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THIS ISSUE: Offshore diving







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At the Stort of a new year it seems only right that we take a look at some of the 'new frontiers' in the oil and gas industry, as our cover story for this issue highlights. The energy industry in South America has been steadily growing for some time, with Brazil being the focal point of much industry activity.

While many will rightly note that oil and gas in Brazil has been discussed for some time now (since the large pre-salt discoveries in 2007), our lead feature this issue takes a closer look at the sector, examining the reasons why Brazil offers a wealth of exciting opportunities. "Brazil is now officially on the world map as an oil exporter, following the tradition of other Latin American nations such as Venezuela and Mexico," says Gabriela Castro-Fontoura of Sunny Sky Solutions, on page four.

As we discover, with proven reserves of well over 15 billion barrels of oil offshore, Brazil is becoming a difficult market to ignore. Of course, there are challenges - pre-salt is notoriously difficult to extract from, and Petrobras' stranglehold of the market makes it a complicated place to work. However, with the 2014 FIFA World Cup taking place in the country and the allure of the 2016 Olympic Games as well, all eyes are on Brazil. Perhaps its time yours should be too?

EDITORS UBBIE HAMMOND & MATT HIGH

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**Above:** Derren Simpson, Tendeka's vice president for Middle East North Africa

# Technological leader

Tendeka has secured a three-year contract for the supply of downhole inflow control devices (ICDs) in the Middle East. The company has a proven track record for the provision of completions and reservoir monitoring products, systems and services to the upstream oil and gas industry. This contract is Tendeka's largest to date for the installation of its proprietary ICD technology in the Middle East.

The award, which was made by a major operator in the Middle East and North Africa, will see Tendeka install approximately 30 ICDs in 12 wells. The initial contract is for three years with a further optional oneyear extension.

Derren Simpson, Tendeka's
vice president for Middle East
North Africa said: "Installing ICDs
in a well results in delayed water
breakthrough because the inflow
profile is evened out; this helps
operators to maximise the well's
productivity and recovery factor.
The contract award highlights our
commitment to providing solutions
that respond to the oil and gas
industry's needs while maintaining
productivity and maximising yield.

"Our robust solutions help operators overcome the technological challenges they are facing. In addition we are constantly developing our offering to deliver the technology needed by the industry."

Derren concluded: "As our product line and service offering continue to develop it's important we maintain our focus on health and safety; our people are fundamental to the continued growth of the company."



# New and powerful

With 11 thrusters, unrivalled payload, and a host of advanced technology features, the new Saab Seaeye Leopard is the most powerful ROV of its size in the world. Aimed at the compact work-class market, the Leopard can handle more tooling, cameras and survey equipment than any other ROV in its class.

The minimal deck footprint of the Seaeye range is maintained with the combination of a 20 x 8ft single lift, A-Frame and winch LARS and a 20ft control cabin for easy transport and rapid mobilisation. Its pack of eight horizontal thrusters and three vertical thrusters gives the Leopard exceptional thrust, powering the vehicle forward at over four knots, and enabling it to hold steady in strong

For the pilot, the vehicle's iCON intelligent control system gives clear and enhanced information whilst independently managing each device on the vehicle, including auto redundancy that will keep the ROV working even with multiple equipment damage.

The combination of new chassis design, iCON building-block concept and exceptional power, means that more interchangeable equipment can be fitted than ever before in a vehicle of this size. Operators can therefore use the Leopard for a wide range of work tasks including drill support, pipeline survey, salvage and deep water IRM.

# High standards

cross-currents.

Lowestoft-based business Scour Prevention Systems Ltd (SPSL) has attained ISO 9001 accreditation for its Quality Management Systems from the British Standards Institute.

The company, based at the OrbisEnergy innovation centre, has developed an innovative and patented solution to remediate and eliminate scour around offshore structures and over cables, which is recognised as a significant problem across the offshore energy industries.

Scour is caused by the flow of water speeding up around or over an object, causing a hole to form in the seabed around the object, which gets progressively deeper. The mats consist of a matrix of end-of-life vehicle tyres, which stabilise the seabed and stop seabed scour.

The award reinforces SPSL's strong commitment to delivering high quality products to the offshore industry. Project manager Warren Hoskins-Davies said: "We're really proud to have successfully achieved this certification. It helps us to ensure customer satisfaction is at the forefront of everything we do."

Because the company's Scour Prevention Mats are made up of end-of-life vehicle tyres, stringent quality management has always been a key focus to ensure that high quality products are produced. Achieving the accreditation sends a key message that the systems in use by the company are appropriate and effective.





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# High Temperature Probes for MWD



# Fontiers

GABRIELA CASTRO-FONTOURA,

OWNER OF SUNNY SKY SOLUTIONS, DISCUSSES THE BRAZILIAN OIL AND GAS MARKET

he B of the BRICs, Brazil is Latin America's largest economy. With a GDP of USD 2.4 trillion in 2012, it is also the world's eighth largest economy. Economic growth has been positive but slower this year than expected: four per cent growth rates were revised down to 2.5 per cent during the year. The country battles inflation, currently six per cent, far from the 4.5 per cent target. Macroeconomic policy is also focusing on controlling the value of the Real, the national currency, while encouraging investment. Long-term economic challenges remain, such as competitiveness and productivity.

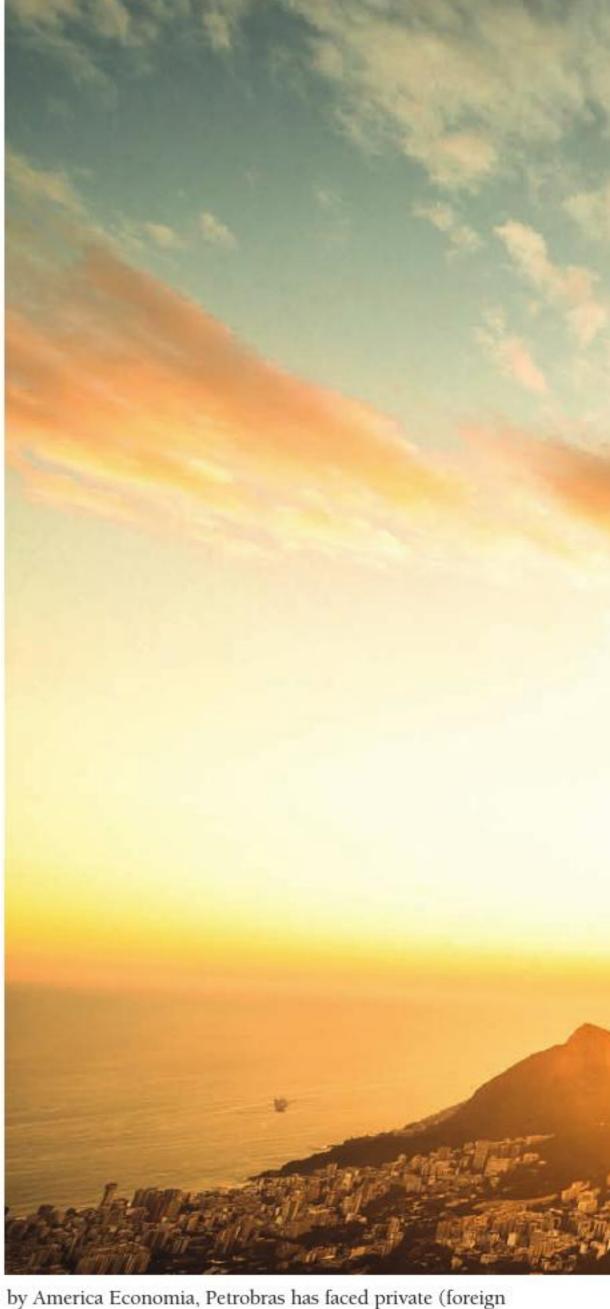
Home to 194 million people, with 40 million recently shifted out of poverty and into the growing middle class as a result of strong social policies, the country is also the target of foreign businesses and investors who see it as a difficult-to-ignore market for their exports. Added to this is the allure of the forthcoming 2014 FIFA World Cup and the 2016 Olympic Games, which will bring further attention, investment and people to the South American giant.

Within this context, oil and gas means big business in Brazil. Proven oil reserves in 2012 were just over 15 billion barrels, most of this offshore. ANP (Agência Nacional do Petróleo, Gás Natural e Biocombustíveis - the national agency for oil, gas and biofuels) also estimates daily gas production to be 70.8 million m3 in 2012 and natural gas reserves to be 459 billion m3. More reserves are also being found, such as those off the coast of Sergipe in October 2013.

Brazil is now officially on the world map as an oil exporter, following the tradition of other Latin American nations such as Venezuela and Mexico. In 2012, the main destinations for Brazilian oil exports were the US, China and India.

The country's main oil reserves, discovered in 2007, lie within the pre-salt, an area that has increased Brazil's oil reserves by 50 per cent compared to ten years ago. Oil in the pre-salt area is notably difficult to extract and huge investment is needed.

Discussing oil and gas in Brazil is not possible without mentioning Petrobras, the partially state-owned energy multinational giant. Petrobras' crude oil production in 2012 was about two million barrels. Ranked 22nd on the list of most powerful Latin American companies in 2013



by America Economia, Petrobras has faced private (foreign and national) competition only since 2003 when Shell started production.

Petrobras has a renewed image and is at the forefront of many technological and managerial developments in Brazil. For example, it has its first ever female CEO (Maria das Graças Silva Foster) since 2012. The company is a priority for President Dilma Rousseff, who in the past served as energy and mining minister.

In its 2013-2017 business plan, Petrobras sets an investment target of USD 236.7 billion, of which USD 147.5 billion will be in exploration and production, and USD 73 million of that budget is destined to the pre-salt area. In order to focus on offshore exploration within Brazil, Petrobras has recently been raising funds through the selling of some of its own overseas assets, such as the Colombian deal with



Perenco in September this year.

Doing business with Petrobras in particular is not easy. Bureaucracy and protectionism are big trade barriers to foreign businesses in Brazil and Petrobras is not alien to either. For example, local content requirements when dealing with Petrobras can be overwhelming and complex and they change regularly and without notice. Petrobras has negotiating power, and it uses it. For example, the recent bid for the Libra oilfield auction highlighted procedural challenges as well as mixed incentives, apart from political obstacles (see FT, 1 October 2013). The company itself has many critics for its debt and poor financial performance, which prompted Moody's earlier this year to "cut the rating on the long-term, foreign currency debt of Petrobras [...] to "Baa1" from A3" (Reuters).

Other obstacles when dealing with the Brazilian oil and

gas sector, apart from the bureaucracy and protectionism already mentioned are: currency fluctuations, logistical challenges and corruption. Experts also point at the huge costs associated with doing business in this sector and the labour market challenges of finding enough suitable candidates for specific oil and gas projects.

So far, we have focused on the supply side of the oil and gas market. But let's remember that Brazil is the world's tenth largest energy consumer, and that there are also opportunities in the demand side of the oil and gas market. However, downstream activities are dominated by Petrobras, directly or indirectly, but there are other players like Shell. Furthermore, Total has recently announced its intention to enter this segment.

How Brazil manages the growth of its oil and gas market is closely linked to its social policies and local content is a key driver. How revenues and benefits from oil and gas



developments are distributed across Brazilian states is also a matter of constant debate.

# Opportunities for European companies in the Brazilian oil and gas market include:

- Supply of goods and services: ANP estimates that the sector will demand USD 400 billion of goods and services by 2020.
- Niche products and services where there is no local competition (note that local content requirements will still apply and partnerships with local companies are favoured over direct imports).
- Some key areas highlighted by ANP for foreign suppliers include environmental goods/services, those providing health and safety and helping to raise these standards, engineering, infrastructure and logistics.
- Investment in R&D is high (ANP shows that in 2013 R&D obligations reached approx. USD 550m) and British education and private R&D is sought after, to create local partnerships.

Most recently, industrial accidents have been highlighted as a key cause for concern with regards to Petrobras (Wall Street Journal, 6th January 2014). As refineries operate nearly at full capacity (98 per cent), Petrobras suffered its fourth accident at one of its refineries since November. Union workers have complained about a lack of focus on maintenance, and conflicting pressures on capacity, pricing and safety. Those interested in this sector should keep up-to-date with these developments since they are likely to influence purchasing decisions.

# If you're interested in finding out more, the following can help:

- There are many conferences, exhibitions, congresses and other events both in Europe and in Brazil that might interest you
- In terms of trade shows, one of the most important ones is Rio Oil and Gas, from 15th-18th September 2014 (and every two years) - we recommend that if you are intending to travel, you make arrangements fairly soon since this will be a convoluted year for travel (flights and hotels) in Brazil.
- In addition, Petrobras hosts some inward trade missions to the UK and the rest of Europe - we





attended one just over a near ago in Newcastle, which was useful for understanding local content requirements. This was also particularly useful in terms of networking and hearing, informally, from those who have experience - and different degrees of success - in penetrating this vast market.

- Private consultants working for European companies in Brazil and across Latin America (public part-funding might be available from programmes such as UKTI's EMRS).
- Your local Chamber of Commerce or your country's export-promoting agency (such as UKTI in the UK) as well as the Institute of Export and sector-specific trade organisations.

# Our advice for European companies thinking of doing business in the Brazilian oil and gas sector is:

- Be patient. Adjust your timescales to a country where business is notoriously slow and complex.
- Be prepared to invest time and resources in your expansion from very early stages.
- Research your particular market carefully and review your research regularly.

- Be connected: make sure you have on-the-ground support, from practical business advice to legal matters and beyond.
- Speak to other businesses in your region that have attempted to or successfully entered the Brazilian market. First-hand advice is invaluable.

And remember that although Brazil is one fascinating market for oil and gas, there are other interesting and growing markets with huge potential such as Colombia and Peru - this could be the start of your Latin America export journey. ONC

# SUNNY SKY SOLUTIONS

Gabriela Castro-Fontoura is director at Sunny Sky Solutions, a UK-born consultancy now based in Montevideo, Uruguay, that supports British companies at different stages of doing business with Latin America. Gabriela is also the author of the ebook "Doing Business with Latin America" available on Amazon.

For further information please visit: sunnyskysolutions.co.uk



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# Fugro was founded in the

Netherlands in 1962 and is listed on the Amsterdam stock exchange since 1992. The company operates worldwide, providing highquality data acquisition, processing, interpretation, and consultancy services mainly to the oil and gas, mining and infrastructure markets.

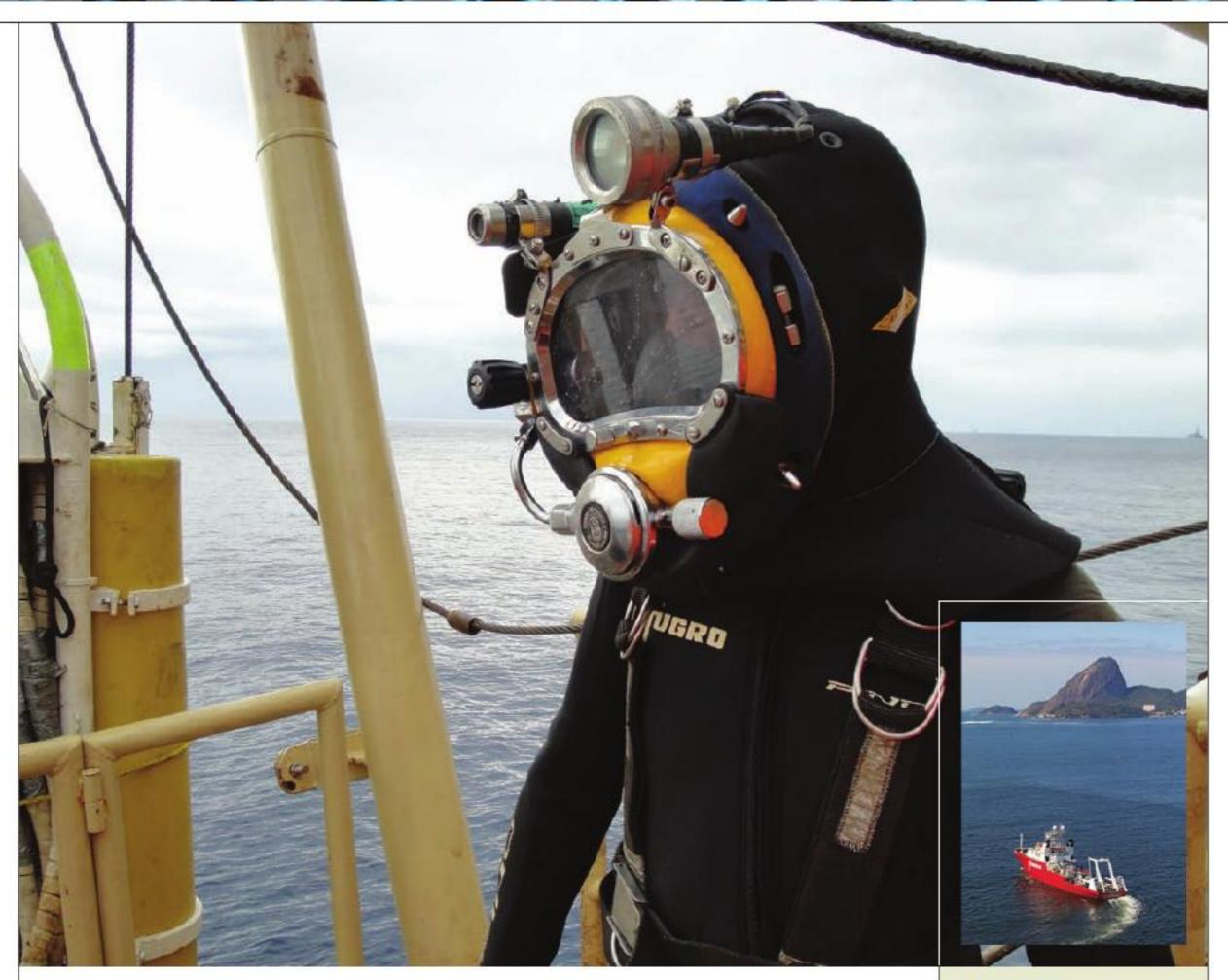
Fugro is organised in four divisions:
geotechnical, survey, subsea and geoscience. Its
geotechnical division is divided into onshore and
offshore geotechnics, while its survey division
is comprised of offshore survey and geospatial
services. The subsea division provides inspection,
repair and maintenance, construction, installation
and ROV support, subsea engineering and
tooling, and light well intervention services,
while the group's geoscience division provides
seabed geosolutions and non-exclusive multiclient data and products.

Fugro group's history in Brazil has been driven by expansion through natural market growth and acquisitions. In 2003, the group acquired Thales GeoSolutions' (part of Thales group) operations worldwide in a deal valued at 147.5 million Euros. Since then, Fugro has continued to grow in Brazil through further acquisitions of local companies. The recent award of long-term contracts to Petrobras to provide ROV and diving services has increased the staff level to nearly 1000, with almost all of them being local Brazilians.

In Brazil, Fugro offers a comprehensive package of subsea services: air (shallow) and saturation (deep) diving, ROV support (for drilling, IRM and construction works) and ROV tooling operations; and survey services: positioning, geophysical mapping, construction support, and metocean and environmental

Above Fugro Aquarius ROV vessel





projects. The company provides onshore and offshore geotechnical services and analysis, with a state-of-the-art laboratory in Curitiba; and has a joint venture with CGG to develop high-technology seismic activities locally, such as ocean-bottom node projects through its geoscience division. It operates through support bases in Rio das Ostras and Curitiba, and offices mainly in Rio de Janeiro, Curitiba and Sao Paulo.

