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The **Aoka Mizu**
entering DDW
(See UAE)

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VIEWPOINT:

Captain David Nichol, senior loss prevention executive at UK P&I Club, discusses the lessons learnt from a recent incident involving liquid cargo contamination during tank cleaning on-board a tanker, "The tanker was fixed to load three liquid chemical parcels, each consigned for discharge at different ports. No problems were experienced during loading or the sea passage and the parcel consigned for the first discharge port was delivered without incident." Upon arrival at the second discharge port, the vessel was instructed to anchor due to congestion at the terminal.

The crew took this opportunity to carry out fresh water pre-washing of the five empty cargo tanks that had been discharged at the previous port and proceeded to connect the designated hoses between the deck fresh water pipeline and the individual tank washing machines.

"After the commencement of tank cleaning, the duty officer noticed that one of the hoses was incorrectly connected to a tank loaded with cargo consigned for the third port of discharge, thus allowing a large quantity of water to enter before the valve was closed.

"The high value chemical cargo in the tank was contaminated with water far in excess of specification limits and was rejected by the original consignee. Dealing with the contaminated cargo required a very expensive process of separate storage, refining at an alternative port and on-carriage on-board another vessel.

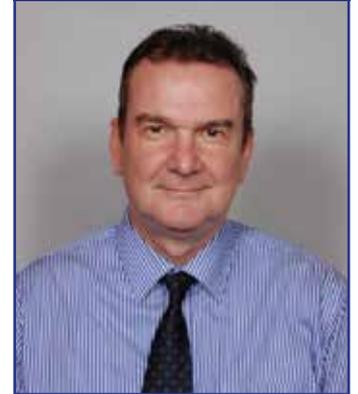
"The incident would not have occurred had the crew properly checked and double checked that the correct connections were made and the appropriate system valves properly set up before commencing tank cleaning. These precautions are particularly critical when tank cleaning is conducted with the vessel in a partially laden condition.

"Apart from the financial impact of potentially very large contamination claims, erroneously admitting water and tank cleaning additives into the wrong tank may potentially result in a dangerous chemical reaction."

Lessons Learnt from this incident include:

- Tank cleaning operations should always be carried out in strict compliance with documented shipboard procedures and guidelines, with which responsible officers should be fully familiar
- Prior to commencement of cargo, ballast, tank cleaning or any other transfer operations, the correct setting up of pipelines, valves and blanks should be clearly stated in the operational plan and reviewed during the pre-work briefing of all officers and crew involved
- Tank cleaning checklists must be diligently completed prior to commencement of operations
- The setting up of lines and valves should be double checked by a responsible officer

Captain David Nichol



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DDW:

Following DP World's take-over of Dubai Drydocks World (DDW) in October last year, a new management team has now been installed. DP World has a reputation of having a consistent management team – a fact that is now expected to apply to DDW, following a few years of changes at the top.

Rado Antolovic has been appointed as Chief Executive Officer (CEO). With a career spanning three decades across leading port and maritime industries, Rado Antolovic brings a wealth of leadership and experience to DDW. In his previous roles as CEO of JSC NCSP and number of senior positions with DP World, P&O Ports, APL and his sea-going experience with MOL, he successfully set-up, restructure and manage numerous ports and marine businesses across the globe.

As CEO of P&O Maritime he has been at the forefront of the Company's successful turn over and fast international expansion. As the CEO and MD – Maritime Services Division (MSD), his task is to efficiently consolidate all DP World group maritime business and provide strong platform for long term growth.

Robin H. Reed, a former member of DDW's management team, is appointed Chief Operating Officer (COO). With a career spanning 40 years across leading maritime companies, Robin brings a wealth of experience to DDW.

Robin has sea-going experience as Chief Engineer, has Classification experience, vessel repair and new build experience and has held a number of senior positions within the Maritime Industry ranging from Fleet Manager, Technical Director and Senior Vice President and has worked in the U.K., Malta, Cyprus, United States and Ireland as well as almost 15 years' experience in the Middle East. Another former DDW employee has also returned to the management team – Martin Hoskins.

Radostin Popov is leading both the Commercial and Business Development functions for all the entities of MSD including P&O Maritime, Drydocks World, P&O Ports and P&O Marinas. His primary responsibility is generating new business globally. He will play a leading role in the development of investment proposals & will be responsible for the commercial and business development functions for all the companies within the division and will engage with the Business Units to set commercial strategies and will have functional oversight on both BD and commercial activities across the division.

He also has responsibility for the establishment and implementation of business development processes and strategies for high quality proposals in line with operational parameters and corporate governance policies to achieve overall revenue and other financial targets.

Radostin has more than 25 years of experience in the maritime and port industry. Prior to joining P&O, he has worked in Ports, Infrastructure, Shipbuilding, Ship management, Logistics and Defence with DP World, P&O (prior to DP World Acquisition), Fesco, Summa Group and others. Radostin has an MBA from University of Oxford, Said Business School.

Radostin said, "We are looking closely at the integration of DDW into the P&O Maritime portfolio. Its expertise in shiprepair, newbuilding and offshore-related is unequalled, and we will look to operate a one-stop-shop for all these industries. We are expecting BWT and sulphur emissions work to be included in future drydocking specifications and, with our engineering capability and a vast technical experience, we feel that the future is challenging but good."

The largest current project in DDW involves the upgrade work on Bluewater Energy Services' FPSO **Aoka Mizu**, which is progressing as planned and the project remains on schedule for first oil in the first half of 2019. The FPSO will operate in the Hurricane field offshore the UK for Hurricane Energy. **Aoka Mizu** arrived at the shipyard on September 30th 2017 for repair, upgrade and life extension work - with the scope of work

The DDW facility in Dubai



involving the removal of the vessel's existing internal turret for upgrading.

Meanwhile, in a separate contract DDW-Dubai is also fabricating the turret mooring buoy for the FPSO. The first planned drydocking of **Aoka Mizu** was completed on schedule, during which a thruster was removed for overhaul, outer hull surveys undertaken, replacement of a number of sea valves and installation of new bilge keels. Initial tank cleaning and inspection have also taken place. DDW has a track record of 32 conversions and the construction of six turrets,

The yard completed some 300 vessel repair projects during 2017, which comprised mainly tankers - over 60% of the volume. DDW continues to maintain its position in the region as the major player and in particular for the drydocking of VLCCs and ULCCs constituting some 24% of the total number of vessels repaired during 2017. Major companies such as BP Shipping, NYK, Chevron, Bahri, Maran, Andros Maritime, and New Shipping are among many regular and new clients using the facility in the last year.

A total of nine LNG tankers drydocked in the yard during 2017 – contracts coming from mainly from ADNOC, MOL LNG, Knutsen, SCF, NYK and Golar. So far this year, DDW has already secured orders for two LNG tankers, one for drydocking and the other for engineering design works with potential vessel drydocking and upgrade work. DDW is currently pursuing six active enquiries from LNG tanker owners throughout the world. There are also further prospective enquiries for refurbishment and upgrade of FSRU vessels during 2018.

Radosin said, "We have started well on the ship/rig repairs this year and have already completed drydocking and repairs on-board 35 vessels to mid-February in 2018. We have seen an increase of about 25% in the enquiry numbers received during 2018 compared to in January 2017. We have also secured significantly higher number of orders during the January 2018 period compared to the same period in 2017. Currently we have about 160 active enquiries, which include high value vessel repairs in some specific segments."

NORDMARIN:

Paul Friedberg, a well-known name in Dubai with such names as Goltens and Grandweld, has decided to go it alone and purchase GMMOSTech Marine, which Paul has decided to rename Nordmarin LLC.

Nordmarin is located in Dubai Maritime City (DMC) and has a permanent workforce of some 110, many of which have a long history with GMMOSTECH and therefore are very skilled in the type of work Paul is looking at for the future.

The company provides specialist shiprepair and conversion services (steel and aluminium) for merchant and offshore fleets such as tankers, bulk carriers, container vessels, barges as well as the Middle East-based fleet of offshore service vessels. The company prides itself in employing a very experienced and capable core workforce using modern equipment and processes for executing the ship repair and conversion projects.

One of the reasons for changing the name from GMMOSTech Marine and Technical Services to Nordmarin LLC is to emphasise a change that will benefit the customer base. The combined international and western experience of the management team from larger companies has given it the ability to implement modern management techniques in executing all types of projects.

