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EUROPEAN OIL&GAS

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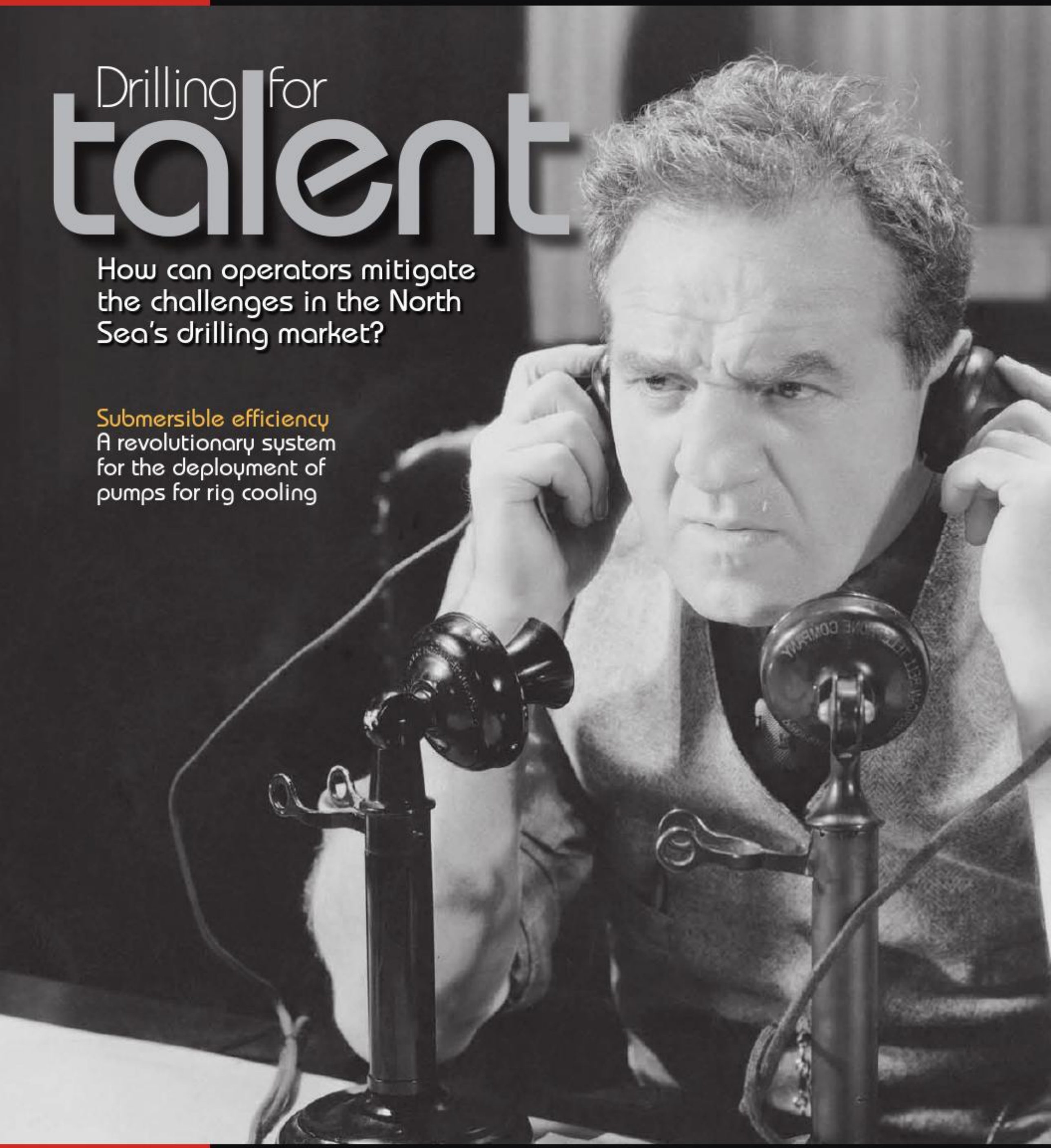
Drilling for talent

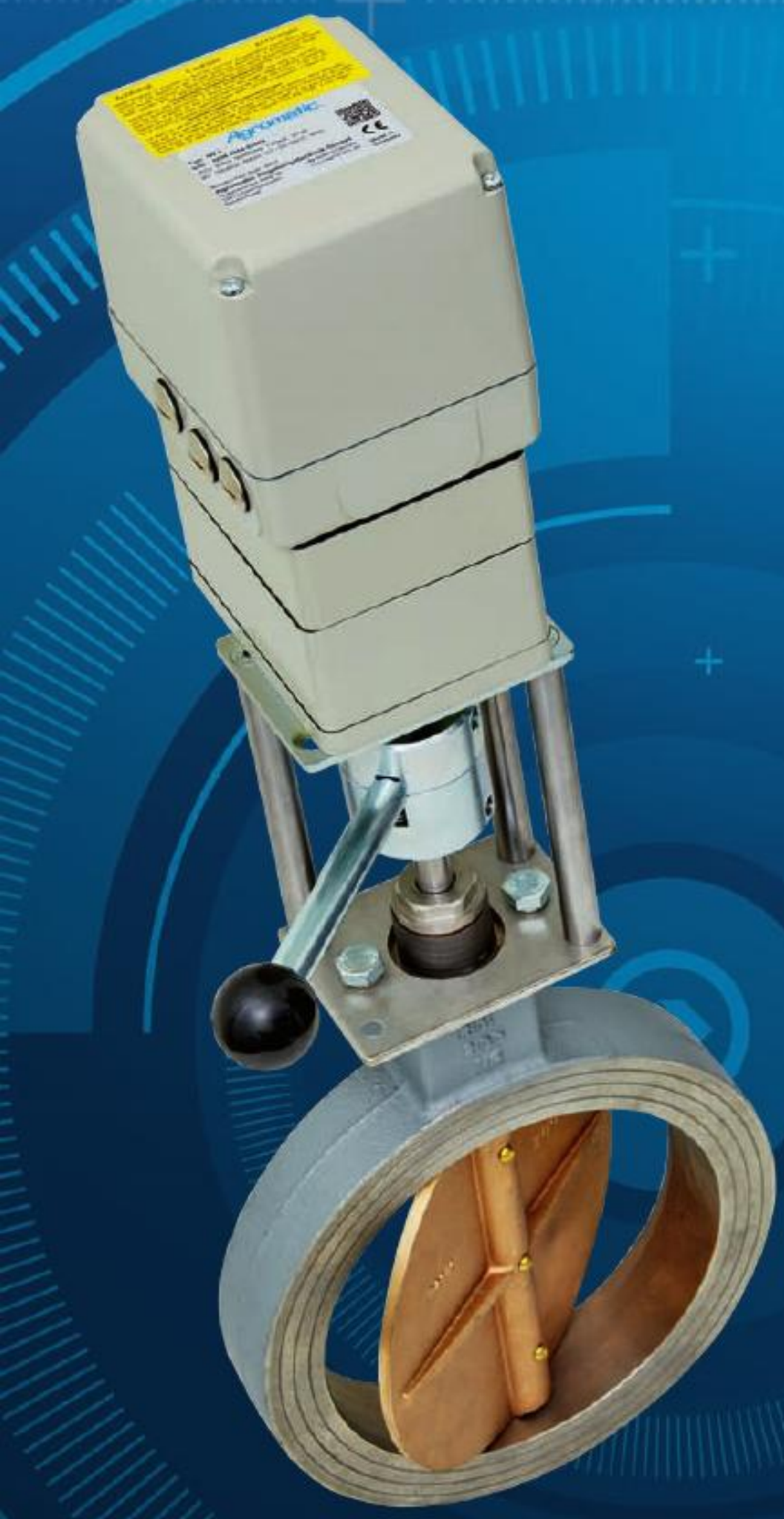
How can operators mitigate the challenges in the North Sea's drilling market?

Submersible efficiency
A revolutionary system for the deployment of pumps for rig cooling



THIS ISSUE: Reserve based lending and the oil and gas industry

KNOW WHAT TO LOOK FOR AND WHERE TO BUY



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> "For drilling companies this volatility manifests itself in three major ways: access to rigs, access to financial capital, and access to human capital"

Whilst the North Sea is undoubtedly a maturing oil and gas region there remains significant resources, with many of the fields expected to be economically viable until 2020 at the very earliest. That being said, drilling activity in the sector is in decline due to a range of challenges that could present a significant problem for the entire UK.

Think challenges and you immediately think recruitment and the ongoing skills shortage. And while this remains one of the most pressing issues for oil and gas companies, as Kenny Dooley explains in our cover story this issue there are other factors behind the dip in activity, and other obstacles for drilling companies. "Much of the issue comes down to the sector's inherent volatility," he notes. "For drilling companies this volatility manifests itself in three major ways: access to rigs, access to financial capital, and access to human capital."

It's a complex set of challenges for companies to navigate, but as Kenny explains, through careful and innovative actions these issues can be mitigated. If the UKCS is to continue being a key contributor to the UK economy, as well as maintain its leading reputation in the industry, then it is essential that businesses do all they can.

EDITORS LIBBIE HAMMOND & MATT HIGH

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Drilling for talent

KENNY DOOLEY EXAMINES THE ISSUES SURROUNDING THE NORTH SEA'S DRILLING MARKET, AND SOME OF THE INNOVATIVE WAYS OPERATORS CAN MITIGATE THESE CHALLENGES

Most of the fields in the UK North Sea are expected to remain economically viable until 2020 at the earliest, and high oil prices have given a boost to exploration in the North East Atlantic basin in areas previously considered marginal and thereby uneconomic. The region still boasts estimated oil and gas reserves of 9.4 billion boe with a 50 per cent plus chance of recoverability.

Despite this, UK drilling activity is in decline, and nowhere near the levels necessary to unlock the area's remaining potential. Production drilling has remained constant at about 120-130 wells per year since 2009, but remains well below pre-2009 levels. More worryingly, the last three years have seen the lowest rate of exploration activity in the region's history. 2013 saw 44 exploration and appraisal wells drilled, below initial forecasts, and down from 53 in 2012. This year may see a lower level of activity still, with plans to drill just 25 exploration wells and 11 appraisal wells. Around 66 further exploration and appraisal wells are expected to be drilled through 2015 and 2016, suggesting that the yearly rate is not expected to rise significantly.

This is not just a concern for the industry, but the entire country. UK offshore oil and gas continues to be the country's largest industrial investor, paying more tax to the Exchequer than any other corporate sector. North Sea oil and gas supports around 450,000 jobs across the country and contributes to around 1.5 per cent of national GDP. Without domestic production, we would have had to import an extra £31 billion worth of energy in 2012. But we can only produce as much as we drill – ultimately, the stakes could not be higher.

So what are the factors behind this dip in activity, and what obstacles do drilling companies in the North Sea face? Much of the issue comes down to the sector's inherent volatility. Drilling companies largely operate on a project-by-project basis, the availability and location of which are highly sensitive to moveable factors such as the prices of oil and gas, the emergence of new technology and new discoveries. Opportunities can arise with little forward notice, leaving companies scrambling to ready themselves to take advantage. On the other hand, a dip in prices can lead to prolonged periods of reduced or low activity.

For drilling companies this volatility manifests itself in three major ways: access to rigs, access to financial capital, and access to human capital.

No money, no rigs

Demand for rigs, and their lack of availability during periods of high activity, is a major challenge facing North Sea exploration drilling. Of the 55-60 exploration and appraisal wells forecast to be drilled last year, 20 were postponed and four cancelled. 42 per cent of these postponements/cancellations were down to a lack of rig availability. Another eight per cent involved cases where the company had in fact

secured a firm rig slot to drill, but delays on other drilling sites ended up preventing use.

The number of mobile rigs deployed in the UK at the end of 2013 was the highest since 2008 (20 jack-up and 19 semi-submersible rigs respectively) – however, relative to the region's potential this still very much represents a shortfall. Current high rig rates (combined with the fact that the average drilling period has risen to 17 days) only increase the strain.

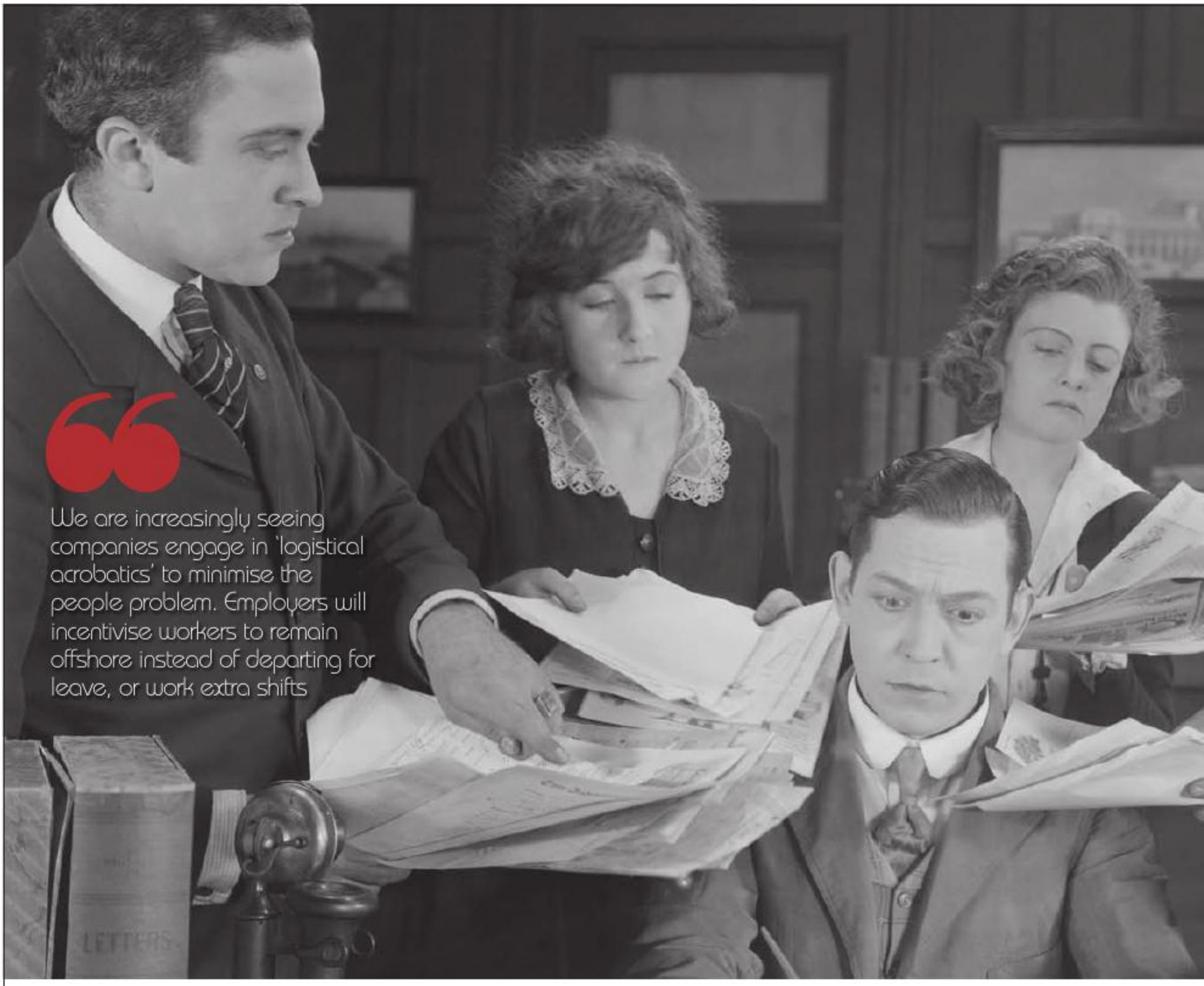
A lack of access to funding was also a significant constraint on exploration in 2013, accounting for a further quarter of the postponements and cancellations. As one might expect, this factor hit smaller drilling companies disproportionately hard relative to their larger, more resilient counterparts. As a result, small to medium sized companies contributed just 25 per cent of wells in 2013, a lower share than in previous years (partly offset by increased activity on the part of energy utilities during the same period).

The people problem

Another major manifestation of volatility – though more subtle than the above two – are the difficulties inherent in getting the right people with the right technical skills to the right place for the right duration, often at short notice. To some extent this challenge is common to drilling companies across the world: the global oil and gas industry faces an acute skills shortage of workers with ten to 15 years' experience, thanks to a near universal shut-down of training and recruitment programmes during the 80s oil gut, when prices hit record lows.

However, there are additional issues particular to the North Sea region that exacerbate the challenge. Firstly, competition with other regions around the world – in an industry already short on human capital – makes it especially difficult to retain talent. Drilling personnel working abroad might typically command salaries 35-50 per cent higher than equivalent UK North Sea-based personnel, and the difference becomes marked when one includes taxes and bonuses.

And it's not merely a matter of pay. It's also a matter of job satisfaction and the opportunity to work with cutting-edge technology. The North Sea is, of course, a very mature, developed region, filled with aging 'rust-buckets' and manually operated drilling rigs built on older technology. These do the job, but other newer regions tend to have a higher proportion of newer generation rigs. At the very cutting-edge this includes 'cyber rigs' – high automated drilling rigs where instead of roustabouts and rough-necks rushing about switching pipes you are more likely to see staff in comfy chairs, pushing buttons and monitoring proceedings via highly sophisticated computerised control systems. Many newer generation mobile rigs boast far better conditions for workers, and come replete with a host of extra facilities designed to improve the living standards of those posted there. O&G



> We are increasingly seeing companies engage in 'logistical acrobatics' to minimise the people problem. Employers will incentivise workers to remain offshore instead of departing for leave, or work extra shifts

Logistical acrobatics

Rig availability is largely a matter of supply and demand beyond the immediate control of drilling companies, as are the factors that dictate the availability of financial capital. Therefore drilling companies have limited options when it comes to mitigating the impact of volatility in these areas. When it comes to the impact of volatility on human capital, however, there is more that can be done.

We are increasingly seeing companies engage in 'logistical acrobatics' to minimise the people problem. Employers will incentivise workers to remain offshore instead of departing for leave, or work extra shifts. The 'quasi-demotion/ promotion' is another weapon in the arsenal: e.g. an assistant driller might be promoted to a driller on a strategic per-project basis, and similarly a tool-pusher might be 'demoted' to driller in order to fill an urgent gap, while remaining on the higher tool-pusher rate of pay.

In the same vein, some companies in the UK North Sea are reorganising shift rotations in order to make hours more appealing to prospective workers. 'Roving trips' are increasingly common, as they can afford candidates a chance to travel and get out onto different rigs. Another trick increasingly on the uptake (at least within larger organisations that have the capacity) is to identify when your international workers will be home, and use them at this point. For instance, say you have someone working on a 28 days on/28 days off rotation in Angola; that contractor may be amenable to doing a two week shift in the North Sea whilst he is back in the country visiting family. Mapping out where your workers are across your organisation, and when, and then using that information intelligently, can make all the difference.

Maximising the size of your talent pool

But there is a limit, of course, to how far these 'sticking plaster' solutions can go. The real key to mitigating the impact of volatility on human capital is to widen the talent pool from which you recruit as far as possible. The potential talent pool that oil and gas companies tap into can typically be extended in two dimensions: geographically and into other sectors.

For various historical and cultural reasons, many oil and gas companies remain reluctant to hire outside of the local

market, at least in mature fields within developed Western economies (such as the North Sea or Canada). Yet a planning engineer (for instance) is more or less the same whether he or she hails from London or Calgary.

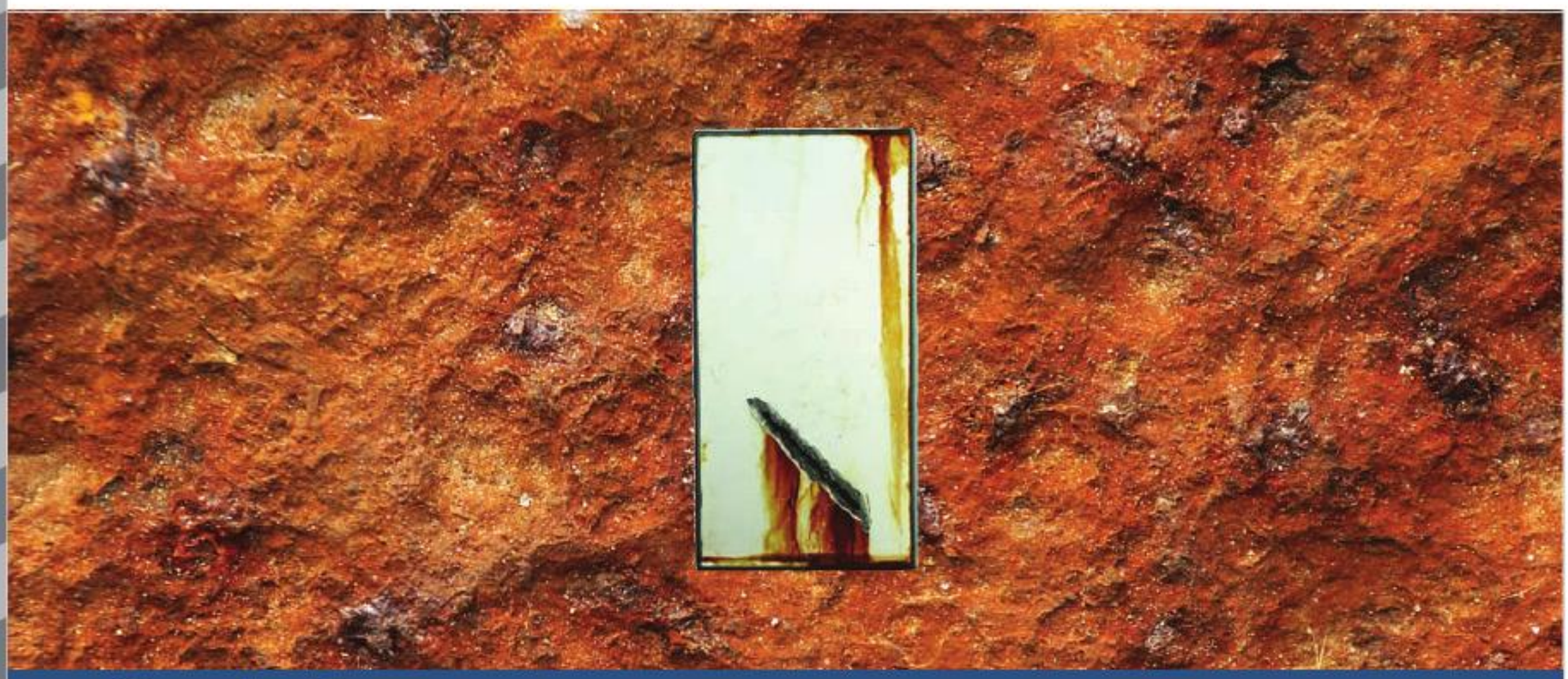
To take an example: a senior project engineer from Dubai – whom had secured permanent residency status in Canada – was looking for work at a major Canadian oil and gas company. Having previously applied for various vacancies via the company's online portal without receiving a single response, he would come into the company's office nearly every day of his final visit to Canada, frantically seeking work prior to the daunting step of relocating his family. Yet he was routinely dismissed. Interestingly, the company in question had installed a third party recruitment specialist firm that same week. Once said specialists reviewed his CV and got talking to him on the Tuesday, it became clear that his previous experience in Dubai would make him a very good fit for a role in the Canadian company. By Friday he had secured the role! The worker proved a good hire, was rapidly promoted to project manager, and the company is now far less reticent about hiring from outside of the local market.

The talent was there, the barrier was cultural.

This is starting to happen among North Sea companies, who are increasingly recruiting those with experience on land rigs, particularly from North America and Eastern Europe. These workers require minimal training to get them up to speed on offshore rigs, and there is often a greater economic incentive for them, especially for workers from Eastern Europe. For instance a land-based driller from Croatia may be able to double their take-home when working in the UK North Sea. Roles in international waters, while attractive, are highly competitive – for these candidates the North Sea affords an opportunity to get into the offshore business and build valuable experience. And more and more, companies are offering staff retention bonuses that rise with every continued year of service, as a means of encouraging skilled workers to stay put.

The other major way to maximise the talent pool is for the industry to overcome a similar historical and cultural reluctance to hire sideways from other sectors that cultivate transferable skills. In certain countries such as Australia and South Africa this can mean taking advantage of similar roles in said countries' large mining sectors, and companies operating in the UK North Sea have access to a pool of ex-servicemen and women from the Army or Navy.

While companies can do more to mitigate the impact of the people problem than they can a lack of rigs or poor economy, there is still no magic wand solution. Companies need to be flexible and use all possible resources at their disposal to retain and attract talent in this crucial area. A common factor behind successful sideways and global hiring is the use of third party workforce specialists such as recruitment agencies. It was a recruitment agency which – thanks to its understanding of the industry together with its experience in the Middle East – helped the Canadian company see the potential in the project engineer from Dubai. In a situation where demand is so high, and timing so crucial, positions can be routinely filled in mere minutes after becoming available simply by being able to tap into a global network of highly skilled workers. To have access to the full picture of just who is available, and when, can put firms at a major advantage. O&G



Redefining anti-corrosion

Global coatings supplier Hempel, has announced the launch of HEMPADUR AvantGuard®, a portfolio of three new anti-corrosive zinc primers. Based on unique, patented AvantGuard® technology, HEMPADUR AvantGuard coatings provide better anti-corrosion protection than zinc epoxies without AvantGuard.

Zinc coatings are used to protect industrial structures and equipment in C4 and C5 corrosive conditions, where saltwater and high humidity corrode unprotected steel. Based on new, patented AvantGuard technology, HEMPADUR AvantGuard activated zinc primers are developed for a range of industries and applications, from offshore oil and gas platforms to wind turbines.

AvantGuard is the result of an extensive R&D programme run specifically to solve an issue discovered in Hempel's labs in 2007: only one-third of the zinc in a zinc epoxy primer is utilised for galvanic protection. Pernille Lind Olsen, group protective product director at Hempel, comments: "AvantGuard is perhaps the biggest change in anti-corrosive technology since zinc coatings were first introduced during the 1960s. The technology gives customers strong anti-corrosion performance in a coating that has high mechanical strength."

AvantGuard uses hollow glass spheres and a proprietary activator to activate more zinc in the coating, ensuring a significantly higher galvanic effect than zinc primers without the AvantGuard technology. The technology also enables barrier and inhibitor protection, and so combines three protective effects in one. Furthermore, the unique formulation improves the coating's mechanical strength, which is essential for applications with, for example, extreme temperature and humidity fluctuations.

"In a standard zinc epoxy protective system, the zinc primer is the weakest mechanical point and, as a result, cracks can form in the coating as the steel expands and contracts under extreme conditions," says Josep Palasi, Hempel R&D director. "AvantGuard zinc coatings are different as the glass spheres and sub-products that result from the unique zinc activation process stop micro-cracks as soon as they form. This, we can say, makes the coating self-healing."

The increased protection and durability has been proven in extensive Hempel tests, including salt spray tests (ISO 12944 part 6), cyclic corrosion tests (ISO 20340 - NORSOK M-501 revision 6) and thermal cycling resistance tests (NACE cracking test and Hempel's welding test). HEMPADUR AvantGuard primers can be applied using the same application techniques as standard zinc epoxies.

"In our tests, HEMPADUR AvantGuard® shows a high tolerance to different application conditions, such as high temperatures and humidity, and we even see high crack resistance when the coating is applied with an excessive dry film thickness," Pernille says.

The HEMPADUR AvantGuard® series currently includes three different zinc primers and was released worldwide on the 23rd September 2014.

Key features include:

- Advanced corrosion protection due to the high level of activated zinc in the coating
- Excellent crack resistance in cyclic temperatures and varying humidity
- Self-healing of micro-cracks prevents further propagation of cracks
- Requires same application techniques as zinc epoxies
- Suitable for all applications and especially designed for tough conditions and C4 and C5 environments
- Three coatings currently available: HEMPADUR AvantGuard 770, HEMPADUR AvantGuard 750 and HEMPADUR AvantGuard 550

Hempel is continuing to work on solutions that utilise new activated zinc technology

Above: Wavescan buoy ready for deloyment

Save the data

Real-time metocean data transmitted by a Fugro SEAWATCH Wavescan buoy is enabling energy industry construction expert Technip to plan its operations more effectively, leading to improved safety and cost-efficiency.

Work is well underway on Technip's largest UK North Sea contract to date. Located West of Shetland, BP's Quad 204 project involves replacing the existing Schiehallion production facility with a new, purpose-built FPSO (floating, production, storage and offloading facility) and installing extensive new subsea infrastructure.

Fugro understood Technip's requirements from the outset, as commercial manager, Jonathan Ainley explains: "West of Shetland is well known as a harsh offshore environment with big waves and strong currents – conditions that are far from ideal in a construction setting.

"We have worked with both Technip and BP for many years and know that maintaining a safe operating environment is the number one priority. BP specifically required reliable real-time wave height, wind and current data to manage their installation criteria thresholds. Access to these metocean data is also critical for vessel management and safe and efficient operational planning."

Testing times

Exova has been awarded an exclusive contract to provide material selection and qualification, and a programme of mechanical and corrosion testing for down-hole tubulars to be deployed in Maersk's North Sea Culzean Field Development Project.

The testing programme, which is bespoke to Maersk's requirements, replicates the sour and ultra-high pressure/high temperature (uHP/HT) sub-surface conditions found in the Culzean field. Mechanical tests are being performed to characterise the properties of the materials and autoclave corrosion testing is being undertaken, with the aim of selecting the optimum material and qualifying the supplier and manufacturing route.

Phil Dent, technical manager at the Exova Corrosion Centre in Dudley, said: "The Culzean Field operating conditions are particularly harsh in terms of corrosion, due to the combination of temperature, pressure and chloride concentration. The investment we have made in our specialist corrosion centre in Dudley, and the technically demanding services we provide, means that Maersk has access to the extensive autoclave test facilities required to meet their testing requirements."

Exova's global network of corrosion testing laboratories specialise in the qualification of materials for "sour" service applications and offer standard Hydrogen Induced Cracking (HIC), Sulphide Stress Cracking (SSC) tests and also more specialised autoclave corrosion (Stress Corrosion Cracking Tests), Full Ring and Stress Orientated Hydrogen Induced Cracking (SOHIC) tests.

Encouraging collaboration

One of the world's most innovative companies has launched a new centre in Aberdeen, which will help nurture the next generation of scientists and engineers. Diversified technology company 3M has opened the doors of its Customer Engagement Centre (CEC) in Altens, following a significant investment.

The facility has been created to encourage collaborative working across the oil and gas sector; a hub where business partners and customers can develop innovative ideas.

The CEC showcases a wide range of inventive products, and schools and colleges will be encouraged to visit to learn the stories behind the international technology company's inventions.

Kirstie Heneghan is digital marketing executive for 3M Oil and Gas – a role that has the remit to engage interest in the facility from both the local community and energy industry peers. She said: "Our organisation is full of curious minds and great technologies. We place a huge emphasis on collaboration and the CEC gives us the opportunity to work closely with our customers to provide solutions and technology for tomorrow."