The core of the company's operations is focused on subsea operations, as senior marketing manager Rogerio Carvalho elaborates: "Our primary activities in Brazil are the provision of ROVs (Remote Operated Vehicles) and diving services. The ROVs are either installed on drill rigs to support clients' drilling activities, or in vessels to provide a complete package of inspection, repair, maintenance and construction activities. The vessels that carry these ROVs are typically called ROV Support Vessels or RSVs."

Rogerio continues: "We split our diving activities in air (shallow) diving, ranging from zero to 50 metres of water depth, where we have equipment and people also performing repair, maintenance, inspection and installation works

onboard units like FPSO's and platforms. We perform (deep) diving, providing these services in water depths ranging from 50 to 300 metres, from vessels with a saturation diving system onboard, typically named as Diving Support Vessels or DSVs. At the moment, Fugro is the only company providing saturation diving in Brazil. Our biggest client is Petrobras, and all of the divers and ROV operators are local Brazilians, so one big challenge is to find the right people."

Fugro also provides survey services in Brazil that make the company an important contractor at the early stages of the life of oil and gas fields. "Another significant operation that we carry out is what we generally call survey, which involves the mapping of the seabed and also understanding its geology by collecting seabed samples," says Rogerio. "We collect all this data via a survey vessel, then we process, interpret and deliver reports or consultancy to our clients that will use this information to develop their future subsea infrastructure and field developments. We have a dedicated, stateof-the-art survey vessel operating in the Brazilian and South American markets called MV Fugro

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Main picture Fugro diving services

Inset Fugro Brasilias vessel

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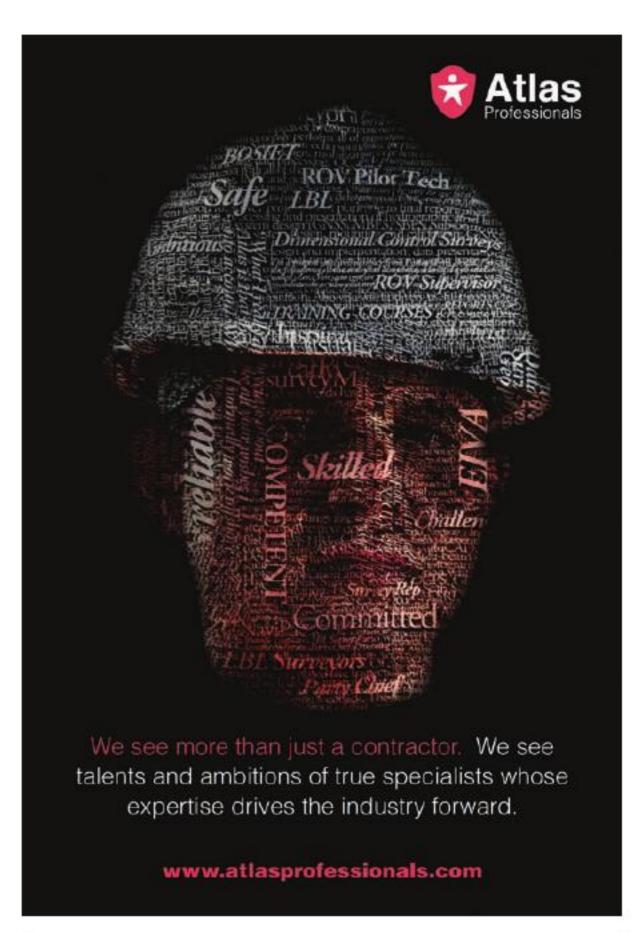
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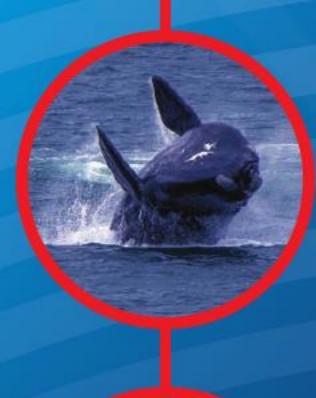


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The spot market is very different here compared to the Gulf of Mexico and the North Sea, so most companies are looking at long-term contracts to ensure assets keep busy



Brasilis. This vessel is part of the Fugro group's renovation plan of five new survey vessels. Fugro group decided to bring one of these to serve our market based on our vision that the business here will grow significantly. However, it is difficult to keep assets in Brazil if the market is not maturing. The spot market is very different here compared to the Gulf of Mexico and the North Sea, so most companies are looking at long-term contracts to ensure assets keep busy."

The offshore market in Brazil has been challenging in recent years. Despite the high levels of expectations over the past three to four years, it has been relatively slow to develop when contrasted with what was previously anticipated. The slowdown in the region's market has not been due to a lack of potential in oil reserves, but rather due to some delays in Petrobras decision-making process. In addition, a slowdown in auctions for new offshore exploration blocks in the past years from Brazil's National Agency of Petroleum, Natural Gas and Bio-fuels (ANP), has limited the number of opportunities for operators.

The situation appears to be improving, with Brazilian authorities offering new offshore areas throughout the nation's coast. The ANP recently awarded concessions at the 11th round of offshore field blocks, which brought the attention of major oil companies back to the region. As Brazil's state oil company, Petrobras

remains the key operator, but working now in closer collaboration with international players which have recently won many concessions in the region that would require survey and subsea services. Rogerio explains: "Throughout the oil and gas supply chain, basically all companies are working either directly or indirectly for Petrobras via main contractors. In our case, I would say that around 95 per cent of the work we do in Brazil is either directly or indirectly carried out for Petrobras."

Although the pace of the region's market is mainly driven by ANP and Petrobras decisions, Fugro is able to use its nearly 30 years of experience in Brazil to support clients. Discussing the company's strategic position in the region, Rogerio says: "Through the Fugro group, we have a strong global presence and access to the latest technology, and we want to be where our clients are. We combine that with a very good understanding of the local conditions in Brazil. We see that clients here are looking for suppliers that understand what is necessary to comply

# SEICHE

Seiche is the market leader in the provision of passive acoustic monitoring (PAM) for the oil and gas and renewables sector, supplying equipment to oil companies, seismic exploration contractors, service companies and research institutes. Seiche currently supplies a wide range of products for mitigation and measurement of noise in off shore applications. The company's success is based on the ability to supply and install kit that is fit for purpose at the right time and in the right place. The quality of equipment and service enables compliance with environmental regulations and minimises the noise impact on marine mammals. Seiche backs up its technical capability with unparalleled

The company has facilities in the UK and in Houston, US. It is also able to provide in-location support using its partners in destinations around the world.



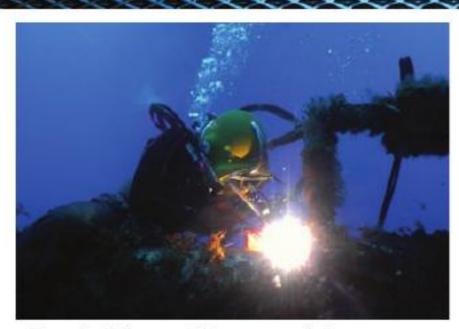
with local regulations, taxes and so on. We have been here for many years, so we have a good understanding of what is possible as well what the limitations are. Our strategy is to provide a portfolio of bundled services that can reduce the amount of contract and paperwork efforts required to do sustainable business in Brazil.

"We aim to work with operators with existing fields in Brazil that will require inspection, repair and maintenance services, and also with main contractors. We are also currently looking forward to working with the new operators, who will be exploring the offshore blocks following the ANP's 11th round auction."

Fugro's strategy to be a strong local partner has been enhanced by recent investments, as

Above Fugro Brasilias vessel

Above left Fugro diving services Below Fugro diving services



Rogerio elaborates: "Fugro group is in a strong financial position, so that allowed us to invest in resources and assets that are needed to service the market in Brazil. For instance, in 2010 we started a new operations facility in Rio das Ostras ZEN area, bordering Macaé. We recently decided to build an ROV support vessel in Brazil, named Fugro Aquarius, which will be delivered in 2014. This vessel will be fitted with two work-class deepwater ROV's and other associated equipment to provide various types of ROV and survey related support services. Our plan is to offer this vessel to work for Petrobras under a

long-term contract."

With the Brazilian authorities currently seeking to greatly expand the scope of offshore activities in the area, the coming years are set to be greatly important to Fugro in Brazil, which is poised to take advantage of this positive growth. However, with a focus on local personnel and a global skills gap impeding progress in a number of industry sectors, the company has taken proactive steps in ensuring that it has the right people to help carry it forward. "Once we know that a contract has been signed, we can bring in candidates from local technical colleges to be trained internally," Rogerio says. "We put them on a two-week intensive training course and we pick the best ones out of this group who will become ROV trainees, and later on ROV operators to work offshore. This is normally their first job opportunity, and we give all the necessary training they need to perform ROV operations safely and efficiently. We also do a similar hiring process on the survey and diving services as well."

# **SEATRONICS**

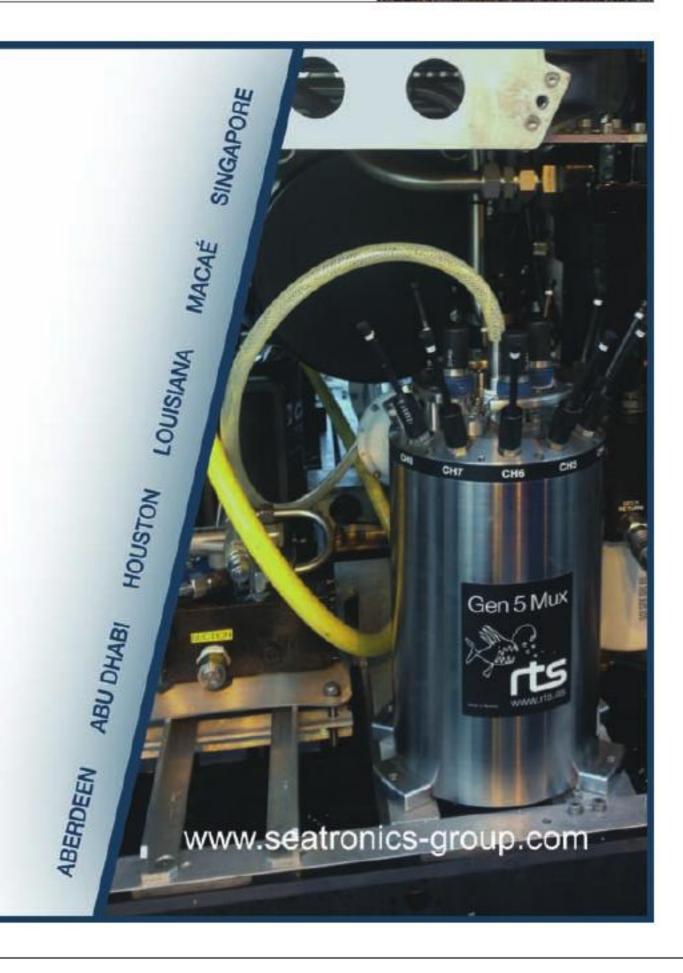
Seatronics is strengthening its strategic partnership with Fugro in Brazil by building up a closer relationship locally. Seatronics do Brazil started up its operations in Brazil in 2012 and during the last year has been expanding the products and services offered in the region. With a complete range of survey equipment, acousting positioning solutions, ROV tooling, cable moulding facilities and offshore engineers in country, Seatronics is striving to support Fugro in their different offshore operations. Seatronics do Brasil is strategically located in Macae, a few minutes from the new Fugro premises and near the headquarters of Petrobras, the Brazilian State run oil company.



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Above: Andreas Dåsvatn, sales manager - Nordic, Wilhelmsen Technical Solutions (left) and Stig Martens, Vard Brevik, shake on the deal to specify Unitor XFlow® low pressure water mist fire fighting systems for two vessels under construction for Island Offshore

# Protecting assets

Ulsteinvik-based Island Offshore has specified Unitor XFlow® for two vessels under construction by Vard at its Brevik facility. The scope of the contract includes supply of a total flooding water mist system for the ship's engine room and a local protection water mist system. The vessels, which are being built to a Rolls-Royce design, will be delivered to Island Offshore in 2014 and Q1 2015.

Bergen-based GC Reiber will install the XFlow system on a seismic research vessel under construction at Myklebust Verft for delivery in 2015. Built to a Skipsteknisk design, the vessel will also feature a total flooding water mist system for the engine room and a local protection water mist system.

Andreas Dåsvatn, sales manager – Nordic, for Wilhelmsen Technical Solutions, says both owners wanted safe, modern technology, and recognised the quality of the Unitor XFlow solution as well as the company's strong references and network of international offices.

"Both Island Offshore and GC Reiber are recognised globally as operators of advanced offshore fleets with a high degree of operational functionality. In Vard and Myklebust Verft they have partners with long experience in building sophisticated vessels to high quality standards. In specifying the Unitor XFlow water mist fire fighting solution they are taking advantage of new, low pressure technology that delivers a very effective and reliable solution with low power demand and reduced risk of clogging at a very competitive price."

# Worthy investment

Barclays has signed an agreement with North Sea oil and gas operator Ithaca Energy to support the company's ongoing production activity in the province.

The deal is part of a \$710 million debt facility agreed with the company and will support production at the firm's assets in the UKCS, as well as general working capital requirements.

The agreement has enabled the company to retire the \$350 million bridge facility, which was established to facilitate the acquisition of Valiant Petroleum plc earlier this year, and secure a new five-year corporate facility, which will provide additional funding flexibility.

Ithaca has a solid and diversified UK producing asset base, with current development activities focused on the construction of a new Ithaca-operated production hub in the Greater Stella Area of the UK Central North Sea, around 175 miles (282 kilometers) east-southeast of Aberdeen, Scotland.

Walter Cumming, head of the oil and gas team at Barclays Corporate Banking, said: "Ithaca Energy has added to its asset base in recent years and is determined to continue to grow and diversify through targeted acquisitions and licence round participation. These two new debt facilities demonstrate our continued support of the company and its growth strategy, and the continued availability of bank finance for operators."



# Prime location

Increasing demand from clients in the UK and international energy industry has seen an Aberdeen-based recruitment agency open new offices in London. Raeburn Group Ltd brings more than 30 years of experience in the oil and gas industry to its operation in the capital.

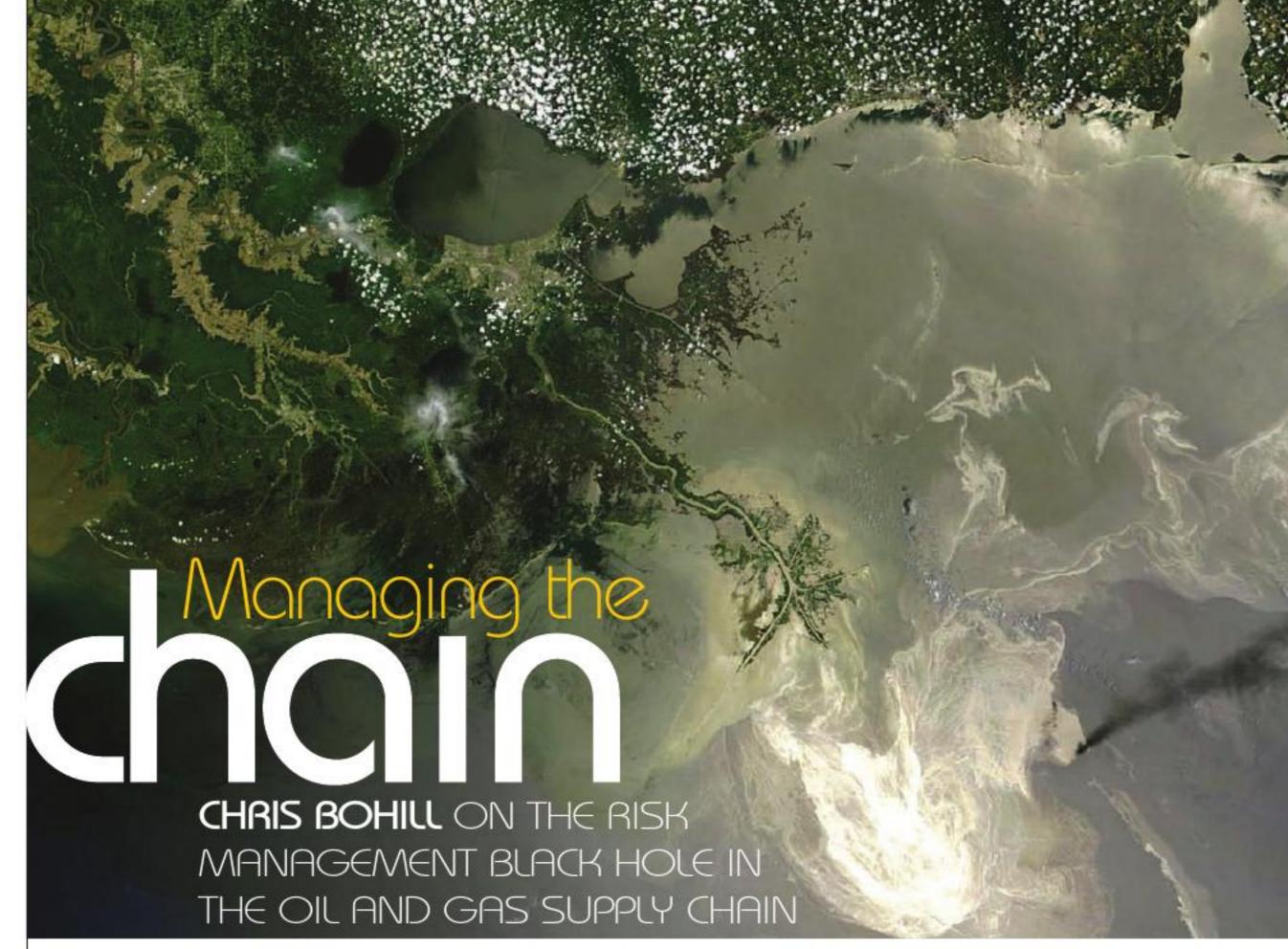
With a team of experienced recruitment professionals, based in Chiswick, the company plans to extend its services to other energy industry sectors while continuing to serve current and new oil and gas clients.

Raeburn managing director,
Bob Watt, said: "Our expansion
into London is in response to
the increasing demand we are
experiencing from existing customers
and new clients to support their
project and operational demands both
in the UK and internationally.

"We are confident that together our Aberdeen and London operations can make a significant contribution to delivering the solutions companies in the energy industry currently require. The skills gap in the industry is well known and one of our primary focuses is using our expertise, systems and contacts, developed over 32 years in the business, to help our clients bridge that."

Raeburn's London team will be supported by well-established back office services, the latest recruitment software and use a local, national and international database of oil and gas specific candidates built up over three decades.







hief executives of oil and gas companies might not want to be reminded of this, but typically around 80 per cent of their spend, personnel and HSE risk lie beyond their control, and in the hands of suppliers.

As a result, they are unquestionably exposed, probably personally as well as corporately, to legal challenges and compensation claims. There is, after all, nothing quite like evidence of inadequate management of risk to encourage litigants.

This is all because most operators are totally dependent on their supply chains for the day-to-day running of their business. This exposure, if not monitored and managed, can have disastrous consequences. All too often it is the name of the operator we read about in the press following an incident that occurred as a direct result of a problem within their supply chain.

And yet arguably, insufficient recognition is given to the risk the supply chain poses. The actual management of the supply chain tends to fall under the remit of the procurement/purchasing department, who typically focus their efforts on ensuring the best possible contract terms for their company. Ensuring that suppliers continue to deliver on those agreed terms throughout the lifespan of the contract, let alone put in their best performance, is often over-looked or under-valued.