Paul says, "Our focal point is to understand the customer's needs and to execute the projects on-time and within the predictable financial constraints, taking into consideration Health, Safety and Environmental (HSE) practices. To achieve this objective the company employs modern project management systems and operational management techniques in conjunction with various operational metrics to monitor and control the project performance. This will ensure good control of resources, on time completion of the project

Nordmarin engineers on work on an engine repair



and overall customer satisfaction.

“GMOSSTech Marine operated for some 30 year in Jadaf and then one year in DMC. Some 89% of the work we do involves main and auxiliary engines, shaft and propellers and other mechanical work, predominately in the offshore support vessel market. We use the syncrolift system at DMC and work alongside. Our target is to increase the number of projects carried out compared with the GMMOSTech days.

“We want to be different from other repair companies operating in DMC and other areas in the Arabian Gulf, by offering a higher level of planning, project management and technical expertise, including a higher level of communication with our customers – all designed to give our customers confidence in our work.”

Over recent months, Nordmarin has carried out refurbishment of two anti-piracy security interceptor vessels – the **Menkar** and the **Markab**, which are based near Fujairah and in the Red Sea respectively and operated by Ambrey Risk.

Apart from his time in Dubai, Paul has a long experience in the offshore, shiprepairing and newbuilding industries. Working in Norway for Kvaerner Offshore between 1983 and 1996 in Oslo and Stavanger, he then joined Scotland’s Govan Shipyard in 1996, when it became part of Kvaerner. He stayed at this yard for some six years during the building of a fleet of oilers for the UK Royal Fleet Auxiliary. He progressed from Yard Manager to Project Director during this time.

In 2002 he left the UK and took over Goltens Worldwide in Dubai during the transition from the Jadaf facility to, what is most probably, DMC’s largest repair facility. He served Goltens as President between 2005 and 2016. He then became Deputy General Manager at Grandweld for some three years, before starting out with Nordmarin.

Paul Friedberg



NICO INTERNATIONAL:

Last year (2017) saw a healthy business trend for Dubai’s NICO International. The company has enjoyed significant success, buoyed by continued support from key clients such as Maersk Line, CMA CGM, US Navy, Anglo Eastern Ship Management, MOL Tankship, UAE Coast Guard, Drydocks World, Zakher Marine, Zamil Offshore, Emirates Steel Industries, DUGAS, and GE etc. among many others.

More than 3,500 individual afloat repair jobs were completed on-board various types of vessels. As many as 150 riding squads were in operation at any given time for various shipowners. Additionally, NICO successfully completed over 59 drydocking projects from its locations in Dubai and Fujairah. A similar trend was observed for industrial shutdown projects, involving several major industrial shutdown jobs with notable clients several in the pipeline for 2018. NICO has provided support to various vessels in voyage and ports abroad for such owners as Maersk line, CMA CGM, Switzer, Zamil, etc.

NICO has witnessed an increase in main engine repairs for with work having been carried out in both Dubai and Fujairah anchorage and in service. Steel renewals jobs have also shown a promising start for this year.

Prakash Kumar, NICO’s General Manager says, “We monitor vessel movements and ascertain where it is that vessels are entering our region. There is certainly a strong trend developing in the scale of Chinese and Taiwanese vessels now moving through this area. To this end, we have begun to market NICO International more prominently within these countries. The monitoring process is a continuous focus of the business – we monitor every week where vessels are predominantly entering the region, and we observe that an area or region is becoming predominant, we ensure our representatives are sent out to raise awareness of NICO International.”

Due to the emphasis demonstrated by NICO International on afloat repair work, the company also engages in such tracking to ensure that it is prepared for what is otherwise an unplanned manner of operation. Even for areas in which we have established networks, we need to maintain knowledge of when vessels are expected to arrive in the region.

“To this end, tracking is very beneficial to the company. Because NICO International has a history spanning over 44 years, we can demonstrate a great deal of knowledge regarding our customers – so we are very proactive in communicating with vessels and enquiring if there is any work to be performed. This also ensures that we can schedule ourselves accordingly.”

NICO has carried out more than 59 drydockings, all successfully completed at DMC and its Fujairah yard. Several boiler maintenance/survey & inspection/boiler retubing were carried successfully for ADNATCO – NGSCO, MOL Tankship, within Drydocks World, for Global Boiler Aalborg A/S and Star Cement. Under the Thermomeccanica agreement NICO has carried out overhauling of booster pumps and mounting of the pump shaft assembly after overhauling at client site

NICO has also seen a healthy jump in business for its underwater services and anticipates continued growth in that segment. NICO International’s diving team has successfully carried out the recovery of some eight lost anchors at Fujairah Anchorage – a 100% success rate for recovering lost anchors at Fujairah Anchorage. NICO also successfully completed underwater stern tube seal replacements for Holland’s UPE (Global Diving Services). The procedure included:

- In-situ replacement of stern tube seals without trimming the vessel to the bow
- The rope guard was removed to get access to the stern tube seal arrangements
- Arrangements were made to install flexible Sealdock habitat around the stern tube seal system.
- After flexible Sealdock habitat installation provision was made to supply continuous low pressure breathing air into the habitat to push out the sea water providing dry conditions for the engineers to work inside the flexible habitat
- Bonding of seals were carried out by certified UPE engineers Following AEGIR Marine procedures
- Upon successful bonding/exchanging new seals, stern tube seal system was fixed back to original arrangements following AEGIR Marine procedures
- Rope guard was installed back in original position
- The job was concluded with zero incidents, observations or near misses

NICO International has signed various new agreements:

- A service agent agreement with Japan’s Nishishiba Electric (part of the Toshiba Corp) for all the electrical power generating products manufactured by Nishishiba in the Middle East region
- A service agent agreement with Sunrui Marine Environment (a wholly owned subsidiary company of China Shipbuilding Industry Company Limited for BWT systems in the Middle East region)
- An exclusive Sales & Service agreement partnership with France’s Jeumont Electric for Jeumont equipment (power generation and conversion markets)
- An exclusive territorial partnership agreement with Dragon Marine (Turkey) for the marine & industrial business in Turkey region.

Looking ahead, NICO International wishes to continue developing long-term agreements and contracts with major vessel companies and to continue the progress in forming strategic alliances with equipment manufacturers, customers and suppliers alike. Few long-term agreements with major vessel companies are in the pipeline and expected to complete by the first quarter of 2018.

NICO’s Prakash Kumar



Adding more manpower to the ever-increasing pool of highly trained and qualified riding squads has been a notable achievement for the company. NICO has taken CDC for more mechanics and fabrication team (Belize CDC) to upgrade the team of riding squads. NICO successfully provides essential, efficient and reliable services and total solutions through its technically competent, highly skilled and effective workforce, who are dedicated to meet and exceed the customer expectation.

ALBWARDY DAMEN:

This year will see the 40th anniversary since Albwardy first began shiprepair and newbuilding activities in Jadaf and a 10th anniversary since the company became part of the Damen Group. The company is now located at Hamriyah Free Zone in Sharjah and operates a very modern shipbuilding and shiprepairing facility, including a shiplift facility capable of accommodating ships up to 120 m x 26.5 m.

However, Albwardy Damen is about to expand with a new 5,000 m² facility being built at DMC, this facility due to open during the summer period of this year. The new facility will be utilised in the shiprepair industry, newbuilding operations being carried out in the Sharjah facility.

Albwardy Damen's managing director Lars Seistrup commented, "We aim to be the best regional shipyard for building and repairing niche tonnage. And with our expansion in Dubai, we are positioning ourselves in the best possible way to serve our clients in the region during these challenging times."

During 2017, Albwardy Damen repaired over 150 vessels in the Sharjah facility, roughly divided into three types of ships – OSVs (one third), tugs (one third) and tankers (one third). Recent examples have included Smit Lamnalco's OSV **Seipal**, and the 39.07 m x 24.08 m lift boat **King Fish**, which was in the yard for mechanical work and general drydocking. As well as the Sharjah facility, Albwardy Damen has already dry-docked some 10 vessels in DMC already in 2018.