Widely acknowledged as one of the most innovative companies in the world, 3M has 40 different technologies and more than 10,000 products that are relevant to the oil and gas industry.

Strong supply

Peterson Offshore Group BV, one of the leading energy services groups operating in the North Sea announced its consolidated results for the 12 months ending 31st December 2013.

North Sea revenues increased to £288 million and operating profit increased by nine per cent, to £8.3 million. The group's UK based companies, including Peterson UK Ltd and 80:20 Procurement Services Ltd, contributed 52 per cent of the group's operating profit, an increase from 33 per cent on the previous year.

Significant growth was seen at Peterson's offshore supply bases in Shetland where it successfully delivered a logistics project in support of capital investment schemes occurring West of Shetland.

Erwin Kooy, CEO of Peterson said: "We have experienced positive growth in all areas of our business, and in particular for our North Sea operations. As an organisation we think in generations, with our continued success testament to the commitment of our team and their focus on our vision and plans for future growth. We have established international freight forwarding, recruitment, marine operations and procurement in our service offering. Most recently we established our offshore wind capability and will continue to develop our global operations and our range of integrated services."

Above: Steven Gray, managing director of subsea specialist ROVOP

Outstanding achievements

The managing director of rapidly growing subsea specialist ROVOP received prestigious industry recognition on 2nd October after being named as the UK's EY Entrepreneur of the Year 2014 for international business growth.

Judges singled out Steven Gray from a shortlist of the nation's most successful and innovative business leaders, for his outstanding achievement in building an organisation that has experienced exceptional global growth since its inception in 2011. The judges remarked that "Steven maximised his background in law and banking to become a true entrepreneur."

Turnover at ROVOP has rocketed to a current rate of £25 million, with significant expansion still to come on the back of new contract wins, while the company has surpassed its goal of increasing its team to more than 130 people and continuing to attract new talent.

Mr Gray said: "We set out to provide the most capable and modern fleet, combined with the best personnel and highest quality of service, and have found it to be an ethos the energy industry has responded to. Demand has grown consistently and the high level of repeat business we have won makes us believe we are on the right track. We have established a strong reputation with some of the world's leading energy companies and customers ask us to apply the same high standards around the world, more than 80 per cent of our work is now in international markets and we have completed projects in 14 countries."

Decommissioning leaders

Decom North Sea (DNS) held its Annual General Meeting on 7th October in St Andrews, with four new directors elected and two directors re-elected from across all sectors of the decommissioning industry. Attendees were appraised of Decom North Sea activity over the past year and given an update on progress against the various strategic objectives.

Nigel Jenkins, Decom North Sea's chief executive, said: "The strategic importance of decommissioning in the North Sea could not be greater than it is right now and I am delighted by the election of these experienced industry professionals, who bring an extensive portfolio of skills and invaluable breadth of knowledge to support DNS. With their help, we will continue to play a vital role in the decommissioning of oil and gas assets and achieve our objective of reducing decommissioning costs thus creating a centre of excellence for the industry."

New directors have been named as Torleif Gram, Tim Eley, Paul Caruana and Stuart Wordsworth, whilst those who have been re-elected as directors to the board are Ian Whitehead and Murdo MacIver.

Going with the flow

Trelleborg's offshore operation has secured a contract to supply its high temperature thermal insulation material for phase two of the Erha North project, Nigeria. Appointed by subsea engineering, construction and services company, Subsea 7, Trelleborg will supply several tonnes of its high temperature advanced silicone insulation solution, Vikotherm S1, to the numerous oil and gas flowlines in the field. Manufactured using room temperature vulcanization technology, the coating is ideal for the high 300 °F/149 °C temperature.

Acim Rezig, SCM engineer at Subsea 7, comments: "As the offshore industry continues to get more complex, we're more frequently searching for products which not only meet the specification, but also provide added benefits such as time saving and increased efficiency. Trelleborg's Vikotherm S1 insulation was the ideal choice for the project, as it caters to the water depths and temperatures to guarantee flow assurance."

Lee Roskell, proposals team manager within Trelleborg's offshore operation, says: "We developed a high temperature, microsphere free product to improve overall performance of the insulation system. This provided an added assurance that the product has been installed properly and is fit for purpose; verifying both the cast insulation and substrate."

A fresh perspective

8over8® Ltd, the provider of the ProCon™ contractual risk management platform, is pleased to announce that Peter Lamell, former Shell senior executive, is joining its Australia and Asia Pacific Advisory team. Lamell has an impressive history in the energy industry, having served as a board member for Shell Australia and as CEO for a number of companies in the oil and gas, resources, infrastructure and telecommunications sectors.

The announcement confirms 8over8's commitment to the Asia-Pacific region. Lamell's affiliation with 8over8 will increase the company's reach among key decision makers in the region and his experience will be of great value to the company.

"We are delighted that Peter has agreed to join us. His wide experience in oil and gas, resources, infrastructure and related areas will be of great importance as we expand our business and serve our existing customer base in the Australia and Asia Pacific region," comments Clare Colhoun, CEO of 8over8. "Peter will bring a fresh perspective which I am sure will be invaluable as we accelerate the growth of our business across the region. This is especially important as 8over8 extends its success in the oil and gas industry across other sectors engaged in complex infrastructure and capital intensive projects."

Submersible efficiency

AS THE INDUSTRY'S EMPHASIS ON EFFICIENCY CONTINUES, COULD A REVOLUTIONARY SYSTEM FOR THE DEPLOYMENT OF PUMPS FOR RIG COOLING APPLICATIONS BE THE ANSWER?

Any organisation operating offshore will tell you there are two critical factors at the heart of everything they do. Like any business, the first is efficiency; are operations effective enough to drive down costs, minimise resource investment and maximise output, increasing competitive positioning? The second; are operations, personnel and activities safe? Are they operating with maximum efficiency in the safest possible way?

One organisation that is committed to driving efficiency and safety across the industry is the world-leading provider of well test support services, ScanTech Offshore. Having recently launched SafeDeploy, a revolutionary system for the deployment of submersible pumps for rig cooling applications, it's not difficult to understand why they believe efficiency and safety go hand-in-hand; if offshore safety fails or is ineffective, maximum efficiency can never be realised.

A game changer

Historically, rigs and operators have been forced to use a high-risk method for deploying temporary submersible pumps, utilising a hang-off frame, which sets the submersible pump and delivery hose in place. Not only is it a high-risk process, where personnel are operating under a suspended load, it's a hugely time and labour intensive method that takes a whole team of operators up to 12 hours to execute. Knowing there was the need for increased safety and efficiency for deploying these pumps offshore, a dedicated team at ScanTech Offshore set about changing the archaic approach and breaking new ground in deployment.

Enter SafeDeploy. An engineered, self-deploying solution that has been identified as the safest, most efficient method for deploying submersible pumps from the deck of a rig, vessel or platform to the sea, it removes the need for rig crew or rig crane assistance, saving valuable time and reducing exposure to multiple personnel and manual handling. SafeDeploy's typical deployment or retrieval of a sub pump is clocked at a rate of 1m per minute.

A totally independent system, the SafeDeploy requires no rig electrical power and with a minimal footprint the size of a standard 10x8ft container, the practicalities of having the unit on a rig are easy to manage. To further maximise efficiency for rig operators, the solution is designed to be able to retrieve a submersible pump fast and in all weather conditions. Until now, this hasn't been possible in bad sea states or high winds due to enforced rig crane shut downs when weather exceeds Safe Working Limits. Staying fully operational helps companies to achieve maximum efficiency.

Developments

ScanTech Offshore's project manager, Barry Craig, has been involved in the SafeDeploy development from the start. He comments: "Safety and efficiency go hand in hand like any great partnership; without one, it's very hard to achieve the other. At ScanTech Offshore we're committed to creating solutions, which challenge existing methodology and create better outcomes for our clients and the industry as a whole. Our culture is to continually improve and innovate to become the highest quality and lowest cost provider of equipment. That continual investment and focus into R&D to deliver increased safety and efficiency is what makes us world leaders in the support of well testing.

"With SafeDeploy, we've been able to further realise just that. Advancements in technology have enabled us to create a new solution to a much recognised industry issue. This step change in safety and lower overall cost for rig and operating companies makes the utilisation of this system a no brainer."

Following a rigorous 18 month development cycle SafeDeploy's safety and efficiency has been tested in live sea trails in Holland and is scheduled to go out for long-term projects in Spring 2015.

Breaking new ground

As first to the market with such an offering, it is expected many competitors will invest in developing similar sub

pump deployment solutions in order to compete with the safety and efficiency standards SafeDeploy can deliver. It's long been recognised across the industry that there is a need to create a new deployment methodology and thanks to ScanTech's innovation that shift is already happening. It's still early days in ScanTech Offshore's global roll out strategy for SafeDeploy but with interest from some big name players, the industry's reaction to its innovation is suggestive of the likely approach to adopting such technology in safely and efficiently deploying and retrieving submersible pumps offshore.

A long-term commitment

The SafeDeploy system is ScanTech Offshore's latest development in its line up of products and services designed specifically to maximise efficiency and ensure a greater level of safety across the industry. It follows the successful launch of the award winning PyroSentry system, an automated fire detection and suppression solution that minimises the risk of chemical fires on offshore installations. Recently, the organisation has also announced the development of a Sea Wizard Burner, aimed at reducing the number of air compressors required during well testing by up to 50 per cent, saving valuable deck space as a result and contributing towards cutting the carbon footprint and exhaust gas by up to half and their investment in a Zone II & DNV 2.7-2 certified fleet featuring high output 1600cfm Air Compressors and 6mbtu Steam Generators.

Challenging existing methodology, solutions and processes is part of ScanTech Offshore's longer-term commitment to creating a safer and more efficient offshore industry. Better results and outcomes, more economical solutions and efficient services, and safer operations, contribute to a more competitive and sustainable industry. ScanTech Offshore is undoubtedly laying the foundations to be at the heart of this shift. OGG

SCANTECH OFFSHORE LTD

ScanTech Offshore Ltd is the leading provider of air compressors, steam generators, rig cooling equipment and skilled personnel for the well testing market sector worldwide. The company was founded in 1995, as Air Supply AS, primarily focused on the Norwegian well test market before successfully expanding globally. ScanTech Offshore, modified from Air Supply AS in 2002 to reflect the business' 'growing capabilities' has been trading for over 12 years; in 2010 the company acquired RigCool Ltd to expand its product and service offering to the well test market. ScanTech Offshore is part of James Fisher & Sons plc, a leading provider of specialist services to the marine, oil and gas, and other high assurance industries worldwide, registered on the London stock exchange. Building on the experience and expertise gained over more than 160 years of operating in the marine environment, James Fisher brings practical experience, innovation and commercial best practice to all of its clients' projects and services.

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An attractive funding tool

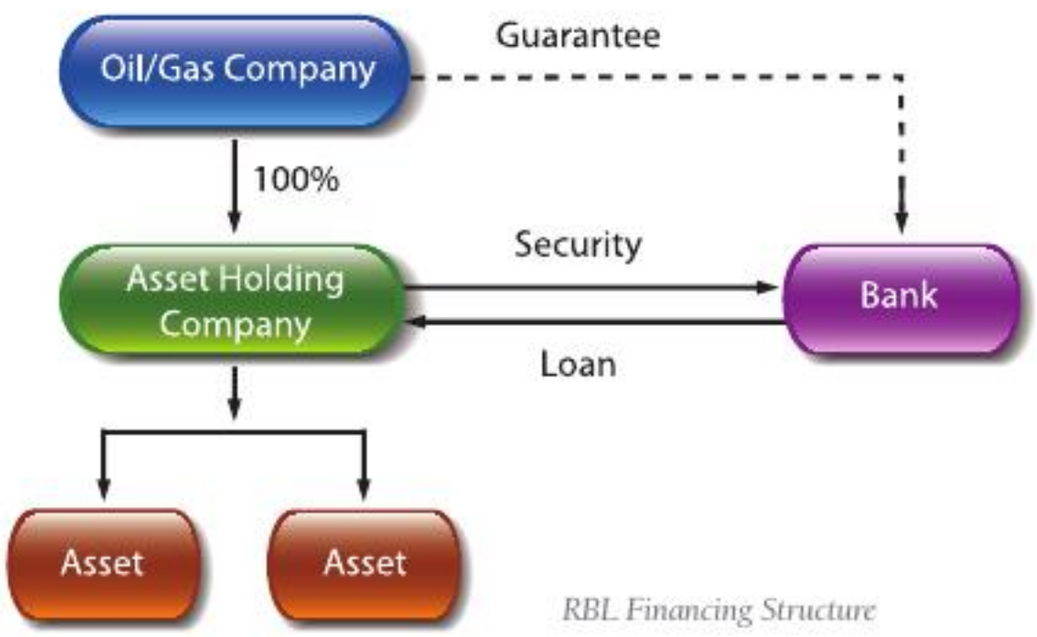
ERAN CHVIKA DISCUSSES THE ADVANTAGES AND BENEFITS OF RESERVE BASED LENDING IN THE OIL AND GAS INDUSTRY

Background - market developments

Reserve based lending (RBL) is a flexible method of financing that is attractive for both lenders and borrowers, in which availability of funds is based on the value of oil and gas assets of the borrower as revised from time to time.

Lenders may limit their risk by linking facility amounts to the net present value of one or several of such assets (whether or not currently producing), which corresponds to the difference between the present value of the amount of oil and gas that could be recovered and the project costs. The attractiveness for the lenders is linked to the fact that the risk associated with the volatility in commodity prices/ market values for such assets is mitigated by the flexibility of a reserve based loan, and lenders may continually adjust loan parameters either upwards or downwards to maintain adequate loan-to-value and cash flow coverage ratios to take into account a borrower's activity (e.g. increase/decrease in oil and gas production).

For oil and gas companies who are either in a development phase in which production is imminent or already producing oil and gas and need to fund expansion, RBL provides an attractive and elastic financing tool in which amounts available are determined by expected production. Repayment of the debt stems from the revenue derived from the sale of the oil and gas, rather than from immediate balance sheet strength.



RBL Financing Structure

The RBL loan market has its origins in the US in large project financings by majors and large independent oil and gas companies in the 1970s. In recent decades banks have become increasingly prepared to lend to smaller to medium-sized sponsors in emerging markets who lack the same access to corporate loans as the majors.

The RBL market has expanded over subsequent decades across the globe and there is currently an increase in the demand for the use of such a financing technique. However, market standards continue to vary considerably between jurisdictions such as the North American and UK markets, in which the practice is highly developed, and other jurisdictions such as countries in sub-Saharan Africa, in terms of acceptable asset categories, lending structures and security packages.

RBL financing is fundamentally different from other financing tools primarily due to the producing nature of the reserves and the variation of the facility amount, which is calculated on the basis of the expected net present value of

future production from the fields, or the 'borrowing base'. Regardless of the geographic location of the relevant market, there are a number of key issues that must be examined both by sponsors and prospective lenders. These issues are considered in this article.

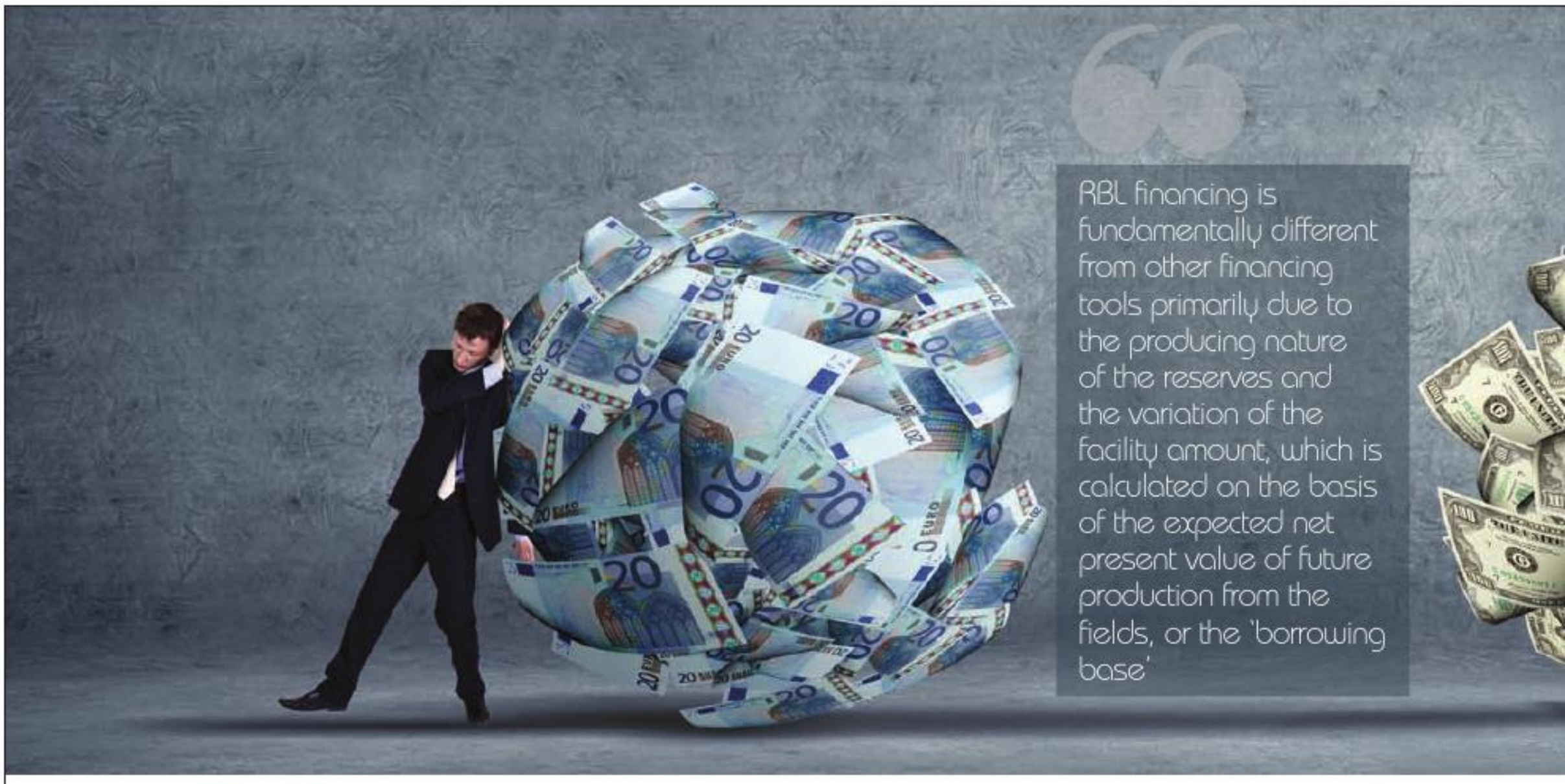
Fluctuating facility amount

The facility amount is based on the borrower's working interest in one or more upstream assets and is generally equal to a discounted amount of the net present value of the borrower's future income from oil and gas developments in such assets.

The size of the facility is periodically determined by valuation of the reserves made by technical consultants based on economic/financial criteria and in particular on well-established production performance derived from volumetric, comparison with similar reservoirs, a computer simulation of new producing zones given lesser weight, geologic conditions as sand continuity, reservoir energy and revised commodity pricing assumptions. As the borrowing base is therefore keyed to such valuations, forecast and redetermination provisions are highly negotiated in RBL financings. The borrower and lenders are permitted to review and object to any forecast under the RBL documentation in a revised forecast, which is resubmitted for review.

The amount of the facility will be increased or decreased by the addition or removal of qualifying assets at the borrower's request or to meet mandatory prepayments due to a fall in the value of such assets.

In the event that the amount of the facility exceeds the value of the assets, there is a cancellation of the commitment in excess of the relevant value and a mandatory prepayment of outstandings in excess of value will be required, with any failure to make such prepayment potentially triggering an event of default. By contrast, if the value of assets exceeds amount of the facility, the lenders should increase the available facility amount by such excess. O&G



RBL financing is fundamentally different from other financing tools primarily due to the producing nature of the reserves and the variation of the facility amount, which is calculated on the basis of the expected net present value of future production from the fields, or the 'borrowing base'

RBL specific covenants

Although RBL has some similarities to traditional lending facilities there are some key differences, including the discretion given to lenders to revise commodity pricing assumptions in order to value the reserves and to set the credit limit in the course of the life of the RBL loan, which is generally shorter than the expected production life of the reserves.

For instance, several banks made available a short crude oil pre-export two year term facility to Moni Pulo Limited, a significant Nigerian independent oil producer, when it accessed the international market for the first time. The purpose of this facility was to invest in existing production and assist with payments due in respect of new licences awarded to this company. The amount of the facility was based on the banks' assessment of the reserves in the field operated by the company and the production and price curves over the life of this term facility.

RBL documentation typically includes several covenants to address specific lender concerns similar to those found in other financings, such as financial covenants, restrictions, specific cash waterfall provisions, prohibitions on additional indebtedness and distributions. It also includes borrowing base deficiency provisions. The borrowing base deficiency can be cured by the borrower adding additional oil and gas properties to the collateral base; alternatively, the lenders can agree to graduated reductions in available lending commitments.

The RBL documentation typically allows debt levels/amortisation to be either increased or decreased to levels that maintain loan-to-value and cash flow coverage ratios that take into consideration changes in cash flow caused by acquisition, increase/decrease in production, operative costs or drilling activity since the last redetermination, any of which could impact the expected ultimate recoveries of reserves.

Bank legal counsel will also review/evaluate the borrower's title to its oil and gas properties to verify that it matches the net revenue interest reflected in the technical consultants' reports and forecasts.

Lenders require that the oil and gas entities further provide a number of financial documents and specialist reservoir engineers' analysis on a regular basis, or to be notified of the occurrence of certain events (e.g. any force majeure event affecting the borrowing base asset) in order to enable them to monitor the increase/decrease of production and the financial situation of the oil and gas entity generally and the ability of the such entity to comply with the obligations under the RBL loan.

The lenders will further require the oil and gas entities to provide a number of specific covenants in the RBL loan agreement regarding the manner in which they carry out their business in order for the lenders to have a degree of control over such activity and management, such as key-men provisions. A breach of any of such covenants may lead to an event of default and give to the lenders the right to accelerate the RBL loan.

Security package

Lenders normally require at least eighty per cent of the initial collateral value to be covered by a perfected security interest and to have clear title under the security package.

A key legal consideration for any lender seeking to take security will be the licensing regime under which the borrowing base assets are operated. In many jurisdictions, it is not possible to take security in favour of the lenders over the underlying physical reserves themselves while they remain "in the ground" since these are often owned by the host country rather than by the operator, who therefore cannot grant security over such reserves as it lacks the necessary title over such reserves to do so. In such context, obtaining acceptable security over the reserves themselves would require the host government to grant advance approval to the assignment or transfer of such title in certain circumstances, a daunting prospect which may be difficult

and time demanding to obtain.

For such reason, lenders generally look to other forms of security, such as assignments or pledges of contractual rights arising, for example, under an oil and gas licence, a production sharing agreement or a joint operating agreement and negotiate a suitable security package in line with the local legal framework and market practice.

Generally, a pledge over the shares of the borrower oil and gas entity holding an interest in the licence is considered as the security option of choice since it enables the lenders to take over such company upon the occurrence of an event of default and the enforcement of such pledge. The assignment of key contracts is also often part of any security package and includes an assignment of the borrower's rights, including any receivables due. A pledge over the borrower entity bank accounts, in addition to a detailed bank accounts agreement, provides further comfort to the lenders in order to have adequate control over cash flows arising from the relevant borrowing base.

Many oil producing jurisdictions in sub-Saharan Africa are member states of OHADA, an organisation created by treaty for the harmonisation of business and commercial law in Africa. OHADA has promulgated a number of uniform laws which, upon approval by the Council of Ministers, are automatically applicable in each of such member states. Recent modifications to the OHADA Uniform Act on Security Interests and the OHADA Uniform Act on Commercial Companies have resulted in a modern and sophisticated legal regime for the taking of security interests in a RBL context, including the ability to grant all security to a single security agent, an effective means of creating a security assignment of commercial receivables despite any contractual provision to the contrary, specific provisions permitting both outright cash collateral by way of transfer of title to the cash and pledges over outstanding balances from time to time of charged bank accounts, streamlined procedures for creating security over tangible fungible assets, company shares and receivables and, most critically, the ability to enforce most forms of security by outright transfer of the pledged assets to the beneficiary of the security (pacte commissoire), subject only to subsequent evaluation by expert and return of any surplus value of such assets over the secured debt to the security provider.

Nevertheless, it should be borne in mind that the legal framework of oil and gas exploration and operation of each OHADA member state remains a matter for its own legislation, and that the ability of borrowers in such jurisdictions to open and maintain bank accounts outside the relevant jurisdiction and their obligations to repatriate in-country the proceeds of sale of offtake into foreign jurisdictions will be subject to exchange control rules, either on a national level or those promulgated by west or central African central banks pursuant to regulations promulgated by regional monetary and finance unions.

It should also be noted that, although RBL is generally a technique of leveraged financing that involves lending on a non-recourse basis, in certain transactions lenders require a parent company guarantee securing the obligations of the asset holding company under the RBL loan.

Furthermore, where borrowing bases consist of assets owned by several entities within the same group, lenders may, subject to local guarantee restrictions, require each asset-owning entity to cross-guarantee the debts of each other entity and the liabilities to be secured by each of their assets.

There are therefore a number of differences between standard financing methods and RBL financings. Precedents do not set out the boundaries and lenders, borrowers and their advisers need to work together to create tailored made solutions to address those differences in the negotiation and documentation stages of a RBL setup. O&G

NORTON ROSE FULBRIGHT LLP

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For further information please visit:
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Tools talk

CERTEX

Certex is a leading, international lifting engineering company delivering products and services worldwide across all industrial sectors. Its team of office-based specialists provide technical support while its site engineers deliver expert inspection and maintenance services for almost any lifting application.
Working within and supporting the offshore energy sector for over 50 years Certex has developed partnerships with leading energy companies and contractors to improve safety, efficiency and reduce costs using tailored automated management systems.

BUS Industrial Tools Ltd was formed in April 2014 to service a new contract in the UK that had been won by its parent company, BUS Handelmij B.V. The agreement with Shell covers the provision of tools and equipment for the southern North Sea platforms. BUS Handelmij was formed in Lemmer, Netherlands in 1957 by Schelto Sr and Dineke Bus. Just one year later, due to the success of BUS, the business moved to larger premises in Zwolle. In 1981 BUS opened another depot in Sneek, followed by depots in Groningen, Emmen, Marknesse, Deventer, Veenendaal, Tiel, Almere and Eemshaven. In 1999 Schelto Sr and Dineke gradually withdrew from the company leaving their sons Henry and Schelto Jr to take on the mantle of technical and commercial directors respectively.

The family-run business has come a long way from its early days to become the professional organisation that it is today with over ten offices, with one of the main developments being the centralisation of the company. From its headquarters in Zwolle it controls issues such as automation, administration and purchasing control. Despite this, the various sites are structured to function as autonomous entities, which ensures they can respond flexibly to the local market. As each branch has its own spares department, stocks can be tailored to suit individual clients needs.

"BUS Industrial Tools Ltd has not been in existence for long, but due to the nature of our contract we have been in very high demand. The initial set up of our UK operation has been supported heavily from our partners in the Netherlands, which has been instrumental to the success of our first six months," says Alfons Hendriks, director. The company provides maintenance and inspections services across a wide variety of items ranging from safety harnesses to power distribution units, inspected to high standards and conforming to all current regulations. Beyond that, it also offers equipment for hire including welding equipment, pipe end machines, workbenches and toolboxes, distribution boxes and cables and compressors.

To ensure optimum quality BUS holds ISO 9001: 2008 certification, guaranteeing the delivery of quality products and good service. The company however, does not stop with the delivery of a machine or device as its technical department for installation, instruction, maintenance, repair and annual

inspections brings clients several distinct advantages. Employees of the BUS group are committed to profitable growth, through developing sustainable relationships with clients and suppliers, driven to exceed customers' expectations with expert and honest guidance, responding rapidly and flexibly to questions with complete and reliable supplies.

It is the flexible response to the needs of the client that attracts custom to the business, but as Alfons keenly points out: "Setting up the new depot in Great Yarmouth has been so successful due to the assistance of numerous connections in the area. Upon BUS gaining the contract from Shell, one of the first questions asked was 'would you be able to set up a depot in the UK?' and our response was establishing this new branch with an initial staff of three personnel acting as a focal point between AJS, Shell and our depots in Holland. We are currently at the early stages with the new depot, but we feel that we have surpassed our own expectations of what is achievable from our UK branch, implementing our own processes and methodology to insure a high quality service with a fast turn around of orders."

BUS offers its clients a proven concept in e-procurement that can be developed in consultation with the customer, integrating with the supply management service and adopting the ordering and delivery methodology of its customers to meet the needs of various industries. The company also provides a bolting service that consists of on site bolting, calibration and repair of bolting tools, demonstrations and training. "When Schelto and Dineke Bus set up the company in 1957, the question they posed was 'what does the customer want?' and that question is still just as relevant today as it was more than 50 years ago. We believe that by always keeping that important question in mind we can continue to build on our ever-expanding customer base and ensure success in the future," explains Alfons.

Through customer oriented opinion, custom delivery, specialist knowledge, and wide range, it is able to maintain satisfaction for its customers, offering solutions for various sectors, including industrial, metal, installation and energy industries. As the company targets the future of its position in the UK, it looks towards consolidating and perfecting the service that it provides to its existing clients, as Alfons concludes: "We view this period for BUS UK as a key time to create firm foundations and ensure we are able to achieve the 'right first time, every time' ethos. We believe that with the correct attitude to business in the UK there is always room for expansion. The services that we are able to provide will always be in demand, so if we adapt to the requirements of the sector and keep building on our high quality service the possibilities are vast." OSG

BUS offers its clients a proven concept in e-procurement that can be developed in consultation with the customer, integrating with the supply management service and adopting the ordering and delivery methodology of its customers to meet the needs of various industries

ATR EQUIPMENT SOLUTIONS

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PATENT PENDING

DEFENDING AGAINST COLD

Contained growth

It has been 15 months since the Ferguson Group was last featured in the pages of *European Oil & Gas Magazine* – and over that time the company has witnessed a significant number of expansions in its range of offshore containers and accommodation modules.

Graham Donnelly, partner development manager, explained that the changes have all been very positive and designed to aid the Group's growth into the future. "Over 2013 and into 2014 we have expanded the global fleet with a range of new products including DNV 2.7-3 lifting frames, Zone 2 workshops, NORSOK workshops, low profile sealed waste units (six tonnes), ISO tanks, acid tanks, chemical tanks, helifuel tanks and new cryogenic tanks," he said, starting the story with a focus on products.

"We have listened to our customers and that is what has encouraged us to expand the tank fleet," he added. "The DNV 2.7-1 10ft cryogenic tanks have a 7901 litre capacity, and have been designed for the transportation and storage of liquefied industrial gases, with a maximum 25-day hold time for liquid nitrogen.