Senior management within the oil and gas companies may be given the clear impression that procurement has got things 'well under control' when it comes to the supply chain, so the assumption is made that this encompasses management of supplier risk. Indeed it's easy to present onerous reporting systems and a plethora of data as management of risk. However, unless the senior management give supply chain managers and procurement teams their ear, any issues or process weaknesses are unlikely to end up on the board's radar.

We all know how things work in large oil companies. The senior management see the profits rolling in through the supply chain, procurement say they have all the relationships taped so who wants to rock the boat by asking too many questions?

The reality is, however, that this situation should be unacceptable to everyone involved: senior management themselves, procurement, the supply chain and - of course shareholders, because unmanaged risk is patently toxic.

The root cause of the problem is a lack of understanding of supplier performance management, or perhaps more the rudimentary and blinkered way in what passes for it, is applied in many organisations.

For many procurement professionals, supplier management is synonymous with rigorous and complex contract negotiations. Ongoing management is where the





huge volume of data comes in. Anything that keeps the supplier on the straight and narrow and helps avoid issues such as regulatory non-compliance or personal and corporate liability claims and disputes, is deemed to be a good thing.

Equally, supplier management is not confined to a piece of software. Any technology that is there is to enable you to develop and run your own supplier management process. If the software becomes a drain on resources or a barrier to openness, communication and co-operation, then it is not doing its job.

In fact, software – while vital – is only one part of the mix. Proper supplier performance management is much more wide ranging, collaborative and relevant. The starting point should be: how can we work closely with our suppliers so that they share our goals, add value to our business now and over the long-term, help us to manage our risks in all areas and improve total cost of ownership?

The process for doing this should be simple and totally transparent. The only way that you manage the risk within the supply chain properly - or indeed any discipline - is to create visibility.

The next key principle is alignment of goals. The suppliers' goals and values must be aligned with yours. With suppliers having such an impact in the success of your business how can you achieve your corporate goals and objectives if your key strategic suppliers are not rowing in the same direction?

The simple answer is you cannot.

At the same time, supplier performance management should drive the sharing of supplier innovation and application of best practices and continuous improvement, with the ultimate goal of becoming 'customer of choice', a key stepping stone in differentiating you from your competition.

KPIs do, of course, have a role to play. But it's important to use them both sparingly and highly selectively. KPIs should be the link between a company's corporate drivers and its large supply chain. They should encompass such issues as risk management/assessment, Corporate Social Responsibility (CSR), Health and Safety protocols, communications, as well as quality, efficiency and cost expectations. A good supplier performance management partner should work around no more than 12 KPIs per supplier relationship.

It's not just large oil and gas companies that are starting to see the benefits of proper supplier management. In many cases, especially among the big players, the suppliers themselves are adopting systems and presenting them as a benefit to their clients.

This makes perfect sense because this approach offers a modern, co-operative alternative to the systems deployed by many procurement departments who are simply stuck in a rut. It's not their fault; it's just that with so much of a company's operations being run through the supply chain, systems based on complex contracts, numerous irrelevant KPIs and heavy-handed control are simply not what's required now.

The world has moved on and it's time to rethink the relationship between oil and gas operators and their supply chains. When the profits are pouring in, as they are now all over this industry, nobody wants to fix something that doesn't appear to be broken. But management of supplier risk within the supply chain and the development of suppliers as key strategic partners is key to ensuring corporate goals and objectives are delivered, safely and without incident. It's time to focus on this issue before the lawyers get a chance to exploit it.

# **BIZNET**

Chris Bohill is VP consulting and product strategy at Biznet, which specialises in Supplier Performance Management (SPM), helping dients to optimise and continuously improve suppliers' performance, by creating transparency, reducing risk and improving operational efficiency. In partnership with the world's leading oil and gas companies, Biznet combines doud-based SPM software with proven, expert consultancy to transform performance and deliver outstanding results. Achieved through real-time data capture, accurate key metric analysis and best practice supply chain management, Biznet's model aligns the supply chain with key corporate objectives, maintaining control and visibility.

For further information please visit: biznetsolutions.com



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egulatory change and the increasing cost of compliance remain top concerns for the oil and gas industry. Companies must ensure compliance across multiple jurisdictions and agencies, as well as in a wide range of

commercial, technical and operational areas.

The continued political debate surrounding drilling practices, pollution, and climate change makes further regulatory change inevitable. Indeed, in June 2013 the European Commission (EC) announced new draft regulation setting clear rules that cover the whole lifecycle of all exploration and production activities.

Under the control of the national regulatory authorities, European industry will have to continually assess and improve safety standards for offshore operations by taking into account new technology, new know-how and new risks.

# Information management

The compliance challenge is compounded by the fact that the information required to meet audit and reporting mandates falls into a number of distinct categories and must be acquired from a wide range of sources. One emerging model is the well integrity management system (WIMS), which is a sub-set of asset integrity management and exists both at a documentation and software level.

A WIMS combines key well operating and production data within a framework for decision-making, management processes, and organisational structure. However, a system with a sophisticated data handling and analysis, communication and reporting capability is required for total control of well integrity.

Advanced well integrity management systems for example,

can interface to a wide range of third-party databases to collate the necessary information for analysis and identification of wells shifting outside critical safe operating limits, for the assessment of equipment reliability and well risk, and for real-time estimation of the corrosion in the well tubing. Data can also be acquired directly via tablet PCs in the field, entered manually, or via spreadsheet loader.

# Reporting and control

With operating well data consolidated within a single user interface, the addition of smart functionality enables operators to analyse the well condition automatically in real-time and generate concise reports customised to their individual requirements. This ensures they have the specific 'tools' needed to satisfy local regulations, proactively identify potential problems and plan test schedules and repairs.

Reporting is particularly important, given that a regulator might request an update from an operator on its well integrity status at any time. With a well integrity management system, reports can be devised to provide the reporting of annuli pressures in the format demanded by local regulatory authorities, thus reducing the workload of engineers and releasing more time for active problem analysis and workover planning. Crucially, reports are more up to date as they are generated based on real-time data.

With all departments and risk areas integrated into a single, highly functional WIMS, operators can have access to a single version of the truth. It proves adherence to corporate governance policies and regulatory demands, ensures high integrity of operating wells, and manages risk as part of a robust and auditable process.



# North Sea best practice

According to the EC, there are more than 1000 offshore oil or gas installations operating in European waters. Most production comes from the UK and Norwegian sectors of the North Sea. However, throughout the European Union (EU) offshore provinces, 13 member states have awarded offshore exploration licenses.

The ECs draft regulation is designed to address the existing 'divergent and fragmented regulatory framework' applying to safety of offshore operations in the EU. It aims to drive industry safety practices that provide fully adequate assurance that the risk of offshore accidents is minimised throughout the EU, and that in the event of an accident occurring in offshore waters, the most effective response would be deployed in a timely manner.

The EC acknowledges the North Sea as a region where the "risk-based regulatory framework is considered among the very best in the world". It has also stated its aim is to bring the rest of Europe up to these standards. The following provides an overview of the regulatory environment in the UK and Norway, and in particular, in relation to well integrity.

# Norway

Norway recently combined some elements of environmental protection with safety regulation, which are enforced by the Norwegian Petroleum Directorate, which is also responsible for the regulation of offshore major accident hazards. However, Klif (The Climate and Pollution Agency), which reports to the Norwegian Ministry of the Environment retains a significant role in environmental protection in relation to offshore oil and gas. Klif will be responsible for

providing environmental information to the Petroleum Safety Authority regarding major offshore accident hazards.

The relevant bodies and agencies in Norway are:

- Ministry of Petroleum and Energy (MPE)
- Norwegian Petroleum Directorate
- Norwegian Oil and Gas Association (Norwegian Oil and Gas)
- The Petroleum Safety Authority Norway (PSA)

The PSA has published regulatory requirements regarding well integrity such as organisational solutions, management system, competence and training, work processes, operational organisation, and emergency preparedness. The PSA also established a framework for reviewing US government findings on incidents relating to well integrity, and subsequently compared Norwegian regulations with preliminary conclusions drawn by US Interior Secretary Ken Salazar in his report to President Obama. Although the comparison showed that Norwegian regulations met nearly all the preliminary recommendations already, the PSA has initiated analyses of the following areas relating to Norway's oil sector:

- Organisational factors, such as education, training and qualifications of personnel performing critical functions in planning and executing well operations
- Operational and technical management systems for well control
- Operational and maintenance requirements for blowout preventers (BOPs), and assessment of existing systems for setting BOP certification requirements

- Well design and construction part of this work is being conducted in co-operation with the Well Integrity Forum (WIF), which was established on the PSA's initiative in 2006, and reports to Norwegian Oil and Gas
- Emergency preparedness and response principles relevant to halting a possible subsea blowout in Norway

In Norway, regulation specific to managing the integrity of wells includes:

- Norsok (Norsk Sokkels Konkurranseposisjona) D-010 - Defines well integrity requirements for the different lifecycle phases, and also has a chapter with a well barrier acceptance criteria table for each of the typical well barrier elements defining specific design, construction and monitoring requirements.
- ♦ 117 Norwegian Oil and Gas Association recommended guidelines for Well Integrity - owned by the Norwegian petroleum industry and represented by Norwegian Oil and Gas, the recommended guidelines for Well Integrity include the use of a WIMS by each operator on the NCS. Items are grouped into the following categories: Organisation, Design, Operational Procedures, Data and Analysis.
- ♦ HSE regulations A new regulatory model entered into force on 1 January 2011, and has been adapted to the special needs for regulation of activities, depending on where they are being conducted offshore or onshore. They address the Framework HSE, Management, Facilities, Activities, and Technical and Operational matters.

# UK

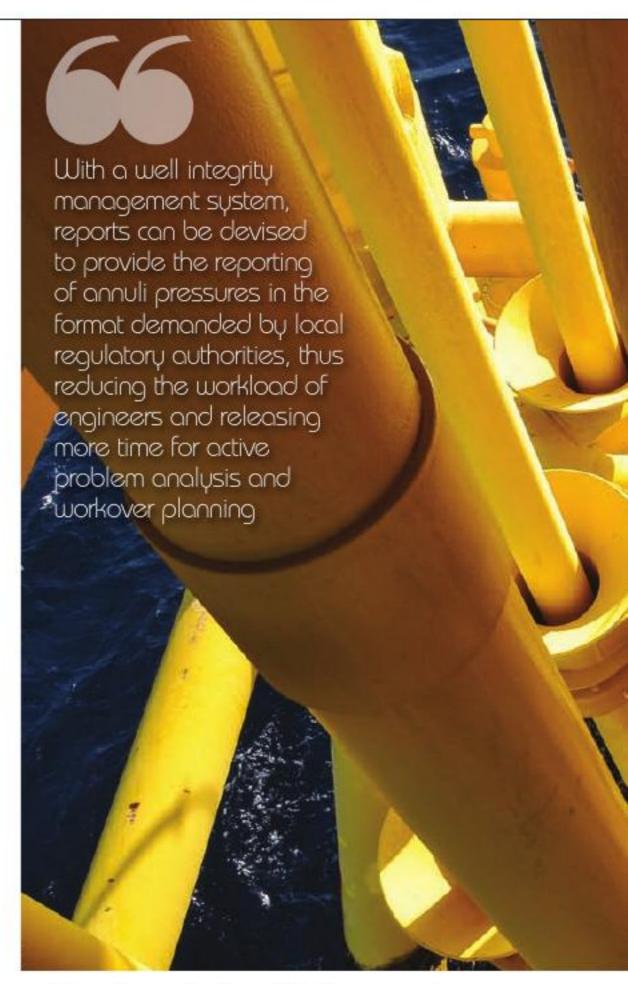
Offshore regulation is spread over three authorities: HSE (safety), DECC (environmental compliance and leak containment) and MCA (clean-up at sea).

Relevant bodies and agencies include:

- Department for Energy and Climate Change (DECC)
- Department for Environment Food and Rural Affairs (DEFRA), Scottish Government Environment Directorate (SGED), Centre for Environment, Fisheries and Aquaculture Science (CEFAS), Marine Scotland (MS)
- Joint Nature Conservation Committee (JNCC)
- Oil & Gas UK (OGUK)
- OSPAR Commission
- Maritime and Coastguard Agency (MCA)
- Environment Agency (EA) in England and Wales, Scottish Environment Protection Agency (SEPA)
- Scottish Natural Heritage (SNH, Natural England (NE), Countryside Commission for Wales (CCW)
- Local Authorities
- Health and Safety Executive (HSE)

UK regulation specific to managing the integrity of wells includes:

Abandoned and Suspended Wells - In relation to monitoring, the Marine Licensing process under the Marine

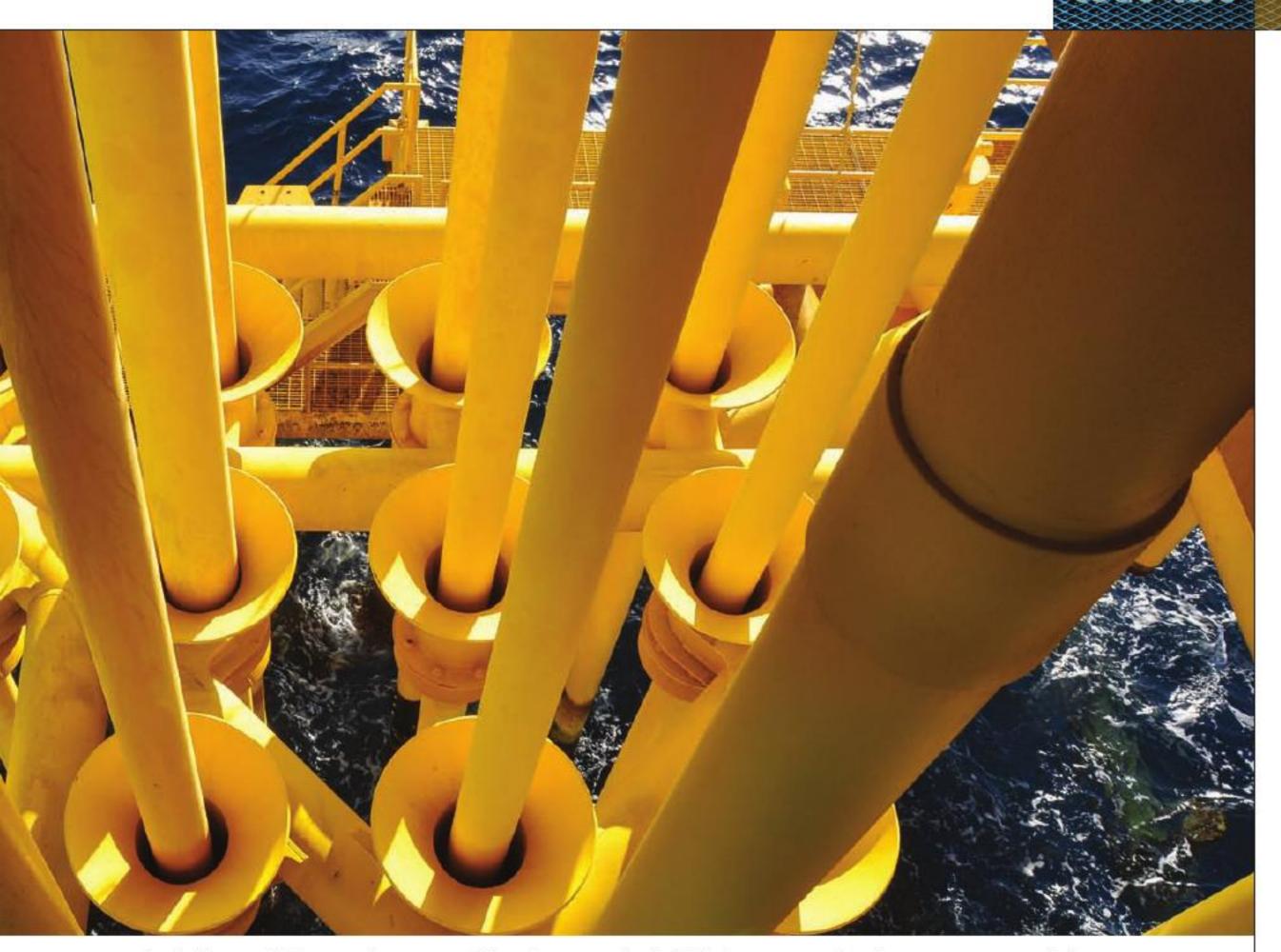


and Coastal Access Act gives DECC the powers to insert permit conditions for monitoring and this will be the case from now on.

Asset Ageing and Life Extension Guidance - OGUK has led development of this guidance, which supports duty holders in creating management system arrangements that effectively manage ageing and life extension. It uses the HSE guidance document HSG65 'Successful Health and Safety Management' to aid alignment with existing duty holder systems. The guidance stresses that management of ageing does not apply only to 'old' installations, as ageing is a process that starts when an installation or item of equipment is put into service or, even before that, if it is a stored item in need of preservation. It also provides guidance on considerations to be taken into account when making life extension decisions.

Maitland Report Follow-Up – Recommended actions have been assigned to the HSE, DECC and OGUK personnel and, from a strict health and safety perspective, it is anticipated that key areas will include: support for aspects of work assigned to the Well Life Cycle Practices Forum, learning from incidents, best practice implementation assurance and workforce engagement; Step Change in Safety, which is responsible for managing responses to the Maitland recommendations (progress on actions is being tracked by OGUK).

Structural Integrity Challenges – HSE has challenged



some duty holders on their approach to structural integrity management. These challenges relate primarily to the assessment and management of structural loadings associated with extreme weather events.

Guidelines on Well Control, Integrity and Abandonment Four guidelines in a series being produced by the Well Life Cycle Practices Forum (WLCPF) were published during 2012. Developed to share current good industry practice, these relate respectively to the operation of subsea blowout preventer (BOP) systems, well integrity throughout the well lifecycle, well suspension and abandonment and the qualification of materials used for suspension and well abandonment.

# Summary

Risk related to asset damage, business interruption, pollution, injuries to people, and damage to properties is intrinsic in normal oil and gas activities. With tolerance to environmental and reputational damage at an all-time low, it is imperative that oil and gas operators ensure effective oversight of every aspect of their business.

As demonstrated by this review of current regulation in the UK and Norway, the regulatory environment is becoming more complex and is constantly changing. Immediate access to accurate and up-to-date information will therefore be an operator's greatest asset. With the right tools and systems at their disposal, oil and gas firms can significantly reduce the

level of risk, improve control and transparency across their business and avoid the additional risk of non-compliance.

# Wood Group Intetech

Intetech has recently been acquired by Wood Group and is now known as Wood Group Intetech, part of Wood Group Kenny

# WOOD GROUP INTETECH

Intetech is a leading asset-integrity company and a pioneer in corrosion modelling and well integrity management services and solutions. Its Well Integrity Toolkit (iWIT) provides an integrated source of all the critical data needed to evaluate the condition of wells and keep them operating safely and profitably. In 2013 Intetech was acquired by Wood Group and is now known as Wood Group Intetech, part of Wood Group Kenny. Internationally renowned engineer, Dr Liane Smith (FREng) is the director and founder of Wood Group Intetech. A fellow of the Welding Institute (UK) Dr Smith was honoured with a fellowship of NACE (USA) in 2009 for her pioneering work in the field of corrosion modelling in the oil industry. In 2011 she was elected as a fellow of the Royal Academy of Engineering in the UK for her contribution to the international development of well integrity management.

For further information please visit: intetech.com

# 2

# Ultra 1 compact Cair-cooled coolers on 1011111S

Air-cooled cooling has advantages compared to cooling with water. More and more fresh water-cooling (rivers, lakes and below ground) is disallowed because of its potential thermal and bio-pollution. Sea and ocean water requires the use of expensive materials because of its high corrosion potential. Air-cooled cooling also has one main disadvantage: it requires a lot of plot space so that on offshore rigs space might become a particularly big problem. Here is the story of how to design ultra compact air-cooled coolers that fulfil the stringent space requirements on platforms.

