for a limited market for new ships.

**Optimarin** is to sign an agreement with Sandfirden Technics to consolidate its existing foothold in the key Benelux regional market.

Sandfirden, a Dutch-based supplier of equipment and services to the maritime industry, will become the sole regional agent for the ballast water treatment (BWT) specialist.

Optimarin also said that it is is currently experiencing significant growth, with its latest third quarter figures showing a yearon-year increase of over 100% in both order intake and revenues.

Following on from the September arrival of the IMO D2 deadline for BWT compliance, Tore Andersen, Optimarin EVP Sales and Marketing, said the market is now primed to go into "overdrive", making it imperative that the firm has the right partners and support to both satisfy demand and provide optimal levels of customer service. "The Dutch shipping sector is not only a key Northern European market, but an important global player," he commented. "There is a very strong cluster of respected, forward thinking shipowners and operators that demand the optimum in compliance, reliability and performance from their suppliers and partners. And, with the final starting gun well and truly fired for the retrofitting of BWT systems throughout the world fleet, that provides real opportunity for a company with our market proven technology, niche expertise and documented retrofitting experience.

"We want to ensure we have the best organisational structure and local competence to take advantage of that demand, and provide first class support to our customers. That's the driver behind this decision to partner with Sandfirden Technics. They know the regional industry inside out and have fantastic relationships with all the major yards and throughout the shipowning community.

"Having their assistance 'on the ground' will allow us to meet our ambitious sales, servicing and after sales targets. I look forward to building a strong working partnership with the team in the years to come," he said.

Sandfirden is headquartered in Den Oever, where the firm's facilities encompass offices, an extensive parts warehouse, three production halls and modern test facilities.

Managing Director Bart Bakker officially signed the agency agreement with Andersen at Europort in early November.

Optimarin is approaching 1,000 systems sold of its fully USCG and IMO compliant Optimarin Ballast System (OBS), with around 550 installed, of which about 200 are retrofits. The company's most recent order was a fleet agreement with Singapore's Asiatic Lloyd Shipmanagement for 30 retrofitted systems.

OBS has certification from a range of class societies, including ABS, BV, DNV GL, LR & MLIT Japan.

**SKF** is to showcase its latest innovation for the international maritime industry at Marintec China 2019.

Although UV systems are amongst the most effective, environmentally friendly and popular methods of ballast water treatment,

users face the challenge of keeping them clean.

Operators usually rely on aggressive chemicals to remove biofilm, which forms on the UV lamps and affects their performance. This in turn demands safe chemical storage and processing to avoid environmental pollution.

Thomas Kaiser, SKF's Director of Sales, explained how SKF's solution solves this problem: "The SKF BlueSonic BWMS uses ultrasound cleaning instead of chemicals. Its ultrasound frequencies not only maintain the system's performance but weaken the undesirable organisms in the ballast water. Maintenance costs and downtime are further reduced by the high resistance of its reactors to corrosion and cavitation, which also extends their lifetime."

The system is claimed to be easy to install and is designed to comply with both IMO requirements and the stricter US Coast Guard (USCG) regulations.

A single operating mode can be used for all territories, enabling constant compliance worldwide.

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# Testing ballast water organisms

Microbiological monitoring equipment provider LuminUltra has highlighted the importance of testing all sizes of ballast water organisms identified by the IMO.

ore than 4,000 organism species are carried in ballast water, ranging in size and resilience to treatment. The IMO has specified the type and size of organisms that ballast water management systems (BWMS) are required to treat.

Known as the three fractions, these organisms are broken down into bacteria, organisms of between  $10-50\mu m$  and organisms greater than  $50\mu m$ . Regulation D2 of the Ballast Water Management Convention (and Circ.42/Rev1) requires all three sizes to be measured and assessed.

Organisms found in the 10-50 $\mu$ m

bracket are typically phytoplankton and some microzooplankton, while organisms found in the  $>50\mu$ m range are typically zooplankton. Bacteria and phytoplankton are considered easier to treat, while zooplankton has proven more difficult. Monitoring only the 10-50µm fraction,



Mike Thomas from LuminUltra working with the GeneCount Q48 device

# THE MARSHALL



International Registries, Inc. in affiliation with the Marshall Islands Maritime & Corporate Administrators therefore, should not be considered as the most suitable group from which to base compliance or system performance verification.