"The new 6000 litre DNV 2.7-1 acid tank is configured vertically within a frame, and is a T14 UN portable tank, approved IMDG, ADR, RID for use with hydrochloric and other acids. We are also providing several other sizes and variations in order to meet market needs."

Graham noted that in relation to Ferguson Group's tanks and indeed, all its containers, modules and refrigeration units are designed and manufactured in accordance to DNV 2.7-1/ EN12079 standards. The group recently held a seminar in Singapore to discuss the benefits of DNV GL accreditation – the accepted standard in every offshore environment. "In Singapore we work closely with DNV GL to host meetings for the oil sector to explain the importance of using assets that are designed to these standards," added Graham.

The Asian market is very important to its operations – for example it used the opportunity of appearing at the 14th Asian Oil, Gas & Petrochemical Engineering (OGA) exhibition and conference in June 2013 to announce a new six-metre accommodation unit. This has been designed specifically to address the heat in the southern hemisphere; it is proving to be a popular addition to the fleet in Singapore. Noted Graham: "The new unit had a face-lift

with newly designed interior fittings, built-in furniture (bed, cupboards/storage) and a space saving desk/work area. Each bed is now fitted with a USB socket located nearby, letting crew charge or use IT equipment comfortably. The new module's HVAC system was upgraded so that it could keep its crew cool in the high temperatures that can be experienced in the southern hemisphere."

The attention to detail that Ferguson Group puts into its products is clear from the description above, and alongside continually updating the product range, the company is also keen to expand its network of partners in order to meet the needs of customers wherever they are located. In 2014 the group increased its global footprint with new partners in Vietnam, Nigeria, East Africa and most recently the Netherlands.

Graham explained how this last location will benefit both Ferguson and its customers: "In July 2014, in a move designed to expand our presence in the European energy markets, we joined with a new Dutch partner, Norsco Oilfield Services," he said. "Norsco Oilfield Services operates from a base in Ter Apel in the heart of Northern Europe and is near to a transport hub, making transport throughout Europe simpler than ever. The new partnership means we can halve delivery times, as we didn't previously have a base for central Europe, and had to ship from the UK."

Ferguson Group hopes to see the relationship with Norsco become as successful as previous arrangements – for example the relationship it has with Dominion Gas has now been ongoing for four years. "Our partnership with Dominion Gas in Ghana was set up in late 2010 and is now an established success for the group. We work with Dominion Gas to support our West Africa clients with the provision of a complete range of Ferguson Group's containers, tanks and baskets. Our product specialists are regular visitors to the region to meet clients and support the Dominion Gas team in staying up-to-date on the new products we have been bringing to market," said Graham.

Working in East and West Africa does bring its own challenges, and here Ferguson Group calls on the services of another partner, Alpha Logistics. "They are a well established company in the region with an infrastructure in place to manage the rental of the Ferguson Group assets to offshore platforms/rigs," Graham explained.

Given how successful it has found the partnership approach, it is no surprise that

the group is always on the lookout for new companies with which to work: "Our partners across the world have proved to be a very effective way of servicing and supporting our customers in-country more quickly and efficiently," said Graham, clearly proud of the network the company has established.

Looking into the future, there is more growth and development on the horizon for Ferguson Group. In September 2014 Brambles Limited, a supply-chain logistics company acquired the Ferguson Group. Graham explained that this move enables the Ferguson Group to maintain the existing momentum of its growth strategy, as well as continuing to flourish and grow as part of a broader listed entity. "We can increase our investment into the fleet and expand our range of services worldwide," said Graham.

"We have already seen significant growth in the last 15 months and we have a very healthy pipeline," Graham concluded. "October especially sees us very busy at a range of European events, which includes OTD in Bergen (15-16 Oct), Marintec in St Petersburg (7-9 Oct) and the Offshore Energy in Amsterdam (28-29 Oct). Members of Ferguson Group will be on-hand to meet with clients and prospects to discuss their requirements for offshore containers.

"I envision the next three to five years will see more growth, as the Ferguson Group expands its services further worldwide, coupled with further expansion of our offshore fleet of containers, tanks, refrigeration reefers, baskets, accommodation and engineering workspace modules." O&G

> Our partners across the world have proved to be a very effective way of servicing and supporting our customers in-country more quickly and efficiently

Ferguson Group
ferguson-group.com

Products
Supplies and distributes offshore containers, and manufactures offshore accommodation modules

Ripe for economical success

Since it was founded in 2009, Marine Assets Corporation (MAC) has operated as a pioneering supplier of modern and sophisticated vessels to the offshore oil and gas industry as well as a founding developer of the compact semi sub (CSS) concept. The roots of the company however can be traced back several years earlier when its forbearer was established by founders with a pedigree within the oil and gas market, as MAC CEO Robin Reeves elaborates: "The company started life as Minnow Marine Projects (MMPL) back in 2006, formed by myself and several former management colleagues from a time that we had worked in Qatar with Doha Marine Services. The company was formed as a Dubai Maritime City free zone entity and had 12 platform supply vessels (PSV) under construction, and by 2008 two of these were sold to a Singapore based interest. Then the balance of the remaining ten vessels under construction was sold with the company to Stanford Marine Group in Dubai in 2009."

As the purchase of MMPL by Stanford Marine Group was enacted in 2010, MAC went into operation to hold a share interest in the CSS concept and has since continued to develop, promote and deliver the technology to the oil and gas market. The ten-year process of designing and finally building the first CSS involved several years of raising capital, design and conceptual engineering before the build process could begin. The yard chosen to build the first CSS was Fujian Mawei Corporation in China, which had previously constructed PSVs for MMPL, giving it a proven reputation and long standing relationship with the MAC management team. The build process itself took three years to complete because of the remarkable interest shown in the project by potential charterers and owners, many of which offered technical opinions that would be incorporated into the vessel while construction was ongoing. In this sense it can be said that the CSS concept is truly a targeted market solution with years of innovation and client input factored into its construction and as such, the vessel would eventually find an owner and begin a successful career in operation.

"The vessel was eventually sold to a Brazilian interest in mid 2013 and she was finally delivered in January 2014," Robin says. "She is operating a long-term contract with Petrobras and performing very well and the buyer of the unit has been highly impressed by it, noting that it was designed as a cost effective solution to the offshore accommodation market. Semi sub technology has strong sea keeping capabilities, so by making the CSS compact in size and compact to build it is a cost effective solution. Following this the new owner has signed an order for another two vessels, so that the first three of our CSS vessels are being delivered to the same owner in Brazil."

The CSS concept continues to spread to new clients around the world, having impressed operators in Brunei and leading to the order of a vessel that will be deployed on a contract with Brunei Shell. "This is a slightly different design," Robin explains. "The basic hull design is the same but because of the benign waters in South East Asia the vessel does not need as much power and hence reduced powered thrusters.

The client needed more deck space and less accommodation. This demonstrates a huge advantage in our design in its ease of adaption depending on customer requirements."

The basic design of the CSS can be adapted to offer accommodation for between 200 to 500 personnel and incorporate deck space of between 500m2 and 1500m2. Furthermore the design can be fitted with cranes with capacities ranging from 50 tonnes to 150 tonnes and telescopic walkways at lengths ranging from 19 metres through to 42 metres.

Although MAC is keen to market the benefits of its CSS concept, the company retains the expertise from its early roots and continues to deliver PSVs to the oil and gas market. These range in size from 60 metres at 1500DWT, 75 metres at 3500DWT through to 87 metres at 5000DWT, covering a full range of diesel electric propulsion. The vessels feature modern design and the latest technology with equipment such as thrusters and dynamic position systems that are typically provided by Western European suppliers.

Having successfully brought its CSS concept to market, MAC is busy developing new vessel types in anticipation of the future needs of the oil and gas market. With a wealth of experience incorporated into the company from its inception, MAC is well place to understand the needs of its clients and the fluid market in which they operate. "Going forward we have some new projects in the pipeline. For example, we are again developing a speculative vessel that we call MAC Motel. It is basically a compromise between a large CSS accommodation vessel with a little more capability than a conventional workboat. It will have 240 beds, a hull based on mono-hull design, a crane and helideck as well as a gangway to support offshore walk to work construction and maintenance activities. This is something that could well be interesting to the European wind farm industry," Robin says.

"Our business plan is to try to identify the vessels that will be required by the oil and gas market and offshore wind industry over the coming years. We try to be ahead of the game and speculatively build vessels when we see the opportunity arising. We've been very fortunate in the past with timing that correctly, and with a good 'crystal ball' hopefully we will continue to be," he says.

With a proven track record of innovative design and successful delivery to market, MAC has good reason to be confident. Its unique designs are tailored to the evolving needs of the market and provide the company with a niche portfolio that competitors would find difficult to replicate. As MAC continues to promote its innovative designs, its vessels are sure to become an increasingly familiar sight throughout the world over the coming years. O&G

> Having successfully brought its CSS concept to market, MAC is busy developing new vessel types in anticipation of the future needs of the oil and gas market

Marine Assets Corporation
macoffshore.net

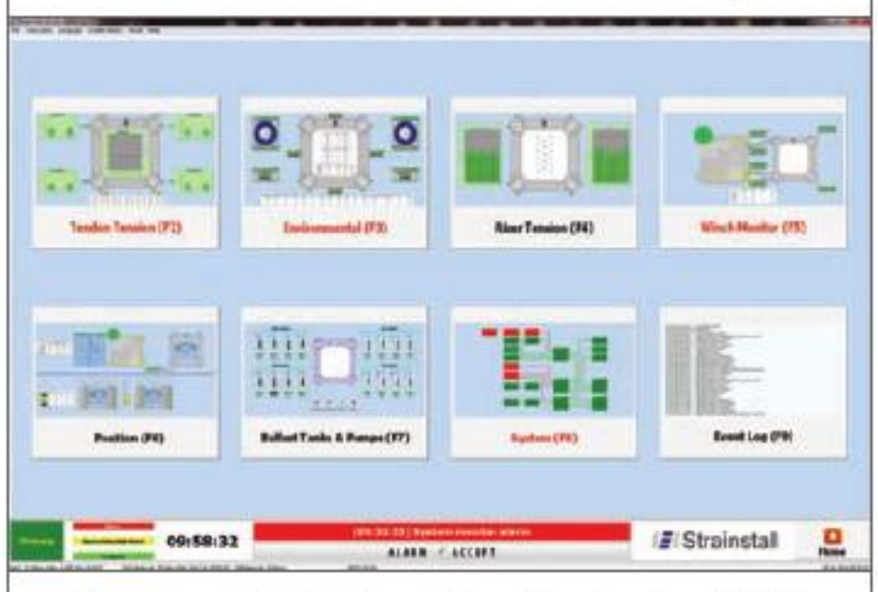
Services
Offshore support vessels

A measured approach

Founded in 1965 and operating as part of the James Fisher and Sons PLC Group, 2014 has been a busy year for Strainstall as the company enjoys a period of increased activity and development. The company's main focus within the oil and gas industry is the provision of mooring monitoring solutions for all types of floating vessels to ensure safe operation as well as bespoke load monitoring solutions for a wide variety of applications including cranes, wireline load monitoring and riser monitoring. Strainstall was last featured in *European Oil & Gas Magazine* during March 2014 and has remained highly active during the second half of the year.

"Since March 2014 Strainstall has been extremely busy working on a number of interesting projects and developing the business as we continue to grow," says managing director Simon Everett. "We have taken on more people in sales, production, project management, engineering and customer services as we continue to see good opportunities to further grow and develop the business. The oil and gas market is buoyant for us and we have just secured a major mooring monitoring project for a new offshore Tension Leg Platform, which will be delivered next year. We are also finalising the Moho Nord TLP tendon tension monitoring system (TTMS) and integrated marine management system (IMMS) for Total."

Further projects include the supply of load pins for the Shell Stones project located in the Gulf of Mexico, an ultra-deep oil and gas development that is currently the deepest production facility in the world at approximately 2900 metres. The project involves the use of a floating production storage and offloading (FPSO) that incorporates a forward mounted turret with a detachable buoy (buoyant turret mooring system or BTM), which allows it to weathervane in normal conditions and disconnect from the FPSO upon

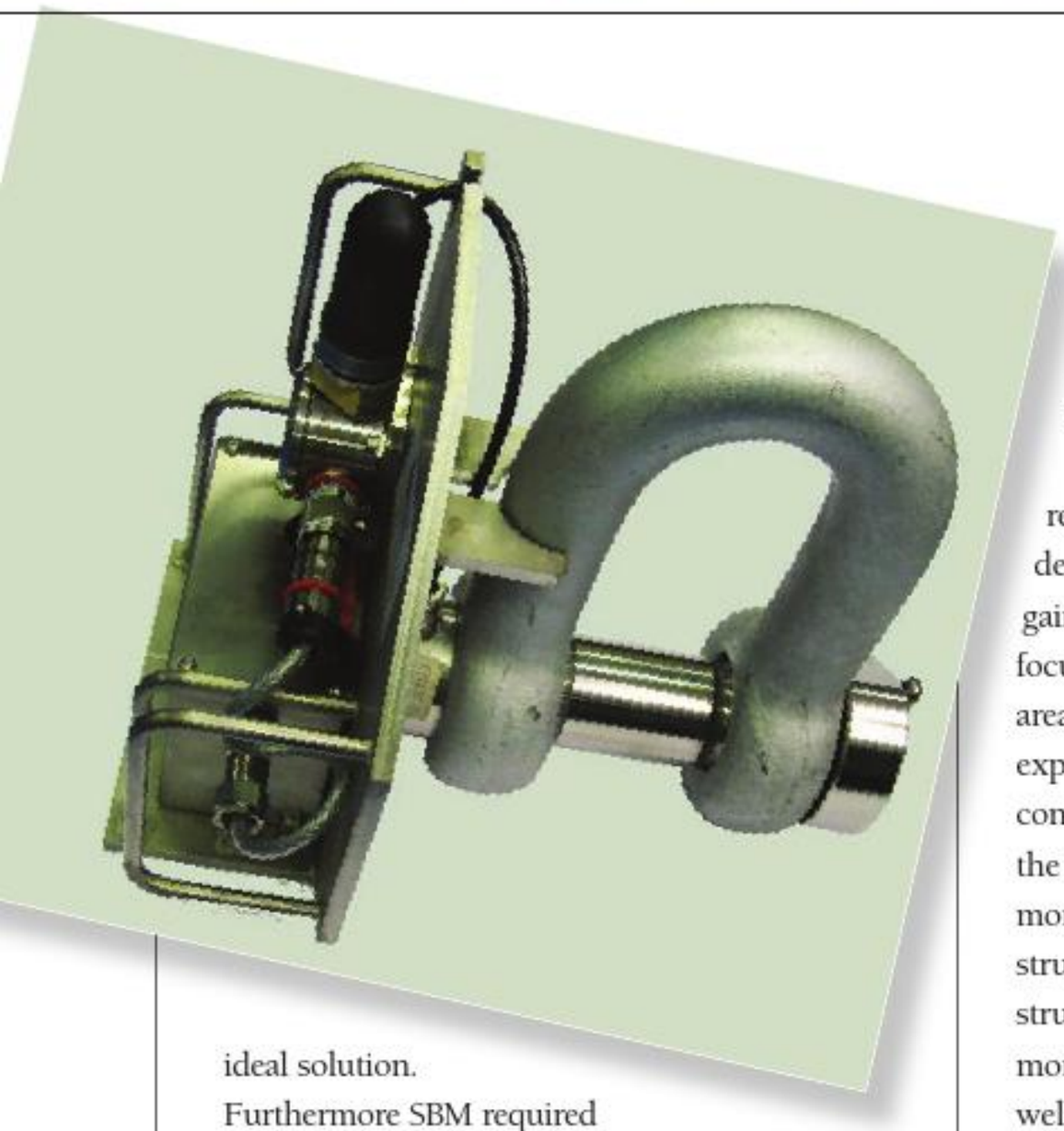


the approach of bad weather allowing the FPSO to sail for safer waters.

Strainstall was approached by the SBM Offshore Group to provide a solution by way of six specially designed load pins to measure the forces between the buoy and the FPSO as integral components of the detachable buoy system and a critical element in ensuring the safety of the FPSO and BTM. A bespoke design was required to comply with SBM's unique requirements and Strainstall was able to rely on its nearly 50 years of experience in designing special application load pins to provide the

Above
Tension cells

Below
IMMS system installed



ideal solution.

Furthermore SBM required a comprehensive documentation package in addition to the design, manufacturing and testing of the load pins. With a significant amount of experience in delivering specific packages for a wide variety of industries including offshore oil and gas, marine, industrial, aerospace and nuclear, Strainstall was again well placed to deliver a full turnkey solution.

During May 2014 Strainstall also supplied its Vessel Motion Monitoring System (VMMS) for use as part of the Carbon Trust Offshore Wind Accelerator (OWA) programme. The VMMS was used during a sea trial to validate a wind turbine access system for the OWA programme, which aims to reduce the cost of offshore wind across three UK sites by ten per cent by 2015. "The VMMS supplied for the trial was a dual system taking measurements from two locations on the vessel," Simon elaborates. "One of the sensors was located in the technician accommodation and the second was mounted on the vessel bow and transmitted data back to a laptop wirelessly. The key data being captured was heave, pitch and roll as well as the accelerations on all of these axes. The system was a great success and provided data that will be used to validate the access system and assist in defining weather windows for safe access of technicians from vessel to turbine."

Indeed Strainstall has distinguished itself with technology and expertise that allows it to provide solutions in a host of hazardous areas, as Simon expands: "We have a great deal of hazardous area expertise within the company and have recently developed our wireless hazardous area technology to be used in zone one as well as zone two areas. We are using this technology to help customers remove cables from operational areas, improving safety and system reliability by eliminating the potential for cable damage."

As the oil and gas and other sectors remain buoyant, Strainstall will continue to develop its focus on the areas where it has gained most expertise: "Our strategy is to focus on developing products for hazardous areas and subsea use, where we can utilise our experience to best give customers value," Simon concludes. "We are focused on developing the next generation of mooring and structural monitoring solutions for offshore vessels and structures. With the complexity of offshore structures increasing all the time the need for monitoring solutions continues to grow. We are well placed to assist customers in these areas and in the last two years have provided systems for the largest ship and the largest floating dock ever made, reinforcing the confidence our customers have in us to deliver solutions in unique and demanding applications." OEG

> We have a great deal of hazardous area expertise within the company and have recently developed our wireless hazardous area technology to be used in zone one as well as zone two areas

Strainstall
strainstall.com

Services
Load measurement and monitoring application solutions

Setting the standard

Specialising in non-destructive testing (NDT) since 1937, when founder Lambertus van Ouwerkerk realised x-ray inspection techniques could be used to check welds on ship hulls, Applus RTD boasts nearly 80 years of experience in the evaluation of materials, components or systems in the shipping, construction and oil and gas industries. Remaining at the forefront of new techniques and customised solutions, Applus RTD has been a pioneer in the use of non-destructive examination methods such as magnetic flux leakage, radiography and ultrasonics. Today a global leader in NDT, the company sets standards through the delivery of unrivalled high quality services and individually tailored solutions that help meet construction project timelines or maintain productivity and cost-effectiveness for every installation.

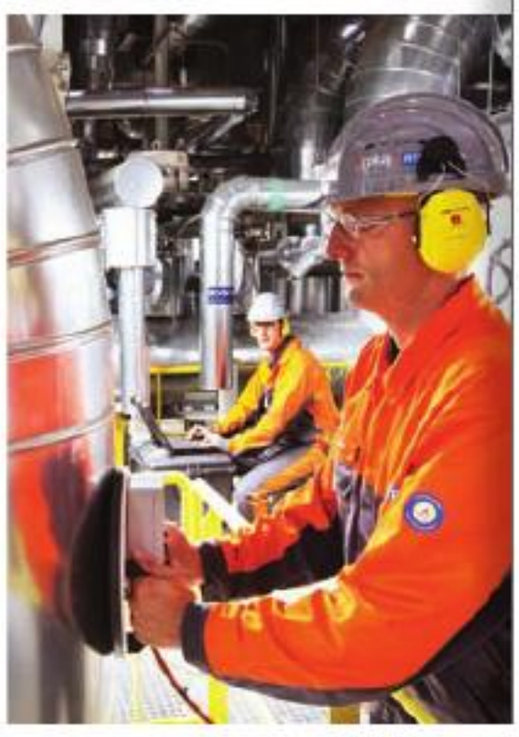
Previously featured in sister publication *Shipping & Marine Magazine* in August 2011, the company has continued to grow and develop over the last three years as part of Applus+ Group, a global leader in inspection and testing for the oil and gas industry, vehicle inspection, engineering and testing for the automotive sector and laboratories targeting industry, and construction and payment methods.

Martin Pot, director of global project services of Applus+ RTD discusses: "We are a truly global company. This is the result of all Applus RTD acquisitions joining forces internationally to become the one organisation we are today. Also we have recently gone from being a privately owned company to stock listed, fuelling further growth. Meanwhile, our main developments have been in the growing economies and large oil and gas projects across the world; these opportunities are predominantly North America, where we have established substantial businesses. In addition, the Middle East West and East Africa offer great opportunities at the moment."

Consistently adaptable to market demands, Applus RTD is able to deliver a comprehensive range of services to its global customer base, 90 per cent of which is within the oil and gas industry. The company unveiled the latest inspection application in its ground-breaking NDT range in June 2014; developed in partnership with Delta SubSea, the RTD INCOTEST (Insulated Component TESTing) deepwater system utilises state-of-the-art pulsed eddy current technology, which ensures the reliable detection of surface and subsurface corrosion in pipelines with both thin and thick walls.

"The external inspection of pipelines is already an integral part of our business, but, because there is an increasing need for subsea inspection and because our clients asked us to do so, we have tapped into this business through the formation of a strategic alliance with an ROV operator. Our technology, INCOTEST, is now deployed on their ROVs, which means we can jointly perform inspections on subsea pipelines. RTD INCOTEST enables us to perform corrosion assessments through marine growth or other materials that tend to prohibit seeing the condition of a pipeline; this, in combination with our internal inspection capabilities, allows us to deliver a full portfolio to our customers," highlights Martin.

Indeed, it is this drive to bring new technological solutions to the market that is a key strength for Applus RTD, as NDT technical authority Niels Pörtzgen notes: "Our company is technology driven; we have a good communication network with our clients and



therefore know what kind of inspection challenges they are facing; based on these issues we built our development programme. Furthermore, we also see there is a lot of technology in other application fields, which we then scout for their technology and see if it can add value to our services in advance of our clients requesting it. It is important to us to not only respond to our client's demands, but to also anticipate issues by having new technology available."

An example of this adaptability to the market is the company's DTI (Difficult To Inspect) tools that will be presented at the International Pipeline Conference & Exposition in October 2014, as pipeline inspection authority at Applus RTD, Jan Pols states: "We have been performing internal pipeline inspections with our broad range of tools, but are now entering the free swimming market, which requires technology of a higher resolution. Our state-of-the-art tool will collect much more information from the pipeline than any other tool that is currently on the market, and can thus provide an enhanced service through astounding performance and resolution. There is a lot of demand in refineries and storage areas, while the current applications that can be utilised in these challenging situations are very limited; this is why our customers came to us for a solution."

This competitive edge is complemented by the company's strong global presence, as Martin adds: "We have a good network of offices based around the world, where we can not only deliver NDT services locally, but can also transfer knowledge from one part of the world to another."

An associate member of the International Pipe Line & Offshore Contractors Association (IPLOCA), Applus RTD helps to set standards within the industry through discussing the NDT perspective and presenting improved plans that will benefit end clients. It is this commitment and passion for delivering the best possible solutions that has cemented the future growth of the company over the coming years, as Martin concludes: "We have been involved in the most complex inspection and pipeline construction projects over the last decades, which will also be the case over the next two to three years. In most projects, we will be involved one way or another." O&G

Applus RTD
ApplusRTD.com

Services
Non destructive testing

Extending innovation

Since the company was founded in 2004 Reelwell AS has continued to develop and promote its pioneering Reelwell Drilling Method (RDM) system and today has reached an important ten-year milestone in operation.

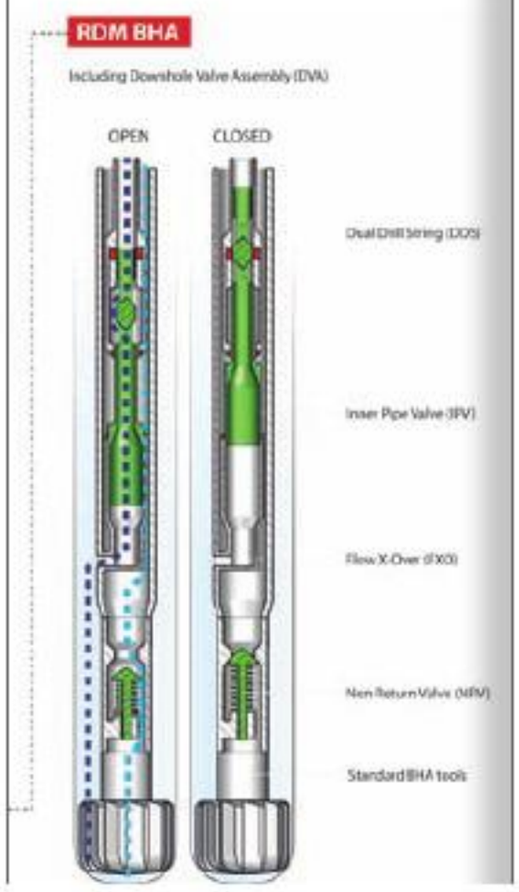
From its base in Stavanger Reelwell unveiled its RDM technology that would introduce new concepts that would challenge the traditional principles of Managed Pressure Drilling (MPD) and Extended Reach Drilling (ERD). RDM employs a revolutionary technique that uses accurate pressure management and superior well control through closed loop fluid circulation to push the limits of what had previously been thought possible. Indeed in terms of application, operators are able to use RDM to access reservoirs considered extremely challenging or even impossible to drill conventionally.

The RDM is based on the use of a Dual Drill String (DDS) in which drilling fluid flows to the drill bit via the drill string annulus, while the return flow to the surface is through an inner string. This is achieved through the use of a Top Drive Adapter (TDA), which is a dual conduit swivel that allows rotation of the drill string with the top drive. Furthermore, the TDA routes drilling fluid from the top drive to the DDS annulus before the return flow is taken out via the TDA housing.

Further downhole the Dual Float Valve (DFV) features double barriers on both channels and facilitates controlled pressure drilling and pressureless pipe connections. Redundancy can be achieved through mounting two or more DFV units in series. The RDM is regulated through the Flow Control Unit (FCU), a control valve arrangement through which all active drill fluid is routed. The FCU assures constant downhole pressure during drilling and pipeline connection, and the unit is equipped with pressure and flow sensors on both the drilling fluid inlet and return lines. Furthermore the Reelwell control panel is fully integrated with the well control and monitoring system of the drilling facility. The result of the process is that drilling fluid is pumped into the DDS annulus via the TDA and down to the DFV at the top of a conventional Bottom Hole Assembly (BHA). From the DFV cuttings are transported back to the surface inside the inner string ensuring that the hole remains clean at all times.

Reelwell was last featured in *European Oil & Gas Magazine* during November 2011, at which time sales and marketing manager Ove Hole discussed some of the benefits of the RDM to operators. "There are several benefits that clients can gain from using the RDM," he explains. "For example, RDM offers the advantage of a cutting free annulus at all times due to the system's Dual Drill String, where the return drilling fluid flows inside the string. The cuttings virtually are removed from the well bore above the bottom hole assembly seconds after it has been cut loose from the formation. Another advantage of the RDM is that it provides the operator with accurate bottom hole pressure control. This allows a user to navigate in areas of narrow pressure window (pore/fracture pressure), which offers the possibility of extended well sections and safer managed pressure operations."

In terms of remote wells RDM delivers ERD technology that is designed to reach a larger area from one surface drilling location, and to maintain a well for a greater distance in order to maximise its productivity and drainage capability. Furthermore the technology



allows operators to drill and produce a reservoir from a remote location to avoid potential environmental damage or hazards. The challenges in ERD are in hole cleaning, managing the mechanical loads on the drill string and managing downhole pressure. Reelwell is operating a joint industry project with RWE, Total, Petrobras, and The Research Council of Norway to develop ERD beyond 20 km. The first ERD trial for demonstrating the extreme extended reach capability is currently under planning and scheduled to take place in February 2015 in Texas.

When it comes to mature reservoirs RDM delivers accurate pressure management and improved well control through closed loop fluid circulation, making the technology especially attractive for MPD and Under Balanced Drilling (UBD). Operationally MPD is 'built in' when using RDM, which offers significant advantages for drilling reservoirs with pressure changes including precise well pressure control operations in wells with a narrow pressure window. Additionally improved ECD control prevents pressure variations during pump start and stop and efficiencies can be increased through a drilling fluid volume reduction of more than 50 per cent, making fluid influx/losses easier to detect and solve.

As Reelwell continues to develop the RDM system it will continue to collaborate with leading oil and gas majors to deliver the most effective solution for challenging and remote wells, as CEO Jostein Aleksandersen concludes: "We are in continuous dialogue with all of the major operators and have ongoing projects with Total, RWE and Petrobras for ERD, BG for riserless drilling and Saudi Aramco for pressurised mud cap drilling. Our strategic vision over the next three to five years is to establish an operational base and provide our services in the Middle East, Europe and North America. Finally, we would like to thank all of the partners that have supported us over the years to make the development and commercialisation of Reelwell technology possible." O&G

ALCOA OIL & GAS

Alcoa Oil & Gas is the key supplier of the light alloy dual ERD drill pipe system, providing pipe design, manufacturing technology, manufacture of the dual pipe systems, and performance testing. Utilising the "Alcoa Advantage", which includes the world's largest light metals research facility, a worldwide network of advanced manufacturing facilities, Alcoa provides a reliable an integrated solution to our customer Reelwell.

Industry specialists

With a mission to be the global market leader in the provision of inspection, repair and maintenance (IRM) services to the oil and gas industry, K2 Specialist Services Pte Ltd (K2) has evolved into a leading supplier of inspection, repair and maintenance services throughout the sector.

The company was incorporated in 1997 and a decade later in 2007 became part of the Velosi group of companies. Today K2 operates from its headquarters in Singapore and several support offices in key locations such as the UAE, Korea, Africa, Brazil and the US, employing some 450 members of staff. Presently its service portfolio is divided into four targeted categories comprised of engineering and construction; inspection and survey; repairs and maintenance and training, from where the company delivers premier solutions to its clients. Commenting on its current operations K2 managing director, David Griffin says: "We describe ourselves as being a provider of lifecycle services. We work with a number of regional shipyards in Singapore, China and Korea partnering in newbuilds construction and the conversion of assets, particularly drilling rigs. We also establish baseline surveys, which are important in getting the inspection and survey criteria for the rigs as they enter the operating phase of their lifecycle."