# The project

The Litoral-A field is a big oil and gas field in the Gulf of Mexico. Since the accident in the deep part of the Gulf of Mexico several years ago, Petroleos Mexicanos (Pemex) has



Above

Location of the platform

Above right

Conventional design

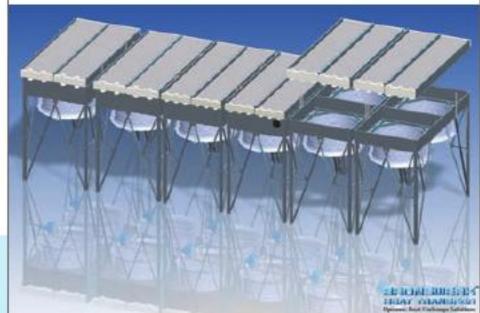
Right

Table showing location/project constraints been developing fields in the shallow part of the Gulf. The Litoral-A field is in the Bay of Campeche, where the local water depth is 26 metres. In order to boost the current oil and gas production, the platform design is aimed at improving the flexibility of the Litoral Processing Centre and to reduce flare gas using High Pressure Compression.

The platform is to be capable of increasing the gas pressure to 85 bar.

# The challenge

The compressors for this platform were designed and supplied by a Houston-based compressor supplier, Dresser Rand in the US. Air-cooled coolers were to be used for cooling.



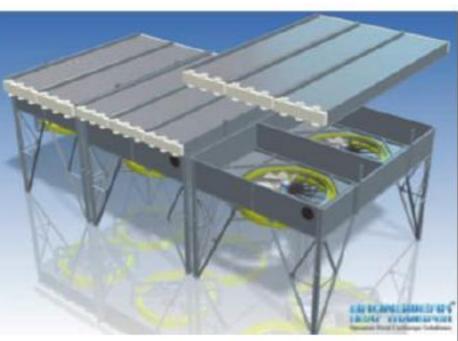
Bronswerk and Dresser Rand Houston (D-R) have supplied exciting combinations of High Pressure compressors and coolers in various offshore projects. The Litoral-A project required a design combining safe and reliable cooling in a limited space.

D-R approached Bronswerk at an early stage, with the challenge of the project to find a solution for this situation and produce a design that would permit safe and reliable cooling in a tight space.

Each of the compressors needs gas coolers for a first stage and a second stage, a recycle gas cooler and an oil cooler. For this project

	Required	Conventional #1 (without special considerations)
Plot space area	420 m2	+/- 700 m2
Alosorbed power	350 kW	+/- 330 kW
Sound pressure level	85dB(a) @ 1m	>> 85 dB(a) @ 1m





**Left** High efficiency (with Whizz-Wheel®) design

Bronswerk gave D-R an initial indication of the size of the coolers based on the gas composition, flow, temperature and pressure. It soon became evident that space, weight and absorbed fan power were critical points in the overall module designs. The disadvantage of conventional aircooled cooling now became apparent: there was not enough space for common air-cooled coolers.

# Several conventional designs:

- Increase the number of rows of finned tubes in combination with a conventional \*) fan. Using more rows while maintaining the external pressure drop of the finned tubes within an acceptable level will reduce the flow of cooling air. Leading to higher outlet temperatures of the air and a lower temperature difference between process flow and air. It became apparent that it would be impossible to meet the space requirements and on top of that the absorbed power was over 30 per cent higher than permissible. Furthermore, the noise level would be unacceptably high.
- Various tube diameter sizes were considered, but none suited the specifications.
- To overcome the high airside pressure drop, one fan below the bundle (forced draft), and one fan above (induced draft) was looked at. No improvement in the absorbed power and noise level was obtained. And, most importantly, this produced an unreliable design due to the unpredictability of the conventional fan performance.
- \*) "conventional fan" should be understood as the best available low noise, high efficiency axial flow fans before the Whizz-Wheel® was available.

# Bronswerk's final design

On the process side no limitations or problems were encountered. Within the specified maximum tube side pressure drop, several trial designs resulted in acceptable heat transfer. The problem was to ensure that the required flow of cooling air could be "pressed" through the finned tube bundle. Smaller bundle space means higher air velocity and whence a higher pressure drop for a given air flow. An increased number of layers (to bring the required cooling surface area within the limited plot area) also increases the pressure drop. Consequently, the resulting pressure drop on the airside was far higher than is common in air-cooled cooler applications, and higher pressure drop means higher driving power and a higher noise level. The only feasible solution to the problem would be to employ a fan which delivered an optimal volume flow and static head within the constraint of maximum permissible power (in other words: highest efficiency). Also, the noise produced by that fan should stay below the maximum permissible noise level.

The ultra-high efficiency, ultra-low noise fan, the Whizz-Wheel®, was considered. This fan is capable of achieving:

- A 50 per cent reduction of absorbed motor power or
- B) For the maximum allowable motor power produce a higher airflow in combination with a higher static pressure head.

The selection of this Whizz-Wheel® fan in combination with the higher number of tube rows led to the result that all of D-R's strict requirements regarding space, absorbed motor power and noise level could be fulfilled. This placed D-R in pole position to win this job.

# The figures

- Compared to the best (smallest) design of the coolers when fitted with conventional fans\*), the final Whizz-Wheel® based design requires 40 per cent less space.
- In spite of this smaller space, the consumed motor power of the coolers is 25 per cent below the maximum allowable level.
- ♦ With conventional fans\*) (even with the <a> <a> <a> </a></a>



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THE

- larger space) the permissible noise level was exceeded by 5 dB(A). In the final Bronswerk design, the noise level is within the permissible limit.
- Although the coolers have more rows of finned tubes, the total height of the coolers is reduced by 0.6 metres.
- Even the weight of the coolers is 15000 kg less than with the conventional fans\*).

The above advantages only consider the benefits for the cooler itself. But for such challenging projects, the main benefits are not only for the smaller cooler but in the following effects for the overall project:

- The ability to provide a suitable module on an existing platform without modifying the platform structure.
- Maintaining the weight of the module below the maximum crane lift capacity to avoid the need for a heavier crane.
- Fewer fans, so fewer E-power connection points and cables, and fewer components requiring maintenance
- No self-induced vibrations from the fans to the structure.

# Comparison

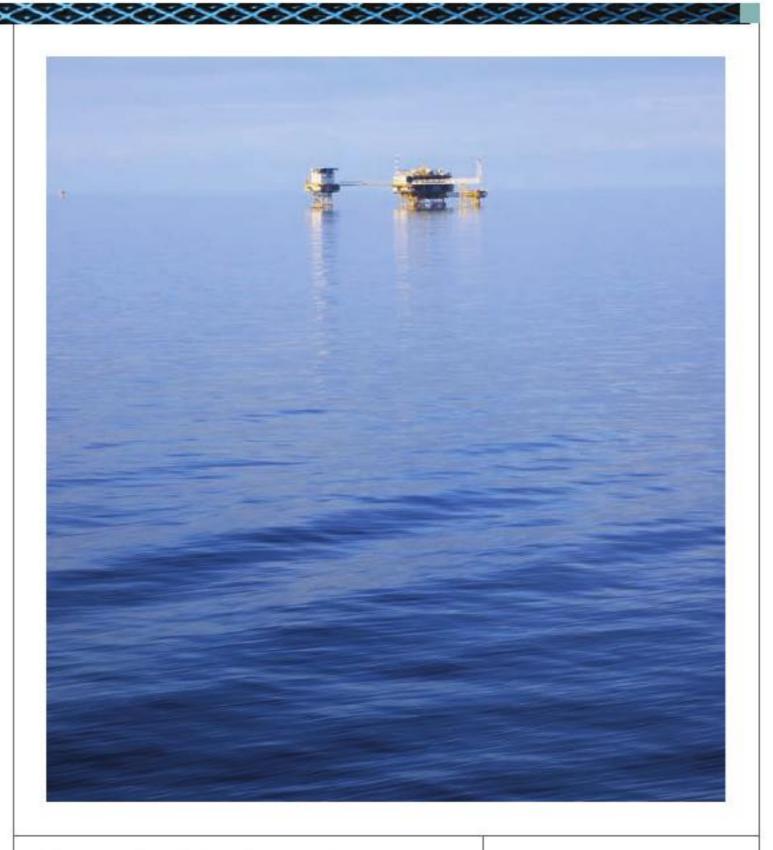
The information below provides the differences between conventional design and the highefficiency design with the Whizz-Wheel®. The images below show the actual sizes of the two different designs, showcasing a clear and

	Conventional #2	Whizz-Wheel®
Plot space area	582 m2	412 m2
Installed fan power	390 kW	308 kW
Sound pressure level	+/- 90dB(a) @ 1m	<85 dB(a) @ 1m
Total Height	7.6 m	7 m
Total weight of units	141 ton	126 ton

meaningful reduction in plot space when the whizz-wheel® is applied.

## Conclusion

The Whizz-Wheel® design has led to several applications in which the space occupied by the coolers could be brought to allowable Ultra Compact dimensions. Together with the two other advantages of these fans, i.e. strongly reduced power consumption and strongly reduced noise generation, the result is that



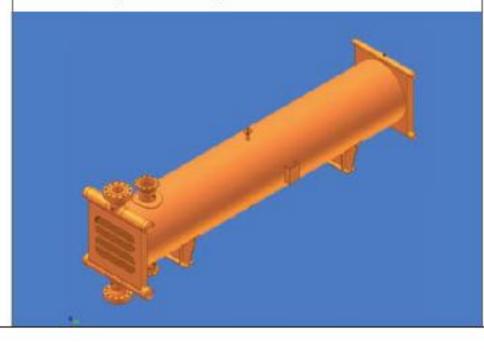
for many air-cooled coolers or condensers, specifications can be met that were unimaginable before the Whizz-Wheel®.

# Other weight and space-saving solutions

Previous offshore co-operation between Dresser Rand and Bronswerk resulted in the application

> of another special Bronswerk development: the Compact Header Cooler. In those joint projects, seawater was the cooling fluid and for the high-pressure coolers these compact headers were used. This also resulted in an impressive reduction of weight and space. The compact header design results in a

circa 50 per cent weight reduction.



Left Comparison table

Bottom left Compact Header design

Below Standard Header design









he recent announcement by the UK Government that it will give more financial backing to offshore wind power, as opposed to onshore operations, is good news not only for the energy industry, but

also for commercial divers and those who train them. The promise of more subsidies by the Government to encourage long-term investment shows a confidence in the sector that should ultimately lead to more jobs for divers.

"The oil and gas industry is cyclical, but the operators appear to be investing heavily in new boats and equipment, which is very positive and encouraging," said Alf Leadbitter, diver training authority at The Underwater Centre in Fort William. "All this investment in the renewables industry, as well as tight gas recovery, should ultimately increase the number of divers needed. The next few years are looking pretty good all round."

As the global oil and gas industry continues to struggle with the skills shortage affecting the sector, the awardwinning subsea training and trials facility has experienced one of the busiest periods in its 40-year history. Things look set to be even busier next year.

According to recent research, there is a major skills shortage in the industry and it is estimated that more than 120,000 skilled personnel will be needed over the next decade to keep up with planned investment in the North Sea industry alone. There is also the issue of an ageing workforce, which presents another potential problem. The first generation of oil and gas workers is approaching retirement age; the average commercial diver in the North Sea - many of whom began their career at the Centre - is aged between 45 and 54 years of age.

Increased collaboration with industry, and the subsequent rise in student numbers, has required the Centre to invest

Student numbers at the Centre have risen considerably over the past few years, with 384 graduating in 2012, a 25 per cent rise on the previous year. This year, almost 400 students have already completed or are booked onto courses.

Alf, who began his diving career in 1975, has been training divers at the Centre for the past 24 years. A former maintenance fitter with British Steel, he made the move to commercial diving after spotting an advert for The Underwater Centre, which had just opened its doors. Following successful completion of his course, he enjoyed a career in the oil and gas industry before returning to The Underwater Centre in 1989 to take up the post of diving instructor, working his way up to Diver Training Manager, and now Diver Training Authority.

In the 38 years since he first arrived at Fort William, he has seen a huge change in both attitudes and control measures in diving. "There have been a great many advancements in diving and, as an occupation, it is so much safer these days – there is much more planning and recording of all processes involved in a job. Safety is a major priority for oil companies, particularly in the UK and European sectors, and they certainly don't put up with dangerous practices nowadays.

"Since 1990, companies have tended to use surface supplied equipment rather than SCUBA, which means that everything is controlled by the surface," he explained. "Offshore diving has a very good safety record."

Safe diving practices begin in the classroom, and Alf's main areas of teaching are safety and life support. Learning how to use lifting bags is a vital skill required by divers, and is arguably one of the most dangerous tools they will use when working - Alf is a member of a number of industry bodies, including the IMCA Lifting Bag sub-committee, on the back of which the Centre has designed this element of its courses in line with best industry practice.

The Underwater Centre develops its courses to meet industry demands and all courses are very much aligned to the planning systems and processes used by the sector, including extended umbilical diving, which is found on a Dynamic Positioning Vessel, and is taught as part of the top up course. The Centre is also one of just three places in the world to offer closed bell training (another being its sister operation in Tasmania), and Alf is now considered the world authority on setting up closed bell diver training having developed the courses at all three establishments. It is also the only Centre to combine training in Remotely Operated Vehicle (ROV) systems, with diver training, allowing students of both disciplines the opportunity to learn how to react to and interact with each other at dive sites.

While it is not always easy to find jobs straight from graduation, The Underwater Centre's students are doing extremely well, with 85 per cent finding work within three months of finishing their training.

Earlier this year, the Centre joined forces with Aberdeenbased Stork Technical Services in a collaboration to offer Scotland's first graduate training programme for divers. The Stork Dive Trainee Programme is a three-year work-based training initiative, offering a number of newly qualified commercial divers from the Centre the opportunity to step straight into a job within the oil and gas industry. Under the scheme, Stork will offer four trainee places per year to candidates who successfully complete the 13-week Premium Industry Package.

"It takes a while to get established in diving, and to prove to companies that you can do a good job," said Alf. "A growing number of students are going directly offshore these days, though I am not sure I would necessarily advise that. The pressure on an individual who does follow this route can be quite significant unless there is a planned approach to introducing them to the offshore workplace, such as the Stork scheme.

"It takes time and experience to prove to companies that you can do a good job. They are investing a lot of money in you and they tend to use the same people over and over again, which can make it hard for a new diver trying to break into the industry. However, there are a number of other good places to cut your teeth as a diver, including working on wind farms, overseas and civil diving jobs. It is often easier to find jobs there, rather than the oil industry, in the first instance.

"I always say that diving is just a means of getting to work – once you are there you have to be able to do the job assigned to you. If you decide on a career in diving, it is definitely a great advantage to have a good skill set behind you. Companies are looking for someone who is competent, and who knows how to work with their hands, such as a fitter, welder or builder. One of the best divers I ever knew started life as a gardener, and he went on to become one of the head inspectors for BP."

# THE UNDERWATER CENTRE

Alf Leadbitter is diver training Authority at The Underwater Centre, Fort William, which was established in the 1970s to provide commercial diver training and as an underwater trials facility. Providing training in both air and mixed (saturation) diving, certified by the Health & Safety Executive to give graduates internationally recognised certifications, The Underwater Centre also offers training in key subsea skills. It has also been providing ROV pilot technician training since the 1990s, which run in accordance with guidelines set out by the International Marine Contractors Association (IMCA).

For further information please visit: theunderwatercentre.com

# Passing the Inspection

HUGH DAVIES, DIRECTOR
OF CLIENT SOLUTIONS
AT OPTICAL METROLOGY
SERVICES (OMS),
DISCUSSES HOW THE
LATEST INTERNAL WELD
INSPECTION TOOLS ARE
HELPING OIL AND GAS
COMPANIES TO VERIFY
THE QUALITY OF RISERS,
FATIGUE-CRITICAL AND
CRA-CLAD PIPES, AS WELL
AS CURVED PIPES AND
MANIFOLDS

ne of the limiting factors in the lifespan of a pipeline is corrosion. Corrosion Resistant Alloy (CRA) clad pipe is becoming increasingly important in preventing corrosion. The welding process is critical to the successful fabrication of CRA clad pipes and consequently the ability for the pipeline owner to extend the life of their pipeline. However, the welding process itself is very challenging.

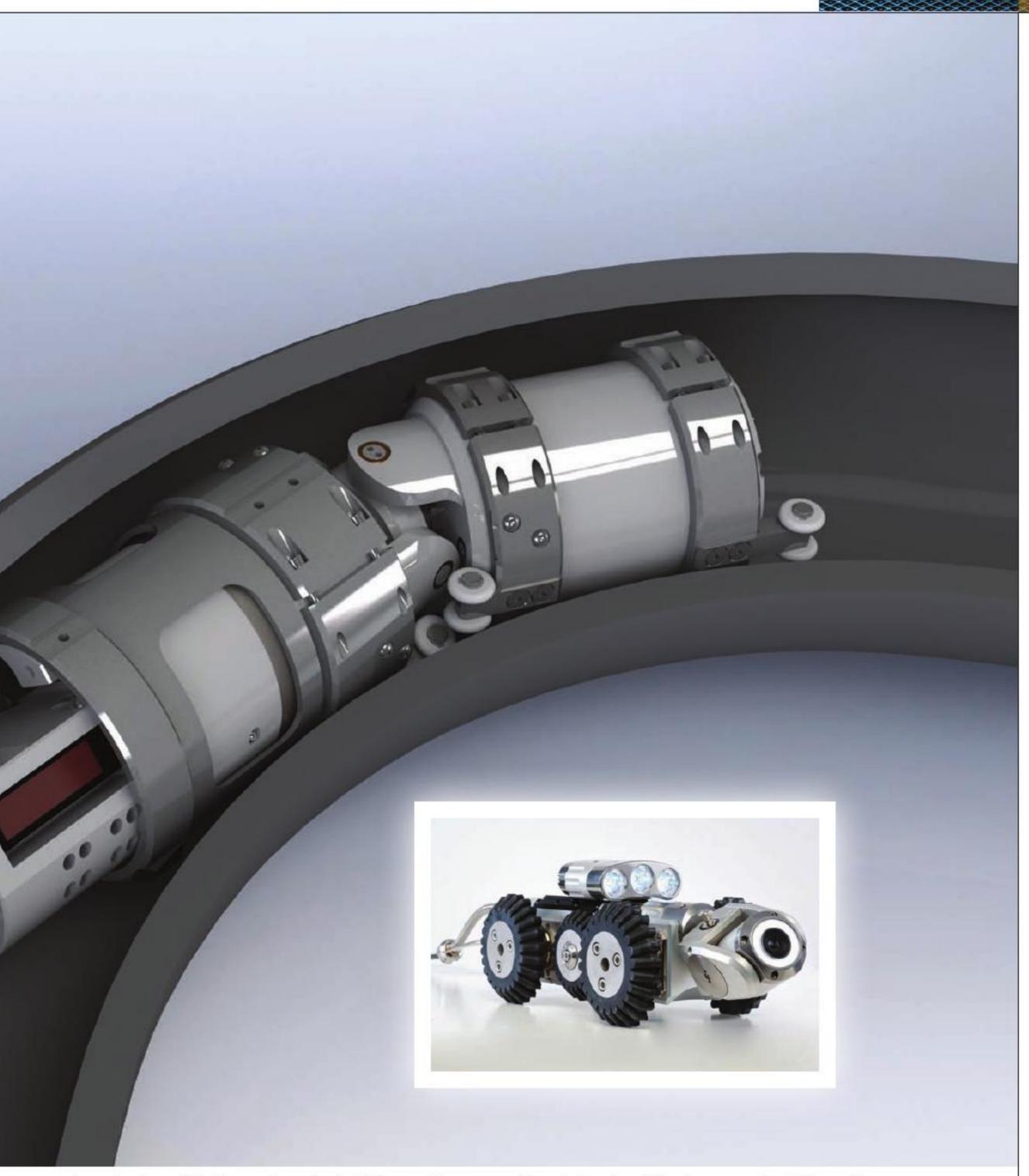
Prior to the development of the OMS WeldChecker<sup>TM</sup> internal weld inspection system, methods of examining the quality of internal welds in detail, from both a visual and a measurement perspective, have been inadequate and unreliable. A considerable gap has existed in the technology available for measuring the critical features of CRA welds such as HiLo (joint misalignment), weld height, width, and lack of penetration or fusion.