Carine Magdo. Business Development Manager for Ballast Water Monitoring Solutions, LuminUltra, warned: "It is important that all three fractions and especially those greater than 50µm are considered when testing ballast water, as experience proves that if a system fails it is most likely in

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this category." Zooplankton is the most difficult fraction to treat in order to achieve compliance with D2 discharge requirement. Blooms of zooplankton can also clog up BWTS filters. If filters fail, then this can pose a significant challenge to system performance during the approval process and later then in actual operation.

Meanwhile, the presence of phytoplankton and bacteria, is generally seasonal and dependent on the region, so checking for these organisms alone is not a fair indicator of a BWMS' efficacy.

Furthermore, the ecosystem in a ballast tank can change between ports, with the  $>50\mu$ m fraction potentially increasing and the 10-50 $\mu$ m fraction potentially decreasing. One of the reasons is because Zooplankton can survive in the ballast tank without light, whereas phytoplankton dies or is eaten.

Magdo added: "IMO has made remarkable progress in regulating ships' ballast water. The Ballast Water Management Convention, still fairly new to the industry, continues to evolve as more technology and expertise is developed. A number of next steps have been identified, which LuminUltra is involved with, including verification of the indicative analysis instruments required to measure the different levels across the fractions."

The company's B-QUA ballast water monitoring system has been scientifically validated to measure ballast water readings across all three fractions.

# Working closely with engineers key to success

*Tanker Operator* spoke with Ecochlor about the recent changes made to the Ballast Water Convention, especially regarding the move towards D-2.

fter a period of using the Ecochlor BWMS system, customers are for the most part moving away from ballast water exchange and using the treatment system, Ecochlor explained.

However, this does depend on shipping routes, as some vessels have used the system regularly since it was installed.

Ecochlor's team is working closely with clients and prospective customers to provide them with the most reliable, simple to use ballast water management system, along with an unmatched service programme.

Around 75% of clients are shipowners who have used other treatment technologies and are now retrofitting their ship with an Ecochlor BWMS, the company claimed.

Answering the question as to how the surveying and certification is undertaken, Ecochlor said it has in-house engineers that work closely with third-party marine engineering and naval architect firms, which have experience working with an Ecochlor BWMS.

### **Training offered**

In addition, training is offered at the company's new International Training Centre, for engineering firms, shipowners' engineers and superintendent that are unfamiliar with the system.

Ecochlor installed its first BWMS in 2004 and with this experience has come an understanding where issues are likely to occur and thus work together with the shipowners' engineering team to ensure systems are installed correctly and in a timely, cost-effective way.

The company further explained that the manufacturer was not expected to participate in the BWMS commissioning testing but this would be handled by an outside testing facility and reviewed by class prior to commissioning certification.

As to the current market for BWMS, Ecochlor said; "Everyone is very busy, we are seeing a lot of shipowners trying to compress the timeline for system delivery and drydock schedules.

"The retrofit market is expected to triple in 2022 – the desired shipyard, or experienced integration engineering firms are already experiencing full order books and sometimes cannot accommodate the shipowners requests. Class is also busy and the expectation is there will be delays in

### approvals.

"We would recommend that shipowners with IOPPs in 2022 should be actively locking in their BWMS, the integration engineering firm and scheduling drydock time to ensure that they are in compliance for their vessels," Ecochlor concluded.



# DNA and Blockchain combine to increase fuels transparency

Come 1st January, 2020, after years of planning, the priority for owners, operators and fuel suppliers will be to manage fuel supplies.\*

peaking at this year's Nor-Shipping, Luca Volta of ExxonMobil warned: "I don't think we will ever go back to the situation we are in today, where marine gasoil and fuel oil are available at every port around the world in whatever quantity you want."

While major bunkering ports, such as Singapore can count on an influx of major players into the market, others may have to rely on new suppliers with less of a marine track record, or those who decide to cut corners in order to meet demand – which comes with attendant risk.

Volta further explained: "I think some of the issues that we have seen in 2018 and 2019 in terms of contamination will resurface... if the industry is trying to tackle the issue of availability, you will need to go deeper into the refinery processing, and you will need to start blending in a more extreme fashion than happens today. We may see some less scrupulous suppliers; I see the market potentially stratifying between quality, reputable suppliers, and those that are less so...anything that has a low sulfur content is a likely candidate to try to find its way into a marine stream."