K2 differentiates itself from other companies by also providing periodic inspection services. K2 delivers inspection and maintenance services for the full lifecycle of its customers' assets supported by an in-house engineering capacity that generates further added value to its overall service package. As such, the company is able to remain strong through the shifting nature of the oil and gas market. "Most of our revenue comes from drilling and what we are seeing this year compared to last year is a drop off in what I would call 'voluntary spending' by the drilling companies," David says.

"Projects for repairs and upgrades seem to have been suspended or postponed and we get the impression that this is in response to the perception of the softening of day-rates for rigs. This is something that we feel will hold until we see the stabilisation of these rates." However, while the demand for drill-related repair and maintenance may presently appear on hold, the diverse service portfolio of K2 has allowed the company to expand in other areas in response to the overall demand of the market. "In particular we have seen a lot of growth in our electrical sectors and in fact last year our electrical services sector saw growth of 400 per cent," David elaborates. "Today there is a lot more emphasis on ensuring that the right, explosion-proof equipment is installed on rigs and tested on a regular basis, so there has been an increase in demand for this kind

of equipment on both new and old rigs as well as an increase in inspection duties."

A further vital component in the company's make up is its dedicated training division, which K2 uses to train its own personnel and third party staff, as David explains: "Since we were incorporated we have provided training services and this was certainly partly to meet our own training requirements for personnel to ensure that we had internal competency and certification to send our staff out to do the work we want them to do. All of that training has always been internationally certified and we have now extended that into a commercial endeavour as well. In 2013 alone, over 5500 people were trained at K2's fixed and mobile training centres."

An interesting area of development within this market for K2 has been the development of its DROPS Training Simulator, representing an industry first in training solutions. The DROPS Training Simulator is a self-contained training container that gives trainees hands-on

experience in the expertly designed equipment that they will encounter during their duties. As such DROPS represents an effective way to deliver training at a client's base or offshore, removing the need for clients to travel to a traditional training centre. "The DROPS initiative is a response by the offshore industry to address issues with falling objects, particularly in drilling where there is a lot of vibration and movement contributing to high number of HSE accidents and incidents. As a response the industry got together and developed offshore DROPS survey and inspection standards. Subsequently, training and awareness has been required by the industry for both people working on the assets and those carrying out inspection. This is where we use our new system to provide on-site training."

As part of the Velosi Group, which is itself owned by Applus, K2 benefits from a strong global presence as well as the added efficiencies and financial support that might not otherwise be afforded to an independent organisation. A vital part of the company's strategy over the coming years will be to increase its market presence in the Americas and Africa, while retaining its focus within the oil and gas market, as David concludes: "We are looking outside Europe which we view as a more mature market, but we will be remaining within the oil and gas industry. Many of our European competitors have diversified into wind and alternative services, but given our geographic footprint, there is less opportunity there so I do not see us diversifying outside of the oil and gas sector, but rather moving into new areas within the industry." O&G

> K2 delivers inspection and maintenance services for the full lifecycle of its customers' assets supported by an in-house engineering capacity that generates further added value to its overall service package

Innovation driven

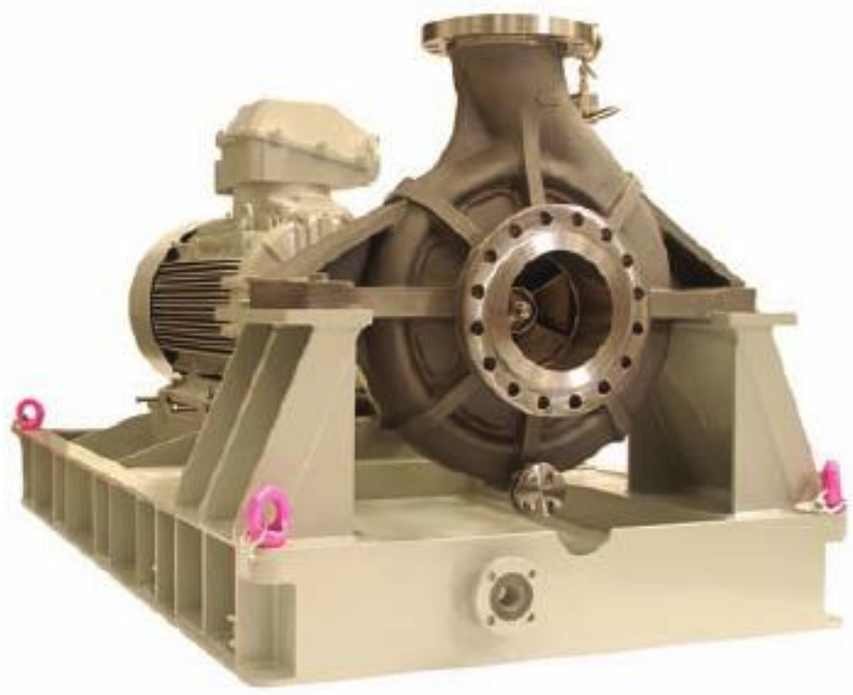
With applications within

general industrial, chemical and petrochemical markets, Amarinth operates as a leading pump manufacturer that utilises the skills, creativity and passion of professionals that have worked in the pump industry for many years. Indeed the company was established during 2002 in the wake of the closure of Girdlestone Pumps, which itself had been a well recognised and experienced pump manufacturer. Understanding the market's need for an effective pump supplier and manufacturer, the company's founders Oliver Brigginshaw and Steve Buckley siezed the opportunity and through former Girdlestone employees established Amarinth.

Today Amarinth boasts over 300 years of combined experience in the design, application and manufacture of pumps and associated equipment, which it applies to provide unrivalled service to its customers. Its pumps are provided in both standard and bespoke packages in three main areas across the chemical, general industrial and petrochemical markets. Through its range of process, chemical and process pumps Amarinth is on hand with the appropriate solution to its customers' requirements and its bespoke options ensure that even the most challenging application can be addressed with a suitable solution. "We focus on areas that are problematic for customers," explains business development director, Alex Brigginshaw. "Some of the biggest gripes for customers in our area are things like speed of delivery and rapid engineering of innovative solutions to the problems that they encounter when pumping in the field. Amarinth has continually focused on developing the agility to be able to address these sorts of issues, but in doing so this has pushed the company into that niche market. This was a conscious decision because that is where we find that we can be most effective and develop a good brand for being known as a company that achieves market-leading delivery times."

Presently Amarinth employs around 45 highly skilled staff, meaning that the company is suitably sized to bring considerable engineering experience to bear regarding its clients' unique requirements, while retaining the agility to remain flexible and deliver rapid throughput of design concepts and finished products. "We operate with an engineering, design, hydraulics design, contracts and an operations team that works within a large, open planned environment that allows for a swift speed of change," Alex says. "If a new condition or requirement emerges with a contract, staff are able to walk over and discuss how to work on it and this model works very well in a company of our size."

With its dedicated approach to innovative solutions and bespoke product applications, Amarinth can easily be recognised as a solution provider as much as a dedicated pump manufacturer. The company regularly designs and delivers bespoke pumps with self-priming units, acoustic hoods, elaborate pipe-work, and unique restricted base plate designs that off-the-



shelf providers may find too design-intensive to supply. Although the provision of targeted and specialist solutions have been at the core of the company's philosophy since its inception, Amarinth has recently completed the latest exciting extension to its product portfolio, which it will launch near the end of 2014.

"We have spent the last two and a half years' research and development in our design, engineering, testing and assembly phase in tackling a problematic issue with oil and gas processing, which is how you deal with the sulphur that is a by-product of oil and gas processing and refinery," Alex reveals. "Molten sulphur in a liquid form has a very unusual property in that it solidifies below and above certain temperatures. For safe, reliable and effective pumping sulphur has to be maintained at a temperature between 127 degrees and 147 degrees."

The development of the new vertical VS4 pump began several years ago in response to careful study and direct communication with operating engineers to identify common challenges facing the end-user within the oil and gas industry, as Alex explains: "I was involved heavily in the verification side of the project, which involved in-depth technical discussions with senior maintenance and technical engineers from existing customers of Amarinth in areas such as the Middle East. This revealed the problems they were encountering with existing pumps in the field and their support and feedback was worth its weight in gold, as they were able to identify which issues they were encountering and highlight where we could offer a solution. The new sulphur pump has been designed and engineered to deliver improved bearing reliability and reduced maintenance cycle time, whilst also giving the project team the opportunity to design leading edge enhancements to the pump's jacketing."

With innovative solutions to common problems throughout the oil and gas industry Amarinth provides an invaluable service that promises to increase its client's efficiencies and maximise returns. As its groundbreaking products become more sought after the company has grown to include a dedicated office and manager within the Middle East and remains committed to controlled growth in the region over the coming years. Furthermore, markets in Norway and Malaysia are showing increasing signs of activity and Amarinth is already making moves to position itself to be able to address the needs of clients old and new and new developments are sure to follow as Alex concludes: "Although we are at the end of this part of development we do have several other projects that are ongoing and exciting with regards to the solutions that we provide to customers and this is something that will persist within the company as it continues to grow." O&G

> Today Amarinth boasts over 300 years of combined experience in the design, application and manufacture of pumps and associated equipment, which it applies to provide unrivalled service to its customers

Out of the box thinking

Above
10' DNV offshore reefer containers

Below
DNV hard top open tops at the factory

Founded in 1987 TITAN Containers has almost 30 years of experience in supplying containers for a wide range of applications and today is one of the largest privately owned companies in the container market.

Although the company has survived for close to three decades, it too was critically impacted by the global economic downturn that created volatile market conditions throughout many of the sectors in which it operates. However, rather then hindering the business, the challenging market conditions brought on by the crash provided the catalyst that would see TITAN adapt to the changing needs of its client base and emerge from the crisis in a stronger position than when it had entered. "Following the financial crisis that hit during 2008/9 we redefined our business strategy away from the container trade to container hire," explains managing director Layland Barker. "Traditionally we were a trading company that rented containers and we had quite a fleet, but it was always thought to be part of the business that looked after itself. As of 2009 we consider ourselves to be a hire company that by necessity buys and sells containers."

Embodying a spirit of opportunity and foresight, TITAN entered into a period of investment in the midst of the economic downturn. During 2008 the company increased its service offering with the acquisition and integration of ArcticStore, increasing TITAN's expertise in temperature controlled and refrigerated storage solutions. Furthermore during 2009 TITAN acquired the fleet of Container Exchange, which it incorporated into ArcticStore during the same year and further investments were to follow. During 2011 it acquired Boxtainer Ltd and Canons Park Sweden before adding more containers and cold stores to its expanding fleet through the acquisition of AB Containers in April 2012.

These acquisitions, during a challenging period for the market, were an important component

in TITAN's ambition to double the size of its fleet between 2010 and 2013 in preparation for further global expansion. "We achieved our target through a number of strategies, one of which was the diversification into new container types including a very substantial investment into DNV offshore containers. This also included a substantial investment into onshore refrigerated containers and equipment under our brand ArcticStore, as well as the geographic extension of our business away from our heartland, which was mainly the UK, Scandinavia and parts of the continent," Layland says. "This was to include not only new European locations but also the move into South America, particularly looking at the Brazilian offshore oil and gas market. We also looked at India and other parts of the world and although they have not advanced anywhere near as fast as Brazil, they are starting to now become just as important to us when looking at the offshore sector."

Following the great success of the company under its new strategy between 2010 and 2013, TITAN continues to increase its market presence and establish itself as a truly global brand. "The developments that we started in 2010 are still ongoing today," Layland elaborates. "We are currently part way through our second three-year plan, which is to double the fleet again. We are also looking to add new container types in both offshore and onshore applications, and have made investments regarding where TITAN is located over the past 12-16 months with more of this to come next year. While not necessarily related to the oil and gas industry, we have opened new offices in Ireland, Poland, Turkey and Hungary this year. We plan to open a new office in South America later this year or possibly at the beginning of next year. We are in very close negotiations to formalise the business that we have started in India and later this year I expect to be in Australia and New Zealand taking discussions there with regards to offshore containers, but also some of our specialist onshore equipment."

While TITAN has grown impressively in O&G

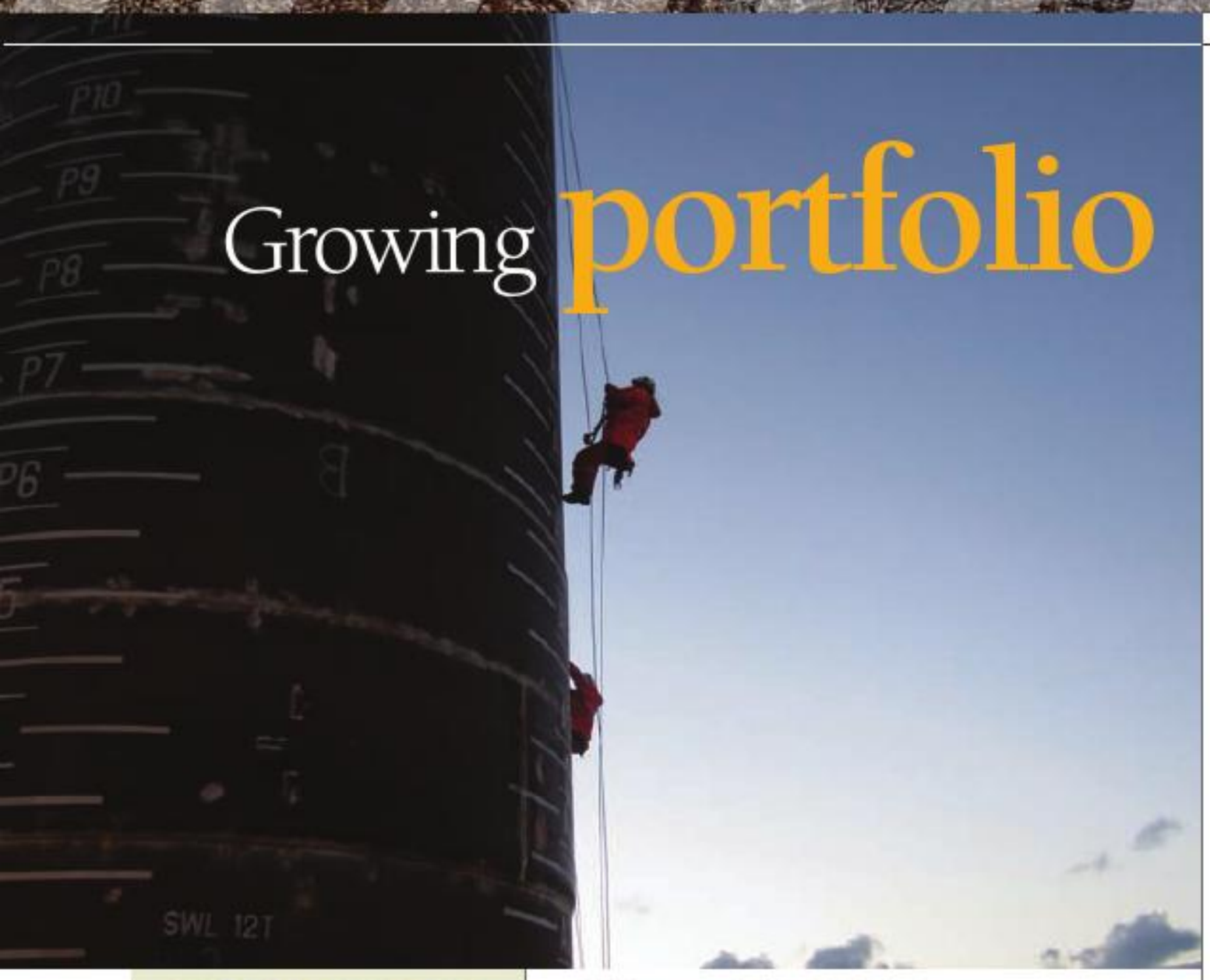
> We are also looking to add new container types, in both offshore and onshore applications, and have made investments regarding where TITAN is located over the past 12-16 months with more of this to come next year

terms of profitability, size and geographic reach, its philosophy towards growing the business is one of strong, sustainable growth rather than courting short-term gains. This is typified by its choice of acquisitions that enhance the company's product portfolio with containers that are suitable for use in a number of industry sectors, such as its investment in temperature controlled and refrigerated containers with applications within onshore and offshore markets. By focusing on the synergies between its products and several business sectors, TITAN is able to ensure that it is able to generate revenue from a number of sources and strengthen itself against damage should individual market sectors experience a decline.

Presently TITAN is busying itself with its second three-year development plan and a third round of expansion is planned where again the company will focus on doubling its fleet and further expanding its service portfolio as Layland concludes: "By the end of 2015 or possibly 2016 the plan is that we will have doubled the fleet again, and the plan after that is to try and do it for a third time. We are also currently on the cusp of an acquisition, which will open the way to the more high-ticket value hire market for accommodation and similar equipment. This will give us some local expertise in the market and I expect that within three or four months, two or three TITAN locations will be working from our modular locations, not only as an office but also as showrooms."

Above Inside an Arctic SuperStore cold store

Growing portfolio



FORUM SUBSEA TECHNOLOGIES

Forum Subsea Technologies' product suite includes ROVs, tethering systems, simulation software, equipment rentals, staffing, data acquisition software, geosciences product management, tooling and components.
Our vehicle brands include two of the most well-known names in the industry - Perry and Sub-Atlantic. We offer the world's most comprehensive range of remotely operated vehicles used for inspection, survey and deep water construction. From electric observation ROVs to large, hydraulic work-class vehicles, Forum has the technology you need.

Although DOF Subsea was officially founded during May 2005, when its parent company DOF ASA acquired GEO Group AS and its subsidiary Geoconsult AS, the company's roots can actually be traced back to 1981. Since that time working through the 1980s to the present day, DOF Subsea has established a dedicated capability within all of the major oil and gas production areas around the world. Today the company offers a full spectrum of subsea support services that cover the entire lifecycle of oil and gas fields. DOF Subsea currently maintains a strong presence in the North Atlantic, Gulf of Mexico, Brazil, Asia and West Africa, with a highly skilled workforce of over 1600 subsea personnel and marine crew.

DOF Subsea provides a growing portfolio of services to clients in its Atlantic Region from bases in Bergen and Aberdeen, as well as smaller offices in Luanda, Angola. "Obviously depending on each region we have different clients," says the business acquisition director for the DOF Subsea Atlantic region, Gert Juel Rasmussen. "However, in the North Sea we have worked extensively with Teekay, Statoil and ConocoPhillips, as well as with Shell, Saipem, and Maersk during 2014; we look forward to continuing to work with all of these companies. We offer tailored solutions to every client, because we know that every scope is different. We work with each client to understand the project, and set our key performance indicators (KPI) and deliverables based on their requirements. Our delivery is of a consistently high standard and we believe that this is demonstrated in the strength and longevity of the relationships with our clients."

Presently DOF Subsea divides its operations into direct services carried out on behalf of clients and the provision of vessels on long-term time charters to operators and service providers. "Within the business we have what we will call our project departments, where we carry out projects for clients ourselves and we also have quite a few vessels that we charter out on a TC basis to companies like Subsea 7 and Technip for example. Currently around two-thirds of our income is from our projects business and the other third comes from our charter business," Gert elaborates.

"I think our key strengths are that as a group we own and operate one of the largest fleets in the world for offshore business, and that we have two core business segments comprised of our long-term charter agreements and execution of subsea operations," he continues. "I think the combination of the two has given us a little more strength in pursuing opportunities." Presently the DOF Subsea fleet is comprised of 23 owned subsea vessels as well as a further five vessels that are chartered to the company from third parties. It also maintains a growing fleet of 49 ROVs with a further 19 on order, as well as an AUV unit and several diving spreads located in Australia.

Additionally DOF Subsea currently has five vessels under construction in Norway and Brazil. Four of the ships are pipe lay vessels built in collaboration with Technip, two of which are under construction in Norway while the remaining two are being built in Brazil where all four vessels will eventually be deployed on long-term charters. The final vessel that DOF Subsea is currently building is a large construction ship, which is being built in Norway by Vard.

The bulk of the DOF Subsea fleet is dedicated to undertaking projects directly on behalf of the company's clients and its diverse service package is broadly divided into four areas comprised of subsea construction, inspection maintenance and repair (IMR), engineering, and survey. Its subsea construction capability incorporates an O&G

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Rovdrill™

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ROV Tooling

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The widest range of ROVs and tooling in the industry

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expanding fleet of state-of-the-art vessels, teams of dedicated engineers and project managers, and skilled offshore crews to ensure that its clients' projects run smoothly and to schedule. Within its engineering division DOF Subsea provides innovative engineering services and effective solutions. Its engineering capabilities include comprehensive front-end engineering, feasibility studies, concept development, design, installation and removal of subsea structures, flexible flowlines and umbilicals. Furthermore the company also routinely undertakes naval architecture, structural engineering, mechanical design, analysis and operations, and engineering across a broad range of applications including mooring installation, tow-out and hook up of FPSOs.

Since the DOF Subsea brand was first established, it has continued to employ and enhance the survey expertise that the company incorporated with its acquisition of Geoconsult. Today DOF Subsea specialises in providing positioning control in support of its clients' field installation projects, from near shore shallow fields to ultra-deep offshore developments. The company is also a major provider of detailed bathymetric and geophysical data to the oil industry with a track record spanning more than 25 years. "Services include seabed mapping, geophysical survey, and the entire range of field positioning services associated with umbilical, riser and flowline installations and other subsea infrastructure," Gert explains. "As part of this service, DOF Subsea leads the industry in providing deepwater subsea metrology using acoustics, photogrammetry and smart wire to measure and position spool pieces, jumpers and all subsea structures. We always utilise the most technically suitable package to suit the requirements of each scope of work."

The final facet of the DOF Subsea project division's operation portfolio is its range of IMR services. The company has specialists in place, across all disciplines in both onshore and offshore applications. Its onshore project teams work with the planning and engineering of IMR operations, and the company's vessels have dedicated and experienced crews well accustomed to executing IMR work including pipeline and structure inspection, module handling, commissioning, ROV and intervention services and diving services and intervention.

Through its wide global coverage and turnkey subsea services package DOF Subsea is able to deliver a strong and highly reliable solutions package to its clients. In terms of growth the company is diverse enough to concentrate on more energetic regions while others experience periods of slow down. "We think that the Norwegian sector will be challenging throughout 2015 because Statoil is decreasing its activity, but we also think that this is something that will only last a short time and that operations will pick up again later on 2016 or 2017," Gert says.

Commenting on the company's wider strategy within the Atlantic region specifically over the next three to five years Gert concludes: "Our focus on winning new work and excellent delivery will continue to strengthen DOF Subsea as a capable, solid supplier of subsea solutions with a strong project-proven track record behind us. With aging subsea structures in both Norwegian and UK sector we expect to see increased IMR spend, which will present an important opportunity for the DOF Subsea to capture a greater share of this segment in our region. With high exploration activity predicted, especially in Norway, opportunities also exist for survey and positioning services." O&G

> "Its subsea construction capability incorporates an expanding fleet of state-of-the-art vessels, teams of dedicated engineers and project managers and skilled offshore crews to ensure that its clients' projects run smoothly and to schedule

Modern thinking

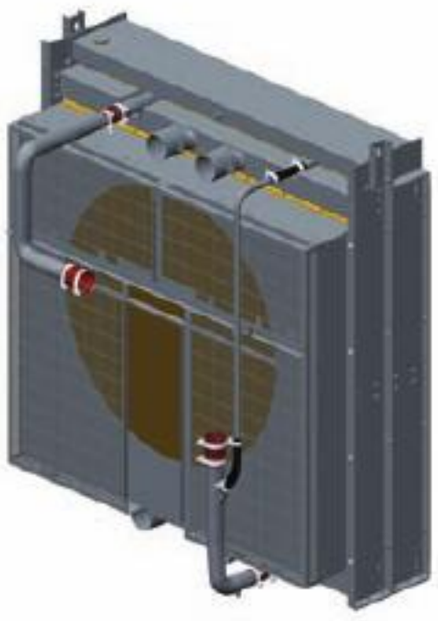
With decades of experience and heavy investment in technology, the Wabtec owned company, Bearward Engineering Ltd is one of the largest producers of industrial radiators in the world. Growing annually since it was founded in 1958 the business is now based on a 40,000 square metre site in Northampton, UK. Supplying to the world generating set market, as well as supplying radiators for pumping and construction equipment, off highway, and other specialist equipment, the business manufactures over 35,000 radiators a year with a turnover of £50 million.

In an industry that has seen increasing requirements in the reduction of noise and emissions pollution, the business puts great emphasis on innovation and technical expertise. Leading the way for the industry, it has developed a new range of sectional radiators that provides customers with the most advanced range of cost effective material, backed by the worldwide and immediate after sales support. The applications and installations of the products are many and varied, from engine mounted to power modules, and purpose designed low airflow, high pressure reserve units for high acoustic applications, and as such, Bearward manufactures a range of radiators to cool engines from 500 KW to 3MW including conventional jacket water radiators and water/charge-air configurations.

The company works closely with a large customer base covering the main manufacturers in the power generation and construction market such as Caterpillar, Cummins, MTU, Mitsubishi and SDMO. Recognised as a leader in innovation, the success of the business is attributable to a combination of modern thinking and a base of traditional experience as UK sales manager Matthew Eggleton explains: "Bearward has a number of old-school engineers combined with modern technology, which allows us to be very quick to market with new designs/bespoke applications. We have developed a product, which allows on site serviceability for any size of engine, and which is also designed to eliminate the failures associated with thermal expansion within cooling systems – this is our innovative sectional core solution."

Sectional radiators give huge benefits to end users for all markets. The sectional cores principally split one large cooling surface into many smaller modules, and the sectional product is designed in such a way that they can be individually removed whilst the cooling system is in situ for maintenance or replacement. Ultimately, a cooling system that is maintained will provide superior cooling performance against one that is not. Section removal can be completed by hand without the need for heavy lifting equipment and for critical applications and sites, spare sections can be kept on site for quick changes. "We use the analogy that it is similar to a spare wheel in a car," points out Matthew, continuing: "The sectional core removes all gasket joints associated with traditional cooling systems. The section is designed to float within rubber seals removing the thermal stress to the cooling surface and isolating from heavy vibration." If a radiator is damaged, sections can be replaced on site making repairs much quicker and easier, additionally assisting cleaning if the radiator is operating in dirty conditions.

Belonging to the Wabtec Group, the business benefits from the ability to expand globally, setting up facilities in the local regions as it does. "Enabling local serviceability and manufacture reduces the total cost of the product. As part of the cooling group within Wabtec we have the ability to share technology and resources with sister organisations such as Young Touchstone and Unifin," explains Matthew. "One of the biggest threats to Bearward are the many lower cost



producers of cooling systems, which are popping up globally. However, it is our trusted sectional product and global manufacturing ability that ensures we can keep these threats at bay," he adds.

Renowned worldwide for its customer service, Bearward remains focused on its clients beyond the point of purchase, offering its comprehensive world-wide aftercare service. As part of its fast and efficient response to all service and repair issues on a global level, all parts are supplied with full warranty promoting the quality and reputation the company has worked hard to build. "We have state-of-the-art R&D facilities that are continually sharing data within the group, which ultimately supports new developments," says Matthew. The most recent introductions are aluminium sectional radiators that have a direct cooling performance and dimensions to the copper brass sectional product.

Manufactured with the aid of the latest automated processes, quality is absolutely consistent, and Bearward's sectional radiators give the highest levels of process control. Beyond the continuous and targeted developments of the product line, as the company looks towards the future Matthew highlights the strategy, destined to ensure that the next five years will be as positive as the last few decades: "Our aim is to keep a heavy focus on pushing our global presence, setting up local sub assembly and service locations, effectively complementing and supporting our continually improving portfolio." OEG

MULTI-WING

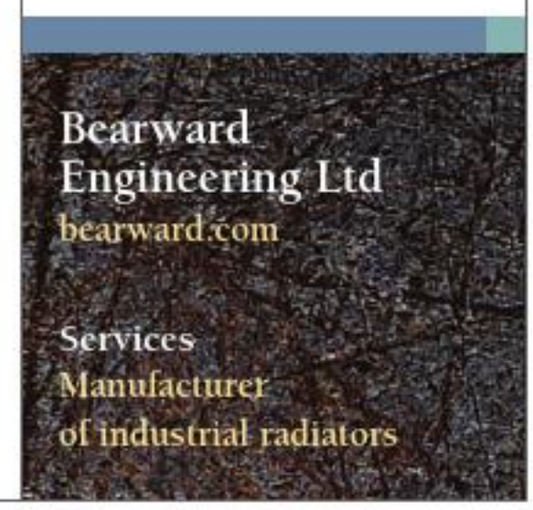
Multi-Wing is the world leader in the manufacture of bespoke axial impellers serving the radiator and engine cooling segment. For over 50 years Multi-Wing has grown its series of industrial axial impellers into the most extensive product range with diameters extending from 200mm to 2500mm.

State-of-the-art engineering and outstanding service levels mean Multi-Wing's customers receive the best support and delivery time in the industry. It is this level of support and delivery that has made Multi-Wing UK the preferred supplier of impellers for Bearward Engineering.

For the oil and gas sector Multi-Wing offers an Anti-Static Polyamide blade material providing the ideal solution for explosion proof environments, with fully certified impellers for use with the ATEX Directive 94/9/EC and Machinery Directive 2006/42/EC.

NSK

NSK has provided Bearward with bespoke bearings for their belt drive radiators for over ten years. Working closely with their design engineers, NSK provides engineering, production planning and logistics expertise to ensure on time delivery. Bearward designs and builds a wide range of cooling systems that require reliable bearings to ensure efficient performance. NSK Mounted Units have been specifically developed for this application, enabling Bearward to maintain its excellent reputation for efficiency and reliability.



Sophisticated security

in Japan, is installed with the signature RFID locking system, equipped with technology suitable for the flexible platform of future applications," begins Offir Karni, sales director. Also installed is VingCard Marine's Gangway Control system, which is a secure and flexible method of storing crew, passenger and visitor data and providing real-time status reports of who is on board and ashore, as required by the ISPS regulations for passenger and merchant vessels. This control system is integrated to the locking system and to other important software such as DNV navigator. "The last system we installed under the contract, is the TrioVing Master Key System, which although is less glorified is still of great importance. By delivering the complete key plan, we can eliminate situations where the operator has a variety of locking systems from different suppliers. Through focusing on a one card, one key option, we can achieve our goal of providing a simple solution to our customers and partners," he continues.

The company provides a complete RFID solution to each segment based on specific need. The main idea of using RFID is to achieve more security and efficiency, which ultimately has a direct impact on operational costs. "Today, we are able to provide a one card solution for many operational needs, such as embarking and disembarking the vessel, access to cabin and offices, secure in room cabinet lockers and safes, and intelligent energy saving units, and full control over the important metal keys, all by using one RFID card," highlights Offir. Throughout the past two years VingCard Marine has been able to actively increase its position across a variety of segments, including accommodation barges, floatel supply vessels, semi-submersible accommodation vessels, wind installation vessels, LNG's, commercial vessels amongst others.