The OMS WeldChecker system comprises a highresolution digital video camera for video inspection, and a laser scanner to gather pipe geometry across both pipe inner walls near to the weld, and across the entire weld. This is



critical during the Pre-Qualification Tests (PQT) in order to qualify the welding process, equipment and staff for the project. This not only allows the client to develop its process and to fully understand the welding parameters, but also enables them to demonstrate to their customer an unrivalled level of weld information and to show full compliance with stringent pipeline specifications.

The ability to give closure on tough decisions regularly encountered by the welding inspector could prove invaluable



in saving time, while also ensuring only the highest quality welds are accepted, leading to longer lifespan. When to use WeldChecker is also an important factor - timing is critical in order to maximise the benefits of the system. Video-only inspection tends to raise as many questions as it answers, often meaning that pipe joints need to be cut out to mitigate any risks, even if they turn out to be acceptable upon closer inspection later.

Ultrasonic testing, although very detailed, can only be

performed after the weld has been completed. There will have been multiple weld passes before finishing the cap of the weld - and this means that if a flaw is found, many hours of work may have already been wasted. The OMS WeldChecker is best placed to inspect after the second pass, so if there is a flaw in the root weld, it can be cut out at this point - saving time and money.

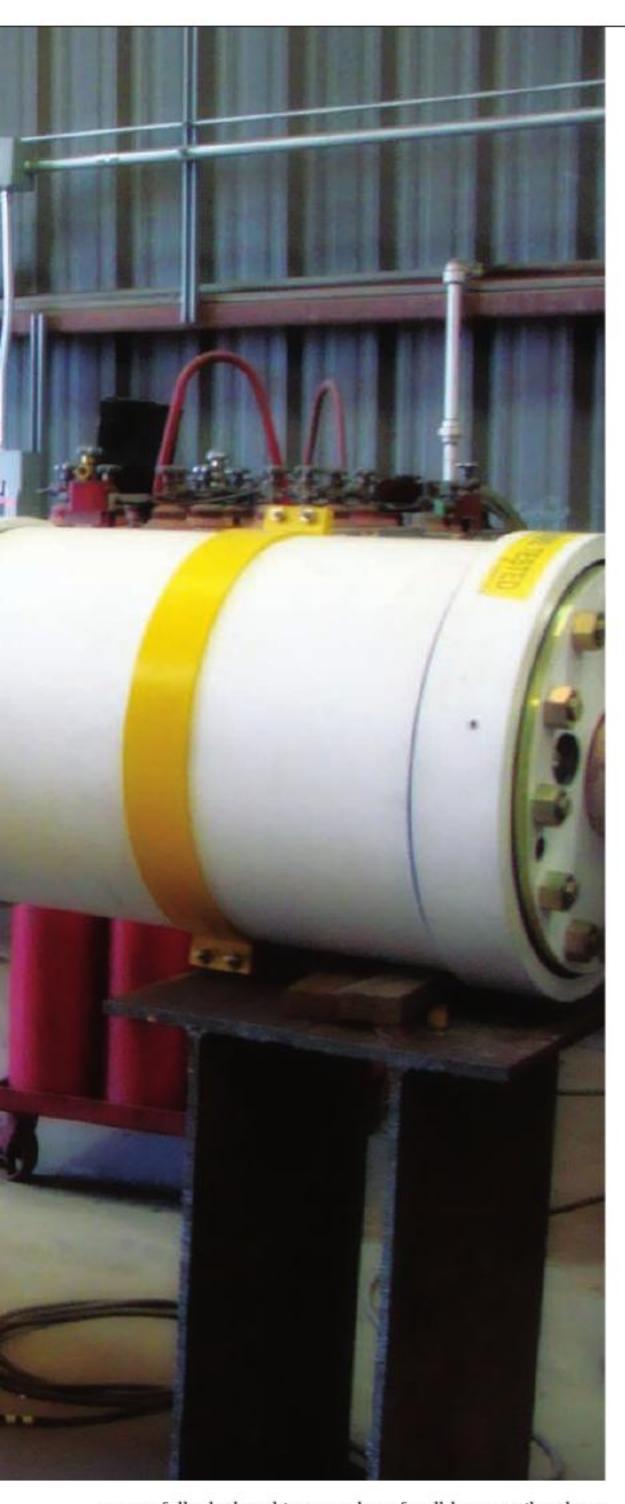
Another technical challenge is the ability to inspect welds around curved pipes. Many of OMS' clients use CRA





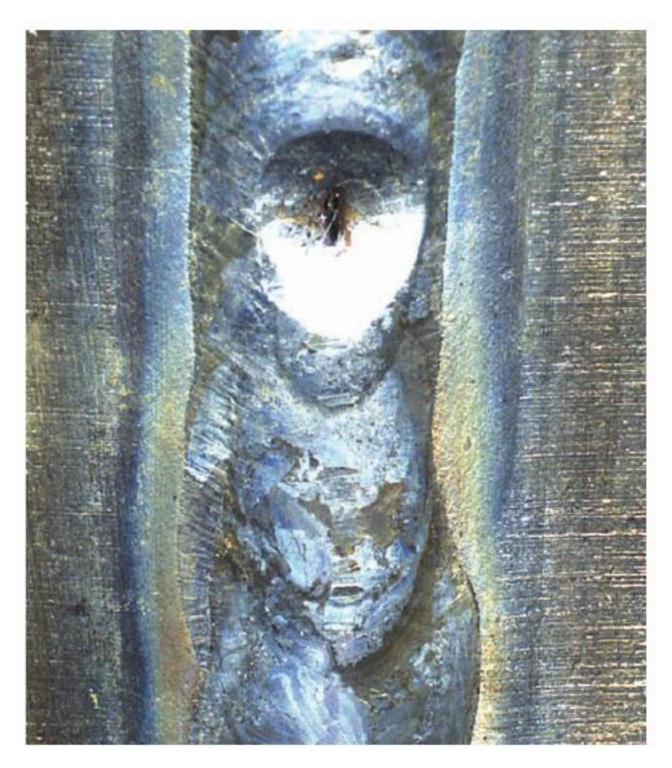
materials on subsea structures, such as PLETs (Pipeline End Terminators) and PLEMs (Pipeline End Manifolds). These structures tend to have very tight bends, as little as 1D (1 x diameter) on occasion. Listening to our clients and assessing the lack of technology in this area, OMS has designed and produced a new version of the WeldChecker, which has the same design concept as a London 'bendy-bus' with a modular, flexible design. The advance in hardware has driven the capability forward, allowing previously inaccessible welds to be measured for compliance - guaranteeing they meet the client's specification.

Taking this technology to the next level, OMS has developed more compact tools that are able to fit inside ever-smaller pipe diameters. The capability is now at just 4" internal diameter, making OMS the only company in the world that can inspect welds using both laser measurement and visual data at approximately 100mm diameter, and around bends in pipes. OMS WeldChecker has been



successfully deployed in a number of well-known oil and gas projects around the world such as BP's Devenick, Skarv and Galapagos projects, as well as Shell projects Gumusut, Llano and Cardamom.

Where will internal weld scanning technology go from here? OMS is currently looking at the application of this technology to a number of different situations. One application is to mount the tool to the line up clamps for use in the critical welding path both onshore and offshore during



pipeline welding. Another application is the inspection of tiein welds on welded spooled stalks of pipe - this means while these pipes are spooled onto the vessel, the WeldChecker would be driven by crawler perhaps 1km to perform the weld scan. Finally, it could be used on older pipes and structures to measure the extent of corrosion or pitting, or perhaps to measure the extent of features in the pipe wall.

The OMS WeldChecker has also seen significant interest from the oil and gas industry, as well as interest from the aerospace and nuclear sectors. Large operators are now asking for tighter tolerances to maximise production life, and also to make the pipelines safer through better welds. OMS provides the solution for both operators and welders - seen, measured, quantified, and approved.

# OPTICAL METROLOGY SERVICES

Hugh Davies is director of Client Solutions at Optical Metrology Services (OMS), a market leading provider of pipe measuring products and services. The company specialises in measuring equipment and consulting sevices for use within the pipe and manufacturing and pipeline construction sectors, both onshore and offshore. A key focus for OMS is in the dimensional measurement of oil and gas pipes or other structures such as military gun barrels, processing industry tubes or manufactured cylindrical objects, where dimensions are critical. The OMS Pipe Checker™ range of tools provides dimensional checks on all aspects of manufactured pipe. These tools are used throughout the world for onshore and offshore projects and in pipe mills.

For further information please visit: www.omsmeasure.com

# Achieving best COMMINICATION CONCINCATION COMMINICATION CO

# CHRISTOPHE CHAUSSE OF CAPITAL SAFETY ON ENSURING BEST SAFETY PRACTICE ACROSS AN ENTIRE WORKFORCE



ver the last 20 years we've seen increasing globalisation, which poses significant opportunities and challenges for anyone with a global workforce. How should companies ensure all their employees,

teams and subcontractors are properly trained, following all the processes set out and complying with the various local regulations? In an environment where rules and regulations are endlessly changing and norms are evolving, safety becomes complex to manage. Couple this with different continents and languages, and interpretation can add another layer of complexity. Finally, true integration is often held back by different practices and mindsets, as well as each company bringing their own culture, rules and regulations.

In spite of all of the above, worker safety remains a top priority and fall protection needs to be permanently on their radar. For Capital Safety this is our entire focus as a business – our goal is for every worker to make it home safely. Managers with responsibility for this within their organisation need to understand all the challenges in order to find the appropriate solutions.

# Understanding and adhering to best practice

The risks that need to be managed are constant, so best practice is vital within a workforce. Embedding adequate procedures in all your locations is key to this, as well as being certain that your workers understand and have the time and skills to operate safely following norms and the company's procedure.

What is accepted as best practice or 'normal' practice is unfortunately not as straightforward as it should be and can vary dramatically from company to company and country to country; norms CA - CSA - CE - Ansi Osha - Gost - ANZ, as example load capacity on harness, energy absorption load, anchor point, have their own specificities, which make even more complex the adaptation of the company's safety rules; but all have common sense bringing workers back home safely. Indeed, the work environment also plays a part as rigs are not identical; offshore platforms have their own specifics including specific access, specific master points, particular rescues and so on.



# Training

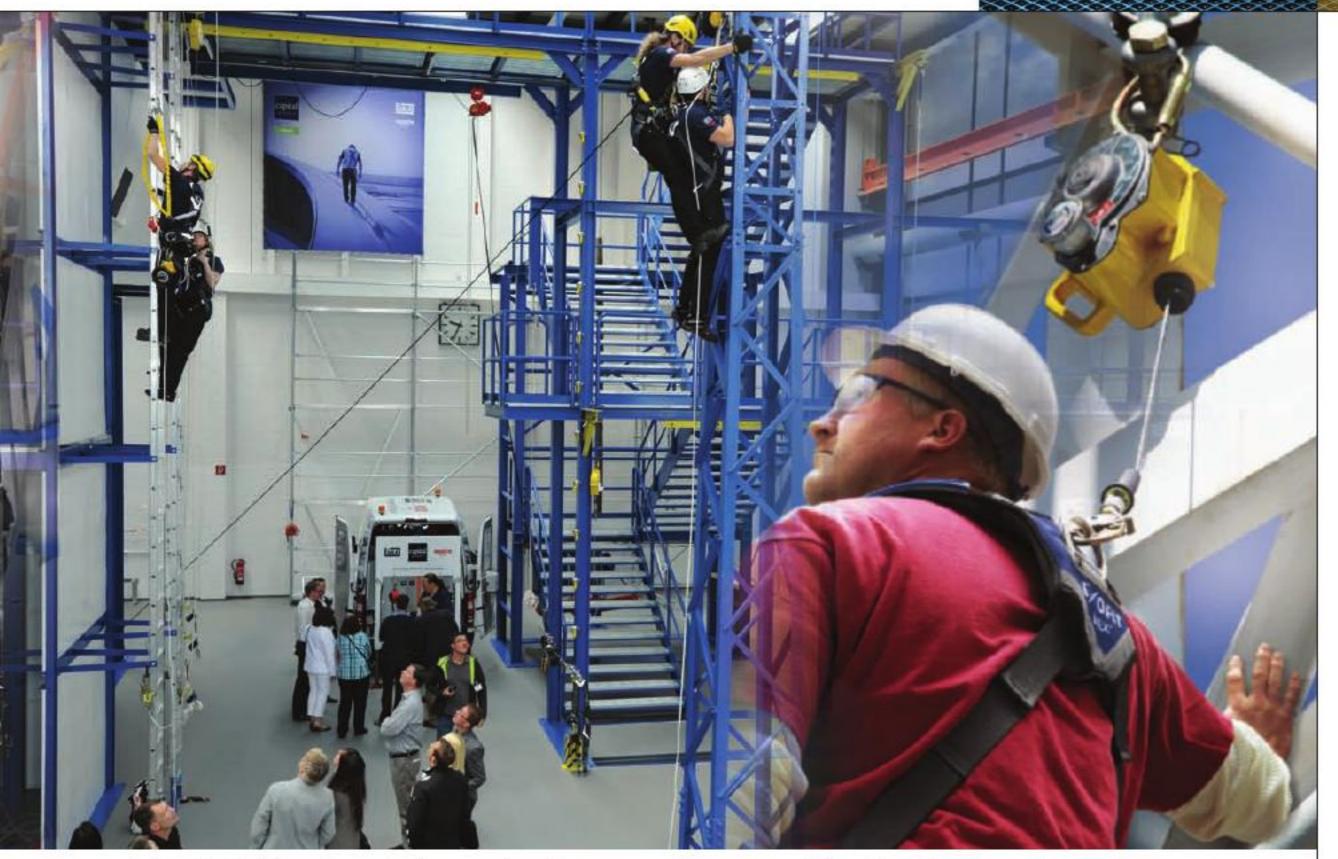
It is crucial that high levels of training are maintained by giving workers frequent technical refreshers to ensure that best practice is not forgotten and that they understand the importance to why they are in place. Managers have even more of a responsibility to maintain high standards of training in situations where they need to apply knowledge in different locations with various nationalities.

# Remote working conditions

Risks are even greatly amplified by remote working conditions, which might have limited access to emergency services and help when needed. In these situations it's a case of 100 per cent trust; 100 per cent trust in the work location, 100 per cent trust in the material and 100 per cent trust in the workers themselves. In a remote location there can be no place for error and even the smallest mistakes can be fatal. Procedure must be tuned and perfect, the workers should be skilled and healthy, with the structure and machines remaining well maintained. In the event of emergencies rescue must be fast and remote sites must be equipped, with all the essential safety equipment and as well as those who are well trained and prepared to use them.

# language

Language is one of the biggest human barriers existing with an international workforce. Using pictograms and posters are simple ways to remind workers of risks and to illustrate the best practices in a universal visual language. Having regular meetings and safety sessions with visual support of accident



analysis, audit debriefs, and correct actions are a few of the ways to keep safety standards high and to refresh a team's knowledge on risks and local changes.

#### The best equipment

Selecting simple tools that are easy to use and harnesses that are easy to adjust, and in the correct size, will reduce the effect of fatigue on the worker as will harnesses that are adapted for self-rescue to avoid putting others' lives at risk. Equipment is there to reduce the hazard not to create more danger and confusion.

#### Self-rescue

In fall protection, self-rescue is definitely the best option as it does not require any others to endanger themselves at height or in a confined space. One of the best solutions is to reduce the fall distance i.e. using self-retracting lifeline instead of lanyard, vertical permanent lifeline or just limiting the use of the rope as working suspended is a specialist skill which requires a high level of training. Selecting equipment that is certified with all norms will reduce confusion when working across boarders by ensuring that training is adequate for all and use of the equipment will remain the same.

Training is without a doubt the most important part of the safety package and needs regular revisiting and investment. Employees will work the way that they think is best. This way will not necessarily be the safest, and may not be the right approach for the task that they are trying to complete.

Training must be a reiteration of risks in the working

environment, specificity of the tasks and procedures that workers must follow. There must be a proper analysis with the worker of their day-to-day risks 'in situ' and practice with appropriate equipment and demonstrations. There should be taught best practice and the ability to identify bad practice and resulting risks. Workers should be receiving training to practice self-rescue and taught to understand the risks for human physiology including suspension trauma, choc effect and impact effect.

For managers, foremen and workers, installing a culture of safety is a process that requires equal involvement for all parties involved. Each individual, no matter their level, needs to be concerned for themselves and others, and must be willing to improve safety standards for the benefit of all. Getting back home safely needs to be the main focus for all, not just for themselves but also for their colleagues.

#### CAPITAL SAFETY

Christophe Chausse is regional director, emerging markets EMEA, at Capital Safety, the global leader in fall protection with 22 operating sites worldwide. Capital Safety is home to the DBI-SALA and PROTECTA brands of fall protection equipment. Both of these brands have invested decades in the science of fall protection to ensure that workers are safe and employers have confidence they are providing their employees with the best protection possible.

For further information please visit: en.capitalsafety.us



THE INTERNATIONAL MARINE CONTRACTORS ASSOCIATION (IMCA) PROVIDES AN AUTHORITATIVE VOICE FOR ITS 900+ MEMBERS, AS CHRIS CHARMAN, CHIEF EXECUTIVE, EXPLAINS

Above
A frame before
ROV intervention

Below Chris Charman, chief executive at IMCA



#### I am delighted to be asked

200000

to write this introduction to the section of European Oil & Gas Magazine, which has a strong link with the marine contracting sector. The International Marine Contractors Association (IMCA) represents the offshore, marine and underwater engineering industry with governments, regulatory bodies and clients worldwide, and has well over 900 member companies in more than 60 countries.

Between them it is estimated that they collectively turn over in excess of \$150 billion annually and employ well over a quarter of a million staff across the world. What's more, their vessels account for four per cent of the global shipping fleet. Without their innovation and dedication it is a salutary thought that little or no offshore oil or gas would reach markets.

We work with our members in a collegiate and inclusive style to deliver safer working practices, pool knowledge and learn from each other in order to reduce risk, losses and damage to the environment.

IMCA does not set standards or regulations. It is not a legislative body. Our approach is that safe and efficient operations must be coupled with a good risk culture, guidelines and attitudes.

We therefore provide our members with guidance, allowing them to self-regulate rather than look to clients or governments for setting rules and procedures. While governments legislate on a range of issues in the public interest, they cannot produce legislation for every part of an industry's operations – nor may that be desirable. A key benefit of industry guidance is that it can be implemented and updated more quickly than legislation. This is vital in an industry such as ours with its rapidly advancing technology. Naturally, as a trade association we must also comply with international competition law (competition, antitrust and similar laws).

Our stated aims include our commitment to strive for the highest possible standards with a balance of risk and cost in health and safety, technology, quality and efficiency, and environmental awareness and protection. We also aim to help our members achieve equitable contracting regimes; and provide the framework for training, certification, competence and recruitment to support and sustain the industry globally. We seek to promote our members' common interests, to resolve industry-wide issues, and to provide an authoritative voice for our members.