BunkerTrace CEO Marc Johnson

These kinds of risks – of contamination, or incompatibility - aren't without precedent in a supply chain that has been historically fragmented and opaque. Even with the current supply chain, contamination happens, with devastating consequences. Last year, beginning in Houston, over 100 vessels were ultimately affected by contaminated fuel, which resulted in blocked filters and clogged fuel injectors.

So, what can the industry do about it?

Blockchain use in the marine fuels operation makes a lot of sense. It is ideally suited to resolving issues in complex supply chains, like bunkering, as transparency and traceability are at the core of the technology. It enables a shared, unalterable store of data, which allows trust to be established between parties without intermediation. This is how, for instance, crypto-currencies allow transactions between parties without a bank.

For this reason, it is ideal for replacing paper-based systems of documentation, and why it was the focus of a consortium formed by Maritime Blockchain Labs (MBL) to look into this solution for bunkering. Replacing paper bills of lading with blockchain-based records made a lot of sense, and is proving a powerful tool in increasing transparency.

Combining digital and physical traceability mechanisms, however, has the potential to take the solution one step further. By combining physical and digital information, it is possible to create a twolayer system, where the two streams of information reinforce one another. However, how do you add physical information to fuel? This is where DNA comes in.

By adding synthetic DNA to a liquid you are applying a unique tag linked to key data about provenance, location, chain of custody, any information that is deemed relevant. For a fuel supply chain, a unique tracer can be added upstream at the refinery and then, at subsequent points along the supply chain, other tags can be added, to demonstrate where fuel has been tested and found to be compliant. By the time it reaches a vessel, there will be an entirely auditable trail of tags contained in the fuel, that upon lab analysis will reveal the fuel's associated data.

The addition of a molecular label alongside the DNA tag acts as a covert screening tool which allows crew and/or an independent surveyor to be able to test for the presence of the necessary DNA markers and, if they are absent, make a decision about whether to proceed. Where the DNA markers tags the provenance and movement of the actual fuel, the blockchain solution traces interactions that occur on a human-to-human level – the digital 'handshakes' that occur along the journey of the fuel.

A solution combining these elements, called BunkerTrace, was launched earlier this year.

### Trial

The system's first pilot was successfully completed in September. A dredger was bunkered with 900 cu m of DMA 0.1% sulfur ISO 8217:2010 compliant fuel, supplied by Minerva with a unique tracer added.

The crew then detected the tracer with an on board analysis case that took less than a minute, with the result that the test was logged in a blockchain-based transaction record. A tracer was used that was added to the fuel as it was loaded onto a Minerva bunker barge, via a dosing pump on the fuel line. Bureau Veritas (BV) verified that the fuel line and receiving cargo tanks were empty.

\*This article was written by Stuart Hall, Technical Sales Director, BunkerTrace

## **Updated BunkerPlanner solves sulfur headaches**

BunkerMetric has introduced new functionality to assist users of BunkerPlanner in their transition towards the forthcoming IMO2020 regulatory landscape.

regulatory

changes. This is

why we believe

will benefit from

bunker buyers

additional data

and algorithmic

decision support.

volatile bunker

market, bunker

buyers can use

"In a

irst, BunkerPlanner now has SECA speed optimisation logic that determines the optimal speed to sail inside and outside SECAs in order to minimise fuel expenditure, while maintaining the vessel's schedule.

This is in addition to SECA routing optimisation, which determines the optimal path to follow in view of the overall sailing distance, SECA portions, and fuel price differentials.

Users can specify whether a scrubber has been installed on a given vessel. In this case, BunkerPlanner's optimisation logic will emphasise sailing along the shortest distances and at equal speeds inside and outside of ECAs.

BunkerPlanner will automatically leverage the scrubber to the greatest extent possible and only use distillate fuels where required.

"Bunker procurement practices need to advance all the time to adapt to market and



BunkerMetrik Co-founde Fernando Alvarez

BunkerPlanner to quickly find the cheapest and safest bunkering options for their fleet, depending on whether the vessel has a scrubber or not. This reduces cost and creates transparency." explained Fernando Alvarez, BunkerMetric co-founder.