Recently in the yard was a lift boat, which has arrived in the yard from West Africa for modifications for a new project, including the installation of an addition jack-up leg, making the vessel a four-legged lift boat, and new sponsons and thrusters. According to Albwardy Damen's management team, the modification contract was won because of the yard's excellent safety record for working on such projects.

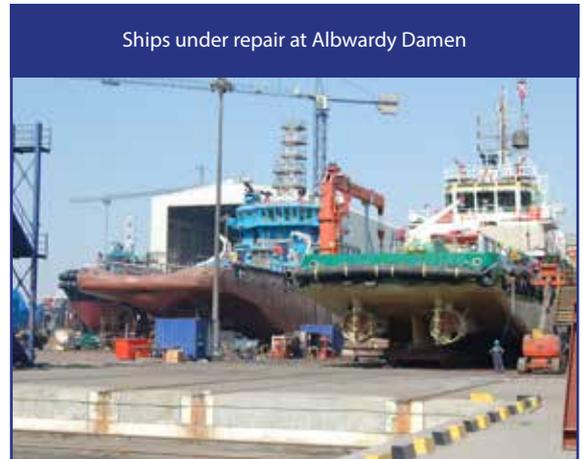
During early February this year the Abu Dhabi-owned small aluminium ferry **Yameelah**, which is of Austal design, left the yard following a modification project involving the installation of an additional accommodation block.

On the newbuilding side of the yard's activities currently under construction is an Aquarise 26 m four-legged lift boat for operation in the Arabian Gulf. The four legs are due for installation by early March. Also under construction are two Damen design 2913 harbour tugs for Suqr Port and two fast aluminium-built crew boats of Damen 3307 design.

During mid-January Albwardy Damen delivered the world's largest Rotortug, the ART 100-46 RT **Raven**. The vessel will be operated by Perth-based KT Maritime Services Australia Pty Ltd, a joint venture partnership between Kotug International and Teekay Shipping Australia.

The Infield Support Vessel (ISV) RT **Raven** is built to a Robert Allen (Canada) design. She is a customised 46 m-long, DP2, 100-ton bollard-pull Rotortug for offshore support. She is designed and outfitted for operations in the Timor Sea, 500 kms north-west of Darwin and 250 kms south of East Timor. RT **Raven** has been specifically designed to meet the field's unique marine service requirements which include tanker berthing and operations support, including emergency response.

KT Marine's Ard-Jan Kooren, said, "This is a very significant contract for KT Maritime as we work towards



Ships under repair at Albwardy Damen

further establishing ourselves as a reputable service provider to the oil and gas segment.”

Lars Seistrup, commented, “This is a special vessel in many ways. It is the largest Rotortug ever built, it is also one of the most powerful tugs ever built in the UAE. We are very pleased with the end result which is the consequence of close co-operation and teamwork with the client.”

Albwardy Damen's new facility at DMC



HARRIS PYE:

During mid-December last year (2017), the Harris Pye Group was sold to the Joulon Group. Joulon was created in partnership with KKR, the global investment firm to acquire well-established companies globally. The investment in Joulon comes from multiple funds managed or advised by KKR. Harris Pye has been acquired to primarily add capability in the Project Management Platform for the Joulon Group and will also have an impact in the majority of the Joulon platforms.

At the time, Mark Prendergast, Harris Pye’s Chief Executive explained, “This is very much a win:win situation. It is very much ‘business as usual’ for the group with its global team of 1,700 based in 17 facilities and offices around the world. The network stretches from Brazil to Japan, North American and Canada to Australia and includes major workshops in Wales, Brazil, Sharjah and Singapore.

“We remain a proud Welsh company, and the strength of our new owner allows us to compete as a Tier One contractor going forward, and that is good for Wales, and all 16 countries in which we are based, as it cements jobs and brings new opportunities for job creation. Our Welsh base at Llandow in South Wales remains our prime fabrication facility.”

Under the new ownership Mark Prendergast remains CEO, Chris David is Chief Operating Officer, and David Walters is Chief Financial Officer.

Having the backing of this new group, Harris Pye is now looking at much larger project involvement including large FPSO and FSRU projects, which will require financing and lease arrangements to be completed. Harris Pye has a great deal of experience with this industry, but have the financial backing of Joulon/KKR will allow it to develop into a major player in the conversion of such units.

The expansion of the company, headquartered in Dubai, is clearly seen with the opening of two new offices during this year (2018) – one in South Korea, opened in January, and one in Greece, opened in February. Harris Pye’s new office in Busan in South Korea has been established primarily to keep pace with the demand by Korean shipowners and operators eager to bring their LNG tankers to shipyards in Korea for dry-docking and inspection, repair or boiler modifications.

The Harris Pye Country Manager Jaecheol Lee explains, “Previously LNG tankers were drydocked in Singapore, but now South Korean owners prefer to bring them to Korea. This has enabled Harris Pye to set up a new office and offer repair and inspection services using our skilled workforce from our Singapore and Japan facilities initially for all necessary work on these marine boilers. In time we expect to extend our service to include industrial boilers.

Meanwhile, Harris Pye has launched Harris Pye Greece/Mediterranean based in Glyfada, Athens and appointed Tony Gennadopoulos Business Development Manager – Greece/Mediterranean.

“Shipping is Greece’s most important industry, indeed it has been a key element of the Greek economy since ancient times,” Tony Gennadopoulos explains. “I am ensuring that ship owners in Greece are well aware

of the products and services Harris Pye has to offer, particularly ballast water treatment systems and scrubbers.

“My role is to develop the market here, and in the wider Mediterranean, enabling Harris Pye to become a preferred service provider. Greece currently possesses the largest merchant marine fleet in the world, with the Greek flag fleet ranking fifth internationally and first within the EU in deadweight terms.

Greek shipowners control 4,092 ships of various categories with a total of 320,597,574 dwt and 188,904 gt. There is certainly no shortage of potential customers both in Greece and in the wider Mediterranean area.”

According to Harris Pye’s Dubai headquarters – “Although we have only completed some four or five BWT installations, we have been involved in some 50 engineering and design projects as owners start to look at their fleets future requirements. Currently we have some 30 – 40 enquiries for such work. From the FPSO market we have worked on the **Aoka Mizu** project in DDW and we are now looking at two further FPSO conversions likely to be placed in the Middle East. On a world-wide basis, we are looking at some six to eight FPSO projects.”

The FPSO **Aoka Mizu**



LINK INSTRUMENTATION:

The latest equipment manufacturer to join a long list of representations in the Middle East by Dr Julian Nicholas’ Link Instrumentation & Control Services, located in DMC, Dubai is Switzerland’s Aquametro, manufacturers of the Viscomaster viscosity and density solution. Link is now responsible for the sales and service of this item of equipment in the Middle East. So far Link has sold some four Viscomasters, two on-board ships in Bahrain’s ASRY, in the first three months of this representation and undertaken some 20 retrofit operations.

Malaysia’s MISC has been an important customer over recent months for Link. A LGSO retrofit operation was carried out in Malaysia Marine & Heavy Industries (MMHE) on-board the 130,405 m³ LNG tanker **Puteri Itan**. This conversion was carried out over a period of some 36 days with a team of 26 from Link. There is possibly a further six vessels from MISC to undergo this conversion.

One of the largest contracts being carried out by Link has involved the Bahri-owned tanker fleet. The work has involved work on various control and alarm equipment. The latest work involved the 25,901 dwt **Bahri Jazam**, while the ship was undergoing a drydocking in ASRY. Link has worked on 12 of Bahri’s tanker fleet so far with another eight tankers in the pipeline.

Two recent examples of Link retrofit operations have included the overhaul of the main engine remote control equipment on-board OSG Shipmanagement’s 317,972 dwt ULCC **Overseas Rosalyn** and similar work on-board CMA CGM’s 30,453 dwt containership **Judy Delmas**.

Other recent retrofit and overhaul operations carried out by Link have involved Brannstrom’s (Sweden) tamper-proof bilge alarm and monitoring systems, Link’s role is supply, installation and commissioning.

Signed during January 2017, a Memorandum of Understanding (MoU) with MAN Diesel has given Link a great deal of work on a world-wide basis, including main engine remote controlled systems in such areas as China, United States, Bahrain and other ports in the Middle East.