In August 2013 it was announced that the business had formed a new strategic alliance with another the groups' companies, Traka. Following the successful implementation of Traka key management across a leading cruise fleet, both VingCard and Traka have displayed

VingCard Marine is the world's leading supplier of marine locks and access control systems. Belonging to the ASSA ABLOY Group, the company benefits from access to the resources of the world's leading lock group. The product range of the business includes stainless steel lock cases and accessories, master key systems, electronic card locks and gangway and muster control systems.

In January 2014 VingCard Marine announced that in a contract with Petroleum Geo-Services (PGS), it had supplied the world's most advanced seismic vessel, the Ramform Titan with its signature RFID lock sets, Gangway Control system and TrioVing locking system. The Titan class is a unique project, with a focus on safety, productivity and efficiency within 3D seismic acquisition. The relationship between VingCard Marine and PGS extends back almost ten years. The first installation on a vessel was in 2006, before being launched in 2007. Since that time, the business has been working closely with PGS to ensure it reaches its focus.

"The Titan class vessel, which has been built

commitment and excitement about the great opportunities presented in the offshore and cruise marketplace. Commenting on the partnership Offir says: "This association can be considered as a great success. We are introducing the Traka intelligent key cabinet and the market perceives it positively. In fact, our collaboration with Traka complies with our customers' requirements to increase security and reduce cost efficiency. This is a perfect addition to our unique portfolio."

Reviewing the past 12 months in the industry, Offir continues: "With regards to the offshore segment, we have seen demand for our solutions increase on a global scale. Scandinavia has always been a strong geographical area, but we have recently witnessed further increases in sales across other parts of Europe such as the UK, Holland, Germany, Turkey, Romania and Croatia. Furthermore, we have received relatively large attention from the Middle East, and in addition we have increased our position in the US and South American market. Last but not least, the Asian market has become one of the most interesting markets for us, and as a result we have opened our own operation, based in Singapore."

With such a huge potential surrounding these future markets, the business continues to keep an open mind to progression based on demand, but recognises the importance behind focus and consolidation of its position within the existing market. Looking ahead, Offir provides an insightful conclusion as to how he sees the future months ahead: "As a sales professional, I see opportunities that far outweigh any challenges. The market is dynamic and when operating globally you have to evolve in accordance to market specific needs. Through serving the market in a unique niche, we do our utmost to understand where the market is heading, and ensure that we listen to our partners in the industry, optimising the opportunities. Challenges usually occur when you are not planning or do not understand the market, and this is something that we try to avoid by planning our steps thoroughly." O&G

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Services
Supplier of marine locks and central access systems

Asset protection

GCG Shotblasting Services

Ltd was founded in 1985 to provide shotblasting and corrosion protection services to the oil and gas industry. From its base in Peterhead, Scotland the business is today led by managing director Michael Gaffney, the son of one of company's original founders, giving GCG Shotblasting a reputation of continuity and reliability that continues to define its operations.

Throughout its history the company has been at the forefront of technology and innovation in the field of corrosion protection and coating solutions and is the only company in the world that has been providing Thermal Sprayed Aluminium (TSA) services to the oil and gas industry for in excess of 20 years, making it a world-leader in this area. "Our TSA product is one of the company's most renowned services," Michael observes. "Customers today are looking for longevity. When the oil and gas industry first started around 1975-1976 the initial idea was that gas would be in production for 25 years, now projections are for another 20-25 years, which means that there are a lot of aging assets out in operation. TSA is a solution that gives a lifespan of between 20 and 25 years, whereas an epoxy based paint system provides a lifespan of only around ten years."

As such, during 2014 GCG Shotblasting has continued to support operators in maintaining equipment thus aiding production even while the cyclical nature of the oil and gas sector has lessened the trend for newbuilds in recent years. "Market conditions in 2014 have been steady," Michael explains. "The second and third quarters have been more focused on brownfield rejuvenation rather than on new fabrications. One of the factors that caused this was the referendum and the uncertainty of Scotland's future. However, with brownfield rejuvenation there are still plants out there that are working to get the most out of fields and the operators still need to maximise the productivity of their assets, and so that type of business continues even in uncertain times."

Presently GCG Shotblasting is undertaking a major rejuvenation project with Shell UK at the Mossmorran and St Fergus gas plants in Scotland, primarily using TSA technology. The company is proud to count Shell UK as one of its largest customers as Michael explains: "Shell UK are one of our biggest customers; there are

only two companies within the UK that are approved to apply TSA through Shell and we are one of them. We went through a rigorous programme from Shell Global Solutions in order to qualify and apply the process."

During 2013 the company expanded its service portfolio with the introduction of its PPC 553 coating, which delivers a significantly longer lifespan when compared to existing alternatives and boasts ease of use through its suitability for application at temperature ranging from -5°c and 40°c. "We actually launched the product during September 2013 at Offshore Europe and since the launch date the product has generated worldwide interest from customers in America, the Middle and East and Africa to name but a few. During the same year we completed a number of projects for several major oil and gas operators," Michael reveals. "PPC 553 has many benefits that operators are really starting to realise, such as a lifespan of 40 to 50 years and minimal downtime for application as it dries in only six seconds."

Furthermore PPC 553 has advantages in that it is an extremely safe and clean technology that contains no VOCs, CFCs or solvents, making it an effective solution that meets the increasing need for environmentally friendly and responsible operation. Additionally it does not crack, split or warp as well as being maintenance free and easy to clean. Operationally PPC 553 reduces sounds and vibrations and can be applied directly to black steel, corroded steel or previously coated steel with minimal surface preparation, further enhancing its speed of application.

Through the continued development of new services like PPC 553, GCG Shotblasting is able to maintain its market-leading position and ensure that it is on hand with the right solutions to support its clients in operating as effectively as possible. "Research and development is essential whether it is in delivering new technological advances or in addressing customer requirements," Michael enthuses. "It is vital for a company like ourselves, which needs to keep up to speed. We are essentially not just here to provide a service - we are also here to provide solutions."

Throughout the rest of 2014 and beyond GCG Shotblasting will be focused on increasing its presence in its newest market, Africa, where it has recently won its first contract. The region is noticeably emerging as an important area of opportunity for the company as Michael

concludes: "We have just returned from a trip to West Africa, Nigeria in particular, where, as the oil and gas industry hasn't been operating as long as it has in the North Sea, some of the assets are close to ten years old. Operators are unaware of the technology that has been developed in the North Sea or they haven't seen it, so it has never been used. Our first contract in Nigeria starts in November this year where we will be applying TSA and some of our specialist coatings as well as training the local staff in new technology advances."

Far left
Heavy duty coatings

left
Subsea steelwork

Far left middle
High temperature coatings

Far left bottom
Meeting customer requirements

Assured flow

In June 2013 the Shah Deniz consortium announced that it had selected the Trans Adriatic Pipeline (TAP) to deliver gas volumes from the Shah Deniz Stage 2 project to customers in Greece, Italy and Southeast Europe. The decision marked an important milestone in the multi-phased approach to the opening of the Southern Corridor, scheduled to deliver up to ten billion cubic metres annually (BCMA) of natural gas to European markets. The project, with its associated pipelines (TAP, TANAP and SCPX), will cost over $40 billion and will bring over 16 BCMA of Azerbaijani gas to market adding to approximately nine BCMA from Shah Deniz Stage 1.

In May 2014 Bredero Shaw was awarded a $70 million contract from BP for coating services for the South Caucasus Pipeline Expansion (SCPX) project to be executed from their Ras Al Khaimah (UAE) manufacturing location. The objective of the SCPX project is to expand the capacity of the existing SCP pipeline to accommodate additional gas throughput from the Shah Deniz Stage 2 development in the Azerbaijan sector of the Caspian Sea. This contract involves coating 491km of predominately 48" pipe with a three-layer polyethylene and internal flow coating. The Stage 2 development of the Shah Deniz field, which lies 70 kilometres offshore in the Azerbaijan sector of the Caspian Sea, will consist of 500km of subsea pipelines in 550m of water depth and an overall pipeline length of 3000km. Bredero Shaw recently received awards valued over $200 million for various coating services for this subsea development and is bidding on additional work associated with the same field.

"The focus is on getting additional gas to Europe, particularly relevant with current activity in the Ukraine. As such, we have also been active on the South Stream Offshore Pipeline system, which is comprised of four pipelines that will cross the Black Sea, transporting gas from Russia to Bulgaria and on to Central and Southern Europe," says Henri. Under two separate $50 million contracts, one with EUROPIPE GmbH, and the other with Marubeni Sumitomo Consortium, Bredero Shaw will coat 148km of 32" pipe with concrete weight coating, and 342km of 32" pipe with a three-layer polypropylene and internal flow coating.

Having developed over 40 leading pipe-coating technologies, the business has been instrumental in introducing innovative coatings for cold climates, rugged terrains, high operating temperatures, deepwater environments and

Bredero Shaw is the global leader in the development and manufacture of pipe coating solutions for the oil, gas, and water industries. With a history that dates back to the 1930s, the company is the preferred choice of major energy industry clients around the world. Over 400,000 km of pipelines globally have been protected using Bredero Shaw technology and services. "We offer a range of solutions including anti-corrosion coating, insulation coating, anti-buoyancy coating, internal coating, field-joint coating, as well as custom coating," says Henri Tausch, senior vice president. Bredero Shaw is the largest business within ShawCor, a company that occupies more than 70 manufacturing and service sites in over 15 countries. "Globally, we are the largest pipe coater with facilities in the US, Brazil, Canada, Mexico, Scotland, Norway, UAE, Malaysia, and Indonesia. Our sister pipe coating division, Socotherm has additional coating facilities in the US, Italy and Argentina. We also have a range of mobile coating plants that can be mobilised quickly in specific locations to provide additional logistical benefits or meet local content requirements. Logistics creates significant cost implications for projects so it is important to have a strong presence in many locations," he adds.

To optimise costs in today's global market, it is often financially beneficial to buy bare pipe from distant markets, not necessarily close to the location of the project. The ability to undertake the coating en route to the project location ensures that the overall cost of the project can be kept down, as Henri points out: "What is nice about Bredero Shaw is that we have the facilities everywhere to be able to do this, with access to the same quality available from every plant." The global operator has witnessed a shift of activity in Asia and the Caspian, a result of the demand to moving gas from Eastern Europe and Russia into Central and Northern Europe.

other unique applications. "Most recently we have focused on higher temperature insulation coatings. New exploration fields typically have higher temperature oil that necessitates the need for insulation coating able to handle that temperature," explains Henri. The new product Thermotite ULTRA is an innovative subsea insulation system with unlimited water depth capability, comprising an engineered blend of polymeric materials with unique mechanical and thermal properties. Whilst actively applying ULTRA on three projects in the North Sea, the business has engineered a second product, NEMO, which is an epoxy-urethane hybrid system. Developed for subsea pipeline and structure insulation, the novel molecular architecture provides improved hydrolytic resistance in the subsea environment, whilst ensuring a high level of bonding to existing coatings.

"We invest heavily into R&D and our customers appreciate the solutions we develop. One of the most important factors however, is our commitment to HSE, ensuring employees are safe and the environment is protected. A safety culture is embedded within our company, and with health and safety comes quality. We have many coating plants across the world, and a global procurement and operation group that oversees quality and safety. We're proud to show that we have processes in place to deliver consistent quality at any location," highlights Henri.

Looking further ahead, the company is targeting further geographical expansion, particularly into West Africa. "We are already well positioned to serve this market from our factories in Europe but we also have mobile factories that we are able to set up if local content is required. Iraq also holds a big opportunity, although the renewal of instability in the region makes this somewhat more risky. Lastly the activity in the Arctic region is increasing significantly," says Henri as he concludes: "As part of the joint industry project to develop a Smart Pipe with on line pipeline performance measurements, the trend of going into deeper water with higher temperature is a path Bredero Shaw is ready to take as we develop more complex and creative solutions." OEG

As part of the joint industry project to develop a Smart Pipe with on line pipeline performance measurements, the trend of going into deeper water with higher temperature is a path Bredero Shaw is ready to take as we develop more complex and creative solutions

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Quality and integrity

Originally established under the name Sverre Farstad & Co. in 1956, Farstad Shipping, which changed its name in 2011, reached its first milestone in November 1959 when it was contracted its first vessel for delivery. Named M/S Farland, the vessel was swiftly followed by the company's second vessel, M/S Farsea, from Haugesund Mek. Verksted AS, which was delivered in May 1962. The company expanded further throughout the 1960s, taking over the management of a number of ships and also strengthening its owned fleet operating within the deep sea segment with the addition of M/T Saga Sky. However, due to the global economic issues, the company stepped away from the deep sea business and in the late 1960s and sold a number of its vessels in preparation for a strategic move into offshore service vessels.

Having sold its last oil tanker in the 1970s, the Alesund headquartered company used its capital base to invest in offshore service vessels to take advantage of the burgeoning opportunities in the North Sea. With almost four decades of experience in the operation of offshore service vessels, Farstad Shipping today is a leader in specialised offshore tonnage provision to its customers within the international oil and gas industry. One of the top six largest companies in the market for large and medium sized supply vessels, the company's core activities tend to be based in North-West Europe, Brazil and Indian Pacific. To strengthen its presence in these strategic areas, it opened offices in Aberdeen, Melbourne, Perth, Macae, Singapore and most recently, Rio de Janeiro, where Farstad Shipping opened an office in 2012.

Expanding into Brazil has proven fruitful for the firm, which was awarded a charter contract with Petrobras for the AHTS BOS Topazio (2005, UT 728 L, 12.240 BHP) in the country in August 2014. Valued at a total of NOK 375 million, the contract commenced in August 2014 and has an option period for up to four years.

This contract follows an influx of charter agreements that were announced in July 2014; these include contracts to AHTS Far Sword (2006, UT 712 L, 14.700 BHP) and AHTS Far Stream (2006, UT 712 L, 14.700 BHP) from Inpex; anticipated to commence in November 2014, the contracts will last approximately 40 months, with options for up to 24 months. Furthermore, the PSV Far Seeker (2008m UT 751 2, 4.905 DWT) has also been awarded a contract with Inpex; due to last 18 months, there

an option for an additional 24 months, the vessel is due to begin operations in November 2014.

Meanwhile, Statoil has awarded a contract to PSV Far Scotsman (2012, PSV 08 CD, 4000 DWT) to support its drilling operations in Tanzania; the contract will commence in direct continuation of Farstad Shipping's present contract with Statoil. Due to last eight months, the contract has options for a further 6 x 6 months. In total, the contracts recently announced by Farstad Shipping, exluding options, amount to approximately NOK 1.75 billion.

Focused on large AHTS and PSV vessels since it contracted four AHTS vessels (UT 704) from Ulstein Hatlo AS in 1974, Farstad Shipping has developed an impressive and competitive fleet of 62 modern vessels; these include 32 AHTS vessels, 27 PSV's, three subsea vessels and two newbuild subsea vessels that are due for delivery between March and July 2015. These investments are based on Farstad Shipping's adaptability to customer requirements, as well as its own high standards for an increasingly safer and efficient operation.

The first newbuild subsea vessel, Far Sentinel TBN, is being built at VARD Langsten shipyard and will reach a length of 142.6 metres, a breadth of 25 metres and dead weight of 9200 mega tonnes. Features include a SWL 50 mega tonne, 17 metre to 2200 metre wire & AHC offshore crane, a SWL 250 mega tonne subsea 17 to 3300 metre and AHC main crane; a 1800 metre squared flat weldable steeldeck, a 51.84 metre squared moon pool and 5.6 metre x 4 metre ROV moonpool; it has total accommodation for 130 persons in single cabins. Much like the Far Sentinel, the Far Sleipner is also being constructed at VARD Langsten yard and has accommodation for up to 130 persons in single cabins. The vessel will reach a length of 142.6 metres, a breadth of 25 metres; it has a 350 megatonne, 12 metre main crane with double fall, a SWL 250 megatonne, 17 metre to 3300 metre main crane, two SWL three megatonne deck cranes, fitted catalytic converters and a flat weldable 1800 metre squared steeldeck; both vessels are designed for subsea and IMR operations.

Dedicated to health, safety, environment and quality in all areas of operation, Farstad Shipping believes high quality throughout the company's operations is critical to maintaining and strengthening its competitive edge in the market. A key part of its core values, Farstad Shipping ensures important guidelines are in place so employee performance and service provision is at the optimum level. Determined to maintain its reputation as a long-term and responsible employer and operator, the company's personnel have the knowledge, proficiency, experience and competence to focus on the safe execution of projects, with no injury or damage.

One way the company delivers a safe, value productive services to its customers is through the systematic focus on individual welfare, safety through orderly conditions, personal development as well as adaptability to change. Indeed, the company develops the skills and potential of all employees through education and the sharing of experience and expertise. This has led to positive results, as Farstad Shipping's personnel have adopted the company's attitude of integrity and going above and beyond for customers, which thus results in a strong reputation for reliability through the successful fulfilment of promises.

While its values involve being safety minded, value creative, reliable, inclusive and visible and transparent, Farstad Shipping's business focus is to continue its reign as a leading provider of quality support vessel services on an international scale, to maintain a core interest in the most advanced vessels in the PSV, AHTS and subsea markets, and finally to maintain a long-term chartering profile. Despite a disappointing second quarter of 2014 in the North Sea and Brazil being a slow market for growth, the company not only has an impressive number of contracts ongoing, but also benefits from financial strength, a high quality fleet and expert personnel that ensures it can deliver solutions to any customers request that comes its way. O&G

Phenomenal performance

The family-founded business

Mirage Machines Ltd was established in 1993, bringing together a team of highly skilled engineers to produce a range of portable machine tools. In 2006, Mirage joined the Acteon Group, a global subsea services business, which ultimately provided the strong foundation for international growth. To better service its customers in North America, particularly those involved in subsea operations, Mirage Subsea Inc was launched in Houston, Texas as a subsidiary company in June 2014.

Today, Mirage is still run by the founding Silk family, with managing director Richard Silk responsible for day-to-day operations: "We design and manufacture portable machine tools from our headquarters in Derby, UK. We aim to be at the forefront of on-site machining technology; enabling global customers across a number of sectors - including energy, nuclear, offshore, subsea, renewables and mining - to perform on-site operations efficiently, effectively and safely. For any piece of kit that a client can't get to a workshop, we take the workshop to them to either repair or maintain."

In 2014, Mirage was a finalist in the 'Excellence in Manufacturing' category at the Derby Telegraph Business Awards, highlighting the level of quality in the service it provides. Mirage has been granted ISO 9001:2008 certification for its design and manufacturing systems, as well as being able to provide full CE certification for all its products. "Research and development is fundamentally very important for us to maintain a strong position in the market place. We have a programme that collects customer feedback, as well as assessing gaps in the market place. We aim to be a leader in our field rather than a follower," says Richard. Over the past 12 months, demand for the company's products has been exponential, doubling since 2013. That number in fact reflects a figure that has trebled from 2010. "Part of this growth has been as a result of our presence in the US, which is a big market for us. We have also spent a lot of time in South East Asia and Australia developing these markets," he explains. Working closely on contracts with the major service operators and nationals within the industry its customer base appreciates the quality solutions and speed of

response offered, both in Derby and in Houston.

Owned by Acteon Group, Mirage has been successful in securing investment into the redevelopment and establishment of new facilities as Richard points out: "Setting up new manufacturing facilities and satellite offices is an expensive operation, particularly the aspect of recruiting key people from the industry. In Houston we have a 10,000 sq ft facility that we have grown to a workforce of nine employees in just 14 months. As a manufacturing facility

CHARLES LEEK & SONS LIMITED

Charles Leek & Sons is a precision gear manufacturer that has been trading for over 80 years and for the past 12 of those has been proud to supply Mirage Machines. Led by a management team with over 65 years gear manufacturing experience, it is able to satisfy Mirage's exacting technical requirements and high quality standards. To ensure it is well placed to keep supporting Mirage's growth plans it has, in recent years, invested heavily in both new production machinery and experienced staff. In addition to gears, it supplies racks, splines, worms and precision machined parts.

Precision machined gears

Trading for over over 80 years, Charles Leek and Sons are well-established gear cutting and precision machining specialists. Focusing on delivering quality, value and expertise, we're proud to be a supplier to Mirage Machines.

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Charles Leek
Precision Engineered Gears

it has been fundamental to the growth we have achieved. We have recently added another 5000 sq ft to the facilities in Derby on the back of the growth we have seen, adding a new corporate office, growing the site to 20,000 sq ft."

For a business that only last year celebrated its 20th anniversary, the growth rate has raised the challenge of securing the appropriate degree of resources, including its workforce. Historically, Derby has a reputation as an engineering centre, and supported by a very clear strategy, Mirage has remained focused on actively developing this aspect. "Many years ago I was given a piece of advice from one of the directors of Acteon. He said, 'go and employ the people you can't afford', and that is something that we have always followed. We recognise the importance of stretching the budget to employ the best calibre and quality of person. The result is that we are able to integrate them into our systems and processes very easily, and that way we have seen rapid start-ups, such as that in the US where we have quickly grown into a £4 millon-turnover branch. We also employ apprentices in the UK, putting them through a Rolls Royce apprenticeship scheme, which is probably one of the best in the world for creating quality engineers. It is a £10 million training facility that we are able to plug into," highlights Richard.

Operating across global markets provides the company with the flexibility to remain buoyant if certain markets dip. As the business looks towards the future it is actively establishing distribution and sales outlets in Singapore and Perth. "Geographical expansion plays a big part in the company's future. We sell a significant amount of tools into the Middle East and mainland Europe and we will be targeting these two areas more aggressively in the future, addressing the potential for establishing bases there. The southern Norwegian aspect of the oil and gas industry is of particular interest. We aim to grow to a £16 million business by 2016 through geographical expansion. We have a three-year plan outlining exactly that in terms of resource and sales development in the regions where oil and gas is strong. We also have other avenues such as the European wind industry, which is a fast-developing market for our service," Richard concludes.

Mirage Machines Ltd
miragemachines.com

Services
Design and manufacture portable machine tools

CITIC Censa

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asturfeito

ASTURFEITO has extensive experience in the manufacture of vessel equipment for marine-offshore applications MENCK as leader on providing pile driving solutions, has found on ASTURFEITO, a trustful supplier to attain the highest level of reliability. ASTURFFEITO it's glad to collaborate with MENCK and be involve on his projects focusing on the continuous improvement.

STAHLBAU
SCHWEIßFACHBETRIEB
ULRICH SCHÄFER
GMBH & CO. KG

Stahlbau Ulrich Schäfer GmbH & Co. KG is a medium-sized, family-owned company which has been working successfully as a structural steelwork company for more than 25 years. Founded by Ulrich Schäfer originally, it is now being managed by Reinhard Schäfer.

The firm has held the best Certificate of Suitability since 2012, viz., Class E according to DIN 18800-7 and it is also certified according to ISO 9001. Certification according to EN 1090, viz., Execution Class 3, will be awarded by the DNV GL Group shortly.

We manufacture various items for shipyards, wind-power, laying of marine cables and the offshore branch. Well-known groups like MENCK, Repower or Siemens are among our customers. Further we were one of the first firms in Germany to build offshore containers according to DIN EN 12079 and DNV 2.7-1 together with Germanischer Lloyd.

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At the forefront

energy, and the range extends to our largest 450 tonne hydraulic hammer delivering 3500kJ," says Fabian Hippe, director of project sales. In a fully assembled vertical position, the MHU 3500 is the largest hammer in the world, standing 84 feet above the ground.

The primary business is the rental of the equipment, boasting a fleet of 28 hammers of varying sizes, supplied to offshore installation contractors, as well as offering both operation and service of the machines. As part of the Acteon Group, MENCK benefits from being one of the few companies providing the service on a global scale. "We entered the deepwater segment in 1989, working at depths down to 1000m. Using innovative approaches with a strong design team we revised the equipment again and again and have developed a reliable system that can today operate down to 3000m.

"Innovation is a very important part of our business, and although in essence the MHU hammer today is the same as it has been since its introduction in the 1980's, ongoing adaptations have resulted in system optimisation," explains Fabian. The market however has changed dramatically, and reacting to the needs of the industry the business has altered its standing, providing a significant amount of engineering, consultancy for pile driving, designing methodologies for handling the system, and the supply of substantial man power for the offshore operations. "It is the changing requirements of the industry that drive the necessity to keep at the forefront of innovation.

"The offshore wind segment is demanding emphasis on noise mitigation and the reduction of noise expelled into the water column during pile driving. We have been at the forefront of research for those items and have collaborated with institutes and universities to develop

MENCK GmbH was founded in 1868 in Hamburg, Germany, at which time it focused on the design and fabrication of steam powered pile-driving equipment. In line with the introduction of hydraulic technology, the company slowly evolved to its focus today. With a strong background and well-recognised skill base, the business was acquired by the UK based engineering firm Acteon, in 2002. "Today we service market segments that include both oil and gas and renewable energy. Our portfolio targets the biggest end of the equipment range; our smallest 15 tonne hammer delivers 100kJ of

individual systems, build prototypes, put them to work and test them, all aimed at optimising the entire system," he adds. The design of the MHU 3500 in fact resulted from a request from its client Heerema Marine Contractors, which recognised the capabilities of the business to develop the system.

Further driven by the market, over the last few months the business has extended its global footprint opening offices in South East Asia and the US. "These are some of our strongest market regions and having a local presence enables us to operate in the same time zone as our clients, assisting with the purchase of equipment, aftermarket service for maintenance and the management of systems or man power support." Through a global procurement process, MENCK entertains its own logistical department for transporting all components for assembly either on sites anywhere in the world or at its plant in Germany.

The driven pile used in the deep pile foundation solution is one of the most understood systems in the market. Whilst other systems have shown potential, none have proved to be of sufficient strength to withstand strong winds such as those that regularly pass through regions such as the Gulf of Mexico. "With a deep foundation system there is the advantage of getting support, not on the surface of the seabed but on the depth of the seabed. It is a very reliable system, and due to the experience that we have gained, we offer a quick turnaround that allows for faster installation times. The operational risk for the floater or platform is also significantly lower using driven piles than for a suction pile system and there is a certain amount of contingency in the system that can overcome unexpected soil conditions," highlights Fabian.

As the industry proceeds into deeper waters and more challenging environments, with oil and gas, renewable energy as well as wave and tidal energy systems, a reliable foundation system is becoming more essential. On contracts that range from the deepwater Papa Terra installation in Brazil, to wind farms of Gwynt y Mor and Amrumbank in the European sector, the professionalism of its service is in constant demand. "We are able to work under synergies and collaborations with other members of the Acteon Group. One example of this has been on the Gwynt y Mor project where, with our sister company LDD, we have established a joint venture that brings to the market a solution that supports large diameter, deep pile installations,

as well as providing lifting equipment, hydraulic release shackles, pile stabilisation aids and pile upgrading systems.

"One of the huge challenges that the industry is facing is that there is a strong tendency to increase in foundation size, particularly in diameter. Coupled with the demand for reduction in noise levels, we at MENCK are taking the leading steps to meet those demands. Our experience and knowledge gained over the deepwater segment has been demonstrated in our capability to work with 6.5m OD piles, whilst keeping exerted energy onto the water column at a minimum, reducing operational noise. This is a huge growth market and one that holds exciting potential," says Fabian. Through ongoing collaborations with its sister companies, MENCK expects to be able to provide extended packages under one contract, benefiting all parties involved in the process.

For a business that is as much committed to the success of its clients' operations as it is to its own achievements, the retention of employees, and ultimately knowledge within the company is high. Recognising the importance of passing this experience on the company takes on scores of apprentices as it works towards its commitment of becoming the lead contractor in the industry. Concluding, Fabian remarks: "We aim to expand our services and to become the recognised brand for large diameter piles in the wind energy and further maintain our footprint in the deepwater segment. By optimising our systems, providing higher reliability with less noise, whilst demonstrating a strong commitment to safety as well as the environment, we see a positive future in leading the industry in the right direction." O&G

CITIC CENSA

Citic Censa is a heavy steel-works company established in 1965 in the traditional industrial area of Vigo, in the Northwest of Spain. The company has 276 employees and its worldwide fabrications are 100 per cent exported.
Citic Censa manufactures large and complex steel structures and heavy equipment for many sectors, as mining and cement industry, nuclear, petrochemical, and oil and gas.
Citic Censa works with companies worldwide, and its high-skilled human team co-operates with customers to achieve the best result. Its expertise includes a strategic co-operation with MENCK, which is a win-win relationship. In this partnership MENCK makes the design and Citic Censa manufactures the heavy steel pieces, applying alternative solutions for a higher performance.

MENCK GmbH
menck.com

Services
Pile driving specialists

A robust solution

Founded in Scotland and with a story dating back to 1974, FTV Proclad LLC has a 40-year history in delivering integrated, cost-effective engineering solutions for corrosion-resistant alloy (CRA) weld overlay products. Presently the Proclad Group operates companies within the UK, UAE, Singapore and Kuwait, and it is also in the process of forming a branch in Saudi Arabia. Throughout its history the group has made a firm commitment to research and development (R&D), while implementing continuous training to ensure that Proclad maintains its attention to the environment and its world-leading position.

Operating from within the UAE, FTV Proclad LLC shares the corporate culture of the wider Proclad Group and is strategically placed to provide services and support directly to regional clients. FTV Proclad operates the world's largest clad facility from which it offers additional services such as shop pre-spooling, site welding, valve repair, valve refurbishment, heat treatment, protective spray coating and CNC machining. Furthermore, the company is home to a wide portfolio of products comprising the manufacture of metallurgical bonded clad pipes from six inches up to all sizes and clad fittings, flanges and AMSE code clad nozzles that can all be supplied in a range from two inches up to all sizes. Also available are clad spools, valve components, check valves, Christmas trees as well as a range of oil field equipment such as tubing head spools, flanges, tees, adapters, casing and tubing hangers.

This impressive product portfolio is supported with services such as high velocity oxy-fuel (HVOF) coating, post weld heat treatment up to 750 degree Celsius, valve remanufacture and valve repair services including servicing of mud pumps, sea water pumps and BOPs.

FTV Proclad understands that the technology associated with protecting oilfield and marine equipment from the effects of corrosion and erosion is extremely intensive. Similarly the market in this area is very competitive and the company works tirelessly to improve its products and services and provide its customers with superior goods at competitive prices. As such R&D remains at the forefront of its operating culture as it has done through four decades of operation. Today innovation is considered to be a vital tool in helping FTV Proclad achieve its goals and continually improve its products and processes.

In addition to its rigorous culture of innovation and development, FTV Proclad utilises state-of-the-art equipment, which is fully tested to improve time and cost efficiency, while also improving quality. The ongoing refinement of the company's pipe fabrication and cladding processes not only allows the company to deliver world-class products and services but also to

develop bespoke solutions according to its clients' needs. In-house solutions are available for induction bending, cladding, valve repair, weld overlay, spool fabrication, site welding as well as any other of its services and Proclad is on hand to provide project management as to ensure efficacy and a high-quality result.

The company is licensed under the American Petroleum Institute (API) specification 5LD for the processing of clad steel pipe. FTV Proclad employs automated protective weld surfacing systems that apply high integrity corrosion resistant alloys to a variety of substrates. Its fully automatic weld cladding machines with full three-axis control for weld cladding pipeline component and oil field equipment, are capable of handling tasks from 50 mm NB to three metres diameter.