Second, BunkerPlanner now provides an option to transition a subset of vessels within the fleet to operate under the new legislative framework







ahead of 1st January, 2020. With this, vessels without a scrubber will shift towards procurement and utilisation of VLSFO in global waters at the earliest opportunity.

### **Tank configuration**

Users will be able to specify a new tank configuration to enable carriage of VLSFO and gradually phase out remaining HSFO inventories.

Co-founder, Christian Plum, said: "There is and will be so much turmoil and bunker buyers need a simple interface to help calculate and select from amongst a complex array of procurement options. Bunker buyers controlling a diverse fleet, requiring different types of fuel, sailing on a varied number of trades, combined with a very dynamic pricing market, is so complex that you will make better decision supported by a good system to help you navigate in this challenging environment."

Third, BunkerPlanner now offers a new and convenient way to specify the consumption quantities and fuel types for each fuel consumer in the vessel.

The user is only required to make a few selections regarding the fuel capabilities of their main engines, auxiliaries, and boilers. BunkerPlanner then uses internal logic to automatically select the optimal fuel type to be used by each engine type in each ECA zone.

For those operating in the tanker segment, a separate consideration has been added for the consumption of boilers under different operating modes and ECA zones.

The BunkerPlanner team continues to make improvements on the speed and usability of the product on an ongoing basis, with many new and powerful features to be announced in the coming weeks and months, the company said.

BunkerMetric is a Scandinavian IT company supporting the global bunkering industry with decision support tools. BunkerPlanner assists bunker buyers reduce their total bunker costs by 1-3 % using latest data on prices, port call cost and availability together with advanced algorithms.

The bunker cost reduction leads to a TCE improvement up to several hundred dollars per day, the company claimed.

**November / December 2019** • TANKEROperator

# **Propulsion - Heading towards IMO 2050**

Shipping's greenhouse gas emissions debate is starting to ramp up in earnest, as the IMO's 2030 and 2050 emissions targets loom.

EMs, class societies, consultants and others are now evaluating the raft of alternative fuels being put forward, as a vessel's propulsion system necessary by 2030 needs to be designed now.

Carbon-free/renewable fuels are necessary for reducing CO2 emissions to levels required for IMO compliance.

Any fuel can be converted into propulsive power in low speed 2-stroke engines with high efficiency, but will it be viable fuel source, asked Rolf Stiefel, vice president sales at WinGD in a presentation given in London last month.

He acknowledged that current engines cannot have their efficiency reduced to meet the 2050, 50% emissions reduction deadline, saying that the industry needs to embrace non-fossil fuels, such as bio-fuels and hydrogen-based fuels. At present, the fuel sources available today are -

### Fossil Fuels -

• Compliant low sulfur liquid fuels:

• LNG/LPG

### **Bio-fuels** -

• Bio diesel oils/Algae fuel (liquid):

- Methanol/Ethanol (Bio):
- Bio gases (Bio-LNG):

### Hydrogen-based fuels (E-fuels) -

- Cryogenic liquefied Hydrogen:
- Liquified Synthetic Gas (LSG)
- Ammonia.

Dr German Weisser, WinGD's Senior Advisor Emissions and Sustainability said that by 2050 no single fuel would be the answer- the era of one fuel fits all is long gone. All the alternatives are coming into play.

The industry needs to think about the practicalities as there is still much confusion out there.

With the supply chain, the infrastructure and storage need to be considered, while on the ship, the engine type and storage capabilities need to be taken into account.

He believed that engines, as we know them today, would not disappear but rather will form part of a quartet of prime initiatives to reduce emissions while enabling a vessel to remain efficient to operate.

Under the banner of 'smart shipping', these

### were logistics/

vessel utilisation, design hydrodynamics, machinery (engines, etc) and fuels and energy sources.

However, he warned that taking all of these parameters into consideration would only give only a

20% reduction at the most. He said that WinGD was already working on systems integration and hybridisation, etc.

In past decade or so, WinGD has developed a range of dual-fuel engines able to run on LNG. While still being a fossil fuel, LNG is a step in the right direction - a most important step, he said, as the technology was in place and methane can be sourced from many outlets.