From the agreement with Evoqua, Link has recently worked on-board two US Navy ships from its Fifth Fleet in DDW, for Chloropac marine growth protection systems, with discussion continuing for further contracts. Another recent example of work for Evoqua has been the installation of an Impressed Cathodic Protection (ICCP) system (CAPAC) on-board a German vessel in Gwangzhou, China. Meanwhile, in DDW Link assisted with the installation of a BWT system on-board an Exmar LNG tanker.

HULLWIPER:

During the latter part of last year GAC EnvironHull was re-branded as HullWiper. It is the same machine, operated by the HullWiper team in Dubai, but simply with a new brand. Simon Doran, Managing Director of HullWiper explains, "The perception is that the HullWiper ROV hull cleaning service was and is expensive, however after rebranding HullWiper have now moved to be more competitive against traditional cleaning and principals have been pleasantly surprised that with the new cost initiative and greater savings, ROV Hull cleaning is a much more attractive option"

The HullWiper system is now moving slowly towards lease arrangements by specialised underwater companies throughout the world. During December the HullWiper became available for ships berthing at ports in the Suez Canal. Simon Doran adds that as a key transit hub, Egypt is the perfect location, "The country already has a strong reputation for vessel maintenance services such as hull cleaning, and demand continues to grow. Such is our confidence in the market that we are already planning to expand HullWiper's availability to other Egyptian ports."

Other areas of the world likely to have the HullWiper system available soon include Panama (at each end of the Canal), due to become operational by the second quarter of this year, and in possibly Sri Lanka, New Zealand, Djibouti, Qatar and Hawaii.

"When we first began operations, we were consistently approached about purchasing our machines, or renting them out," revealed Laurance Langdon, General Manager for HullWiper. "We were initially reticent, for the reasons one might expect – safety of operation and intellectual property concerns to name but two. However, in more recent times, as we have become more established, we have begun leasing our equipment in select markets, and have enjoyed tremendous success thus far in doing so."

One of the main examples of this is the Port of Rotterdam, where a HullWiper system is likely to be positioned, though a lease company. Another area of interest is Algeciras in Spain, where the system has been transferred to from its original location in Valencia.

Talking about the type of customers which utilise the HullWiper system, Simon Dorran adds, "In terms of client relationships, critical as they are to our success, we enjoy accords with the top 10 in shipping – names like Maersk, CMA CGM, NYK LNG, Statoil and so forth. We also are enjoying a remarkable upswing in LNG tankers serviced in areas like Australia. While competition is fierce, we have niche advantages, and we are also seeing superb opportunities in the cruise ship sector."

The HullWiper being activated in Jebel Ali

**GOLTENS:**

There have been some management changes at Goltens, Dubai over the past year – Roy Strand is now Chief Operating Office with Sandeep Seth being Vice President Asia Pacific and UAE, thus sharing his time between Dubai and Singapore, two of Goltens' largest facilities. Goltens is also understood to be currently looking for a new Managing Director for the Dubai facility. One area of proposed expansion is Abu Dhabi, where there is already a Goltens' presence, but with future expansion to the workshop to carry out mechanical, diesel and electrical work expected.

Goltens has, over recent months, returned to its core business involving mechanical and engine repairs of diesel engines and electrical control systems. Among the main targets for the future is mechanical work on-board FPSO and FSRU units offshore West Africa, aluminium repair work on-board crew supply vessels in the Dubai area, using DMC's syncrolift and general mechanical work in the Dubai area.

One recent example of this was pipe fabrication for the FSRU **Hoegh Gallant** on location at its station in the Red Sea. Goltens has also worked on-board one of the Yinson FPSOs offshore Nigeria, the work involv-

ing the unit's main circuit breaker, governor upgrade and the control system overhaul. Pump repairs have also been carried out on-board a Golar LNG tanker, the company now looking a DF engines.

Goltens is the preferred partners of Maersk Line for mechanical repairs including auxiliary engine overhauls not only in the Middle East but also in areas such as China, Singapore and India. This also applies to another Danish shipowner – Torm. According to Goltens – more and more owners are now looking at highly technical, third-party companies to look after the engine room on board their fleets.

On the BWT market, which Goltens is a preferred partner of Norway's Optimarin some 300 different projects have been carried out, although mainly in design and engineering and not in the installation phase. This will no doubt become busier as more shipowners look to install such equipment as the deadline approaches. One tanker owner working with Goltens for scanning, design and detail engineering has been BP Shipping.

On the emissions side of Goltens' activities, Goltens and Norway's Yara Marine Technologies have entered into a non-exclusive global engineering and installation pact for Yara's SOx Scrubber Systems from 2018, including sales representation in North America, the Middle East and Singapore.

"Yara Marine is a leader in exhaust gas cleaning systems," says Roy Strand. "The addition of their well proven SOx Scrubber System to our Green Technologies sales and service offerings is a real win for Goltens, and an added advantage for our customers."

Kai Låtun, Chief Sales and Marketing Officer in Yara Marine, is equally happy with the Goltens deal, "The value of a strong sales and service network cannot be underestimated. Goltens brings proven global environmental retrofit expertise and solid maritime relationships to this agreement."

A bonus for both in the new partnership should be the timing. The looming 2020 sulphur cap requirement will lead many shipowners and operators to calculate their return on investment in scrubber technology, compared to spending more on lighter fuels indefinitely.

"The regulatory emissions deadline is no longer in doubt. It is happening," says Strand. "When emissions regulations are applied globally, the investment in exhaust cleaning will make more sense to many operators. There will be more customers who choose to invest in scrubber technologies due to the clear payback."

Those customers will be able to take advantage of Yara's simpler, lighter and more efficient systems, "The Yara in-line system has no internal moving parts, and our magnesium oxide technology is cheaper to operate and maintain, and safer than competing systems that use caustic soda," Kai Låtun emphasises.

Summing up, Roy Strand has praise for Goltens' new partner, and their products, "Yara's SOx scrubbers add a new dimension to the Goltens Green Technologies portfolio. Their technology fulfils the strictest IMO requirements, and we are very happy to be able to partner with Yara Marine and offer this line of high quality compliance products to our customers."

Goltens' Roy Strand



Yara Marine's Kai Låtun



SHIPYARDS:

WEST SEA VIANA:

Portugal's West Sea Viana Shipyard, located in the north of the country, reports starting the New Year with the drydocks fully booked.

The 1,590 dwt ro/pax vessel **Lobo Marinho**, built in ENVC – Estaleiros Navais Viana do Castelo in 2003, and owned by Portugal's Porto Santo Line, was in the yard in January for hull treatment and painting using a silicon product.

From November 2017 until early February 2018, five river cruiseships owned by local Douro Azu - **Alto Douro, Douro Cruiser**, and her sisterships **Douro Queen, Douro Spirit** and **Viking Osfrid** (these last four built in West Sea Viana Shipyard), all operating in the river Douro, were in the yard for annual maintenance. Another two river cruiseships belonging to the same company - **Viking Hemming** and **Viking Torgil** are currently undergoing upgrade of the restaurant, pantry and other accommodation areas.

The Portuguese sailing vessel **Santa Maria Manuela** is also in West Sea Viana undergoing an upgrade of the accommodation area.

At the end of January, the 8,643 dwt LPG tanker **Dorothea Schulte**, from repeat client Bernhard Schulte Ship management UK, was in the Yard for extensive drydock work. And presently in the yard is the 8,279 dwt general cargo vessel **Funchalense 5**, managed by Steermar Shipmanagement, in the yard for hull treatment and painting with silicon paint and general drydocking work.

Last week, the 11,254 dwt containership **Wec Goya**, managed by Germany's USC Barnkrug GmbH, arrived in the yard for standard drydock repairs. J. Lauritzen's 9,999 dwt LPG tanker **Stella Kosan** is planned to drydock in March for removal and renewal of tailshaft seals, overhaul of the main engine, cargo pumps, cargo condenser and cargo reheater, and other standard works.



TALLIN SHIPYARD/WESTERN SHIPREPAIRER:

Leading Dutch shipowner Spliethoff's Bevrachtingskantoor BV has contracted a major fleet upgrade programme to be carried out at two shipyards owned by Estonia's BLRT Group – Tallinn Ship Repair in Tallinn, Estonia and Western Shiprepairer in Klaipeda, Lithuania.