Our members have made a conscious decision to set the most challenging goals possible, with the 'holy grail' being 'zero incidents' – after all, they are protecting their most valuable asset, their workforce. The objective, as an industry, is

#### MARINE CONTRACTING AND ENGINEERING FOCUS

to become the best we can at what we do, and motivate a process of continuous improvement.

IMCA has four technical divisions covering marine/specialist vessel operations; offshore diving; hydrographic survey; and remote systems and ROVs (remotely operated vehicles).

We also have five regional sections - Asia Pacific; Central and North America; Europe and Africa; Middle East and India; and South America. These sections enable members to address issues specific to their region and local area, and ensure the global applicability of the association's worldwide activities. Regular meetings bring members together to discuss current topics and initiatives, often with guest speakers and opportunities for those interested in membership, clients, regulators and other interested parties to join members for presentations and briefing. We are very much an organisation serving the interest of our members; with member committees determining our technical work programme undertaken by our strong technical team headed by our technical director, Jane Bugler.

IMCA has two core activities - Competence & Training; and Safety, Environment & Legislation (SEL). Our Competence & Training activities include the provision of guidance on competence assurance and assessment. This guidance provides members with a framework for creating their own in-house schemes for assessing and recording the competence of people working in safety-critical and other roles. It is especially designed for members who need to demonstrate the competence of their staff to clients and regulators, and to adhere to standards such as ISO 9001. Certification by industry-recognised third parties, as well as our own initiatives in this area, gives IMCA members access to a global training and competence development framework.

SEL, our second core activity, promotes
the sharing of experience and safety-related
information among members with the aim of
reducing incidents by continuously reinforcing
good practice. We offer good practice guidance
to industry by way of documents, seminars (our
Annual Seminar is held in the late autumn and
our Safety and Environmental Seminar in the
spring) and dialogue.

The sharing of information on incidents and near-misses is a powerful enabler for IMCA members to achieve safe, reliable and efficient operations. Details of potential hazards at the worksite and lessons learned from follow-up



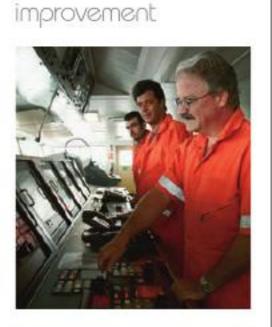
investigations are collated, anonymised, circulated to members and posted online to create a growing database of invaluable information. The IMCA database on dynamically positioned (DP) incident reports dates back over 30 years.

Occasionally incidents do happen, and that's when the IMCA safety flash system provides a fast, vital communications channel for the industry and helps prevent recurrence of the situation.

IMCA publishes some 200 guidance notes and technical reports. The vast majority are available for free downloading by members and non-members alike and, where applicable, are published in a range of languages. They are a definition of what IMCA stands for, including widely recognised diving and ROV codes of practice (often cited in clients' tender documents); DP documentation; marine good practice guidance; the Common Marine Inspection Document (CMID) available electronically as eCMID; safety recommendations; outline training syllabi; and the IMCA competence (competence framework) guidance. In addition to the range of guidance documents, IMCA also produces safety promotional materials including pocket safety cards, posters and DVDs.

The international marine contracting industry is a strong and friendly 'family', mostly working at the cutting edge of an exciting and critical industry. There is no greater pool of collective knowledge of our sector than ours on the planet. We constantly share knowledge – to add depth to that pool – to improve the way those in the industry work and the quality of the service they are able to deliver.

Our members have made a conscious decision to set the most challenging goals possible, with the 'holy grail' being 'zero incidents' after all, they are protecting their most valuable asset, their workforce. The objective, as an industry, is to become the best we can at what we do, and motivate a process of continuous





Top ROV Luso in action

Middle
Bridge of a dynamically positioned vessel

Bottom Dive support vessel



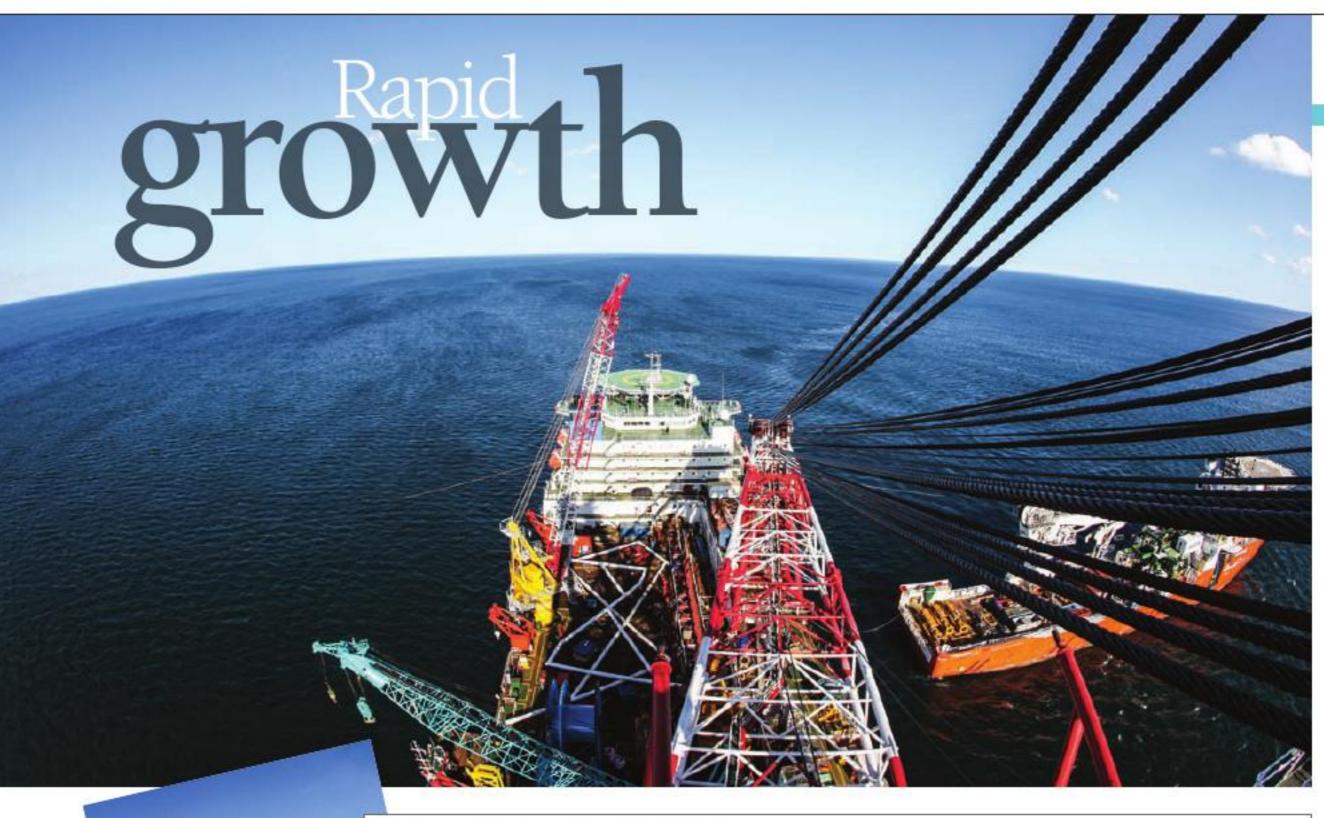


#### ...now and in the future

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#### Founded in March 2003 as

the engineering survey department of the GT Morstroy Group of Companies, Fertoing Ltd has enjoyed rapid growth since its inception as a small engineering department to the major supplier of engineering, navigational, subsea and hydrographic services it is today. "We started as a small group of young engineers but have expanded through responding to the major suppliers and players in the Russian oil and gas market. Back then we had undisputed leaders in engineering working for us, but following a complicated process of development we now have a much better team with more experienced professionals," says Ilya Logvinov, development director at Fertoing Ltd.

"The team we have gives us a competitive edge in the market; we are young, with an average of 34 years, and a lot of our investment goes into our personnel to boost their experience and offer more opportunities to them to get involved in new and interesting projects. Some companies invest a lot in equipment but may not see a return on the investment in time; however if you invest in your personnel you will see quick, positive results."

Covering the entire territory of the Russian Federation, Fertoing performs a large scope of work in the field of integrated offshore survey, navigational, geotechnical and subsea support to the construction and operation of subsea, pipeline, river and marine transport facilities.

"Our main areas of operation are in engineering, hydrographic and ROV for both shallow water and offshore projects," Ilya highlights. "These services can be very complicated as we support our customers from blueprint phase to construction, and during operation and maintenance of the facilities. Offshore we use up-to-date hydrographic and navigation equipment, and a comprehensive range of ROVs, from observation class ROVs to large, hydraulic work-class vehicles."

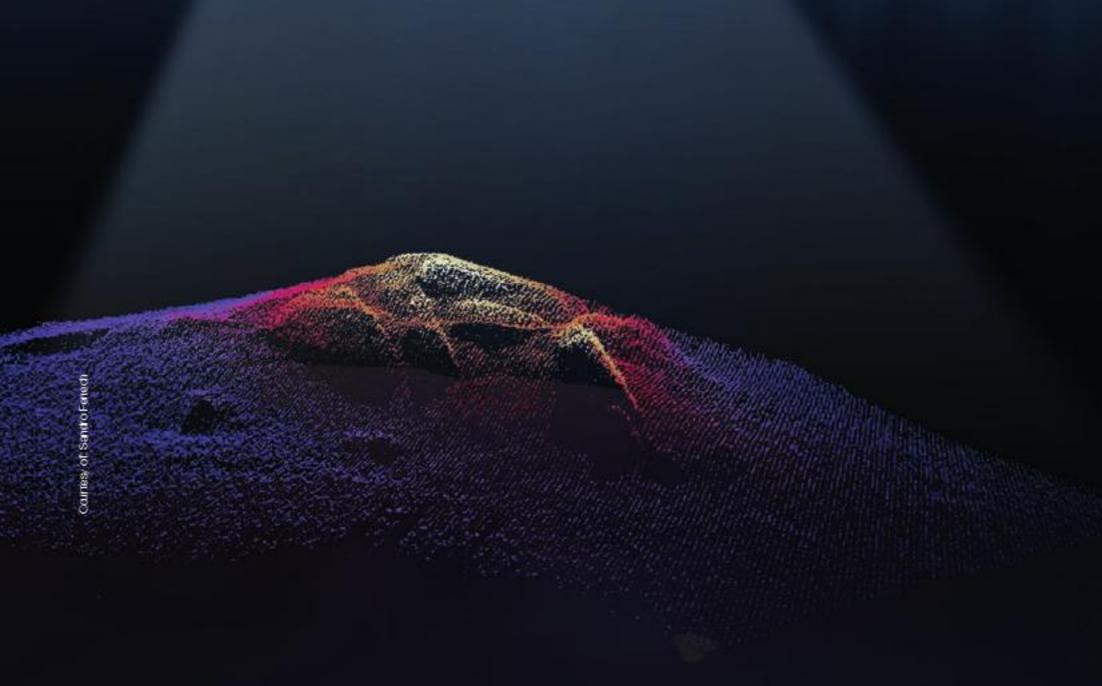
Having worked on 1105 projects in Russia since 2003, the company began performing complex hydrographic works to survey the operating base of floating drill facility Obsky-1 in the Gulf of Ob in 2007. This was a pioneering project for Fertoing, not only proving its abilities as an engineering service supplier in the development of offshore Russia, but also enabling the firm to dominate the hydrographic services market. In 2008 the company fully commenced operations at pipeline transportation facilities, delivering integrated navigational and hydrographic support for the installation of four underwater pipelines in the Bovanenkovo-Ukhta gas pipeline system in the Kara Sea.

Today, headquartered in St Petersburg, with representative offices in Yuzhno-Sakhalinsk, Sochi and Murmansk, the company has completed more than 200 engineering projects for the Russian Federation in 2013 alone. "We are the first company to be involved in the





## BRING CLARITY TO THE WORLD BELOW



#### LEADING TECHNOLOGY

Kongsberg Maritime continues to be at the forefront of subsea technology.

Through an extensive portfolio of cutting-edge survey and inspection systems, from multibeams to AUVs, we provide clarity to the world beneath the waves. Our solutions for hydrography, fisheries and underwater navigation and inspection enhance precision and efficiency, giving you the edge in operational performance. You can rely on our technology to deliver a clear view of the world below, because with Kongsberg Maritime, you always have **THE FULL PICTURE**.

hydrographic and full ROV support during the construction of the first Russian subsea production system, the Kirinskoye gas and condensate field in the Sakhalin Region," says Ilya. "This is a big project for us as a Russian company and also a big step for the Russian Federation too as before we took over these operations all offshore work was completed by foreign companies. Despite the complexity of the engineering works, their exceptional challenges and adverse weather conditions, Fertoing successfully completed the work."

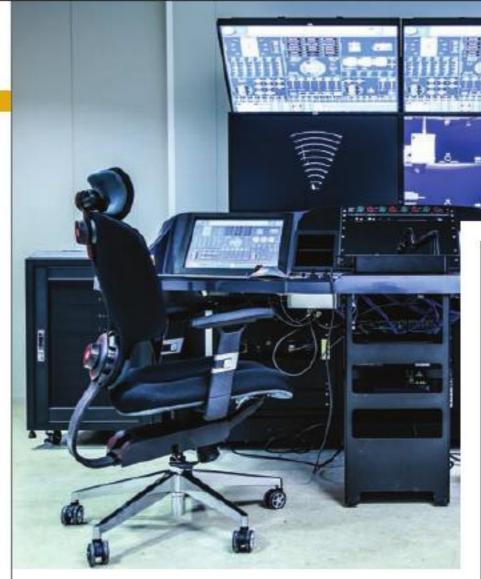
Commencing work within the Sakhalin-Khabarovsk-Vladistok main gas pipeline project in 2009, the company began providing integrated engineering support to the construction of the Kirinskoye gas and condensate field in 2012. Located in the Sea of Okhotsk, 28 kilometres from the shore, the Kirinskoye field is viewed as the top development priority within the Sakhalin III project; the field's development will contribute to favourable gasification conditions in the Russian Far East and the delivery of natural gas and condensate to the global market.

For the first time in Russian history a subsea production facility was installed in 2013, with an official ceremony held in October for the first gas production and its transmission testing at the onshore processing facility (OPF) of the Kirinskoye gas and condensate field. A major event for Russia, the command to launch gas production came from Russian president Vladimir Putin.

Fertoing is keen to further enhance the skills of its highly efficient and innovative team and enhance its services by investing in new equipment. "Our offshore work covers the majority of the year, from April to November, so there is a short period where we could try and find jobs elsewhere in the world. However we aren't focused on making as much money as possible, our focus is on experience, so we choose to sit down and go over the work we have done, while also providing maintenance of equipment and training for personnel," says Ilya.

"We recently constructed a new 500 square metre training facility for our personnel with VMAX Full-up XLX Console Simulation Package that is a complete replica of the work-class ROV, and practical class with navigational and hydrographic equipment imitating bridge of pipelaying barge, multi-support vessel or drilling rig.

"We want to improve the quality of operations and find additional areas of the business to



implement our vocation expertise," says Ilya. Furthermore, by constantly following the latest scientific and technological trends to improve and modernise equipment stock, Fertoing's strong equipment capability enables it to dominate in services for the Russian Federation as well as engineering services for the world market.

Realising the company's major role in the Russian marine engineering development, Fertoing actively participates in non-commercial social projects. One of them is the Kronstadt Naval Museum, established in May 2012 by the united efforts of the enthusiasts and company full financial support. "The main objectives of the Museum are presenting the diving history of Russia, history of Kronstadt and promotion of vocations of a diver and marine engineer for all ages visitors," says Ilya. The Museum houses a wide collection of diving equipment, which is all still operational. A special room is devoted to the heroic defense of Kronstadt and the defenders' life during the Great War.

Fertoing looks set to flourish in the future as it continues to strategically enhance its service offering to earn a larger market share within the Russian offshore industry. "We want to continue the cycle of offering personnel training so we can take on more opportunities and interesting projects, which will thus lead to our continued growth and development. We would also like to see more Russian companies and engineers in the Russian offshore market, which is why we offer training to students who come in and practice during the summer time. If our personnel are interested in their job they will be more enthusiastic about finding interesting and unique solutions. This makes for great morale and a positive work atmosphere, and as a result, company stability and self-confidence," Ilya concludes.

#### KONGSBERG MARITIME SUBSEA

With an extensive portfolio of cutting-edge hydroacoustic survey equipment including sonar, singleand multibeam echosounders, positioning technology and sophisticated underwater vehicles, to data analysis tools and subsea cameras, sensors and instruments, Kongsberg Maritime Subsea is an established technology provider for the oil and gas exploration, scientific research and maritime engineering sectors. In addition to developing vital technology for the subsea industry, Kongsberg Maritime Subsea also works closely with leading research institutes and organisations to create advances in the fields of hydrography and underwater positioning for scientific and commercial applications. The company is also committed to leveraging its subsea expertise to develop new solutions for environmental monitoring; supporting the oil and gas industry to minimise the impact of operations in environmentally sensitive locations. All Kongsberg Maritime Subsea deliveries are tailored to exact customer requirements and benefit from high quality design and manufacturing. Kongsberg Maritime Subsea solutions cover all aspects of technology on the seabed, in the water, and on a wide variety of vessels involved in hydrographic and seismic survey, offshore support applications and maritime construction. Kongsberg Maritime is a global marine technology company providing innovative and reliable technology solutions for all marine industry sectors including merchant, offshore, subsea and naval.