### **Additional sources**

On a long term perspective, however, LNG as a fuel needs to be supported by additional energy sources.

Re-iterating the urgency, Dr Werner said; "We need to have products ready by 2030 for ships to use."

He also said that the IMO should co-ordinate an industry wide initiative towards fuels of the future.

WinGD is evaluating the whole fuel chain, starting with feedstock, production, storage, usage and by products.

On usage, he said that bio-fuels classification can be split into primary - combustibles usable without further (chemical) processing and secondary- generation definition on the basis of the source of feedstock for physico-chemical treatment or degree of enhancement of natural processes.

WinGD has also looked at the potential fuels and possible practicable problems when used on board ship.

### X82DF/X82-D – Design methodology

Applying lessons learned and proven concepts from existing engines



• Using LNG instead of HFO: Tank volume 1.6 times higher + insulation on top

- From LNG to Hydrogen (cryogenic): Tank volume >2 times higher + additional insulation on top
- Ammonia and Methanol: Challenge on tank volume and weight increase- both are toxic.

• Batteries compared to HFO: Storage volume minimum 8 times higher - Weight more than 20 times higher.

WinGD has a unique testing facility, which is able to cater for different fuel systems, including a spray combustion chamber, a single cylinder and a multi-cylinder engine, enabling long periods of testing at different optimisations.

In total, the company has five test engines available and started assessing future fuels several years ago and said the intensity will increase going forward.

WinGD has been marketing dual fuel engines able to burn LNG for several years under the X-DF type banner. To date these engines in various size and power ranges have accumulated around 330,000 running hours and the number in service or ordered now stands at about 275.

One of the most recent engines to be unveiled was the X82DF/X82-D, which is claimed to be ideal for the newbuilding VLCC market, in which interests had picked up in the use of LNG as a fuel. The first should be delivered by 2021.

This is based on the successful 82 bore engine of which 250 have been ordered and the first was delivered in 2008. There are now around 223 in service.

### FECHNOLOGY - EFFICIENCY



including tankers. This has been designed using the X40-B platform. The standard version is an MGO design (clean fuel for IMO Tier II NOx operation), with the option to

WinGD claimed that the X82-D offers reduced brake specific fuel consumption (BSFC), reduced engine length, easier maintenance of ICUs, offers WiDE for engine performance analysis and

predictive maintenance, has well proven piston running experience and in addition, the time between overhauls will be extended.

This engine will round off the WinGD dual fuel portfolio, the company claimed.

At the other end of the scale, WinGD has also launched the X40DF for smaller vessels,

add HFO-capability if stipulated. It also comes with the WiCE control system - a hardware and software architecture.

The X40DF engine is available in 5-cylinder to 8-cylinder configuration, covering a power range from 2,775 kW to 7,480 kW at 104 to 146 rev/ min. It is currently under test at WinGD's Trieste test facility.

Another engine, the X-DF 2.0 is currently also under test.

This will reduced the gas consumption in gas

mode, reduce liquid fuel consumption in diesel mode and significantly reduced CH4 emission (methane slip), the company claimed.

Technology tests have been concluded on the Trieste X-DF RTX5 laboratory engine and a pilot installation has been fitted on a X-DF vessel for on board validation.

WinGD said it intended to market it next year with deliveries to shipyards scheduled for 2021.

#### **Major enhancement**

Thomas Werner, WinGD's Engine Programme Portfolio Manager R&D explained to *Tanker Operator* that the X-DF 2.0 is a major enhancement of X-DF technology, associated with significant reduction of methane emissions, as well as improved fuel efficiency both in diesel and gas operation, compared to the first generation of X-DF engines.

A detailed technical description, including installation drawings and final performance data will be made available by WinGD to engine builders/licensees and shipyards by the end of March, 2020.

The technology will then gradually be rolled out to the complete existing X-DF engine portfolio, he said.

### **Rope supplier takes OCIMF to task**

### Uncertainty about rope test certificates is undermining OCIMF's MEG4 rope testing recommendations, a leading rope supplier has claimed.

ccording to Hans-Pieter Baaij, Lankhorst Ropes' Product Area Manager Wet Cargo, OCIMF's Mooring Equipment Guidelines 4 marked a step-change in the recommendations for the safe mooring of tankers and gas carriers at terminals.