The project will see 14 vessels in the Dutch owners S-Type and S2L-Type fitted with Ballast Water Treatment Systems (BWTS), while six of the company's F-Type vessels will be retrofitted with exhaust gas scrubbers and BWTS. Work on this ambitious project has already started and is scheduled for completion by early 2020.

All of the Spliethoff vessels are being fitted with a BWTS designed and supplied by South Korea's Pansia - a long term partner of the BLRT Group. A test centre has been established in Tallinn to demonstrate the possibilities of Pansia's GloEn-Patrol BWTS to prospective customers as well as for the training of ship's crews.

The six 12,000 dwt F-Type vessels to be upgraded, all built between 2010-12 are - **Florijngracht, Fagelgracht, Flevogracht, Floragracht, Fortunagracht** and **Floretagracht**. The 11 x S-Type vessels, built between 2000 and 2004 are - **Schippersgracht, Singelgracht, Slotergracht, Snoekgracht, Spaarnegracht, Spiegelgracht, Scheldegracht, Stadiongracht, Sluisgracht, Spuigracht** and **Statengracht**, while the three S2L-Type are 23,000 dwt vessels built in 2004 and 2005 – **Suomigracht, Saimaagracht** and **Sampogracht**. The Saimagracht is currently undergoing upgrading work at Klaipeda's Western Shiprepair.

SEMBCORP MARINE ADMIRALTY YARD:

Reinforcing its position as one of the world's leading specialists in the repair and maintenance of LNG tankers, Singapore's Sembcorp Marine Admiralty Yard was recently repairing two such vessels – NYK LNG's 2013-built 177,000 m³ **Grace Dahlia** and Nigeria LNG's 2003-built 141,000 m³ **LNG Bayelsa**. Other vessels undergoing repair at the yard at the same time included:

- **Industrial Charger** – 7,28 dwt, 2000-built heavy lift vessel, owned by New Orleans-based Intermarine and managed by Germany's Reederei Jungerhans
- **Siem Sapphire** – 7,473 gt 2010-built OSV, owned by Norway's Siem Offshore AS
- **M2** – 7,325 dwt 2002-built passenger/cargoship, formerly the Aruani 3. Owner not known
- **Sentosa Star** – 17,781 dwt 199-built containership, owned by South Korea's CK Lines, Seoul and managed by Korea Shipmanagers, Pusan
- **Edda Fides** – 20,323 gt 2011-built Offshore Flotel, owned by Spain's Naveria Arnela and operated by Norway's Østensjø

HARLAND & WOLFF:

Two Irish Ferries-operated vessels were undergoing repair at Belfast's Harland & Wolff the week beginning February 19th – the 2,375 gt 2011-built ro/pax **Epsilon**, on charter and owned by Italy's Caronte & Tourist, and the 8,403 gt 2001-built fast ferry **Westpac Express**. This vessel is being returned to passenger service following 17 years operating for the US Marine Corp in the Pacific. When work on **Westpac Express** is completed she will take over from Irish Ferries **Jonathan Swift** on the Holyhead-Dublin service.

A&P FAMOUTH:

The winter ferry refit season is well underway at the south west UK repairer A&P Falmouth with three vessels undergoing repair the week beginning February 19th –

- **St. Cecilia** – 2,968 gt 1987-built ro/pax, owned by UK cross-Solent ferry operator Wightlink
- **Condor Rapide** – 5,007 gt 1997-built fast ferry, owned by UK operator Condor Ferries
- **Stena Europe** – 24,828 gt 1981-built ro/pax, owned by Sweden's Stena Line and operating on the Irish Sea

ROYAL IHC:

Holland's Royal IHC has completed the substantial renovation on-board the self-propelled cutter suction dredger (CSD) **Huta 14**, owned by Saudi Arabian Huta Marine. The vessel is already undertaking operations after final tests were successfully completed.

The renovation project was accomplished by IHC Middle East based in Dubai, supported by IHC's Asset Upgrade Services department located in The Netherlands. It involved replacing **Huta 14's** three large diesel engines, as well as integrating an electrical installation for the underwater pump engine and drive.

IHC Services was responsible for the engineering aspects of the rebuild, purchase and delivery of the required hardware, and supervising its installation. It also managed the commissioning of the dredger following **Huta 14's** completed conversion.

"The complex nature of this job required strong collaboration between our teams at IHC and Huta Marine," says IHC's Operations Director Middle East, Sofie Bernaert. "Our close partnership approach, along with the excellent communication with equipment suppliers – Bakker Sliedrecht and MAN Diesel & Turbo – has been vital to the success of this challenging renovation."

The two-year long restoration project has been completed to the satisfaction of the customer, who is delighted to see the vessel back in commission, as Huta Marine's Dredging Director Tag Saleh explains, "By

re-innovating identified assets, as illustrated by IHC's transformation of **Huta 14**, we can broaden our capabilities, and capture a wider range of dredging and marine construction works in the Middle East. It ensures that we are on the right path to realise our ambitious growth and business development goals."

Huta 14 has started work on the Ras Al-Khair Yard project on the eastern coast of Saudi Arabia, alongside the IHC-built **Huta 12** and **Huta 9**. The project will require 35m m3 of dredging and reclamation works to extend the port's land facilities to cover an

area of approximately 800 m x 4,100 mm. This expansion of the port basin will provide wider access to the waterfront for various maritime activities and position Ras Al-Khair as the country's new mega port.

Bakker Sliedrecht was responsible for the engineering, assembly, and commissioning of the sand pump drive that will improve the efficiency of the dredger. The integration of the electrical system was executed on site in Saudi Arabia as technical documentation was not always available. In this way, a smooth installation process in a later stage was ensured.

The sand pump drive was assembled in the workshop of Bakker Sliedrecht in the Netherlands and then shipped to Saudi Arabia. The technical crews of Huta Marine and Bakker Sliedrecht worked closely together to install the new sand pump drive on board the vessel.

During the renovation project, Royal IHC replaced three main diesel engines. Bakker Sliedrecht integrated them into the electrical system of the vessels.

The technical crews of Huta Marine and Bakker Sliedrecht worked closely together to install the new sand pump drive on board the vessel. This includes placing, connecting, and testing new cables.

Well-trained operators get the most out of systems and installations. The crew of the **Huta 14** will receive on-site training from Bakker Sliedrecht to work more safely, effectively, and efficiently with the new sand pump drive.

The **Huta 14** at work



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MACHINERY:

WÄRTSILÄ:

Finland's Wärtsilä and the global drilling contractor Maersk Drilling have joined forces in a unique co-operation to create a 25-year thruster maintenance strategy for Maersk's three semi-submersible rigs and four drillships. The parties have already completed the strategy work on the D-rigs and commenced the strategy work related to V-Drillships.

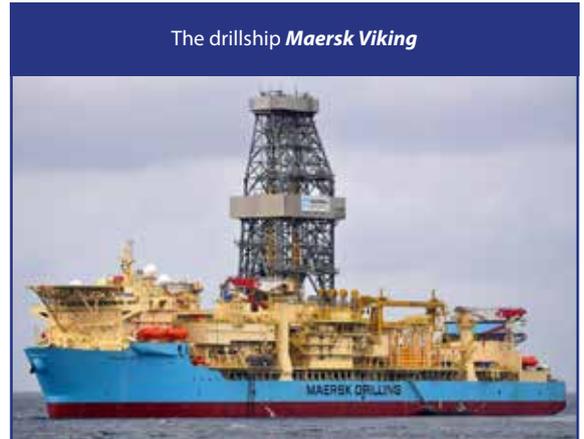
By reducing the thruster exchange time, the deep-sea rigs and drillships will spend less time in sheltered waters for thruster maintenance. The joint strategy defines the planning procedures for scheduled maintenance as well as thruster services and equipment exchange in emergency scenarios.

The new, close collaboration reflects the long-established partnership and mutual trust between Wärtsilä and Maersk. Increased understanding of one another's operations and demands helps the two companies to plan and further develop the optimal and most efficient ways of executing thruster maintenance. With open exchange of information and knowledge, Wärtsilä and Maersk can also adopt a holistic view of the maintenance needs for a fleet of vessels over an extended time period, and thus optimise logistics and cost efficiency.

"This is an important step for us - Wärtsilä and Maersk Drilling are taking co-operation to a new level, working as one team to ensure that operations on Maersk's drilling rigs can proceed without unnecessary interruptions. We are proud to partner with Maersk Drilling and look forward to a long and fruitful relationship," says Tamara de Gruyter, Vice President, Propulsion System Services, Wärtsilä.