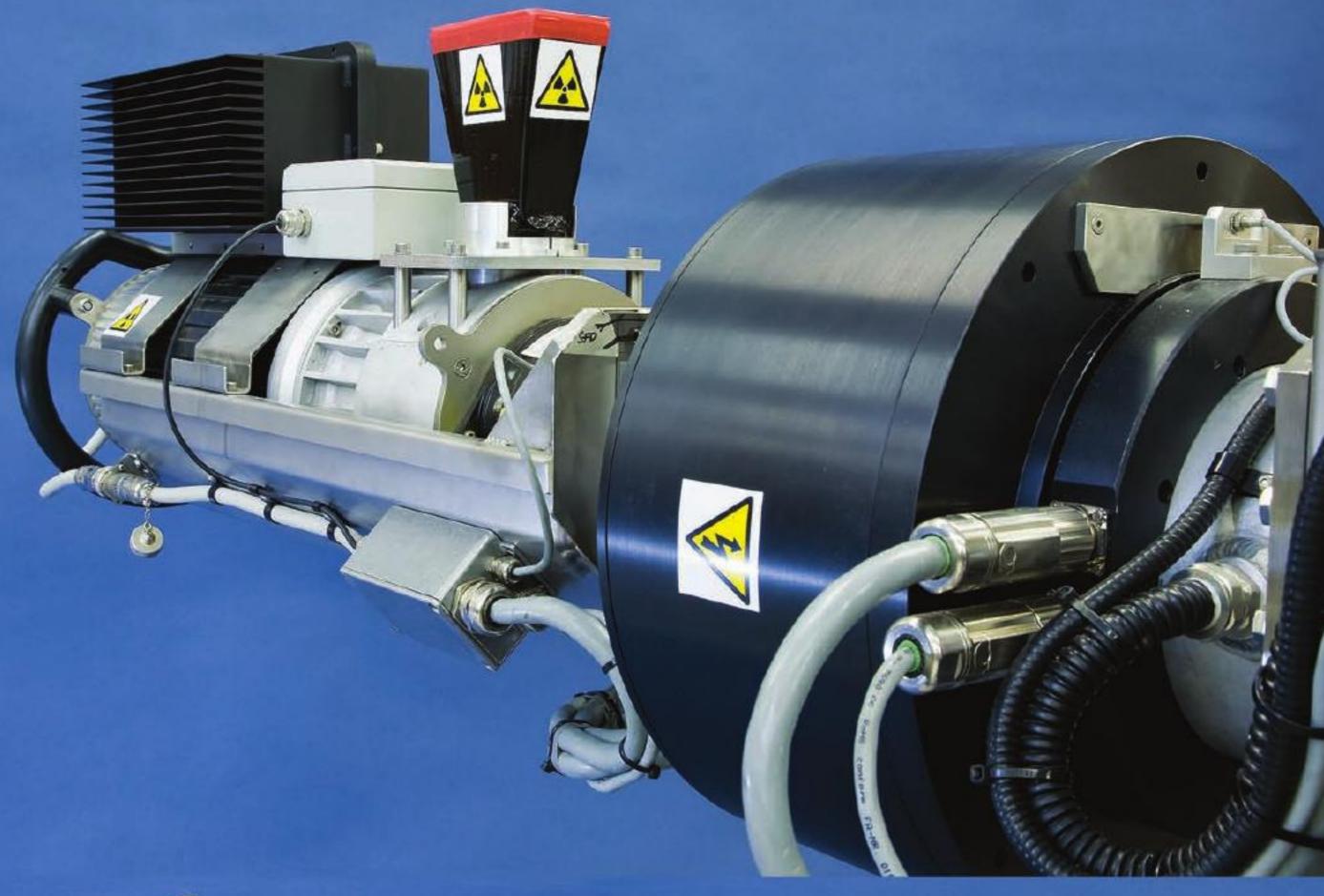


## PROVEN

### INSPECTION SERVICES

Shaw Pipeline Services (SPS) offers a wide variety of inspections for the onshore and offshore pipeline industry, with a primary focus on the inspection of pipe girth welds utilising both Real Time Radiography (RTR) and Automated Ultrasonic Testing (AUT) techniques. The experience gained in over 3 decades of pipeline inspection has allowed SPS to grow equipment and personnel pools of the highest standard, serving clients across the globe. The focus of SPS is to build key strategic relationships to allow effective and efficient development of projects from award through to completion and with a research and development team continuing to improve the methods and techniques, no project is too small, large or challenging.

Whether working to industry wide specifications or client specific criteria, Shaw Pipeline Services has the knowledge and experience to help make your pipeline installation project a success.









#### Above Trailing suction hopper dredger Utrecht in Arctic conditions at Baydaratskaya Bay project

"Van Oord was first established as a family business in the mid 19th century. Over the last few decades we have become a world-class international dredging and marine contractor specialising in dredging, marine engineering and offshore (oil, gas and wind). Marine ingenuity are the two words that state who we are. As an innovative partner for our clients, Van Oord helps to create the infrastructure for the world of tomorrow. Expanding and developing our services in the last few decades, we have evolved into a world-renowned, one-stop-shop engineering, procurement and construction

(EPC) contractor," says Maurice de Kok, area manager at Van Oord Offshore, Van Oord's business unit for the oil and gas industry.

Van Oord has developed a global reputation as a business characterised by visible leadership, marine ingenuity, a focused long-term vision and strong financial position. Dedicated to surpassing client expectation, the company makes substantial investments in its personnel and equipment to ensure continued quality services and ongoing growth within its worldwide market.

Van Oord Offshore's market-leading high one

## STRONG

#### PARTNERSHIPS

Show Pipeline Services is an international supplier of inspection products and services to the pipeline installations market. In the last year its relationship with Van Oord Offshore has grown from strength to strength and the support provided on previous projects has enabled a confidence in their inspections to a level that will continue on key installations in 2014. Through a desire to deliver best in class service, Van Oord Offshore has chosen Shaw Pipeline Services to provide inspection on board the Stingray shallow water vessel from South Korea to Taiwan to Brazil. The focus of Shaw Pipeline Services to develop and grow key strategic relationships has meant that the path to project completion for pipeline installation contractors is continually becoming more efficient from one project to the next. Whether your pipeline is sweet or sour service, carbon steel or clad lined, Shaw Pipeline Services has the expertise to ensure peace of mind over its integrity.

As Shaw Pipeline Services and Van Oord Offshore develop their working relationship, that strong partnership will continue to deliver successful project completion to the pipeline installation market.







Buyang Industry provides concrete products and services for global civil engineering and construction businesses.

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precision subsea rock installation activities (SRI) are vital to the stabilisation and protection of offshore pipelines, cables, wind farm foundations, and gravity based structures (GBSs). The success of the SRI services means they have been used in high profile projects in the North Sea region, such as Ormen Lange, and are becoming more global with projects in Brazil, Russia, Australia and Mexico.

Working with oil and gas companies around the world, Van Oord Offshore has developed an excellent reputation as a company able to find the best solution to the biggest challenges. Investing in its first shallow water pipe lay barge in 2012; Van Oord's Stingray complements the company's diverse services to the offshore industry. Stingray is designed in accordance with the stringent safety and quality standards required by the oil and gas industry. Equipped with state-of-the-art machinery, Stingray can install pipelines ranging from six to 60 inches

in diameter; furthermore, the barge can also be used for a diverse range of offshore installation operations such as buoy and manifold installation, commissioning, piling, hook-up and midline tie-ins.

"Stingray complements Van Oord Offshore's main strength of inventing or developing solutions within the offshore industry and has already been executed for its first projects," states Maurice. "Located in Ulsan, Korea, this project comprised of the new single point mooring (SPM) construction for the S-Oil refinery. The construction started in April 2013 and consists of dredging a trench and the installation of a 42 inch pipeline and a pipeline end manifold system (PLEM)." Furthermore, Stingray has also already executed its second contract for the replacement of the Shalung No 1 offshore crude oil pipeline for the Taoyuan refinery CPCin Taiwan.

Fully integrating its EPC services has enabled Van Oord to encompass detailed design

#### BUYANG INDUSTRY

Buyang Industry has supplied CWC pipelines in South East Asia, Middle East, and Africa through decades and also provides CWC manufacturing plant with its own distinguished quality control system, which can enhance production schedule and quality. Buyang Industry can also give customised solutions for anticorrosion coating Anode, and Anode installation all together on time by bringing the utmost service to customers for supporting their projects with considering details of installation conditions and schedule. The better coating solution is what Buyang Industry provides customers.





and verification, materials procurement and associated services as well as installation and commissioning services in one comprehensive package. Boasting vast amounts of experience within the offshore industry, the dynamic firm has grown a worldwide reputation, with approximately 4500 employees covering

its strategically located offices around the globe; a presence that has given Van Oord the opportunity to develop experience in the most remote and harsh locations, long before the oil and gas industry's move into deeper waters. "We are used to working in remote areas or complicated environments such as the arctic or

Above Shallow water pipelay vessel, Stingray



#### www.ducdiving.com

- Underwater activities
- ROV & diving
- Salvage
- Survey
- Engineering
- Construction



Some of the projects executed for Van Oord:

- ≋ Installation of a SPM buoy in Romania
- ※ Installation of a gas pipeline and Hyperbaric Coating Repairs in the IJsselmeer,

   The Netherlands



- Under water grouting and drilling
- General welding and inspection
- Hyperbaric works
- And more





Mr. Claude Barret, Office# 104, Block B, Spectrum Building, Oud Metha, PO Box 115976, Dubai, UAE

Tel: +971-4-3367405 | Fox: +971-4-3367406

Email: j.moses@rougepipeline.com | rougellc@eim.ae





Rouge Pipeline Services LLC (RPS) established in 2003 turned independent company since 2008; based in Dubai, United Arab Emirates, RPS extends turnkey services to Oil & Gas Industries both Onshore & Offshore catering to the MENA region India and Far East.

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Drying, Intelligent Pigging namely Caliper & Baseline Survey,
Commissioning, Decommissioning, Nitrogen Helium Leak Testing,
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Management Consultancy & Staffing Services.

In December 2012, RPS entered into a subcontract with Van Oord ME Limited towards Commissioning works for Fujairah F2 Plant SPM Project with Fujairah Asia Power Company. The subcontract was executed satisfactorily.

www.rougepipeline.com





the tropics and are able to manage challenging projects, as well as the rules and regulations being enforced in these harsh locations, with ease," says Maurice.

"We all know oil and gas exploration is moving into harsher conditions such as the arctic; we have experience of working in the arctic and operating in the northern parts of Russia over the last ten years, completing projects in Sakhalin and in the Jamal area, north of Murmansk. There are further plans to move into the arctic and we want to continue our involvement in this area.

"2013 has absolutely been a busy year; we managed to get two contracts in a row and were recently awarded a contract for Stingray in Brazil; this success is a sign of our abilities in delivering solutions that surpass expectations," enthuses Maurice. With a dedicated focus on the preparation, installation and protection of

in the most cost effective, efficient and high quality manner.

Focused on expanding its global portfolio throughout 2013, the company achieved this goal through contract awards in Australia, Korea, the Middle East, Brazil and Europe. With this expansion set to continue, particularly in the SRI market, Van Oord is actively looking to resource new personnel, as Maurice concludes: "We are always looking for new personnel and Van Oord has repeatedly been chosen as the best technical traineeship in the Netherlands. Our employees are committed, entrepreneurial professionals who are passionate about water, wind energy and technology; we give them the opportunity to operate a modern and versatile fleet and to work as a team to provide the best solution for our clients. We look forward to the future."



Working with oil and gas companies around the world, Van Oord Offshore has developed an excellent reputation as a company able to find the best solution to the biggest challenges

#### **DUC DIVING**

DUC Diving has been working for contractor Van Oord for several years now. The company undertakes work worldwide if necessary, but for the past few years its projects for Van Oord have mainly taken place in Europe. By applying experience spanning more than 30 years and continuously adjusting to meet the latest industry developments, DUC has successfully and efficiently solved all complex challenges that have faced it and will continue do so in the future. DUC is certified to ISO 9001 (quality management) and ISO 14001 (environmental management), amongst others; the latter is becoming more and more important as the environmental issues of projects become more complex.

#### Above left

Shallow water pipelay vessel Stingray at the S-Oil Project in Ulsan, Korea

Van Oord Offshore BV vanoord.com Services Global contractor for offshore, dredging and marine projects



Jifmar provides long term IMR service contracts for offshore oil and gas terminal operators and owners, providing maintenance above and below water on CALMs and SPMs. floating and subsea hose, cable, moorings and PLEMS. It also works in the defence sector, where its main customer is the French military,



and has operations in the marine renewable sector, where clients are very diverse.

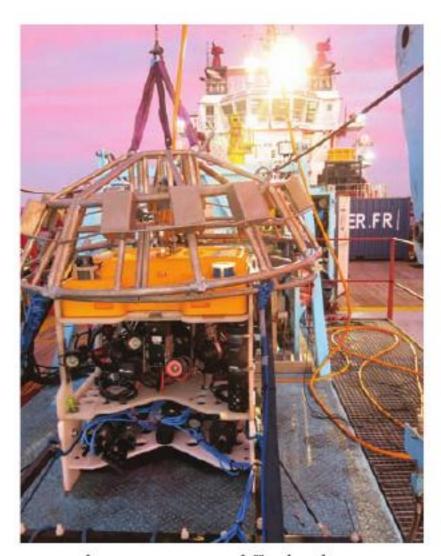
As Denis Drouin, sales director explained, although the company is less than ten years old, it has already seen a lot of success: "Jifmar Offshore

Services is a France based business, which was established in 2005. We started from scratch and now the company employs about 80 people with an 18 million euro turnover in 2013."

He continued with more details on how the company works: "We operate six vessels and six ROVs, which we own, so our sailors are our employees. As a marine contractor our job is to design, work out a solution on behalf of our customers and then we are committed to carrying out the works ourselves." Although Jifmar is committed to undertaking its contracts directly, periodically it finds it has more contracts than vessels and ROVs, and to address this it will charter vessels and ROVs in order to make sure the work is completed successfully.

These contracts are undertaken in four different business areas, as Denis highlighted: "We work for the defence sector, the oil and gas industry, the marine renewable industry and we also carry out special works such as salvage, UXO survey, barging, consultancy services etc. We recover objects that have been left on the seabed for instance, such as anchors."

He added: "We tend to carry out operations in areas where it can be difficult to work, so for example we operate vessels and ROVs where currents or the swell is very strong, or in shallow



water where navigation is difficult. Also we can also work in deep water of up to 2000 metres."

He added: "We are also IMCA certified, and this is absolutely necessary to secure contracts. It is one of the standards of communication that customers are expecting us to have. It is a very necessary compliance that clients are asking for."

The oil and gas industry is where Jifmar has seen the most demand over 2013 and in this area its main customers are BP, Total and Perenco. "We have long-term contracts with them, and I believe they use our services because we are so flexible. We are able to answer our clients' requests very quickly and we are also very experienced in complex projects where the competition is less intense," said Denis.

The contracts that Jifmar won in 2013 were not only in Africa and Europe but also in South America and the Mediterranean area as a whole. The company is also looking for opportunities in South East Asia and South America, where offices may be opened if contracts are secured in both: "Every time we secure a long-term contract we open another office in the country or at the location where the operations are," Denis confirmed.

"One reason for an increase in our turnover is the fact we have been able to open a new office in North West France and elsewhere abroad (Ivory Coast, Mayotte – near Comoro Islands, Congo and UK) designed to get closer to customers and the oil and gas market. Alongside these new sites we also invested four million euros in a new ROV and multi-purpose vessel, called a Multicat or multi-purpose vessel."

He continued: "We also invested in employees, so we hired two or three new engineers and of course more sailors. Our turnover increased by 50 per cent from 2012-2013, which we are very pleased with."

Denis attributes the success of 2013 to the

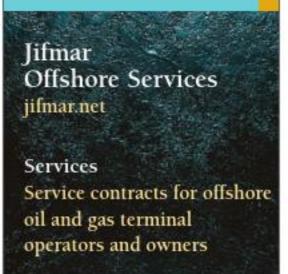
fact that the company is becoming more and more well known in the main sectors of the market. "We have received an increasing amount of enquiries and as our commercial side has increased we have been able to secure more contracts," he said.

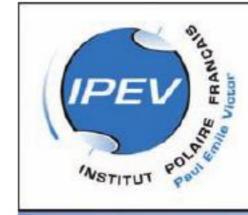
As the New Year begins, Jifmar is keen to maintain the growth of 2013 and expand further into new areas in the future. Denis concluded: "We definitely want to keep growing in the areas of oil and gas and the marine renewable sector, and those are the two main areas where I see us undertaking more activities.

"In the longer term, I would like us to get a foothold in the heavy cargo marine transportation sector, where would we like to offer a service to our customers that would mean we could transport heavy cargos of up to 1000 tonnes by barge in coastal waters. We have been in discussions about this at Jifmar and we would like to expand the activity over the next two to three years, but without losing our momentum in the oil and gas sector."

#### **IPEV**

In July 2013, IPEV, the French
polar institute, carried out an
oceanographic cruise for PUCRS
University aboard R/V MARION
DUFRESNE, with a 2000 m
ROV hired from JIFMAR. The
operations succeeded at sampling
gas and sediment with ROV
designed tools as well as unique
on board long sediment corer
CALYPSO.





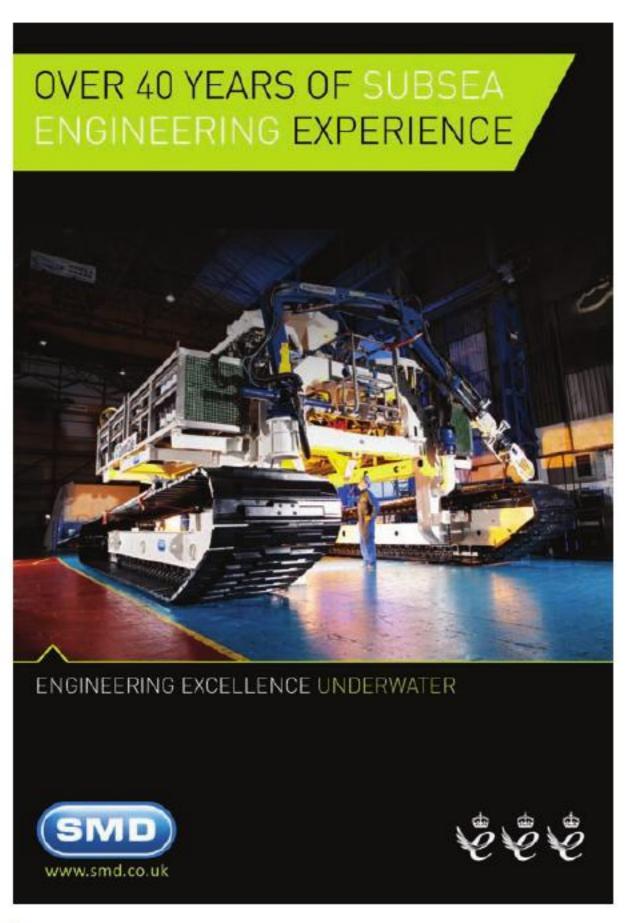
#### Institut Polaire Français Paul Emile Victor (IPEV)