Mooring lines and their integrity lie at the heart of MEG4 yet confusion over rope testing is in danger of undoing OCIMF's good work.

"Under MEG4, it is clearly stipulated that ropes are subject to testing scenarios that involve 17,000 cycles of angled endurance and 10,000 cycles of axial compression rope testing. Yet there are rope manufacturers who are following a limited testing approach involving a tenth of the actual testing, for example, only 1,700 cycles of angled endurance and 1,000 cycles of axial compression rope testing," Baaij said.

Full MEG4 rope testing assumption is built into the development and implementation of the ship's Line Management Plan (LMP) -OCIMF's recommendations for mooring line management and tail maintenance, inspection and retirement during the operational phase of the mooring line lifecycle.

The rope's performance characteristics during testing are of prime importance in determining its inspection frequency, and thus safe mooring planning.

Baaij warned, "If the testing has not been done in line with OCIMF MEG4, the rope's characteristics in a real-life application may vary significantly from that observed during testing."

#### **Buyer beware**

Lankhorst Ropes' recommended gas and tanker operators and shipbuilders look at the rope Type Approval more carefully to check if the full MEG4 rope tests have been undertaken.

"Often the first page of the Type Approval will state that the ropes comply with OCIMF MEG4 yet on page 2 or so, the true state of affairs is revealed. Testing to 10% of the MEG4 test requirement is completely inadequate and is also against the spirit of the MEG4 recommendations," Baaij claimed. "Imagine what could happen during ship vetting if a vessel is shown to have ropes that are not in line with the OCIMF MEG4 recommendations. Loading or discharge operations may be jeopardised."

The company's Lankoforce main line rope and Euroflex pennant are tested to the full MEG4 recommendations. "We are the only company able to offer a complete mooring set of MEG4 fully compliant mooring ropes," Baaij added.

Lankhorst Ropes said that its Mooring Rope Manual provides an in-depth introduction to mooring ropes – their construction, characteristics and certification - and includes tips on rope selection to suit the vessel and mooring conditions.

Understanding the factors affecting how mooring ropes perform in service is vital to crew safety and rope service life. The manual has been written in such a way that answers to the vetting VIQ 7 questions are linked.

# Nippon Paints adds to product tank protection range

Nippon Paint Marine introduced a new system specially developed to protect chemical and product carrier tanks from corrosion and cargo contamination.

dded to its NOA (Nippon Optimised and Advanced) range, NOA PC 700, a phenolic/novolac-based epoxy, is resistant to a wide range of chemicals, solvents and petroleum products, including those containing xylenes, methyl ethyl ketone, methanol, caustic soda and LSA fuel oil.

Makoto Nakagawa, General Manager Sales and Marketing, Nippon Paint Marine Coatings, Osaka, said: "The addition of NOA PC 700 to our established NOA range significantly protects inner cargo tanks from corrosion while preventing cargo contamination.

"As with all our NOA coatings, application is self-indicating which enables the applicator to visually confirm the correct wet/dry film thickness has been achieved during the application process. Correct film thickness is crucial to mitigating against corrosion risk to maintain ship structural strength," he said.

Since the 1998 market launch of the first NOA coating system, Nippon Paint Marine has introduced a number of different products. And while each one is designed according to the anti-corrosive requirements of different parts of ship, all the coatings are based on pigments that have various opacities depending on film thickness.

"Achieving correct film thickness, especially on edges and corners, is a challenge but this remarkably simple concept allows shipyard staff, surveyors and coatings inspectors to literally see when the coating has been correctly applied. If the coating appears transparent, then film thickness is incorrect. When it is opaque, correct film thickness has been achieved," Nakagawa explained.



Nippon Paint has unveiled a new tank coating

Hiro Yamashita, Technical Manager, Nippon Paint Marine (Europe), added: "While NOA application improves coating quality and helps to reduce man hours and costs, the coating system is fundamental to maintaining structural integrity. This is becoming more and more apparent with the increase in areas requiring coating and the reduction in the availability of skilled applicators.

"In drydock, for instance, our NOA 10M system – specifically developed for hull maintenance and repair – means just one touch-up coat can be applied in the knowledge that the self-indicating function will ensure that the thickness applied is correct.