Detailed responses to realistic scenarios "Our fleet operates in remote locations and very demanding weather conditions, which poses a challenge to maintenance. Together with Wärtsilä, we have created a comprehensive strategy that takes into account a variety of realistic scenarios and provides detailed responses. It is clear to us that this kind of intensive collaboration produces tangible results and benefits for both companies and our customers," says Frederik Smidth, CTO, Maersk Drilling.

Wärtsilä's scope of supply includes spare thrusters, and long-term storage maintenance. Maersk Drilling semi-submersible rigs **Maersk Developer**, **Maersk Discoverer** and **Maersk Deliverer** are equipped with eight LMT-FS3501 thrusters each. Four new spare thrusters will be delivered during 2018 and added to the four existing spare units. By having a full set of eight spare thrusters it is possible to reduce the shutdown period significantly by hot swopping all eight thrusters with the spare units. This provides additional flexibility to planning shutdowns in collaboration with clients to ensure minimal impact on operations.



DNV GL:

Recent experience reflects concerns on propeller shaft aft bearing performance on some oil lubricated installations, e.g. ships with single stern tube bearing, during turning conditions involving hard-over steering angles in the upper speed range (MCR). This also coincides with evolving trends comprising of larger and heavier propellers operating at a lower RPM and different types of stern tube lubricants.

DNV GL rules for shaft alignment (Jan. 2018, Pt.4 Ch.2 Sec.4) are formulated to achieve an acceptable distribution of load on the shaft bearings, and include a hydrodynamic lubrication criteria of the aft bearing. Due consideration is also made to accommodate the bending moment induced by the propeller during continuous operation.

During extreme transient turning conditions in the upper speed range, exaggerated propeller bending moments are induced, leading to reduction in shaft-bearing contact area and an exponential increase in

local pressures and thermal loading. The expected nature of aft bearing lubrication under these conditions, i.e. a combination of a mixed and boundary type, poses a challenge to retain a hydrodynamic oil film of acceptable thickness. Most of the reported bearing damages (resulting from abrupt overheating) have been observed in the aft most part of the aft bearing, typically during a starboard turn on a right-handed propeller installation.

As a part of the continuous rule development process in accordance with the industry demand to cater to evolving design trends and experience, DNV GL has now:

- Revised the main class shaft alignment rules for single stern tube bearing installations, and...
- Introduced new optional class notations, Shaft align(1) and Shaft align(2), for oil-lubricated propeller shaft installations.

Shaft align(1) is a basic cost-effective option intended for propulsion systems installed on vessels with conventional hull forms and which incorporates enhanced aft bearing performance during normal and turning operating conditions:

- Multi-sloped aft bearing is mandatory
- Increased propeller bending moment ranging from -30 to +30% MCR torque included in the aft bearing loading criteria
- State-of-the-art measurement techniques for installation sighting (laser or equivalent)
- Means of warning against incomplete propeller immersion

Shaft align(2) is intended for propulsion systems requiring additional calculations to predict hydrodynamic propeller loads during turning conditions. Typical installations are vessels with non-conventional hull forms such as asymmetric stern and twin skeg:

- Design-specific hydrodynamic propeller load spectrum and transient forces using CFD
- FE analysis for transient aft bearing contact pressure and area
- Hull deflections where applicable
- Shaft align (1) requirements apply as the basic criteria

The DNV GL shaft alignment class notations and revised main class rules for single stern tube bearing installations introduce additional focus on the impact of transient hydrodynamic propeller downward-acting bending moments, which are induced in turning conditions at MCR speed, on the aft most propeller shaft bearing.

This is supported by a mandatory requirement for a multi-sloped aft bearing, coupled with an additional aft bearing lubrication evaluation criteria, with an increased bending moment acting downwards on the bearing (30% MCR torque). Compared to a single-sloped bearing, a multi-sloped design better assists in optimising the shaft-to-bearing contact area and surface pressure in all operating conditions, considering the hydrodynamically-induced propeller bending moments.

For Shaft align(2), input from CFD-aided prediction of hydrodynamic propeller moments and forces acting on the aft bearing are used in conjunction with the FE analysis to evaluate the bearing surface pressure and contact area under turning conditions. DNV GL class guidelines linked to the rules provide guidance on the criteria to be followed in this regard.

DNV GL recommends that operators consider enhanced propeller shaft bearing performance solutions. The class notations Shaft Align(1) and (2) may be assigned at the newbuild phase or during service in conjunction with a propeller shaft withdrawal. This is particularly recommended for vessels undergoing retrofits or re-metalling of propeller shaft bearings during drydock.

WINGD:

To extend its global service offerings, Winterthur Gas & Diesel (WinGD), recently signed agreements with Wärtsilä Services and CSSC Marine Service (CMS) as Authorised Global Service Providers.

With these new agreements, valid from January 1st, 2018, both providers can now offer support for all two-stroke engine brands from Winterthur Gas & Diesel, namely WinGD, Wärtsilä and Sulzer. The support includes delivery of spare parts, provision of service engineers, reconditioning and overhaul work on components, training, upgrade solutions and maintenance agreements.

The rights of the Licensed Engine Manufacturers, to provide services to their engines, remain unaffected by these new global service agreements. WinGD's warranty and customer support will continue while these new agreements allow for normal scheduled and preventative maintenance or long term service agreements to now be provided by Wärtsilä and CMS.

In its promise to support optimum operation of WinGD engines, WinGD has invested in building state-of-the-art training facilities and procedures. Particularly noteworthy are the engine room simulators, which simulate the operation and control of all equipment installed in an engine room. With a focus on the latest generation engines including RT-flex, X-Generation and the new X-DF dual-fuel engines, the simulation facility provides realistic-scenarios of critical situations, like engine shut downs, upcoming alarms or simulated engine malfunctions, which provide valuable experience to trainees for real life situations on-board.

Committed to providing state-of-the-art support, WinGD recently launched WiDE (WinGD Integrated Digital Expert).

WiDE, now available for all newly ordered engines, provides a monitoring platform able to record and analyze the performance data of the engine. The system capabilities can be extended on demand to allow continuous, intelligent-diagnostics of the engine and component performance with the goal of scheduling necessary maintenance to avoid unscheduled engine interruptions. Remote access to the collected data, online manuals and troubleshooting guidelines, as well as maintenance preparation support, creates additional value to the crew on-board and to the ship operator.

Dr Rudolf Holtbecker, Director Operations, WinGD, said, "We are very glad to have signed an agreement with these two partners, Wärtsilä Services and CSSC Marine Service." "It was important to us that Wärtsilä Services remained a key partner. Having been the sole global service provider for many years, they have an extensive global footprint with a full-service solutions portfolio in the lifecycle support for two-stroke engines. CSSC Marine Service, a new company in the two-stroke engines service market, provides additional customer choice and the opportunity to diversify the offered services meeting a larger variety of customer needs."

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LUBES:

TOTAL LUBMARINE:

Total Lubmarine has announced the introduction of a new grease product - BIO OG PLUS – an innovative addition to an already comprehensive Environmentally Acceptable Lubricant (EAL) range.

Specifically formulated for sensitive applications such as open gears and chains under high load, BIO OG PLUS mitigates the challenges of working in environments where water contamination is common.

On top of being an extreme pressure and adhesive grease, BIO OG PLUS's biodegradable qualities allow owners, managers and operators of vessels to take a more environmentally considerate approach to lubrication. It is also a vital resource to those operating in areas requiring the use of EAL Lubricants, such as those working within jurisdiction of the US.

Anne-Sophie Vaucheret, Marine Technical Engineer at Total Lubmarine said of the new product, "We are very happy to bring a new product into our range – and this is something that our customers have been asking for. We pride ourselves on an ability to offer an end-to-end lubrication solution, and with BIO OG PLUS, all of our customer's needs are covered."

As a key player in EALs for over two decades, customers can remain confident in Total Lubmarine's credentials and experience. To date, more than 1500 vessels utilise Total Lubmarine's EAL products.