The company's dedication to quality means that clients are able to order from FTV Proclad in total confidence. The company is committed to supply all of its products and services to the agreed specifications, at the agreed delivery time at a competitive and profitable price. The performance of the company in guaranteeing these criteria to clients is continuously monitored through management review meetings that gauge continued suitability and ensure corrective measures as required.

As such FTV Proclad works to develop and improve its quality management system (QMS) and complies with the requirements of ISO 9001:2008. Furthermore FTV Proclad ensures that it is the responsibility of every individual within the company to meet its commitment to excel in quality in a safe and responsible manner, by doing the job to the best of their ability and to do it correctly the first time, every time.

As a company FTV Proclad is also highly committed to areas of occupational health, safety and the environment and therefore incorporates a dedicated health, safety and environment (HSE) system throughout all of its operations. The company's set of HSE objectives are continually reviewed by the FTV Proclad management team and aim to prevent all incidents, accidents, occupational ill health and environmental pollution; implement a consistent and systematic approach to the identification and management of risks and to ensure that all of the company's activities are carried out in conformance to all legal, statuary, regulatory and internationally adopted standards relating to HSE aspects.

As with its dedicated QMS, FTV Proclad promotes a culture of responsible operation that applies to every individual within the business. As such the company provides investment, education and training to support managers and staff in the correct application of its HSE system. Furthermore, FTV Prodclad remains fully compliant with the requirements of BS OHSAS 18001:2007, Occupational Health and Safety Management Systems – Requirements and BS EN ISO 14001:2004, Environmental Management Systems – Requirements with Guidance for use.

With a proven track record of industry experience and high level of focus on quality and HSE, FTV Proclad is currently enjoying a period of strong international growth in South East Asia, Houston and the Commonwealth of Independent States (CIS). The company has recently introduced a new clad fire pipe product for subsea and offshore and presently has its strongest order book to date. Some of its clients include Abu Dhabi National Oil Company (ADNOC) and its associated companies including ADMA-OPCO, ADCO, ZADCO and GASCO as well as Saudi Aramco, Petroleum Development Oman (PDO), McDermott, Technip, National Petroleum Construction Company (NPCC), Qatar Gas, RasGas, Exxon Mobil, Petronas, Cameron, FMC, VectoGray, Oliver Valves and KOP. As FTV continues to develop and refine its services to better address the needs of the oil and gas industry it will look to continue to focus on its growing market share and on further co-operating with customers old and new in the years to come. O&G

> FTV Proclad understands that the technology associated with protecting oilfield and marine equipment from the effects of corrosion and erosion is extremely intensive. Similarly the market in this area is very competitive and the company works tirelessly to improve its products and services and provide its customers with superior goods at competitive prices

SANDVIK COROMANT

Sandvik Coromant is a leading supplier of cutting tools and know-how to the metalworking industry, and works in close partnership with FTV Proclad to support production and optimise their manufacturing productivity.
An ongoing commitment to implementing new cutting technologies allows Sandvik Coromant to offer FTV Proclad access to the very latest tools, while support for the manufacturer's UAE facility includes on-site technical assistance.

FTV Proclad LLC
ftvproclad.com

Services
Anti-corrosion and engineering solutions

Embracing the challenge

Since the company first appeared as Introl Limited in Brighouse, Yorkshire during 1967, Koso Kent Introl has evolved to become a leading name in the design and manufacture of specialist valve solutions across the global energy and offshore market.

Throughout its history the company has continued to expand and grow though a series of mergers and acquisitions. The Koso brand first appeared in 2005 when Nihon Koso Co Ltd of Japan acquired Kent Introl from Vetco Gray to form Koso Kent Introl Limited (KKI). Koso represents a strong family owned group with operations in India, the US, China, Korea and Japan with a total yearly turnover of around $400 million. While Koso owns Kent Introl the company retains a high level of operational freedom while enjoying the financial stability of its parent, as KKI managing director Denis Westcott elaborates: "Like Kent Introl, Koso is a valve producer, but while Kent Introl operates principally within the upstream and midstream oil and gas markets, Koso focuses more on downstream and other industry sectors. Hence KKI is allowed to operate autonomously. In simple terms we are free to operate effectively where we wish within the oil and gas market."

The KKI product range includes topside control valves, choke valves and subsea choke valves as well as a range of butterfly valves. The company specialises in providing engineered solutions for arduous services for both topside and subsea applications for oil and gas producers. Valves can be provided in a variety of sizes, pressure ratings and materials to suit a spectrum of applications and customer requirements. All KKI products and services are delivered in line with ISO 9001, TS 29001, OHSAS 18001 and ISO 14001 certification, allowing clients to order from the company with the greatest confidence.

When the company was last featured in *European Oil & Gas Magazine* during September 2013, Denis discussed the company's £2 million

investment in a state-of-the-art Scharmann Ecoforce 1 HT2 as part of its strategy to increase production capacity at its Brighouse production facility. The Ecoforce allows KKI to deliver new angle style bodies, typically used for topside choke and subsea valves in a single efficient operation. Likewise, during 2013 Denis announced the company's plans to implement a new business system by early summer 2014. Today KKI is in a prime position with increased production capacity and a new management system that differentiates the company from other players in the market. "Customers who visit the Brighouse factory are always impressed by KKI personnel and facilities as well as its open style and visual management system. Clients can track orders through the business by looking at the visual system, which shows orders from the point of entry in sales right through to dispatch. In simple terms the company is defined by good people, good facilities as well as a strong track record and an open visual style."

From its current position KKI is presently gearing up to meet the challenges of the oil and gas market as it continues to evolve. "We see the future of oil and gas in two prime areas, which will become further linked as time passes," says Denis. "First are the ongoing developments in the subsea arena. As fields are developed in deeper waters and further from land, the need will grow for more complex subsea installations with the potential to carry out processes traditionally handled topside or onshore, on the seabed. Secondly more fields will fall into the high temperature/high pressure, or even ultra-high pressure/ultra-high temperature zones. This will not only increase the demands placed on the technical design of valves but also on materials technology. We are involved in various initiatives to place the company appropriately to meet these potential markets."

Traditionally KKI has enjoyed strong performance in the North Sea and in several other sectors around the world including the Caspian Sea and South America with an especially strong presence in Brazil. Furthermore, its sister company Koso India Pvt. Ltd. (KIPL) is well established in India, the Middle East and Far East. Today KKI continues to operate in diverse sectors throughout the world and in March 2014 the company won a contract to supply its 11 VeCTor velocity alloy steel control trims for a major offshore project in Africa. The VeCTor trim design has been developed by KKI over many years for use in severe service environments worldwide, including high temperatures or high pressure-drop applications. The valves on order are to be used for a high-pressure application off the west coast of Africa late in 2014. Furthermore KKI maintains a prestigious ongoing frame agreement with Statoil Petroleum in Norway. To date Statoil has made significant purchases of spares and valves from KKI for new-build projects, upgrades, modifications and replacement units.

From its current strong position KKI is well placed to embrace both the challenges and opportunities of the oil and gas market well into the future. Commenting on the company's future strategy Denis concludes: "KKI will focus on developing its products for floating and subsea systems, but the prime focus will most likely continue to be on subsea products. If this market follows predictions it is set to expand substantially over the next five to ten years. Presently KKI has 600 subsea chokes installed worldwide and this number is set to grow over the coming period." O&G

From its current strong position KKI is well placed to embrace both the challenges and opportunities of the oil and gas market well into the future

Koso Kent Introl
kentintrol.com

Services
Control valves

Going in for the drill

Founded in 2006 by industry veterans and Island Offshore, a leading provider of superior solutions for the offshore oil industry based on its fleet of ultra-modern, high quality service and subsea service vessels, Island Drilling Company ASA was established with the sole purpose of constructing and owning niche semi-submersible rigs for challenging well intervention projects. Originally known as Marine Accurate Well ASA (MARACC) due to its initial focus on the well intervention market, the company changed tack in 2008 and instead focused on the development of a MODU (mobile offshore drilling unit).

This change in philosophy and design led to the delivery and classification of the GM4000 rig, Island Innovator, in 2012 and the company changing its name from MARACC to Island Drilling Company ASA in June 2014. "The owners decided to change the name of the company to something more related to our major owner, Island Offshore, because it is a better name for marketing with and is more linked to our core business of drilling rigs. Our old name was originally linked to marine accommodation services, then marine accurate well services, and finally, because the Island Innovator ended up as a drilling rig, we decided to change our name. So really it has been a process," explains CEO Roger Simmenes. The company is now OTC-listed in Oslo under the ticker ISDRILL.

Constructed under a turnkey construction contract at China's Cosco Zhoushan Shipyard, the purpose built heavy well intervention unit is the first of its kind. The complete hull and deck were constructed by Cosco Shipyard Group China, while its power comes from Siemens Oil and Gas, Norway; engines and thrusters were developed by Wärtsilä, Finland, the topside by National Oilwell Varco, Norway and the topside module by Nymo AS, Norway. Furthermore, the mud module was manufactured by Wison Heavy Industry, China, and the accommodation by Markhus, Norway.

At an overall length of 104.5 m and overall width of 65 m, the rig has ample space for its onboard drilling equipment such as a derrick with 590 metric tonnes lifting capacity, a motion compensator with 7.5 m stroke, a five tonne deck pipe-handling crane, high pressure mud pumps and a mud mix system for handling water and oil based mud. Moreover, the rig also has well control equipment for subsea operations; this includes a Cameron 18-3/4 inch-15K, five cavity BOP, 300 TONNE BOP carrier, a techdrill capacity 5,44 MMSCFD mud gas separator, a 4x6.5 tonne, 600 m, AC guide wire winches, 2x5 tonne, 2000 m AC pod wire winches ad 1-off OBS ROV, 1-off W/C ROV system. Designed for operations in the North Sea, the GM4000 can operate in winds of up to 28 m/s, eight m Hs and temperatures as low as minus 20 degrees, thus rendering it capable of handling all well intervention needs in the most challenging of conditions.

Fully automated with an integrated system for DP machinery controls, power management, alarm systems, ballast control and drilling, the GM4000 also has radars, RDF, echo sounders, clinometres, a speed log, four point draught indications system, driller's communication system, crane communication system and PA system covering all rig areas to ensure the best possible navigation and communication equipment is available for staff onboard. The rig also has a helicopter platform, with helideck arranged for Sikorsky S92, and accommodation for 120 persons; all staff have their own single bed cabins, while congregational areas include eight offices with 18 workstations, one collaboration room with eight workstations, a conference room with 22 seats, a gymnasium and a hospital/treatment room should accidents occur. Lifesaving equipment onboard includes

four free fall lifeboats of enclosed type, each of which has the capacity for 60 persons, two rescue boats, inflatable life rafts and other equipment in accordance with MODU regulations.

Together with Odfjell Drilling AS as manager, Island Drilling is responsible for the marketing and operation of the state-of-the-art GM4000 rig, in addition to providing project management and supervision throughout the preparation for the rig's operations with Lundin Norway ASA. Discussing the building of the Island Innovator and its core operations, Roger highlights: "The rig has been built according to supervision of DNV as class society as well as the requirements of NORSOK standards operations on the Norwegian Continental shelf. The rig achieved class certification in September 2012 and has sailed from China to Norway for the preparation phase of the rig to operate on the Norwegian Continental Shelf for Lundin Norway AS. The rig was finished and all approvals in place, including AoC, during September 2013, and it was on contract with Lundin as of 25th September 2013."

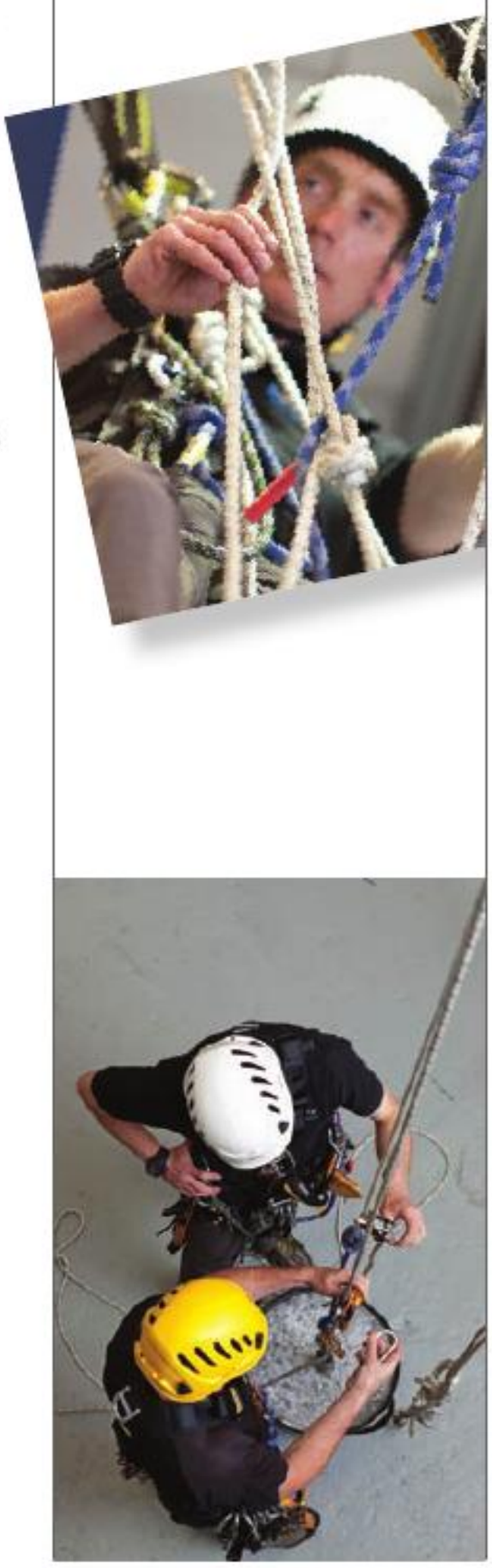
He continues: "The Island Innovator started drilling its first well 16/2-20S&A and spud on 30th September 2013; the well was drilled according to the planned programme and included four run with coring and logging. Island Innovator completed its first well operation on 19th February 2014 and sailed to location 16/1-8U for the drilling of a pilot hole down to approximately 600 metres to verify shale gas in the area. The rig has completed drilling on well number two, 16/1-18 (Edvard Grieg), and also well number three, 7120/1-4S Gotha in the Barents Sea." In August 2014 the average technical and economical effectiveness of the rig was 86.01 per cent and 90.48 per cent, respectively.

Following the success of these projects, Island Drilling anticipates further growth and opportunities in the market, as Roger concludes: "We have plans until May 2016 and see a great deal of opportunities ahead; over the next three to five years we aim to increase our fleet and presence in the market." OSG

STAVANGER ENGINEERING

Stavanger Engineering is a leading solution provider for purpose-built mechanical equipment and steel structures for the oil and gas industry. One of Stavanger Engineering's core values is to keep a customer focus in all aspects of its work. To one of its clients, Island Drilling Company ASA, the company has delivered a 100 T Service Lift and an SLR Series Cargo Lift that is now operating successfully on Island Innovator. The lifts ensure that the rig complies with the Norwegian Petroleum Safety Authority (PSA) requirement to avoid blind lift and improves the logistics on the rig.

Accessing potential



Established during August 2012, Rigmar Training Centre was founded to provide the North East of Scotland with a leading facility dedicated to non-destructive evaluation (NDE) and Industrial Rope Access Trade Association (IRATA) rope access training and consultancy.

Rigmar Training Centre has enjoyed great success in only two years of operation. Today the facility is a leading training centre in non-destructive testing (NDT), NDE, IRATA and rope access for clients across 27 countries worldwide, with customers including major operating companies such as BP and Shell. Rigmar Training Centre employs experts in the field and currently holds over 60 years combined offshore and onshore experience. Furthermore the company is fully accredited by the British Institute of Non-Destructive Testing (BINDT) and has been awarded ISO 9001:2008 certification from the awarding body Det Norske Veritas (DNV).

Since it was opened the Rigmar Training Centre has enjoyed huge development and accelerated growth resulting in the company doubling the size of its premises, allowing the facility to today cater for as many as 30 students at any one time on courses from two days to seven weeks. By December 2012, £500,000 had been invested into the facility to provide state-of-the-art NDE and rope access training capabilities. The facility itself spans 3000 sq ft and has been furnished with the latest apparatus and technologies to create the best possible learning experience for all candidates. The site boasts technologically intelligent lecture rooms, large practical areas and on site catering facilities to deliver a comfortable working environment for both practical workshops and classroom activities. The administration and management team also has its own, custom-built office suite, creating an efficient hub for all national and international operations. The Rigmar Training Centre is conveniently located on Aberdeen's Wellington Road, only five minutes walk from the city centre and a popular route of local public services, making the facility a simple location to reach from all parts of the city.

The success of Rigmar Training Centre has been meteoric, as founder Ray Wilson says: 'When we launched the Centre, our vision was to create a centre of excellence for NDT and rope access training as well as consultancy services. The response from the market has been extremely positive and in addition to a high level of demand from the self-sponsor market, we have secured contracts with CAN Group, Scotia Automated Inspection Services (SAIS), Global REEL Group, Servtech and Axiom NDT amongst many others. With around £750,000 turnover to date and another projected £250,000 for the remaining part of the year we hope to achieve close to our £1 million turnover focus, which is a great performance for a business established just over two years ago. With recent BINDT audits carried out at the facility this month we are very proud of the efforts made by all staff and their commitment to meet with compliance."

As such Rigmar Training Centre has expanded its reputation in line with the rapid development of its training facilities and has already secured work in overseas countries such as Ghana, Tengiz, Kazakhstan, Angola and Nigeria. Indeed the company sees international operations as a key growth area as it continues to expand. "With the support of our BINDT accreditation we are in a fortunate position that we can deliver training at our East Tullos Training Centre or the convenience of having training delivered on site," Ray elaborates. "In addition to our work in the North East of Scotland, we are involved in projects internationally and have already visited several countries to support in the execution of training updates and nationalisation projects."

During 2013 Ray travelled to Ghana and Tengiz, Kazakhstan to support AquaTerra and Servtech respectively in the implementation of nationalisation programmes. Under these projects Ray addressed any skills gaps with the organisations and developed training plans to ensure that all team members are trained to an internationally recognised level.

Further to offering training and examination services in rope access and NDE operations, Rigmar Training Centre is able to provide comprehensive consultancy services, where it works closely with its clients to audit their NDE and rope access capabilities to identify weaknesses and develop bespoke campaigns around individual training needs. These auditing services allow the company to create training packages that are tailored to the location and the industry that its clients are working in. It offers a full range of competency assessments, evaluations, auditing and procedure drafting to deliver a complete training solution including introductory, familiarisation and awareness courses as well as advanced training programmes.

Although the company has already enjoyed huge success, Rigmar Training Centre is showing no signs of slowing down; rather it is focused on further expanding with four new staff, increasing the training team to 15 by the end of 2014. Commenting on the future of the business, Ray concludes: "Rigmar Training is always on the lookout for new opportunities and ways to improve service satisfaction. Feedback from our customers has revealed an increased focus on competency based training programmes. We are currently seeking approval that will enable us to deliver industry leading competency systems. This will allow us to assess an individual's competence in the skills, knowledge, understanding and experience required to carry out NDT and rope access activity." OSG

OCEANSCAN

At Oceanscan we constantly add the most up-to-date and advanced NDT equipment to our rental fleet, as a result we are able to reinforce our close relationship with Rigmar Training and support their plans to introduce new NDT disciplines and expose their students to the latest models of NDT equipment.
Working closely with all our clients, Oceanscan is committed to bringing the best equipment and customer service to the market and strive to exceed our client's expectations.

Loads of success

Above
MV Lone with modules/25 020 cbm in total (Middle East - UK)

Below
MV Grietje lifting cargo with three cranes

There are some industries around the globe that manufacture products of such size and scale they require special assistance with transportation. These could include oil and gas equipment, the renewables sector, modules, port handling equipment, port construction, floating cargo, heavy machinery or power plants – and when they need help, they call SAL Heavy Lift. A member of the "K" Line Group, SAL Heavy Lift is one of the world's leading carriers specialising in the sea transport of heavy lift and project cargo with a combined crane capacity of up to 2000 tonnes.

This year SAL Heavy Lift has added two ships of Type 116 to its fleet, now consisting of 18 heavy lift vessels, to serve clients with lift requirements of up to 900 tonnes. MV Calypso and MV Amoenitas are equipped with two cranes of each 450 tonnes and have the highest ice class. As SAL's type 183 and 176 vessels are well planned ahead, the fleet's expansion with type 116 responds to the growing demand for its mid-range services on the part of customers worldwide.

"We see these vessels as a good bridging for getting modern tonnage into our fleet," says Lars Rolner, managing director/COO. "We have had, and still have, some nice project-related business and we are pleased to note that the 176 types have been fully booked. Moreover, there are also good signs in the market for an improvement of the high-end segment," he concludes.

The oil and gas equipment sector is one industry that often calls on the specialist knowledge of SAL Heavy Lift. SAL possesses extensive experience in this area and as a result knows exactly what is required to ensure safe, efficient loading, securing and sea passage for the often unique products that this segment creates, including absorbers, reactors, coke drums, pipe laying towers, reels and carousels.

In August/September MV Frauke delivered two carousels to Angola. The cable had been

spooled onto the carousels in Panama City. In September, MV Grietje loaded two absorbers, one column, one reactor, one regenerator and one reboiler with a unit weight of up to 600 tonnes, and a total of 2400 tonnes and 13527 cbm. A special aspect was the three-crane-lift cargo operation. The cargo was loaded in Korea and transported to Saudi Arabia.

For offshore projects, SAL Heavy Lift established SAL Offshore B.V., a wholly owned subsidiary in the Netherlands in 2012. SAL Offshore's fleet holds a strong offering to the market with the main installation vessels of Type 183: MV Lone, a DP Class 2 vessel, and MV Svenja, a DP Class 1. With the successful installation work at the Costa Concordia wreck removal, another important step was taken

to become a designated expert in the offshore installation industry. Platforms had to be installed in up to 45 m water depth, the largest weighing 1000 tonnes – a record-breaking subsea installation for an HLV.

"We want to expand further and grow within the super heavy lift market and the offshore installation segment. With our modern fleet combining transportation and offshore installation, we see great potential for the installation of mooring spreads, transition pieces, foundations, tidal turbines, and oil and gas equipment," says Lars. "It is great to see how we are performing in each of our business segments. We have many clients who praise the crew, the vessels, the high level of HSSE and the service we provide. All of this makes the difference between SAL and other carriers." O&G

Above
MV Frauke on her way to Angola

Left
MV Frauke of Type 176/ spooling in Panama City

Below left
MV Grietje lifting cargo with three cranes

The in-house solution

With 40 years of experience

in specialist engineering and fabrication, JBS Group (Scotland) Ltd has earned a trusted reputation as a reliable partner within the oil and gas industry. The company has consistently grown and expanded throughout its history and today operates five divisions that each target specific areas within the business. Its fabrication, engineering, marine, commercial and heat exchange divisions allow JBS group to deliver bespoke design and high-quality fabrication in a range of applications.

"Our client base is still majorly oil and gas related," says business development manager, Iain Buchan. "During 2014 JBS Group (Scotland) Ltd has had its most successful year to date and continued to grow the business for the sixth consecutive year. The group has only seen positive signs for demand from the local market through repeat business from the majority of our key clients. That is why we are expanding the business again to continually meet the requirements of our customers. Some of the company's new clients include Taqa, Technip, Woodgroup PSN, Stork Technical Services, ISS Harkand and Well Ops."

As the business has continued to grow, JBS has changed location and moved into larger premises several times throughout its history. During 2009 construction began on a bespoke building located at the Dales Industrial Estate in Peterhead, Scotland, and by 2013 new business and a significant increase in turnover increased requirements for larger structures. "We have recently been awarded an RSA grant, which will help us to achieve our long-term goal of building a new and larger fabrication building next to our existing site," Iain explains. "Ground works on the new facility will be commencing in November this year for the new fabrication facility to be complete by spring of 2015. The new building will have

20 tonne and ten tonne cranes, 720 sq m floor space and large end door (10m high x 8m wide) for easy access for loading/offloading inside the workshop with trailers."

The JBS facility sits on a 1.75-acre site and has an indoor fabrication area of 36 metres by 20 metres with a 15 tonne overhead crane, while the engineering division machine shop has a 24 metre by 22 metre floor space with a five tonne overhead crane, various lathes, milling machines as well as vertical and horizontal borers. It also

Bureau Veritas certification partner for JBS Group (Scotland) Ltd

Bureau Veritas is proud to have worked with JBS Group (Scotland) Ltd since 2006, certifying their bespoke frames and containers from design to certification and wishes them well with future endeavours.

If you would like to know more about our market leading certification services please contact
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houses the JBS commercial division, which has numerous wood working machines, tooling and stock items as well as a one-acre site for storage and handling. As well as its main Dales Industrial Estate location, JBS maintains a second site some seven miles away that undertakes fabrication work in an area sized at 548 square metres, with a further 614 square metres of outdoor space. The expanding JBS main facility provides a one-stop-shop solution for clients' design and fabrication projects, while its small site is able to take on smaller projects or lend support to ongoing projects at the larger site.

"The main benefit to our clients of a one-stop-shop is the rapid turnaround on small items required that might be holding up a much larger-scale project," Iain says. "If there is an item that needs to be machined we can work overnight or over the weekend to make sure the wait is kept to a minimum. While other companies might have delays in this process, we can instantly get onto the job and cut out all of the hassle of waiting for transport companies and quotes that add time and additional cost to the work.

"Also, with its growing reputation and continued investment in larger facilities, JBS is enjoying increased demand for its vessel mobilisation and de-mobilisation capabilities, including the fabrication of grillages and frames built in-house ready for the vessel's arrival in port. As such, the company currently has a good core of reliable, experienced welders/fabricators/joiners that are available 24 hours per day when required to assist with any vessel project."

With its growing reputation and continued investment in larger facilities, JBS is enjoying increased demand for its offshore capabilities including the installation of structures built in-house. As such, the company currently has a good core of offshore personnel that are quickly available to go offshore to a client's facilities. Furthermore, JBS has a strong record of completed projects and is currently close to completing a HoldBack Structure with Technip for the Greater Stella Project, as Iain explains: "This project is currently being completed over the next two weeks. This has been our first major scope of work for Technip in the subsea market and is exactly why we are building the new larger fabrication facility to accommodate the demand of larger subsea structures."
With this projects and host of others, JBS has identified itself as a first-class design and fabrication solution to clients within the oil and gas market.

As the company continues to grow it will look to its new general manager Gordon Ingram to guide the business moving forward. Gordon brings with him over 30 years of experience within the oil and gas sector, 15 of which have been spent in management positions. Furthermore Allan Buchan, who started the company in 1974 with his father John, is stepping down and handing over his managing director role to his son Scott, who has been working for the business for the last 12 years. These changes mean that JBS will continue to be in safe hands for years to come. O&G

> The expanding JBS main facility provides a one-stop-shop solution for clients' design and fabrication projects, while its small site is able to take on smaller projects or lend support to ongoing projects at the larger site

JBS Group (Scotland) Ltd
jbsengineering.co.uk

Services
Specialist engineering and fabrication

Nautical newcomer

SEBASTIAN AS

Sebastian AS has expertise in preventing interruption, downtime, incidents and accidents, and wants to come early into any project. The company has collaborated with Norshore Management AS for the new project "Norshore Pacific," long before the owner signed a contract with the shipyard in China, and contributed when Marin Teknikk AS worked with the ship design. Sebastian AS has developed the Single Line Diagram, Electrical Load Calculation, Redundancy and DP consulting, ESD and Fire & Gas etc. The company ensures that the safety systems are in compliance with regulations and accepted standards. Sebastian guarantees optimal solutions.

Norshore was established in 2007 and is an independent Norwegian Offshore company based in Bergen, Norway. The company has developed a top-hole drilling concept, using field proven drilling technology from an offshore support vessel (OSV). Construction of the vessel began following research into the possibility of designing a drilling vessel at a significantly lower cost than a normal semi-submersible rig. The unique Norshore drilling concept has many advantages for its clients, enabling the operator to perform activities from a vessel far smaller than a standard drilling rig or drillship, but with the same basic capabilities.

The vessel, Norshore Atlantic, which was delivered early 2014 has already completed one contract and is currently working on the second contract, for Shell in Malaysia. "Our first project was with BlueSky on the Langsa Field in Indonesia in a combination of ROV inspection and well intervention work on two subsea wells," says Arnstein Hernes, CFO. The well intervention work proved successful for the client with a substantial increase in oil. The drilling and lifting concept makes the unit ideal for riserless light well intervention, as well as well intervention with drill pipe risers. "From this unique, multi-function vessel we can undertake numerous operations extending to riserless plug and abandonment operations and top-hole drilling," he adds.

The Norshore units are equally as efficient as large semi-submersible rigs in the top-hole sections of a well. The unit has a large deck and mud capacity, and furthermore is prepared for a riserless mud recovery system; in addition the DP3 system will lessen the need for support vessels. Adding a reduced mobilisation time and a high capacity subsea crane this will give the clients a very efficient operation and an earlier start-up of production on fields, as well as increased utilisation elsewhere of its existing rig fleet. "Riserless drilling is one of the main focus areas for our company, using the concept to drill the top-hole sections and pre-install the wellheads. We can do the initial work so that a drilling rig can come in after to finish the well down to the reservoir. However, with our set-up, we can in many cases replace rigs and drill complete wells down to the reservoir utilising the BOP stack and riserless mud return system," explains Arnstein.

Operational to a water depth of 500 metres, in many cases this method will be less costly than using a jack-up or anchored semi-submersible rig for shallow water fields. The lifting capability of the drilling derrick combined with the AHC offshore cranes makes the vessel very flexible and versatile for subsea construction work. The main deck is equipped with a skidding system that allows safe deck handling before deployment through the moonpool. Larger units may also be deployed over the side by use of the offshore crane. It is also possible to carry out wet towing of large modules hanging under the drilling derrick in safe distance above seabed.

Currently, Norshore is the only company that operates a multi-functional vessel, although competitors are beginning to recognise the advantages, contracting shipyards to follow suit with newbuild contracts. Commenting, Arnstein points out: "The fact that the rest of the industry

is replicating a similar design highlights that we have a concept designed for the future market. We can do the same operations as a big rig but with much lower construction and operation costs, enabling us to offer competitive day rates." In September 2014 Norshore began operations for Shell on the Malikai Field in Malaysia. The scope of the work includes the drilling of top holes, with an estimated programme of between 75 to 130 days.

The first few steps of a new business are always critical, and for Arnstein the importance of having more than one leg to stand on equated to the necessity to more vessels: "The challenge as a young company is to be able to raise the necessary external funding without having long-term contracts in place. Our shareholders have come forward with a high level of equity, which has improved our capacity to achieve this valuable growth." As customers and competitors alike begin to recognise the advantages of the efficient and environmentally friendly multi-purpose drilling vessel, Norshore remains one step ahead. It has a shipbuilding contract in place with Yantai CIMC Raffles in China for the construction of the drillship Norshore Pacific, including three optional vessels. The vessel, which is the same design as Norshore Atlantic, but with an increased 40-metre length, is due for delivery in Q4 2016.