"This means fewer days in dock, which contributes to lower drydock costs for the owner. By improving a ship's corrosion resistance through more accurate coating application, ships are less prone to rusting early," he said.

### **Earlier success**

With the introduction of NOA PC 700, Nippon Paint Marine hopes to emulate the market success of its NOA60 HS product, which has been applied to the ballast tanks of more than 1,300 newbuilding vessels since its introduction in 1998. Applied in two coats at 160µm per coat, NOA 60HS meets all PSPC acceptance criteria for water and cargo resistance, adhesion, cathodic disbondment, pinholes and undercutting. It is easy to clean and has low emissions of volatile organic compounds, the company claimed.

As for tank cleaning, Nippon Paint Marine recommended advising operators directly on how best to clean the coating based on the last cargo carried, the company told *Tanker Operator*.

# New tanker generation calls for new rules

A new class notation from DNV GL is aimed at helping LR2 operators highlight their ships' ability to switch between low and high-grade cargoes without risking contamination

ypically, cargo owners require carriage of an intermediate cargo, such as diesel oil, for three voyages after carrying crude oil or dirty products before clean products such as petrol can be transported. The intermediate cargo gradually cleans the tanks, pumps and piping for the subsequent clean oil product.

An alternative to intermediate cargoes would be to design a ship to enable switching between dirty and clean cargoes on a ballast voyage. This will however require thorough cleaning to remove traces of previous cargo from internal tank surfaces, cargo piping and cargo pumps and avoid contaminating the next product. Tank cleaning is performed by deck-mounted tank-washing machines.

The tanks are washed with seawater during a ballast trip and possibly rinsed with freshwater to remove the salt residue. The wash water discharge must be monitored using oil discharge monitoring equipment (ODME), so the permissible maximum oil content is not exceeded.

When the ship arrives at the next loading port, the tanks will be completely clean.

In addition to the arrangement of the tankcleaning machines, the structural arrangement of the tanks, as well as the cargo pump and piping arrangement, are important factors to improve tank cleaning efficiency.

DNV GL has introduced a new class notation Improved Tank Cleaning (ITC) that is geared for LR2s, explained Olav Tveit, Vice President and Ship Type Expert at DNV GL – Maritime.

The new rules quantify the tank cleaning capability so owners of adequately designed and equipped ships can prove to cargo owners that their LR2 vessels are capable of achieving the required tank cleanliness and cleaning efficiency for the carriage of clean cargoes.

DNV GL then addressed the amendments to both MARPOL Annex II and the IBC Code adopted earlier this year, which will enter into force on 1st January 2021

The class society discussed the changes, the impacts on its customers and the actions to take.

To close an existing gap between how the IBC Code products have been assessed before and after 2004, the IMO decided to reassess all

existing products in the IBC Code using the same criteria.

Last October, this work was finalised and adopted as amendments to chapters 17, 18 and 21 of the IBC Code.

As the carriage requirements for most products have changed, this will impact on the Certificate of Fitness or NLS (noxious liquid substances) Certificate listing the products a tanker is certified to carry.

When new amendments to chapter 17 and 18 of the IBC Code are adopted, the IMO has decided that a new Certificate of Fitness based on the updated amendments shall be issued prior to the entry into force date of the amendments and kept on board with the existing certificate.

The revised certificate will have the same expiry date as the existing certificate and is effective, and supersedes the existing certificate, on 1st January, 2021.

When cargo is loaded prior to 1st January, 2021, and unloaded after this date, the relevant provisions of the IBC Code at the time of loading are applicable until the cargo has been unloaded.

The implications of this is that the range of products a ship is certified to carry will differ before and after that date.

### **MARPOL** amendments

Pollution of north European coastlines are assumed to be partly the result of tank cleaning residues after carriage of vegetable oils and paraffin waxes.

Hence, amendments to MARPOL Annex II imposing pre-wash requirements in the port of unloading for certain high-viscosity or lowmelting-point persistent floating products have been adopted.

These stricter requirements apply within a defined area stretching from Gibraltar in the south and along the Norwegian coast, including the Baltic Sea, as well as the UK and Ireland.

As part of the amendments, the standard format of the P&A (procedures and arrangements) manual, which is required to be approved Amendments to both MARPOL Annex II and the IBC Code adopted earlier this year will also enter into force on 1st January, 2021.