MAINTENANCE:

UNIQUE GROUP:

UAE's Unique Group has launched a new cloud-based planned maintenance system to help companies in the diving market sector effectively manage their equipment and adhere to certification guidelines and rules – simply and efficiently. The system provides real-time overview of the equipment status helping achieve compliance and cost effectiveness in our client's day to day operations.

This asset management and maintenance system provides documentation for Original Equipment Manufacturer (OEM) and International Marine Contractors Association (IMCA) compliant audit purposes. It is fully portable and can be implemented across multiple geographies ensuring that our clients have a quick reference and alert system for managing the certification. Unique Equipment Manager helps reduce the administrative burden on your technicians by maintaining equipment details as per current guidance.

Harry Gandhi, CEO at Unique Group congratulated the team on a successful launch and commented, "At Unique we are constantly looking for innovative ideas to help our clients work effectively in all areas of their business. Digitising equipment management with the Unique Equipment Manager (UEM) offers an opportunity to reduce the time equipment is idle and minimises resource required to accurately track equipment status."

DRONES:

RIMS:

RIMS (Robotics In Maintenance Strategies) has secured a further class approval from Korean Register of Shipping (KRS) for the use of Remote Inspection Techniques (drones) during surveys of enclosed spaces.

The KRS certification for the use of Remote Inspection Techniques (drones) during surveys of enclosed spaces, adds to the now highly impressive portfolio of class approvals RIMS have achieved in such a short period of time. This further certification means that even more shipowners and managers can now reap benefits which this new technology offers during class surveys.

The use of drones during surveys, enables remote live, on-screen object inspection, which can result in the elimination of the use of costly access equipment such as scaffolding and cherry pickers. This technology used in this way in turn then offers additional substantial benefits to shipowners and managers such as; reduction in the time to carry out a survey, minimising of risk, as well as cost savings.

David Knukkel, CEO, RIMS said, "We have come a long way in our quest in the practical integration of drone technology in the world maritime surveying. Having now gained five class approvals over the past six months, it has demonstrated to us a major shift for the maritime world in both awareness and attitude.

These certifications are not achieved easily. The nature of class means the bar is high and obtaining these approvals rubber stamps, for us and our customers, that we provide a safe and accurate service, to the highest possible standard.

"Our own journey and the future of the technology is looking promising, and the positive response to date is encouraging. We shall continue to put our efforts into obtaining further class approval, whilst investing time and resources into researching and developing our existing services further to meet the needs of the industry."



Drone operator during flight inspection

WELDING:

ESAB:

ESAB Welding & Cutting Products has announced that it has completed the acquisition of the Sandvik welding operations including production units in Scranton, Pennsylvania, and Sandviken, Sweden, the technical sales and product management organization as well as multi-year strategic collaboration on R&D for future product developments. "Adding the Sandvik welding operations and its associates provides ESAB the opportunity to better serve customers with a broader and enhanced portfolio of stainless steel and nickel filler metals," says Shyam Kambeyanda, President of ESAB.

ESAB will be working over the next several months to integrate the Sandvik welding consumables business and operations to provide a smooth transition for customers world-wide.

Sandvik is a world-class developer and manufacturer of stainless steels and special alloys for demanding environments and has been one of the leading global suppliers of welding consumables for more than 80 years.

ESAB is a world leader in welding filler metals, with a portfolio including stainless steel, nickel and high-alloy filler metals, strip cladding electrodes and fluxes sold under such respected brands as Shield-Bright, Core-Bright, Arcaloy, OK Autrod, OK, OK Band and Stoody. With the addition of the Sandvik welding products portfolio, ESAB offers an unmatched ability to meet customer needs.

ANTI-FOULING:

SELEKTOPE:

As global water temperatures increase, global 'biofouling hotspots' in subtropical/tropical areas are intensifying, exposing newbuildings at the world's major shipyards to greater risk of hard fouling during the outfitting process. The effects of intense hard fouling on idle newbuilds can have great impact on a newly applied

hull coating and on a vessel's performance in sea trials.

In response to this problem, a new anti-fouling coating specifically targeting hard biofouling prevention during the outfitting period was brought to market by Denmark's Hempel in late 2017. GLOBIC 9500S includes the unique anti-fouling ingredient Selektope as part of its 'smart biocide package' that delivers boosted static performance against hard fouling for ships with extended idle periods.

Philip Chaabane, CEO I-TECH AB, says, "Our product is boosting the performance of sophisticated anti-fouling systems under harsh fouling conditions, such as those experienced during outfitting at shipyards in South Korea. Selektope is clearly adding value to the coatings products that the major coating manufacturers offer."

Selektope is an organic, non-metal compound that repels barnacle settlement on ships' hulls by temporarily stimulating the barnacle larvae's swimming behaviour. It is characterized by high efficacy at extremely low concentrations (0.1% w/w), is ultra-low leaching and offer paint manufacturers the flexibility to boost copper-based paint formulations or replace copper completely. Due to the low concentration required, Selektope does not compromise the chemical structure, colour or other cooperative biocides of a marine coating.

This first-of-its-kind anti-fouling technology caught the attention of coatings suppliers in the early stages of its research and development. To-date, several products have been launched onto the market and the number of Selektope-containing coatings being sold by different manufacturers is increasing year-on-year.

Sweden's I-Tech AB recently responded to strong market demand for the anti-fouling ingredient in South Korea by appointing KhaiEL as Selektope's exclusive importer and agent. Under the new agreement, I-Tech will continue to manage sales of Selektope in South Korea while KhaiEL will exclusively handle imports.

"We are delighted to be working with such a highly reputed company in KhaiEL to strengthen the supply of Selektope to South Korea. This business relationship reflects the need to address increasing demand for our product in South Korea, particularly from the shipyards and many owners running risks of extended idling, whether during newbuilding or operations," says Philip Chaabane. "KhaiEL is very proud to partner with I-Tech to represent the highly innovative Selektope technology in the Korean market," says Paul Cho, Marketing Director KhaiEL.

South Korea is a key market for I-Tech. The company believes that coatings containing Selektope play a vital role for shipyards located in biofouling hotspots with its barnacle-repellent technology.

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LNG:

WÄRTSILÄ:

Finland's Wärtsilä is expanding its co-operation with the Athens-based ship management company TMS Cardiff Gas. Under the recently signed maintenance agreement, Wärtsilä ensures the maintenance predictability of the operation of four TFDE LNG tankers in TMS Cardiff Gas' fleet. Eniram's data collection platform and advanced data analytics helps TMS Cardiff Gas to achieve optimal fleet operations, resulting in reduced fuel costs and emissions.

The maintenance agreement, signed in December 2017, advances the performance monitoring of TMS Cardiff Gas' vessels. The agreement is an expansion to the earlier Technical Management Agreement signed between Wärtsilä and TMS Cardiff Gas in 2014. With the new agreement, the scope of Wärtsilä's services include, among others, Eniram's data collection platform and advanced data analytics that enables TMS Cardiff Gas to save costs and maximise overall profitability while cutting its emissions.

Wärtsilä's Dynamic Maintenance planning, in combination with Eniram's Vessel digital performance management system, provides TMS Cardiff Gas with a comprehensive view of each vessel's performance, efficiency, and improvement possibilities.

Wärtsilä is engaged in the maintenance and optimisation of vessels' engines, allowing the customer to focus on its core business. Wärtsilä provides all necessary spare parts for the maintenance of the vessels as well as field service resources for scheduled maintenance that has been planned according to the actual running hours of the engines. Remote support service guarantees that the vessels' crews have access to Wärtsilä's support team around the clock, which facilitates troubleshooting on the spot and also minimises service visits on-board.

"Our vision is to be one of the world's leading LNG and LPG operators with the highest standards of excellence in terms of performance, reliability, and safety. The maintenance and upgrade service needs of the tri-fuel Main Generator Engines on our LNG tankers are technically advanced and require detailed planning with a professional partner to ensure the engines' reliable performance and the vessels' operability. Through our five-year partnership with Wärtsilä and Eniram, we are confident that our fleet will continue to be our customers' premium choice," says George Kourelis, General Manager of TMS Cardiff Gas.

"We are delighted to expand our partnership with TMS Cardiff Gas. Wärtsilä's solid experience in gas technologies, combined with Eniram's expertise in digital performance management solutions, allows TMS Cardiff Gas to maximise the efficiency of its engines and optimise its operations," says Yiannis Christopoulos, Director Services Unit Greece & Cyprus.