"Operationally, we have a three-year framework agreement with Shell and this holds future opportunities for our increasing fleet over the next few years, coupled with potential contracts both in South East Asia, West Africa and elsewhere. We believe there is a growing demand and as the industry becomes more aware of our cost effective solution this will accelerate. Due to the nature of the vessel, opportunities exist for the business to undertake more activities, which will become increasingly important in the period going forward.

"Beyond the capabilities of the vessel, the workforce aboard and within our company is also of utmost importance. We operate the vessels ourselves, employing a management structure controlling the operation. We also recognise the value of using local content from the countries in which we are working, and recruiting labour from those nations as applicable. It is important for us to be a fully integrated company, not having someone else operating the vessels for us," he adds.

Looking further ahead, Arnstein provides an insight into the direction of the business over the next five years: "Our plan has always been to grow the company into a business with five vessels, an aim that is achievable by 2019 in line with the options we have with CIMC Raffles. Of course our strategy is linked to the contract coverage because we do not want to have more than one vessel uncontracted at each time. The growth depends on securing the right level of contracts and the completion of each one with success. In the future years, the ultimate goal of the stakeholders is for the business to become a listed company." OSG

> We can do the initial work so that a drilling rig can come in after to finish the well down to the reservoir. However, with our set-up, we can in many cases replace rigs and drill complete wells down to the reservoir utilising the BOP stack and riserless mud return system

PALFINGER DREGGEN

Palfinger Dreggen is supplying high quality cranes for the marine and offshore industries. All products are of proprietary design and manufactured according to its customer's needs and requirements. Modifications and recertification are additional services offered from its headquarters in Bergen, Norway. The cranes offered to the industry are generally heavy-duty customised hydraulic, electro-hydraulic, pneumatic and electric cranes for multiple purposes. Palfinger Dreggen is part of Palfinger Marine, which provides a broad range of marine cranes, launch and recovery systems, boats and dedicated cranes for the wind industry. Palfinger Marine offers availability by a substantial pool of people dedicated to after sales and service in numerous locations worldwide.

Delivering results

A global supplier of modular buildings and packaging solutions for the oil and gas and utility industries, Specialist Services Group has grown into an international, results orientated organisation over the last 32 years; with strong capabilities in design, engineering, manufacture, installation and support since its inception in Abu Dhabi, Dubai in 1982, the group of companies today is able to deliver a range of cost-effective, effectively engineered, internationally compliant applications that can meet the most challenging of client demands.

With its roots firmly placed in the Middle East, Specialist Services has been an active participant in developing the region's energy sector over the last 30 years. In fact, through helping major oil firms and leading oil service providers resolve operational, climate and geographical challenges, the business has honed its engineering innovation and fabrication excellence while also increasing its reputation as a superior service provider. Furthermore, Specialist Services is one of the few firms that can build IECEx certified products in the Middle East, while its engineering, manufacturing, products and solutions conform to ASME, ABS, USGC, DNV, IECEx and other codes/standards as recognised internationally.

Previously featured in *European Oil & Gas Magazine* in January 2014, the company has witnessed an upturn across all areas of the business over the last 12 months, with record work in hand, as Chris Ridley, group sales and marketing director discusses: "Our EPC business in particular has seen a huge increase in project awards, especially around our technical module product line, which has provided us with significant growth. We have also recently added nearly 200,000 square feet of additional waterfront fabrication facilities to our facility footprint to support this growth."

One such project was announced in August 24th, 2014, after Petrofac awarded Specialist Services a contract to provide Local Equipment Rooms (LER) and Local Control Rooms (LCR) buildings for the Upper Zakum 750 Island Surface Facility Project (EPC 2). In consortium with Daewoo Shipbuilding & Marine Engineering, Petrofac is contracted for the engineering, procurement, construction, transportation and commissioning of island surface facilities on four artificial islands alongside Zakum Development Company (ZADCO) for its UZ 750 field development project in Abu Dhabi. Petrofac has subcontracted to Specialist Services for the detailed design, engineering, fabrication, commissioning and load-out of 12 modules, eight of which will be LER buildings, while the remaining will be four LCR buildings; these will have a total weight of 8170 tonnes.

"This is a very large and demanding project O&G

Above
Chris Ridley, group sales and marketing director

Below
Paul Duncan, managing director of Labtech in Aberdeen

that we are proud to have been selected to execute," says Chris. "Our unique capabilities, in terms of our in-house engineering, strong project management, in-house fabrication and ideally located waterfront facilities ensured we were viewed by Petrofac as the ideal partner to complete this complex project."

With a dedicated project management team in place for the execution of the project, the company's in-house, multi-disciplined engineering staff will use state-of-the-art software such as TEKLA to ensure accurate weights and detailed connections for the structural steel design. Moreover, the team will use PDMS software for the complete modelling of the structure as well as inter-disciplinary clash-checking. Due for completion in August 2016, these buildings will be fabricated and loaded out from the organisation's waterfront facility in Mussafah, Abu Dhabi.

This project follows the company's successful completion of the 48-module, 224 man accommodation extension project for Sea Trucks Group. Awarded in November 2013, the purpose of the project was to temporarily increase onboard accommodation and facilities on one of Sea Trucks' ASVs, which were deployed to support the installation of a topside on Russia's Arkutan-Dagi project. A highly challenging project from the start, with production schedule lowered to 16 weeks, the team worked around the clock without any incidents or accidents. The project was completed on time and all 48 units were dispatched within two days of completion to Jebel Ali Port for shipping. "Considering the limited time available for the production and installation of the accommodation units, Sea Trucks Group has demonstrated a confidence in Specialist Services' capabilities to deliver this project on time; a confidence that has been rewarded with an exceptional job and on-time completion," enthuses Chris.

Looking ahead, the group is setting the foundations for further growth with the appointment of Paul Duncan as managing director of Labtech in Aberdeen. Having spent three decades in a number of senior management positions, Paul Duncan's appointment represents an important milestone for Labtech within the group's corporate strategy, as Ian Rogers, Specialist Services Group CEO discussed: "Paul's extensive experience and oil and gas background will be pivotal in the next stage of growth for Labtech and the wider Specialist Services Group."

Focused on its vision of becoming the market leader and preferred supplier in all of Specialist Services Group's core business segments, the organisation will continue to successfully engineer, manufacture and deliver exceptional products that noticeably enhance oil and gas field developments, while protecting life and assets. For example, in April 2014 the company launched the new G4 Series – cutting edge modular units that provide significant performance enhancements; moreover, the G4 Global is the only module that has worldwide approvals from major certifying bodies. This product will be displayed at Specialist Services' stand (number 13485, hall 13) at ADIPEC 2014 in Abu Dhabi, from 10th to 13th November 2014. "We continue to run a large number of contracts throughout the Middle East region and have had significant growth across all of our business units in the last four years. We will have a relevant presence at the show this year and look forward to presenting our current and future products at the event," concludes Chris. O&G

BARCLAY ENGINEERING

Barclay Engineering was given the opportunity to design and manufacture the air-handling units and chiller package for the Goodwyn A Platform Accommodation Modules built by Specialist Services.

Barclay Engineering, with its in-house engineering, drafting and project management team, went about searching for a solution that best assisted Specialist Services' requirements.

With its experience in projects internationally, Barclay Engineering has the ability and know-how to get the job done on time and budget.

Barclay Engineering is an ISO 9001:2008 certified company with extensive experience of working to the requirements of international standards and associations such as DNV, GL, Lloyds, BV etc.

PDC SYSTEMS LIMITED

PDC Systems Limited is one of the leading providers and specialists in ATEX and IECEx hazardous area electrical systems, control panels, low voltage systems, control and automation products for the oil and gas, energy, mining and maritime industries on the worldwide stage. It also carries out the original design and manufacture of combined pressurisation fire & gas control panels (CPFG), manufactured to meet clients' project specific requirements.

The company's philosophy also encourages the advice and input of other professional advisors. This involvement will ensure that all aspects of your project, electrical, instrumentation, design and certification are considered during planning, manufacture, implementation and installation.

Combination code

Boskalis Offshore Subsea Services, part of Royal Boskalis Westminster N.V., was formed out of the merging of two histories, when in 2010 Boskalis acquired the maritime service provider SMIT. At that time Boskalis was mainly a traditional dredging company, involved in activities such as land reclamation and port development, although already with a separate offshore department, it regularly undertook works in the field of seabed preparation, rock installation and landfalls. With the addition of SMIT to the Boskalis portfolio of towage, salvage, heavy lift, transport, terminals and subsea it was able to establish a larger offshore energy division, undertaking the greater level of activities in line with the merger.

The combination of having available diving support vessels (DSV), anchor handlers, tugs, transport and heavy lift equipment such as floating sheerlegs and barges, further encompasses a range of services much greater than either business was able to undertake four years ago. "Boskalis is active in 75 countries worldwide, and we benefit from a strong financial backbone and structure. The combined experience encourages opportunities of larger and higher added value projects utilising our broad knowledge and delivery of turnkey solutions. For example, we have a well developed hydrodynamics department within the company that processes workability statistics assisting the offshore division, calculating risk and workability analysis for specific offshore works, on specific locations at specific times of the year," says Bert van der Velden, commercial director Boskalis Offshore Subsea Services.

Alongside Subsea Services' regional offices in Dubai, Singapore and Cape Town the business utilises a department in the Netherlands for its global operations from which it centralises functions such as project management, engineering, procurement and tendering. "Commercially we are active in regions close to clients but centralisation ensures that knowledge can be shared across multiple regions with the most up-to-date knowledge for tenders and operations. We operate across the North Sea with two dedicated DSV's, currently one in West Africa, and we are executing a project in Brazil with the vessel Smit Kamara, working for Petrobras. We have another vessel (Smit Komodo) in the Middle East in Dubai, performing air and saturation diving and ROV operations, as well as being active in the Far East from our Singapore base."

The latest acquisitions of Dockwise and Fairmount Marine into the Offshore Energy group structure further contribute to the growth in offshore, particularly with turnkey transport and installation packages. "Within our market we have seen growing demand, both with long-term and spot agreements for our diving support vessels," points out Bert. Boskalis has enjoyed progress within dredging, towage, salvage, infrastructure and the offshore division, which has contributed to a greater amount of growth. The addition of Dockwise has also contributed greatly to its performance. "Our clients appreciate our service, delivering a reliable and safe performance, but we are also conceived as being flexible, something that the market today demands," he adds.

The Subsea Services business has recently completed a project within the North Sea focusing on the lifetime extension of a jacket for Maersk Oil in Denmark. The two year programme, involving more than 300 vessel days for its DSV's saw the complete execution and subsea refurbishment of the Dan steel jacket involving Subsea 3D photogrammetric modelling to support the design and fabrication of new steel structures. Commenting on the project, Bert says: "Utilising two of our DSV's and incorporating air diving and saturation diving we have successfully installed all of the structures, including a new conductor guide level and several reinforced clamp around the jacket structure. This provides the jacket with a 40-year lifetime extension, and is one of the first significant lifetime extensions of a platform in the North Sea."

Comparing the age of the assets in the North Sea with the amount of gas available for extraction, Boskalis recognises the future opportunities available with the experience that it has captured. "We are active on the Danish, Dutch and UK sectors of the Southern North Sea and with the addition of our saturation

VROON OFFSHORE SERVICES B.V.

Vroon Offshore Services B.V. strives to have long-term relationships with our clients. It is our mission to meet and exceed our customer requirements. We deliver motivated crew, and safe and efficient operations on vessels that are fit for purpose. With more than ten successful completed projects for Boskalis we strongly believe that working together and making use of our joint expertise have contributed to their success. Vroon Offshore Services B.V. operates five subsea support vessels and we have two new vessels on order. The next generation of vessels is on the drawing board and the feedback of our client is translated into these new designs.

Vroon is an international shipping company with a fleet of about 160 vessels and approximately 4,000 seafarers.

In addition, the company currently has more than 30 newbuilding vessels on order. With its head office based in Breskens, Vroon has offices in Barendrecht, Terneuzen, Den Helder, Aberdeen, Stokesley, Genova and Singapore.

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For more information, please visit our website www.vroonoffshore.com or contact our Crewing Department.

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diving DSV, the Constructor, we have been able to enter the diving market in the Central North Sea sector of the North Sea as well. We believe that the Southern and Central North Sea holds a good market share for us to tackle," highlights Bert. The market in West Africa further provides an alternate location for activity, and the single bell saturation diving vessel it operates has proved to be appreciated for capabilities it offers to the market.

Through its dedicated HR and recruitment department, Boskalis operates a large in-house training and development programme for staff and fleet personnel, offering an offshore professional programme to further develop skills and integrate new talent into the business. "We also have a 'young professional' programme for graduates and those beginning their career. We run two trainee programmes each year, in which graduates work across business units to gain a well rounded experience within the company. Foreseeing possibilities of expansion offshore, Boskalis has developed a three-year strategy that addresses focus, expansion and strengthening. Through focusing on the market, we target regional focus as well as value added assets. We also want to expand, and see that our most attractive growth potential is in offshore energy, and to tackle this, we must strengthen both the fleet and the workforce," concludes Bert.

Royal Boskalis Westminster N.V. is a leading global services provider operating in the dredging, maritime infrastructure and maritime services sectors. The company provides creative and innovative all-round solutions to infrastructural challenges in the maritime, coastal and delta regions of the world with the construction and maintenance of ports and waterways, land reclamation, coastal defense and riverbank protection. In addition, Boskalis offers a wide variety of marine services and contracting for the offshore energy sector including subsea, heavy transport, lifting and installation (through Boskalis Offshore and Dockwise) and towage and salvage (through SMIT). It also has a strategic partnership in terminal services (Smit Lamnalco). With a versatile fleet of over 1100 units Boskalis operates in around 75 countries across six continents. Including its share in partnerships, Boskalis has more than 11,000 employees. O&G

TRAC OIL & GAS

TRAC Oil & Gas is a leading global provider of inspection, maintenance and specialist access services. Developing a strong and continuing working relationship with Boskalis over the last three years, TRAC has provided rigging, mechanical and construction services in various sectors across several major, high profile projects. These included rigging support for removal and installation of large intricate subsea structures. These works have all been completed safely and successfully with the use of rope access techniques.

Bulking up

OOSTWOUDER TANK-&SILOBOUW BV

Oostwouder Tank-&Silobouw BV is proud to be a main contractor for Standic's new tank pit 7. The contract contains 11 tanks 500m³, 12 tanks 1000m³ and six tanks 1500m³ in stainless steel and carbon steel execution. All tanks are shop fabricated, shipped to Standic and craned on foundation. The delivery includes all roof access stairs and walkways. The company's core business is design, fabrication and delivery of stainless storage tanks ranging from ten to 10,000m³ per unit. It invented CoilBuilding Technology and field erection of SS tanks is its speciality.

SPIE NEDERLAND

SPIE Nederland B.V. executes detailed 3D engineering for the mechanical, piping and E&I installations for the new tank pit. During the engineering phase, various model reviews ensure that the design meets all expectations. Prefabrication takes place in SPIE's workshops off site. Because of the multi technical approach of SPIE Nederland B.V. the installation works will run smoothly.

Strategically located between Rotterdam, Antwerp and Ruhrgebiet, STANDIC BV, originally known as Gebroeders Broere (GB) has more than more than 50 years of experience in tank storage, as commercial director Paul Voogt begins: "The terminal was built initially in 1958 by GB, which started as a bus transportation company in the South-western part of Holland many years before. After a substantial growth the company was constructing tanks for its own fuel usage; it became increasingly successful in tank storage in the ARA-region over the decades and was acquired by Pakhoed in 1989. Following a decade of operating under Paktank (a Pakhoed company), its parent company merged with Van Ommeren to create the new company, Vopak, in 1999. STANDIC was part of the Vopak group until 2007, when it was acquired by Hametha, a Dutch family owned company. One year earlier Hametha had already taken over a terminal from Petroplus in Dordrecht, Haan Oil Storage, which is highly successful in the storage of various mineral oils

"Today, STANDIC focuses on the biofuels, chemicals and lubricants markets, while Haan Oil Storage focuses on the mineral oil market for bunker oil, heating oil and all grades of gas oils."

Having focused on the growing storage market for bio fuels since 2006, STANDIC turned its attentions to bio diesel a few years later; a strategic move that was a key driver in increasing capacity at the terminal. "We constructed a new tank pit in 2011, which is mainly focused on the bio diesel market and adds an extra 64,000 cubic metres of capacity to the terminal. Today we have close to 200,000 cubic metres of storage in STANDIC and are currently expanding this volume capacity with a further 43 tanks. This will amount to a further 36,000 cubic metres at STANDIC, which will be ready for operations as of the first quarter of 2015," says Paul.

Stemming from a significant increase in the number of tank trucks coming into the terminal as well as the number of ISO containers being imported to Europe, STANDIC's investments will further strengthen its foothold in the market as a well-located terminal with various tank sizes and 21 loading bays for tank trucks, tank containers and rail tank cars, as Paul highlights: "This increase in tank trucks coming was first noticed around three years ago, and has only increased since then, with more than 17,000 tank trucks handled per year. Our unique selling points, such as location and variety of tank sizes, means it is ideal for us to further increase the terminal into a more tank truck distribution-based business.

"Furthermore, with our 21 loading bays and a first-come-first-serve basis of providing to our customers, we have a quick handle on incoming

trucks that many companies find attractive. In order to be proactive against the potential upcoming issue of congestion, we have ten more loading bays being constructed in the new tank pit at the moment."

With 194,500 cubic metre storage capacity in K1, K2 and K3, heatable MS and SS tanks, 120 storage tanks, as well as a broad spectrum of 15 tank sizes ranging from 156 cubic metres to 6600 cubic metres, STANDIC is fully prepared to be a partner to its customers and find solutions to their tank storage needs. Its terminal capacity includes 27 partly heatable tanks at tank pit one, 24 non heatable tanks at tank pit two, seven heatable tanks at tank pit three, 18 partly heatable tanks at tank pit four, 15 partly heatable tanks at tank pit five and nine ss/18 ms heatable tanks at tank pit six. In addition, STANDIC offers blending and nitrogen blanketing possibilities, short, dedicated lines from the tanks to the loading stations and short, dedicated lines from the jetties to the tanks.

However, despite the impressive range of tanks STANDIC has available to its customers, it is adding to its portfolio with tank pit seven, which will include 43 new tanks and a special focus on chemicals with tank truck loadings and unloadings. The tank capacity will be 36,000 cubic metres, with 20 stainless steel 500 cubic metre tanks, 17 stainless steel and mild steel 1000 cubic metre tanks, and six mild steel 1500 cubic metre tanks. All tanks will be heated and insulated, able to supply nitrogen and will have dedicated lines. Each tank will have its own dedicated tank line, a dedicated truck pump and its own dedicated loading arm. "The first tanks will be operational in the first quarter of 2015 and the terminal will be fully operating in the final quarter of 2015," explains Paul.

This new pit is already proving to be a significant addition to STANDIC, following the finalisation of a major tender with a number of suppliers who are ready to make use of the facilities when they become available. "Together with Tanc, which is co-ordinating and guiding this project for us from design to finalisation, we have organised the tender for this project in Dordrecht. The tender was finalised a few months ago, so we started with the construction of the tank pit's foundation in April 2014; this was constructed by Breda Bouw, a civil works company that we also worked with on tank pit six. The same counts for Spie, which will do all the mechanical, piping and E&I of this new tank pit, as they did before with tank pit six.

"We also have two Netherlands-based companies, constructing the tanks in-house; these have been split into stainless steel and mild steel, however, the majority are stainless steel. Oostwouder Tank- & Silobouw BV is constructing the stainless steel tanks for us in-house. Soon the tanks will be shipped from the Northern part of Holland to Dordrecht

and placed in tank pit seven. A large crane will place all tanks with utmost precision on their foundations. Although the main focus will be on loading and unloading trucks, we have chosen the design of the tank pit for multipurpose operations with maximal flexibility. Therefore we have chosen multipurpose twin-screw pumps to load both vessels and tank trucks. All pumps are supplied by Kampers Pumps & Services."

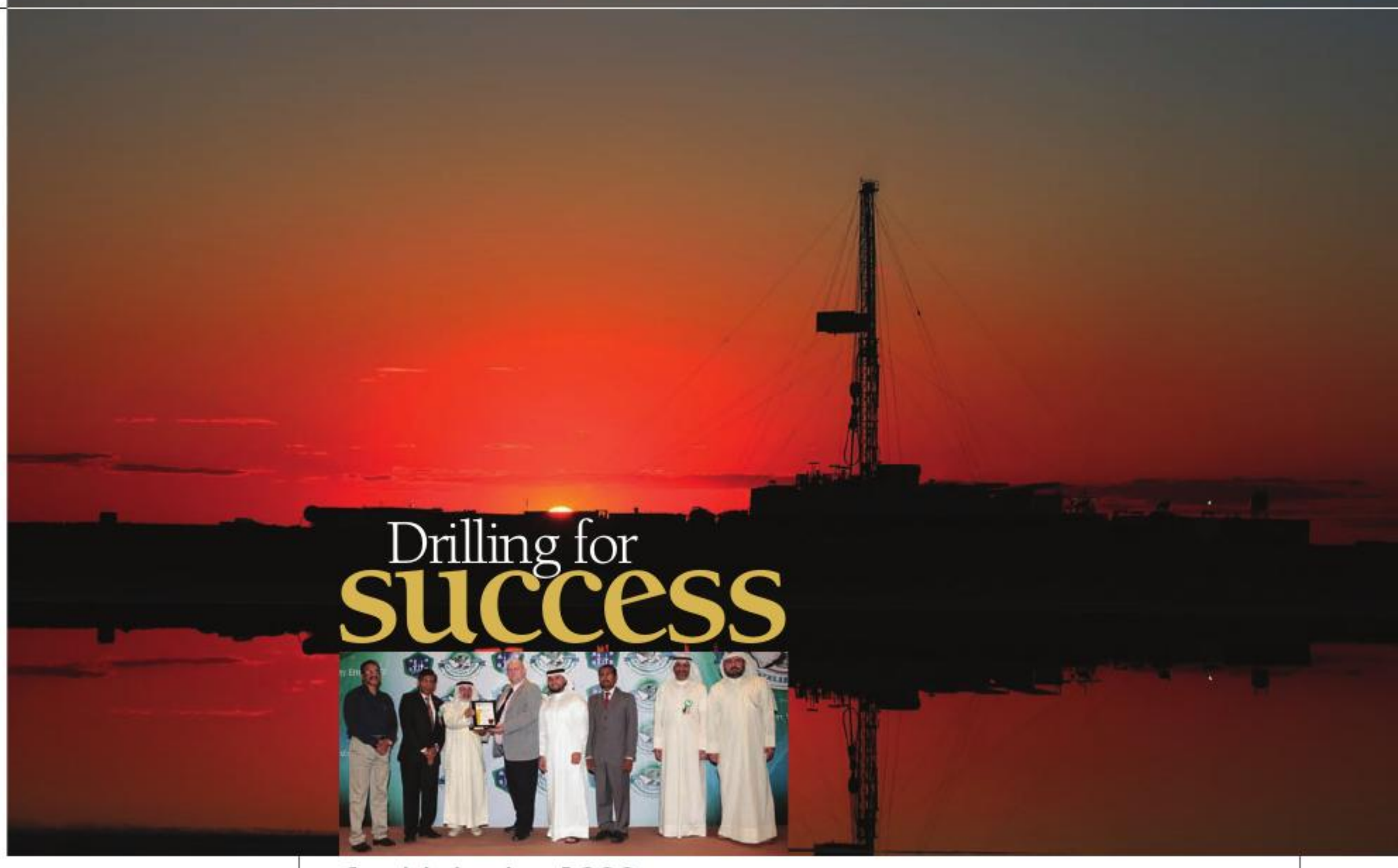
With major developments currently ongoing, STANDIC will be looking at further investing in its terminal's ageing facilities over the coming years, as Paul concludes: "The first tank was constructed in 1958 and other areas were originally developed in the 1970s and 1980s so re-modernisation is an important focus for us over the next five to ten years. For example, the tank truck loading locations will be modernised, and developed in accordance to the latest standards."

BREDA BOUW

For our client TSA (Standic) we are busy with our third project related to their expansion of activities. The first project was the engineering of tank pit six (municipality planning permission) and realisation of the civil works including pipe bridges, loading platforms, sewer works and roads. The tank pit area is 13000 m2. The second contract we realised was a pipe bridge connecting their harbour facilities an existing tank pits with tank pit six.

Again we are responsible for the foundation works, concrete works, sewer works and pipe bridge including loading platforms. We are working together with several other contractors who are responsible for the piping, instrumentation pumps tanks etc. Tank pit seven has a surface of 8500 m2 and will hold a total of 43 storage tanks. The foundation consists of 1200 piles with an average length of 22 meters. To facilitate the loading of trucks there will be ten loading points.

At this moment we are busy with the realisation of tank pit seven having already done the engineering on behalf of the client.



Drilling for success

Above
American Society of Safety Engineers Gold Award

Right
Operation manager, John Tapp, with the general manager Ali Bou Dastour

Below
Hani Alghareeb, quality management representative at GDMC

Established in 1982, Gulf Drilling and Maintenance Co (GDMC) was founded to serve the petroleum and water industries. Its early activities included water well drilling and related operations such as slickline services. As the company began to grow GDMC gradually introduced new operations including coiled tubing services along with pumping and filtering capabilities. Over time the company's service offering was expanded further and today GDMC is a fully integrated oilfield service operator.

After over three decades in business the company remains in private hands, allowing GDMC to be proactive in responding to the needs of its clients quickly. Indeed, the needs of its clients and effective customer relationships are at the heart of the company's operating philosophy. "When customers buy our service, they are buying the benefit that it brings them," says GDMC operations manager, John Tapp. "Thinking about how the business can benefit our customers allows us to pinpoint our competitive advantage. Our services are preferably, but not necessarily unique, while the openness and honesty of GDMC along with its high service quality makes our customers very loyal and a joy to deal with. Our ongoing market research continuously feeds our customers with the latest technology and having an open resources policy helps to give us a competitive edge over our competitors. We always seek to highlight the benefits of operations to customers rather than boast about the business itself."

Long-term customer relationships are highly important to GDMC. Presently the company is active in Kuwait where it works in close co-operation with the Kuwait Oil Company (KOC) and a joint venture between KOC and Chevron amongst others. Working closely with clients allows GDMC to provide bespoke solutions tailored to the needs of its customers, as well as develop a long-lasting relationship to the benefit of both parties. To ensure that the company remains fully focused on the needs of customers and the relationship between itself and its clients, GDMC has created its own customer relationship management (CRM) system, as John explains: "Often as companies grow they lose intimacy with their clients, as the load of dealing with extra customers means that it is hard to keep track of all the relationships that the business is building with them. Thus GDMC established a department for business development with a team that is focusing on building relationships with clients and gaining regular feedback through customer satisfaction surveys. CRM systems can be used to make sure that customers continue to feel close to the company, regardless of the scale and pace of business growth."

Broadly speaking, GDMC divides its services into five areas, comprised of slickline; logging; testing; well intervention and asset management operations. The company operates a large fleet

of slickline trucks that are equipped with a wide variety of tools for standard jobs in two 2/8 inch and three 1/3 inch tubing. All of its trucks are equipped for sweet and sour operations with standard pressure equipment rated 5000 psi working pressure and a wide selection of tools is also available up to five 1/2 inch. GDMC also operates 10,000 psi and 15,000 psi working surface pressure equipment with grease injection, while all stuffing boxes and blowout preventers (BOP) are hydraulically operated.

Within its logging division GDMC's experienced crews provide reliable services in open and cased hole and production logging, using reliable and high quality equipment from trusted oilfield tool manufactures. Field interpretations are performed in association with reputable data processing partners and GDMC also caters for all of its clients' perforation needs whether they be conveyed through electrical line or tubing.

Further to these services the company offers a comprehensive base of well intervention and asset management services for Xmas tress and associated valves, wellheads and production tubing. Alongside this, a comprehensive database is kept for all covered assets and a preventative maintenance schedule is set up to ensure continued smooth and safe operations and uninterrupted well production. When it comes to well intervention GDMC maintains a highly skilled coiled tubing division with additional pumping, nitrogen stimulation and filtering capabilities. The company also aims to provide clients with a one-stop-shop for all of their cementing needs, with no job too large or too small.

Health, safety and environment (HSE) remains a top priority for GDMC throughout all of its operations as well quality management, both of which will continue to take centre stage as the company gears up to enter into new markets over the coming years, as John concludes: "Our future plans are aimed at developing the quality of service offering to meet international standards. Within five years GDMC will expand its business into different countries, although not necessarily in another region. This challenge will require a lot of attention and effort and we started the journey to that vision through implementing API Q2 quality management system along with ISO 9001:2008. This demonstrates the solid and robust service quality that we offer our clients. The company has made a dramatic shift in recent times towards increased service quality by establishing a new department to focus more on standardisation and compliance with international standards." OGG

> Working closely with clients allows GDMC to provide bespoke solutions tailored to the needs of its customers, as well as develop a long-lasting relationship to the benefit of both parties

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Maritime innovation

Above
FSIV Karina III

Below
Emerald Star

With a history dating back 125 years, Shipyard de Hoop has a long maritime tradition and has earned a reputation as one of the Netherlands' leading shipbuilders. The business was founded in 1889 in the village of Lobith, located on the east border of the Netherlands near Arnhem. The Lobith shipyard is situated on the river Rhine with a direct connection to the Rotterdam harbour and covers an area of 105,000 square metres, including the company's head office and engineering office. The yard employs 140 experienced craftsmen and has a further 50-150 local contract staff available as well as a network of highly skilled contractors that the company collaborates with during periods of high workloads.

During 2007 the business acquired its second shipyard from the established and highly experienced Volharding Shipyards. Renamed de Hoop Foxhol, the yard covers 25,000 square metres, employs around 65 experienced craftsmen, and between ten and 50 dedicated local contract staff as well as local subcontractors. De Hoop Foxhol features a full range of state-of-the-art facilities, including slipway facilities for sideways launching to accommodate vessels up to 135 metres long and 16 metres wide, as well as a workshop for small steel work and prefabrication workshops. The two yards boast a combined quay length of 450 metres, which is bolstered by an additional 200-metre quay in Rotterdam. This additional quay space is mainly used in the outfitting of ships that have been built at the Lobith and Foxhol shipyards, making it an ideal location to add the final finishing touches to vessels.

During the past two years Shipyard de Hoop has remained highly active and produced a number of vessels for several industries, allowing the company to continue to grow despite volatile market conditions. "Our company has been through various developments during the past two years," reveals CEO Patrick Janssens. "We have designed, built and delivered a series of newly designed offshore work vessels for several applications for international clients. During 2012 and 2013 we built four river cruise vessels, these luxury cruise ships have ensured continued work during the worldwide credit crisis and the fact that we are able to design and build various types of vessels has been highly beneficial.