This article discusses the changes, the impacts

on customers and the actions to take. on behalf of the flag administration, which have been revised. This further calls for an update and re-approval of the P&A manual.

### **Certificate issuance**

Both the IBC Code and the MARPOL amendments are related in the way that they affect tankers trading with substances, subject to both the IBC Code and the MARPOL Annex II.

Their entry into force dates are therefore aligned. To accommodate an efficient approval process and re-issuance of certificates, a solution for requesting the new certificate and P&A manual approval has been set up in the DNV GL Veracity portal.

To request the new certificate and the approval, a survey request should be sent through Veracity and by choosing 'MARPOL/IBC Code 2019 Amendments' under 'Occasional surveys/audits'.

Further instructions can be found in the Owner's Preparation Note, which will become available when placing the request. An RR (Retroactive Requirement) has also been issued to formally inform each vessel.

Both the existing (IBC Code and MARPOL) certificate and the new certificate, including the respective cargo lists, will be shown in the Veracity portal, and the certificate in force will be tagged as valid.

If for any reason the certificate must be re-issued at a later date before 1st January 2021, both certificates will be re-issued.

To manage a timely delivery – and also because the range of products which may be carried after 2021 is defined by the new Certificate of Fitness and possible obligations towards charterers – DNV GL recommend an early, rather than last-minute, requests.

### References

- MEPC.315(74) Amendments to MARPOL Annex II
- MEPC.318(74) 2019 Amendments to the IBC Code
- MSC.460(101) 2019 Amendments to the IBC Code
- MSC-MEPC.5/Circ.7 Guidance on replacement of IBC Code Certificates

# Ecochlor unveils NanoVapor fuel tank technology

Ecochlor has officially formalised an agreement to represent gas freeing technology NanoVapor.

his provides an integrated, fully featured, and simple to deploy tank level package for marine applications.

NanoVapor is claimed to be able to dramatically improve crew safety while significantly reducing time and any environmental pollution related to gas-freeing VOCs from cargo or bunker tanks.

A single application can continue to suppress VOCs for several days. The NanoVapor degassing process is more cost effective than traditional methods of cleaning these types of tanks, the company said.

A NanoVapor unit consists of two components - a nano-suppressant liquid, TankSafe and a portable delivery unit, Model ST-1000. The delivery unit operates using a compressed air source to create a high-flow air stream to inject the suppressant molecules into the tank. The molecular suppressant works up to 90% faster than current enclosed space procedures to quickly suppress VOC evaporation, it was claimed.



Studying the plans

Stuart Bayliss, service manager at Kidderminster Petroleum Services, said: "The NanoVapor solution is by far the easiest,

quickest and less expensive way to make a tank completely safe to work on. By using NanoVapor, the downtime of each tank is one day. By using alternative methods, such as water filling, the downtime can be as much as three days ..."

TankSafe is engineered from renewable materials, is readily biodegradable and leaves no residue or hazardous waste product. The ST-1000 delivery unit is intrinsically safe and ATEX Zone 2 rated with no electrical or moving parts.

"This new technology will assist vessel owners with their IMO2020 compliance, given the increased need for bunker tank cleaning with the change of fuel grades and specifications. We believe the NanoVapor unit will greatly improve enclosed space crew safety and provide a better solution for shipowners as they face fuel emission deadlines," said Steve Candito, Ecochlor's CEO.

InterManager recently released an industry guideline sharing best practice submissions from crew to reduce risks in enclosed spaces. Secretary General, Kuba Szymanski, commented: "InterManager is watching closely for the arrival of NanoVapor by Ecochlor as it promises to be break-through technology for enclosed space procedures. Coupled with naval architects' more responsible attitude to the design of spaces, which require humans to work in, this technology should provide a much safer environment for crew. We can't wait for NanoVapor to be available for our ships!"

At the time of writing, NanoVapor was finalising testing with Lloyd's Register for type approval.



NanoVapor unit

# **TANKEROperator**

KEY PLAYERS IN THE TANKER INDUSTRY will be profiled giving their views on current legislation, recommendations and trends. These will include chief executives from all sectors of the industry from equipment manufacturers to the top shipowners

INFORMATION about meeting oil major requirements (TMSA / vetting)

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