The Yara LNG LNG tanker

LLOYD'S REGISTER:

South Korea's Hyundai Mipo Dockyard (HMD) and ILSHIN LOGISTICS have successfully delivered the world's first LNG-fuelled bulk carrier under the dual-class of Lloyd's Register (LR) and Korean Register. The 50,000 dwt bulk carrier has also been verified to be in compliance with the International Gas Fuel (IGF) Code. The vessel is the result of a collaboration project, announced in July 2016, to develop the first in a new generation of environmentally-friendly LNG-fuelled bulk carriers.

The ship has a Type 'C' LNG fuel tank with a capacity of 500 m³, made of austenitic high manganese steel and located on the aft mooring deck. The material, newly developed by POSCO, has a high manganese content (approximately 26%) and is specially designed for cryogenic LNG and liquefied gas storage applications. The properties and characteristics of the high-manganese steel, as well as the required welding technology

and fuel tank design, have been proven suitable for cryogenics with the support, certification and approval of LR.

LR undertook a comprehensive approach in supporting POSCO and ILSHIN LOGISTICS by providing certification of High Manganese Steel Welding Consumables, Welding Procedure Approval and Material Approval after concluding extensive development and testing. LR certification was officially issued in July 2017.

JT Lee, LR's Chief Representative & Marine Manager for Korea, commented, "I am very excited and proud to see the successful delivery of the world's first 50,000 dwt LNG-fuelled bulk carrier with contribution from LR for the certification and approval. This outstanding achievement is also attributed to a concerted effort between industry partners, with their pioneering spirit and tenacity. The successful delivery of the vessel should be a significant indication to the market of a reasonable and solid solution to the preparation for emission compliant eco-friendly designs."

The world's first LNG-fuelled bulk carrier



WIND POWER:

ROLLS-ROYCE:

Next year, the Norwegian sail-training ship **Statsraad Lehmkuhl** will be able to cruise out of Bergen harbour without any greenhouse gas emissions, thanks to a hybrid power system from Rolls-Royce. Norway's state-owned company Enova is providing over NOK4m (€0.41) in financial support for an innovative project to equip the historic square rigger with shipboard battery power.

Haakon Vatlé, executive director of the **Statsraad Lehmkuhl** Foundation said, "The **Statsraad Lehmkuhl** has been relatively environmentally-friendly for over a century already. After all, for large parts of the year, wind power provides all the propulsion it needs. We are now going to make her next 100 years even more environmentally-friendly. We hope she will become a role model for other sailing ships and vessels of all types."

Today, the vessel uses diesel generators to power shipboard systems, and for propulsion if necessary. Once installed, the battery will assist in both areas, thereby reducing the number of generators that need to be kept running. The battery system will also allow the power of the wind in the ship's sails to be exploited.

According to Andreas Seth, Rolls-Royce, Senior Vice President – Electrical, Automation & Control, the ship's propeller can also be used to generate electricity, rather like a wind turbine. He said, "The amount of electricity produced will vary with the speed of the ship, but with our system the energy can be stored in batteries for use as environmentally-friendly engine power, or for day-to-day shipboard operations such as heating and cooking."

Enova, which works to facilitate Norway's transition to a low-emissions society, is contributing just over NOK4.2m to the ship's refit.

Nils Kristian Nakstad, Managing Director, Enova said, "Given the shipboard battery revolution currently underway, we can safely say that a fresh wind is blowing through the maritime sector at the moment. Projects

A view from the bow spit of the **Statsraad Lehmkuhl**



are underway to test battery solutions in practically every kind of ship – now even sailing ships!”

According to Nakstad, Enova views the **Statsraad Lehmkuhl** as an important showcase for this new technology. “The **Statsraad Lehmkuhl** plays an important role in the training of the Norwegian Naval Academy’s cadets, as well as the further education of apprentices and those undertaking vocational training to become licensed seamen and marine engineers. Soon the ship will give the next generation of mariners early experience of this new technology. It will help to build knowledge about, and positive attitudes towards, battery solutions that will stand them in good stead later in their careers,” he said.

At the same time as the batteries are being installed, the ship is also being made ready to receive onshore power to recharge the batteries, ensuring environmentally-friendly stays in the ports the ship visits. This applies not least to its home port of Bergen, where the combination of batteries and onshore power will result in zero emissions. The vessel is currently in drydock in Bergen, where a special battery room is being built. Due to the ship’s busy sailing schedule, the project will not be finally completed until November at the earliest.

FEATURE:

MCKINSEY REPORT A GRIM READ FOR LINER COMPANIES:

A recent report from McKinsey & Company makes some pretty depressing reading for container lines although the company’s analysts do suggest some strategies both to raise profitability and improve the experience of their customers. Both, it seems, are major challenges. Surprisingly, though, like some other aspects in life, shippers could well be prepared to pay more for a better customer experience.

Faced with excess vessel capacity and continued downward pressure on freight rates, container shipping companies are constantly looking for ways to improve profitability, McKinsey says. As a result, large and small carriers have expanded their alliances, reducing costs through strategies including slow steaming, temporary lay-ups and suspended services. Many companies, according to the analysts, have reduced the size of their customer-facing teams and trimmed their organisations. “These moves have in some cases temporarily buoyed profitability, but they’ve also made life worse for their customers, especially those based in the United States.”

McKinsey’s analysts spent several months talking to carriers’ customers, supply chain leaders, and heads of procurement at some of the largest shippers, including several of the world’s largest retailers. The aim was to get a clearer understanding of how recent changes in the shipping industry have affected shippers’ operations and to find out how carriers could provide them with a better service.

Shippers have benefited from lower freight rates produced by oversupply and competitiveness – in fact, the analysts estimate that the fall in freight rates saved US shippers \$23bn between 2010 and 2015. Yet, widespread dissatisfaction was still evident.

“Many of those we interviewed lamented the problems that seem to accompany lower rates,” McKinsey says. “We found that shippers see a widening gap between the service they’d like to receive from container companies and what they’re actually getting. Based on these discussions, we believe that if left unaddressed, customer satisfaction will continue to decline – and any short-term savings carriers might have achieved from cost cuts could ultimately be erased as shippers turn to competitors who can better meet their needs.”

Carriers, the report says, are operating in extraordinary times. “Oversupply and persistently low rates have led to widespread unprofitability. In response, most carriers have made substantial cuts to their operations. Some of the consequences were expected by the container lines, but others were not.” The various steps taken by lines have included slow streaming which, of course, increases transit times and means that shippers must have larger inventories at sea. The transit time between Shanghai and Los Angeles, for example, increased from 13.8 days in 2008 to 17.4 days in 2016.

Then came larger ships which offer lower slot costs. However, these huge vessels also present a formidable challenge for terminal operators, potentially increasing dwell times. Then, in another drive to achieve greater economies of scale, 15 of the largest carriers have joined or expanded an alliance in the last few years. But some carriers, the McKinsey researchers state, failed to account for the greater level of operational complex-

ity that these new partnerships would create. By way of example, the report cites the ports of Los Angeles and Long Beach where cargo can now flow through any one of up to seven terminals, depending on which partner's ship is carrying it. This makes tracking and planning difficult.

The outcome for shippers has not been favourable as they express concerns that the new operating environment is affecting their supply chains. "There is simply no sense of predictability anymore, which affects our planning and inventories," complained one.



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ON WATCH:

Phoenix International Holdings, has announced that the HSEQ Manager, Preeti Mehta, has joined the working committee on Measuring Barrier Strength for the Centre for Offshore Safety. Preeti is an experienced HSE leader with over 17 years of regulatory, risk management, project management, and HSE management systems knowledge with a bachelor's degree in Chemistry and Microbiology.

On her appointment, Phoenix General Manager-Gulf of Mexico, Warren Sturges, stated, "This appointment affirms Phoenix's commitment to form and strengthen integral partnerships with various industry leading safety organisations dedicated to enhancing and improving the safety of operational personnel. We are always looking for ways to support and advance safe practices within the industry and this is a perfect fit."

Designed to promote the highest level of safety for offshore drilling, completions and operations, the Centre for Offshore Safety serves the US offshore oil & gas industry with the purpose of adopting standards of excellence to ensure continuous improvement in safety and offshore operational integrity.

SHIPPAAT