"We are currently in the final stages of building a next generation platform supply vessel (70 x 16 metre), which we designed and built for Delta Logistics of Trinidad. We have also designed and are building a new river cruise vessel for Leuftner Reisen from Austria. This will be the 11th ship we have built for this customer over the last 13 years, with the previous vessel, the Amadeus Silver, becoming the cruise ship of the year in Germany."

While financial issues may have caused oil and gas projects to stall throughout 2012 and 2013, the demand for product has always remained high. Anticipating the resurgence of operations as soon as 2014 and 2015, Shipyard de Hoop continued in the development of innovative designs for offshore support vessels. During July 2014 the first of its fast supply intervention vessels (FSIV) departed the Lobith yard in the direction of the Noordzee to begin sea trials. Custom designed by de Hoop to strict

environmental control, the hybrid diesel-electric powered 55-metre FSIV2000 is constructed primarily for low fuel consumption. "This new hybrid propelled designed was initially developed for a client that operates in the offshore oil fields in Mexico," Patrick elaborates. "From a technical point of view these vessels are designed for worldwide service, so they can be used in many areas. Whereas initially fast supply vessels are designed primarily for the transport of people to offshore platforms or other offshore destinations, the vessels can also be used in anti-piracy operations, as ferries, wind farm servicing, as well as for other offshore installations as well as a supply vessel. As a result we now have enquires from all over the world, varying from the west coast of Africa to the North Sea area."

The de Hoop FSIV2000 features an in-house designed hybrid propulsion system, which provides fuel savings of around 40-50 per cent compared to other vessels on the market. Furthermore the vessel is designed to be able to reach its top speed when fully loaded, which is something normally only possible on other ships when empty. The FSIV also features a robust all-steel hull that retains the benefit of light construction through the innovative high tensile steel. As a fully in-house product, Shipyard de Hoop is able to deliver FSIVs with a full range of bespoke options, as Patrick explains: "We design, engineer and build our vessels, which means that everything is possible. Some of the options often discussed with clients include upgrading from DP1 to DP2 FiFi installation and for example, adding ballistic protection or converting the seating area into extra cabins. We also have versions of this design with the accommodation placed further forward or with completely different dimensions."

Further to the successful sea trials of its FSIV2000 design, De Hoop is soon to launch a 68-metre offshore support vessel (OSV) for Awaritse Nigeria Limited. The vessel will be delivered in unrivalled time for an OSV of this quality and will handle a product called 'Transmix' in a special process offshore Nigeria. Commenting on how the rapid design and delivery of the vessel was made possible Patrick says: "Our engineers had to design something that holds the middle between a tanker and a PSV to very specific requirements. There were a lot of contradictory rules and regulations, which have made this innovative design a real challenge. Our yard is focused on special projects and sometimes what makes a project special is a short delivery time. Some examples of this include the 440 person accommodation barges that we built in 18 and 22 weeks, including engineering. Other projects are made interesting because of the new technologies and innovative features involved, this project has both making it the ultimate challenge."

Shipyard de Hoop is gearing up for a large celebration at the end of the year as it reaches its 125-year anniversary. The company has strong order books including a recently awarded tender to build ten PSVs for Abu Dhabi National Oil Company, meaning that it will remain busy for some time to come. Commenting on the future of the business Patrick concludes: "Right now we are focussing on various niche markets, which we expect to grow in the near future. By understanding our clients' needs and surprising them with new and innovative design ideas, we hope to increase our customers' earning power, and with this to continue our long-term relationships with them." O&G

Financial investment has played a massive part in the multi-billion joint venture company ONGC Petro additions Ltd (OPaL). It was first incorporated in 2006 as a PLC bringing together Oil and Natural Gas Corporation (ONGC) with co-promoters Gas Authority of India Ltd (GAIL) and Gujarat State Petroleum Corporation (GSPC). The venture was founded as a special purpose vehicle for the construction of the Dahej complex, a grass root mega-petrochemical project, destined to significantly boost the petrochemical sector as well as generating 1000 permanent and 15,000 direct and indirect jobs. The project is being implemented under the government scheme Petroleum, Chemicals and Petrochemical Investment Regions (PCPIR).

Aimed at becoming a world-class petrochemical company with a dominant Indian presence, the venture focuses on driving forward quality and value so that it becomes the preferred choice of customers. Leading process and design technologies coupled with locational advantages ensure OPaL is well poised to reach that goal, with the region already accounting for around 2/3rd of petrochemicals production in India. The multi-product special economic zone, on which the site is established, is one of the top 50 'free zones' in the world. The Delhi Mumbai industrial corridor being developed as a global manufacturing and trading hub is expected to triple the industrial output within five years. Such achievements will be made possible through extensions to ports, roads, rail and air.

Domestically, the belief in the Indian growth story is gaining strength from its inherent demographic advantages and rising consumerism, propelled by growing incomes and aspirations. Low levels of per capita consumption of polymers in India against the world average and some of the emerging economies corroborate promising demand potential. Due primarily to expanding end-user markets, positive economic development and

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In 2002, Linde was part of an alliance that built Borouge's first ethane cracker with a capacity of 600,000 tons of ethylene per year based on ethane feedstock. In 2010 the second cracker followed. With a capacity of 1.45 million tons of ethylene per year, this second cracker is the largest ethane cracker ever built. And within shortest time until now, the plant has reached a remarkable 100 percent availability.

The project was executed as scheduled in a consortium consisting of Linde's Engineering Division and CCC, a leading construction company. With the addition of the second cracker, Borouge was able to triple its output and thereby secure a position as one of the world leaders in polymers. Today, the consortium is constructing a third cracker for Borouge, which is a nearly identical copy of the second plant. All three projects demonstrate Linde's leading position as a technology and EPC contractor in the Middle East.

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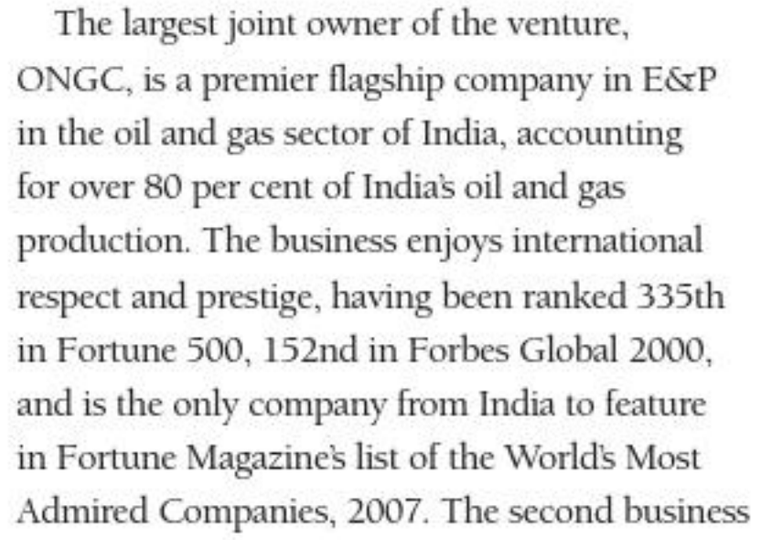
a rising living standard, domestic consumption levels for finished goods are increasing at a quickened pace and this venture will play a massive role in bridging the opening gap of that market. Historically, the polymer demand is intertwined with the economic growth, and such demand in India is huge and expected to further rise with the GDP. This venture also works as a perfect downstream integration for ONGC, the key promoter that will be supplying the feedstock required for this project.

The largest joint owner of the venture, ONGC, is a premier flagship company in E&P in the oil and gas sector of India, accounting for over 80 per cent of India's oil and gas production. The business enjoys international respect and prestige, having been ranked 335th in Fortune 500, 152nd in Forbes Global 2000, and is the only company from India to feature in Fortune Magazine's list of the World's Most Admired Companies, 2007. The second business involved, GAIL (India) Limited, is India's flagship natural gas company, integrating all aspects including exploration and production,



processing, transmission, distribution and marketing of the natural gas value chain. Apart from gas infrastructure, GAIL has diversified into petrochemicals, telecom, liquid hydrocarbons, power, liquefied natural gas re-gasification, and exploration and production through equity and joint ventures participations. Finally, GSPC is India's only state government-owned company in the oil and gas exploration and production (E&P) business. Having emerged as a global player in E&P, it has a portfolio of 50 oil and gas fields having acquired exploration blocks in Australia, Egypt, and Yemen.

OPaL's $4 billion integrated petrochemical complex, which will become the flag bearer for three other PCPIR schemes to follow, is at the most advanced stages of completion with commissioning scheduled for 2015. The complex is one of the largest of its kind in the

country, and will consist of a dual feed cracker unit and associated facilities with a capacity to produce 1.1 million tonnes of ethylene and 400,000 tonnes of propylene annually. The complex will supply about 50 per cent of its products to overseas markets such as Africa, China, Vietnam, Malaysia, Indonesia, Turkey, and Sri Lanka. The grass-root complex is the largest of its kind in India, on a single location, and once commissioned will have the capacity to distribute 180 MW of power to various polymers and other associated units, utilising state-of-the-art technology across 41 bays, which will represent the longest in India.

Testimony to the business is the vast amount of engineering work that has been undertaken, from the dual feed cracker units capable of cracking C2, C3 and C4 gases and liquid to the specially designed cooling tower and cooling water system. Suitably designed to meet some of the most demanding applications, its products include HDPE, LLDPE and PP in polymers, responsible for transforming applications in varied industries including the packaging industry such as woven sacks, oil packaging, wire ducts or high barrier thin films that increase shelf life for the products they protect. Other liquid products in the basket include Benzene, Butadiene, Pygas and CBFS, essential for the creation of products used heavily in industry today.

Driven to provide the latest, industry leading products, the company has established a product application resource centre (PARC), focused on testing, processing, R&D and business development. In doing so, it continues to act as a leading force in the realisation of the complex, ensuring the highest quality without neglecting its responsibility to ensure environmental protection, establishing a relationship with the community for mutual benefit.

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Operating with assets within several major oil-producing provinces in Eastern Africa, Africa Oil Corp (AOC) is a world-class exploration company with an aggressive strategy and a current total gross land package in excess of 215,000 km2. Presently its assets are located in Kenya and Ethiopia along East Africa's rift basins and the company's presence is further enhanced by its ownership of 45 per cent equity interest in Horn Petroleum Corporation, which maintains assets in Puntland, Somalia.

During May 2014, AOC graduated to a listing on the main Toronto Stock Exchange (TSX) under the trading symbol AOI, following the success of the company over the past few years. Keith Hill, president and CEO, commented: "The company has enjoyed tremendous growth over the past few years as a result of our multiple major oil discoveries in Kenya. We expect much continued growth as our exploration continues on our large prospective land package in Kenya and Ethiopia. Our acreage encompasses over 215,000 square kilometres and we've really only just begun to uncover the extent of the oil resources there. It is timely now to graduate to the senior boards of both the TSX and the NASDAQ OMX exchanges as it will provide greater liquidity for the company's shares and allow for a broader shareholder base."

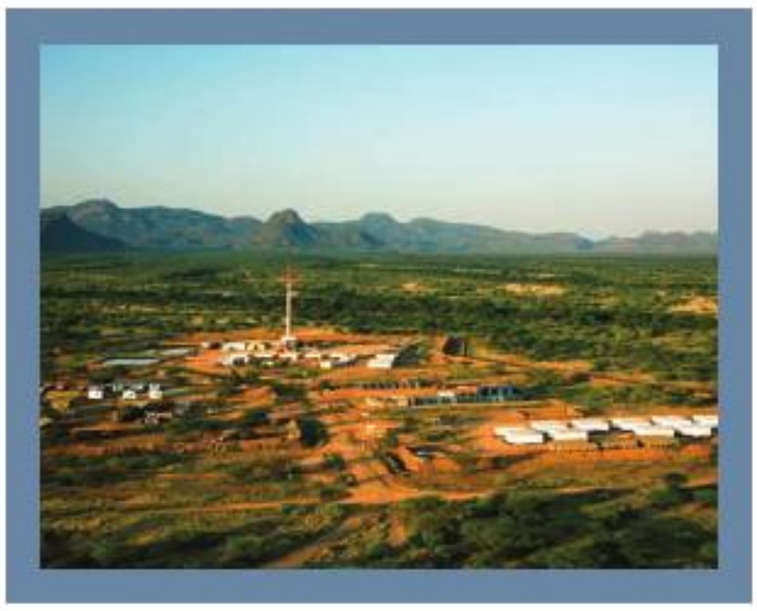
Since AOC was last featured in *European Oil & Gas Magazine* during March 2014, it has continued to focus on its campaign in the South Lokichar Basin in Northern Kenya, while working to explore potential discoveries. "In the past seven months we have continued to build resources in the Lokichar basin as well as explore new basins in the company's portfolio," Keith explains. "Our biggest advances are in the Amosing and Ngamia fields where we have seen a dramatic contingent resource growth. Our contingent resources are now 616 million barrels gross (308 million barrels net to AOI) and we are moving down the path to development."

May 2014 also saw AOC announce that plans were underway to drill prospects in three additional new basins as part of its ongoing strategy for exploration, and further projects are set to follow as Keith elaborates: "We have drilled wells in the Chew Bahir basin in Ethiopia where we were not successful, due to what we believe was a lack of source rocks. We did make a gas discovery in the Anza Basin and are currently drilling a well in the Central Kerio Basin. We have plans to drill an additional seven basins in the next 14 months."

In continuously tapping the potential of its fields throughout Kenya and Ethiopia AOC has undertaken a significant exploration and appraisal programme during 2014, including the completion of more than 20 wells in Northern Kenya. "The appraisal and exploration programme continues to be successful and we are adding resources with a 67 per cent increase in contingent resources

this year. The new basin opening wells will provide the biggest upside potential but also carry the highest geological risk."

Indeed during 2014 AOC has increased its proved and probable contingent resources (2C) and its proved, probable and possible contingent resources (3C) in the South Lokichar Basin in



Blocks 10BB and 13T in Kenya. Following an independent assessment undertaken by Gaffney & Associates total 2C gross contingent resources increased by 67 per cent to 616 million barrels, while total 3C contingent resources increased 52 per cent to 1.29 billion barrels in the South Lokichar Basin. "The large 3C resource is certainly a significant item," Keith says. "Our goal over the next year is to move as much of this resource into 2C contingent resource, which should be reclassified as proven and probable reserves once the pipeline and development project are approved." These findings do not take into account resource estimates for areas outside of the South Lokichar Basin, which will be reviewed following a comprehensive update by the end of 2014.

Africa Oil Corp works closely with its partner, British oil and gas firm Tullow Oil PLC, which jointly with AOI owns a 50 per cent operating interest in five licences covering the East African Rift Basins in both Ethiopia and Kenya.

Following the significant volumes of product discovered and the extensive exploration and appraisal programme already underway to fully access the upside potential of the basin, the Tullow-Africa Oil joint venture has agreed with the Government of Kenya to development studies. In addition to this the venture is involved in a comprehensive pre-FEED study of the export pipeline with a shared ambition with the Government of Kenya to reach project sanction for development including export pipeline in early 2016. Commenting on the progress of the projects Keith says: "The joint Kenya-Uganda pipeline is on course with two main issues being the final routing and commercial structure. We expect to see these issues resolved with Uganda partners and host governments by the end of 2014 or early 2015. Construction is expected to be completed by 2018/19."

With continued investment into exploration and appraisal and increasing volumes of 3C and 2C contingent resources, AOC is well placed to enjoy continued success throughout the rest of 2014 and well into 2015. Concluding on the company's current goals, Keith concludes: "Our goals are simple; add resources and move the development project forward in the proven Lokichar Basin and open at least one new basin in the coming year." OEG

INTERNATIONAL SOS

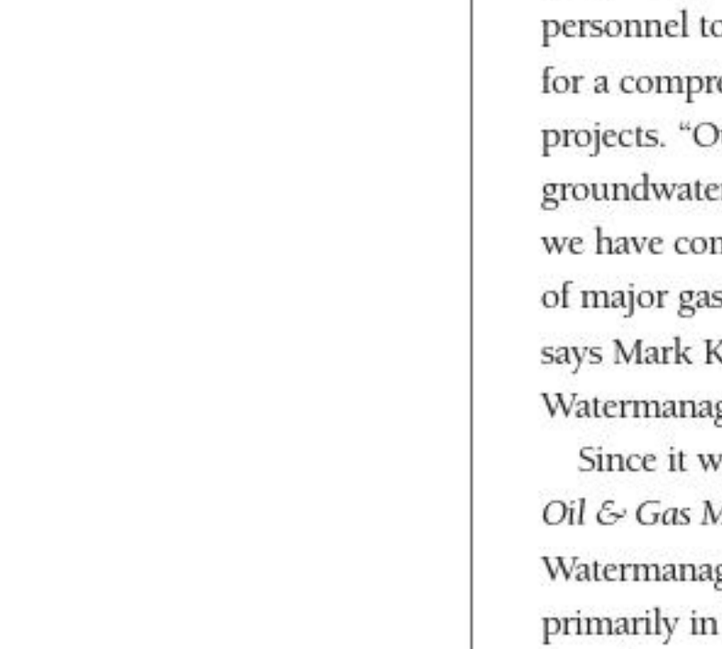
International SOS is the world's leading medical and travel security risk services company operating from over 700 sites in 89 countries with 11,000 employees, led by 1200 physicians and 200 security specialists. Our global services include assessing medical and travel security risks, advising on preventative programmes with in-country expertise and assisting with emergency response for business travellers and global assignees.

We have pioneered a range of preventative programmes and offer an unparalleled response to emergencies. International SOS has 30 years of experience in helping energy and hydrocarbon companies manage the health and safety of their employees in remote, offshore and developing communities worldwide. International SOS is ISOS 9001:2008 certificated for its global medical governance, assistance services and remote site operations. This achievement means that our clients and employees have quality assurance and access to the best medical care provided by International SOS.

Plans in the pipeline

From humble beginnings as a water well driller for local farmers in 1969, Mr G Koop's business has developed over the years to become a highly experienced provider of dewatering services for pipeline construction. Drawing on over 40 years of expertise, the contractor and consultant has all necessary international certificates for quality as well as up-to-date equipment and well-trained personnel to ensure state-of-the-art solutions for a comprehensive range of infrastructural projects. "Our first major project for lowering groundwater for gas pipelines was in 2001; today we have completed more than 3000 kilometres of major gas pipelines for dewatering activities," says Mark Kuipers, marketing manager of Koop Watermanagement.

Since it was previously featured in *European Oil & Gas Magazine* in April 2012, Koop Watermanagement has continued to work primarily in Europe, while also setting the foundations for further growth with the establishment of Koop Watermanagement Middle East in 2013. Meanwhile, having gone from strength-to-strength over the years, the company has taken on increasingly more challenging projects. None so challenging than the completion of a 90 kilometre pipeline for NV Nederlands Gasunie, which is working on the Dutch Government's ambitious gas roundabout concept; the aim of which will see the Netherlands become a critical part of a major gas hub for Northwestern Europe.



"We started 2013 working on the most complex project in our history – a 90 kilometre gas pipeline based in the Netherlands. The pipeline was placed in a wetland area with a high groundwater pressure in the soil, so when Gasunie's contractor began executing the ground for laying the pipeline there was a danger of bursting the bottom of the pitch. As a result, our geo-hydrologists had to make many calculations and models of the applicable dewatering systems. The challenge lay mainly in the translation of theory to dewatering techniques in practice," says Mark.

"Our activities were dealing with the groundwater pressure from beneath the excavation point so the bottom will be intact and they could then safely lower the pipe into the ground. It was an extremely complex and intensive project for us, with a lot of materials, pumps and personnel used; for similar lengths of gas pipeline projects we have around 25 to 30 personnel on site, however, for the heaviest point of this major project we had almost 50 personnel working," he adds.

Subcontracted by a number of contractors and joint ventures for the necessary dewatering of approximately 50 per cent of Gasunie's major 500 km long 48 inch gas transport pipeline project. Main contractor A. Hak used Koop's expertise, expansive fleet of machinery and personnel for the complete scope of dewatering for the construction of the last gas pipeline project Beverwijk-Wijngaarden Lot one and two. Totalling at 60 kilometres, the work for A. Hak required an ambitious schedule to ensure the five construction spreads could fully run during peak periods. Successfully overcoming these logistical challenges, Koop used the just in time principle for installation to complete the job with its own resources; this included 50 employees with pick-ups, three drilling rigs, three trucks, 400 pumps, 40 kilometres of discharge pipe (mainly six inches, ten inches and 12 inches), as well as de-iron sand filter systems. "We have a large fleet of equipment, with several machines and a number of trenching machines for horizontal drainage, which means we supply almost everything ourselves throughout a project," highlights Mark.

During extraction, the company used its own trenching machine to install drains at a depth of 3.5 to five metres below ground level, installing a total of 35 kilometres in drainage. Meanwhile, to control high water pressures in the polder area, Koop Watermanagement installed its drilling rigs on a heightened position, up to two metres above ground level. This helped to create overpressure, which enabled the company to reach its required depth. Throughout the project,

the company drilled and installed more than 500 pressure relieve wells; these had a diameter of 250 millimetres and were executed with three drilling rigs and expert teams. In addition, the company combated the challenge of multiple soil layers to install gravy filters, which have water flow into them by gravitation. These were installed at a depth of nine metres to achieve the necessary drawdown.

Another major challenge was the extraction of saltwater, which meant discharge could only be done into surface water that consisted out of saltwater; because the pipeline route had very few of these discharge points available, multiple pump stations were installed. Meanwhile because of the high levels of iron in the groundwater and the high requirements of the water authority, Koop installed groundwater treatments up to 250 m3/h to lower iron concentration. A continuous dewatering operation at this pipeline construction shall be provided to keep the excavation stable and free of water. The groundwater levels at the excavations and the quality of the extracted groundwater are continuously monitored to ensure the pitch remains stable, free of water and we don't cause any environmental damage.

Following this major contract, the dynamic firm is due to start working with Belgian gas supplier Fluxys on its new pipeline, which will run from its new LNG terminal once it is constructed. Furthermore, Koop will also be targeting opportunities in the growing gas pipeline in Belgium and France, as Mark concludes: "At the moment there are a lot of gas pipeline activities in Belgium and France in comparison to the Netherlands. However, Gasunie has started a large-scale maintenance project called GNIP, which will involve the replacement of valves, piping diagrams and other equipment. We also have some activities coming up in the German market such as dewatering projects for new gas stations. Currently our work in the Middle East is focused on the construction industry, but we anticipate potential opportunities in the oil and gas industry in the future." OGG

IMPULSE PUMPS

For over ten years now there has been a valuable relationship between Koop Water Management BV and Impulse Pumps BV. This relationship, between a professional user of dewatering pumps and the manufacturer of those pumps, has offered the opportunity to design and develop products exactly designed in the mind of their user(s).
The strength of Impulse Pumps' products is based on having an exact understanding of the usage of the pumps. Reliability, maintenance accessibility, dimensions, weight and transportation possibilities are just some of the keywords associated with these products.
Impulse Pumps BV would like to thank Koop Water Management BV for their input.

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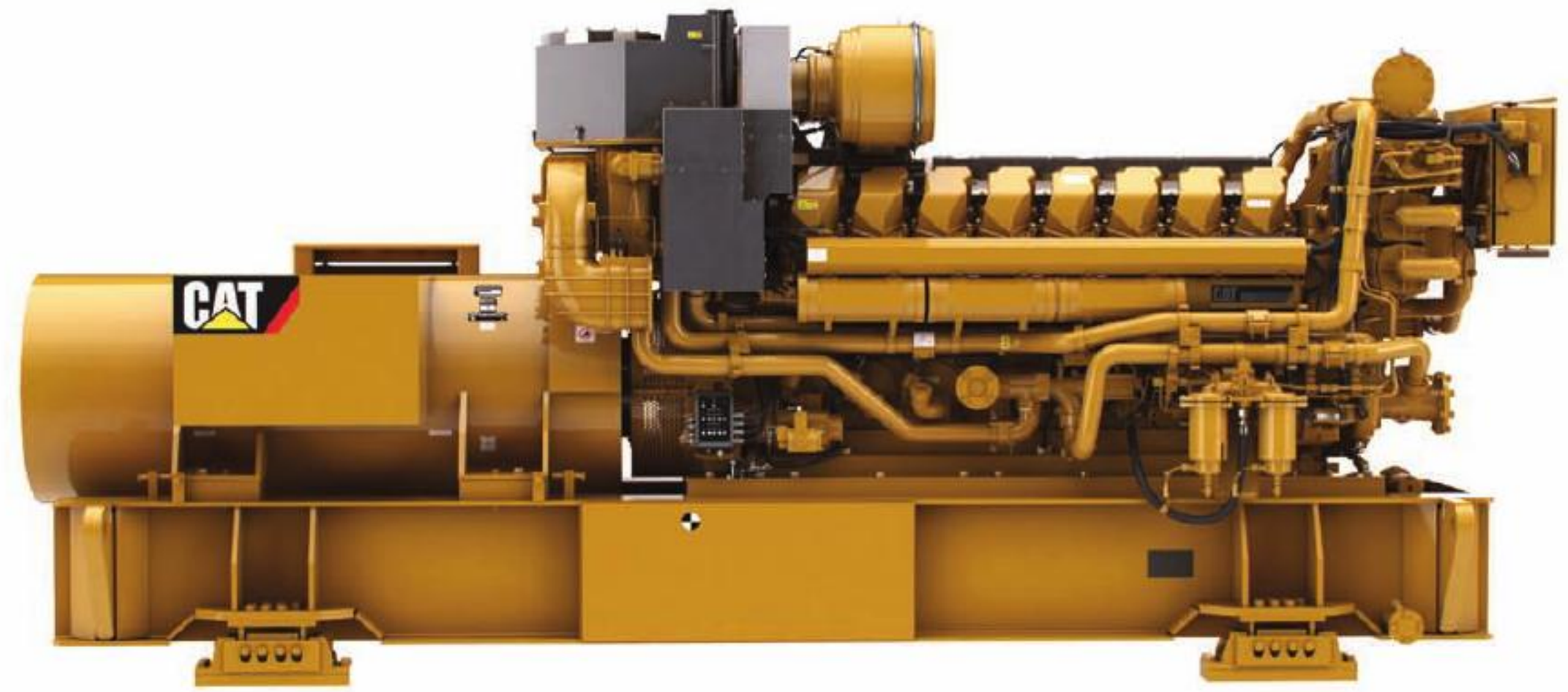

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Through sea and air

Founded in 1985, Atlantic Marine & Aviation LLP is a rapidly expanding business with a wealth of experience in air, sea and property. Today the company's strongest areas are commercial shipping, yacht management and aviation, where it has close to three decades of experience in asset ownership and management. Within the commercial shipping sector, Atlantic Marine & Aviation is solely engaged in chartering vessels that are fully managed and crewed with a particular focus on offshore support and supply vessels as well as survey craft. The company's yacht management division offers crewing, management and charter services for vessels ranging from 30 metres to 80 metres in length, while its aviation sector owns and operates private jet aircraft for charter.

Following meetings with clients within the offshore sector during 2009, the company began a programme of acquiring further vessels to serve this market. By 2010 it had acquired the first vessel in its new fleet, the Atlantic Guardian, and from thereon the company went on to acquire a further five ships. During 2012 Atlantic Marine & Aviation acquired the Atlantic Wind and Atlantic Carrier as part of its continued expansion. Commenting on the fleet in 2013 when the company was last profiled in *European Oil & Gas Magazine*, managing director Paul Crowther said: "Our unique selling point is that each one of our vessels is multipurpose with its own unique capabilities. Every vessel is capable of doing something different to its sisters in the fleet. Our model is based upon purchasing older tonnage that is in a good condition and then putting a lot of investment into the vessel at the outset to make it as multipurpose as possible. This enables us to offer extremely competitive rates of between 20 and 30 per cent less than anyone else in the marketplace for our particular vessel."

Indeed throughout 2013 and 2014 Atlantic Marine & Aviation has continued to invest in its fleet to ensure that it is able to provide

a broad base of solutions to the changing offshore and oil and gas markets. During 2013 the company announced further expansion to its fleet with the acquisition of the Atlantic Explorer. Previously named MV Deepworker, the vessel was converted into a bespoke working platform for deepwater exploration, survey and salvage operations. Furthermore the vessel was refitted with a L3 Naurtinox NMS 6000 dynamic positioning system (DPS) and a four metre by 4.5-metre moon pool, which allows it to safely undertake high precision and remote subsea operations. The ship also carries a full spread of survey support equipment including ROV, a 20 tonne subsea umbilical and winch capable of

Below
Paul Crowther, managing director Atlantic Marine & Aviation

depths in excess of 1000 metres, control systems and a highly sophisticated ROV motorised GRAB unit. Further enhancements are available through the use of optional tools including a clamshell grab, cutting tool, trenching equipment and a mass flow excavator.

During 2013 and 2014 the Atlantic Explorer made use of its advanced DPS and its thruster powered ROGE-WROV in excavator mode for work on the ocean floor. The ROV was

launched over 10,000 times over an 11-month period for UK wind farm seabed preparation work. Chartered through Red 7 Marine to Humber Gateway wind farm, operated by E.ON and Dong Energy's Westernmost Rough wind farm, ROGE Systems Ltd operated the unique equipment to remove subsea boulders, surveyed unexploded ordinance and subsea cable routes and move metocean buoys.

Also during 2014 Atlantic Marine & Aviation further invested in its Atlantic Wind vessel by expanding its accommodation capacity with eight new cabins totalling 16 beds, each with en-suite facilities. The ship can now offer accommodation for up to 46 persons as well as her existing geophysical survey capability and multirole offshore support services. In addition to its investment in the Atlantic Wind, later on in 2014 Atlantic Marine & Aviation announced that it had converted the Atlantic Carrier into an advanced cable ship. Since the beginning of the year the company had been involved in a mammoth effort to convert the vessel by incorporating the latest cutting-edge cable laying technology. The ship has been specially refitted and designed for wind farm inter array cable lay operations and offers a unique solution in that it is able to lay cable from both port and stern quarters, giving the ship the flexibility to operate within multiple currents and lay directions. The ship's upgrades also include a new KPOS dynamic positioning system from Kongsberg, six point mooring controlled from the bridge from Atlas, a 50 tonne carousel, dual cable highways with dual cable engines, a 40 tonne construction crane and cable ramp. Furthermore, the Atlantic Guardian has just completed upgrade works to her four point mooring system at Small and Co shipyard in Lowestoft.

With a strong and flexible fleet, Atlantic Marine & Aviation has proven itself to be a reliable solution provider to several clients including Dong Energy and E.ON. With its broad base of expertise in commercial shipping, yachting and aviation, the company is well placed to meet the needs of it customers across a host of dynamic markets. O&G

With a strong and flexible fleet, Atlantic Marine & Aviation has proven itself to be a reliable solution provider to several clients

EUROPEAN OIL&GAS

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