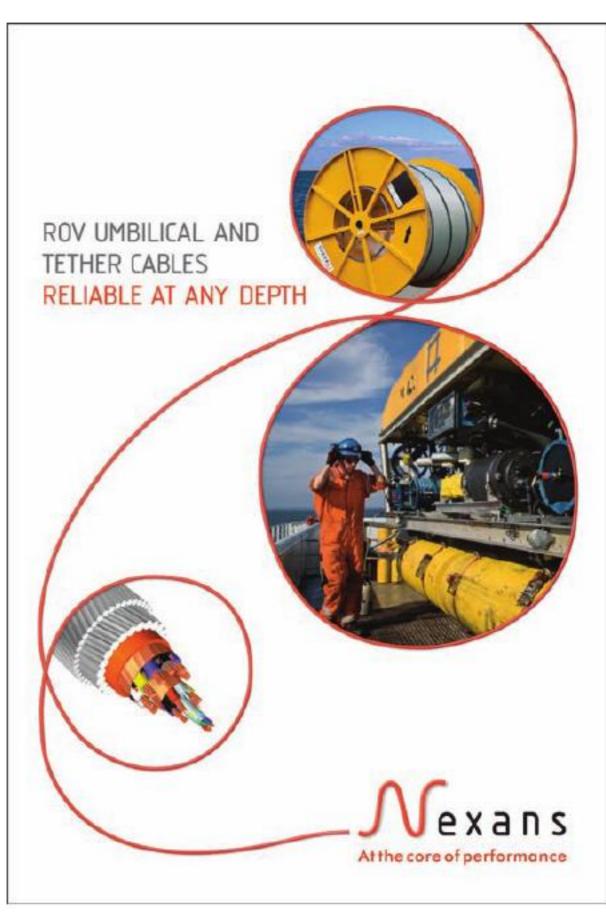


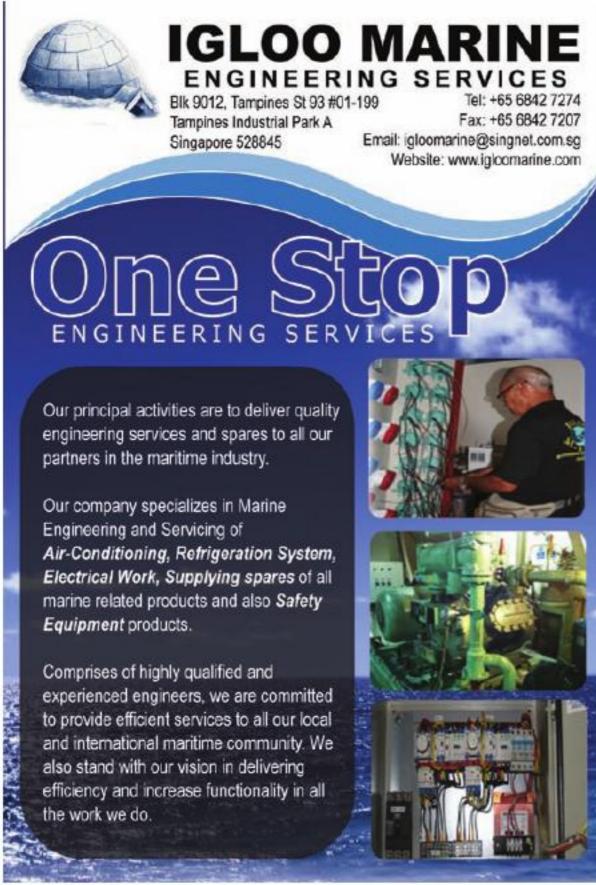
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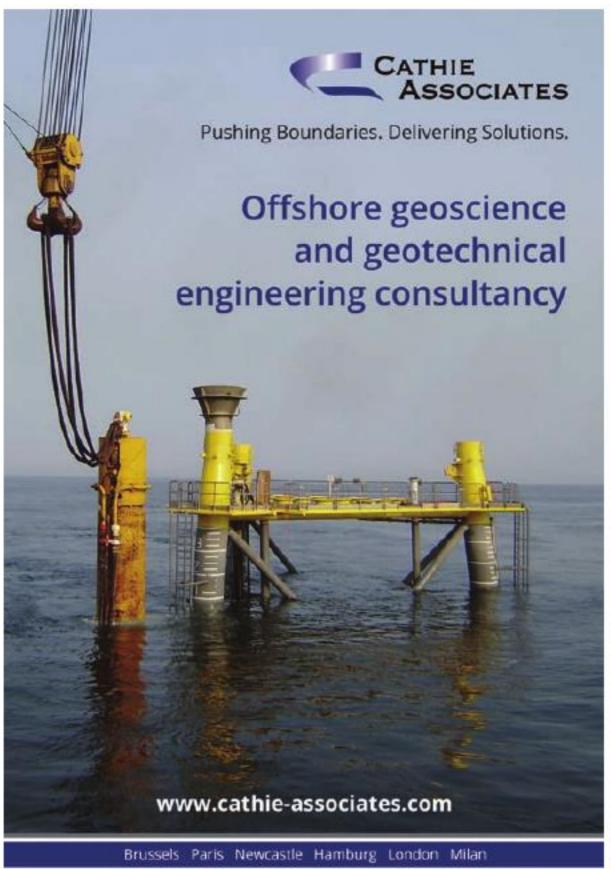
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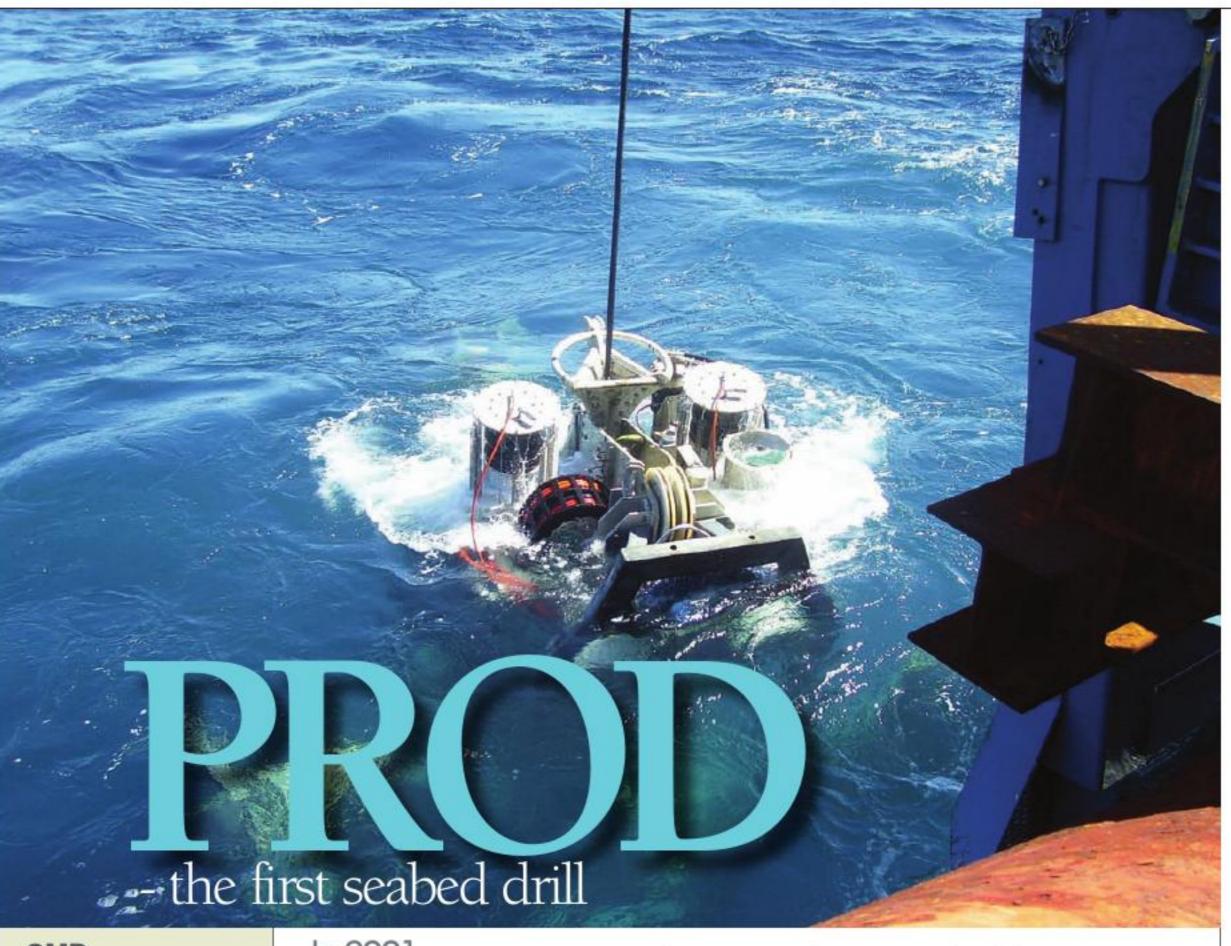








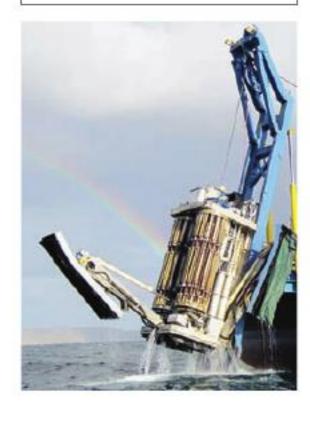




#### SMD

With over 40 years' experience in the subsea industry, SMD is one of the world's leading manufacturers of remote intervention equipment. Products include specialist trenching, cable lay and burial vehicles, the world's first deep-sea mining machines and the worlds largest range of work class remotely operated vehicles (ROVs).

All images Benthic's PROD working offshore on vesssels



In 2001 Professor Peter Davis from Sydney University in Australia conceptualised a seabed drill, and the attraction of local investors resulted in the production of a prototype system. Shortly after, Benthic introduced the first Portable Remotely Operated Drill (PROD) to the oil and gas industry.

With support from operators such as Woodside, technical issues highlighted through the commercialisation of the system were steadily resolved and after five years of initial operation in Western Australia, Benthic expanded its horizons. Chief executive officer Stephen Pywell explains: "On award of more contracts, the decision was made to build PROD2. It came online in 2009 as a secondgeneration unit, and in 2012 Benthic introduced PROD3 to its fleet. All three operate throughout the world today."

Operating in water depths down to 3000 metres, PROD can be deployed from DP anchor handlers, or PSV's. "The system offers many commercial and technical advantages, especially in deepwater, where the fixed location on the seabed provides precise control over the drilling parameters without the effects of vessel motions, and allows multiple tools to be deployed in the same borehole, without the need to travel back

to the surface for each tool change."

Standard container packaging allows transport of the equipment by road or sea to anywhere in the world, and provides rapid mobilisation onto any suitable vessel. Stephen goes on: "Our main focus is deepwater geotechnical investigations with in-situ tools and coring equipment down to some 125 metres below the seabed in almost any geology from very soft sediment to rock. Although our main role is the acquisition of seabed data, we can also provide engineering support for such things as pipeline foundations and stability, driven and suction pile mooring systems, as well as general gravity foundations for subsea equipment."

As oil and gas exploration continues, Benthic's operations have expanded internationally, reaching the east and west coast of Africa, the North Sea, and even down to the Solomon Islands in the mining space. In 2012 the business relocated to Houston. Shedding light on the decision Stephen says: "Previously based in Sydney, we had restricted access to international markets; we had good knowledge on the local Australian market but were not engaged in Africa, the Gulf of Mexico, or South America, so with the move we were better able to build up an international network.

"Market conditions are solid and internationally there are many upcoming projects. We have interests in Mozambique and Tanzania, and Brazil has a portfolio of projects going forward. The Gulf of Mexico is making strong recovery now, post-Macondo, and operators are getting back into developing new projects, so 2014 is shaping up to be an active year." With a new geographical advantage, Benthic is looking towards increasing its capabilities in the water. "We recently completed a project with Woodside in Australia and we are scheduled to commence work in Tanzania in 2014 at water depths close to 3000 metres, the deepest we have been so far. The drilling industry is already building and operating rigs with the capability to drill in 4000 metres water depth so it's important for our next generation of machines to be ready for the demands of the market," he highlights.

"In preparation, Benthic is already building a new generation of launch and recovery systems to cope with increasing depths and weather conditions, and is in final negotiation with a UK contractor for the build of PROD4, which is essentially the same as PRODs 2 and 3, although we are working on extending the water depth capability to 3500 metres. We are also in the engineering phase for PROD5, which will carry more tools and more pipe to significantly extend the capability to drill deeper into the seabed," says Stephen. Benthic continues to focus on the



development of an increasing range of new and enhanced in-situ and borehole tools to keep the PROD systems on the geotechnical 'front line'.

Alongside the technology developments,
Benthic invests heavily in the next generation
of engineers, as Stephen details: "We have a
graduate training programme in the company
taking on six graduates across several disciplines.
In 2014 we will take on a further six, both



geo-sciences professionals and engineering professionals. Benthic is gearing itself up for long term oil and gas presence in major deepwater areas throughout the world and is well positioned to expand its capabilities and services as it goes forward." Following the production of the new units, the business is considering the retirement and relocation of the original PROD1 to Houston as part of a new development and training centre, with courses running internally and externally to introduce seabed drilling to the wider industry.

Following activity in deepwater mineral mining off the Solomon Islands in 2012, Benthic sees a growing opportunity in that segment, where the PROD equipment can offer some distinct advantages over more conventional equipment in some of the most challenging environments around the world.

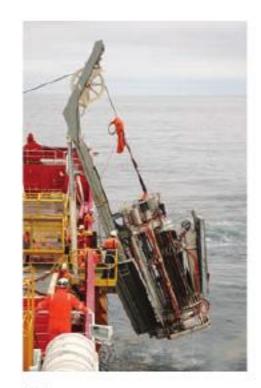
Looking beyond the forecast of a busy 2014
Stephen addresses the future focus: "Our
operational bases in Singapore and Houston
provide good market coverage and we will
continue to work towards further geographic
expansion, expecting to go live in the Brazilian
market in 2014, and continue exploring frontier
locations in Africa and Asia.

"We plan to remain active across the entire range of the geoscience business, and are actively pursuing joint ventures or co-operation agreements with several specialist engineering companies in the industry, with a view to providing an increasing range of services to our customers.

"The long-term objective of the company is to increase our customer support through conceptual engineering, interpretation and design services, and continue to expand our geotechnical core business through PROD systems. We also see synergies with the deepwater geophysical aspects of our projects and want to become active in that field, primarily through autonomous underwater vehicles. We are working towards making an entry into that market in 2015, which we believe that has lots of potential."

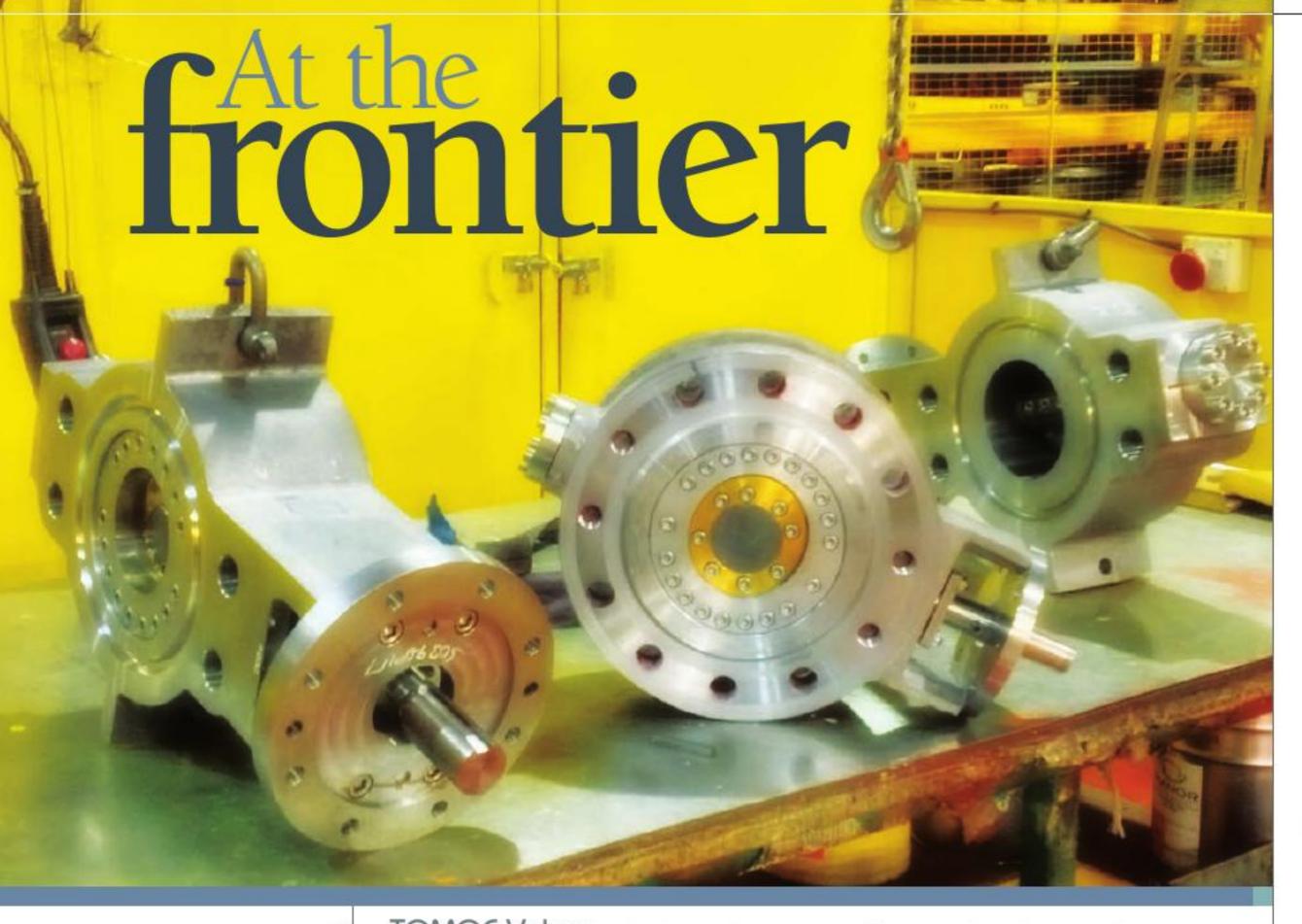
#### **NEXANS NORWAY**

Nexans Norway AS is an established supplier of dynamic underwater cables for the international remotely operated vehicle market. It supplies leading actors in the industry with steel armoured umbilicals, aramid armoured umbilicals and tethers. Nexans designs and manufactures underwater cables tailor made according to customer specifications. Its cables are proven and recognised in the industry for their reliability, durability, and mechanical characteristics.



All images Benthic's PROD working offshore on vesssels







TOMOE Valves is a leading supplier of one of the finest and most comprehensive ranges of butterfly valves and actuators in the world, offering one of the largest and most complete ranges of products to give clients unparalleled levels of leak tightness, longevity and wear resistance. With more than six decades of experience the business remains resolutely at the frontier of valve design today, providing such an extensive range of body designs, material options and sizes that customers will be hard-pushed to find an application for which there isn't a TOMOE valve.

"Based in Newport (South Wales), we provide products and solutions for the most challenging applications throughout the oil



and gas, petrochemical, power and mining industries, and we are renowned for offering bespoke solutions to clients who are operating high technology and critical applications," says Nick Robertson, technical sales director at the business. "Our range of valves delivers control and/or isolation solutions that ensure that our clients minimise cost, operate safely and achieve the optimum results from their processes."

Where TOMOE Valves distinguishes itself in the market is in its approach to working closely with its customers. The industries that the company serves are demanding and as such the company produces tailor-made solutions for individual customer requirements. "Our focus is on engineered, manufactured to order products for niche applications. The majority of our customers don't want an 'off the shelf' product," Nick explains. "Rather, they want something that they can just 'drop in' without any fuss or modification, and so we like to get involved with the end users and engineering companies at the FEED stage.

"Adopting this approach ensures that we fully understand the customer requirements, but it is also gives us the opportunity to show the end user that we can make our product fit their application, and we don't have to have them



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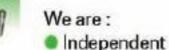
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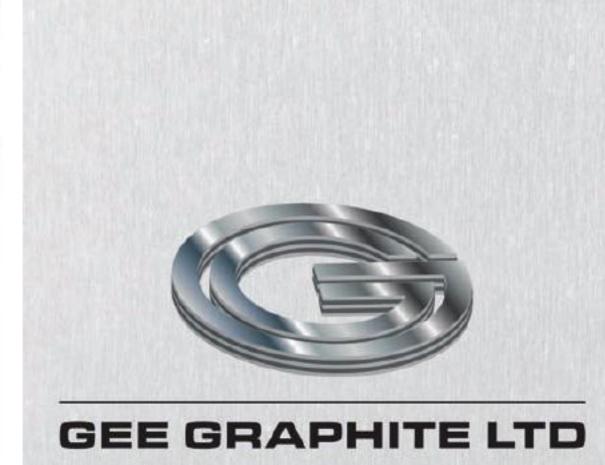
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With 25 years' experience in supplying the valve industry, it is proud to be a supplier to Tomoe Valves and wishes them every continued success.

make their application fit our product."

Of course, being able to provide this type of production, and the associated high levels of quality demanded of clients, TOMOE Valves regularly invests in ensuring its facilities are equipped with the latest machinery, tools and manufacturing capabilities. Nick elaborates on some of the latest of these investments: "We started investigating the viability of a replacement milling machine in March 2012 as the existing machine was coming to the end of its life, and by November the same year we had placed the purchase order. By working closely with the machine's supplier (Mills CNC) we ensured that the installation and commissioning had very little impact on our production schedule.

"Initially we projected that the machine would give us efficiency savings of around 30 per cent, but in fact it has actually given savings of more than 45 per cent. In turn, this allows us to not only be more cost-effective, but also increases our production capacity and the product range that we can manufacture in-house. As a result of this we are currently investigating the potential for investing in another machine," he continues. "This particular one won't be a replacement, but rather an addition to the current setup. Realistically the decision on this investment won't be made until Q3/Q4 of 2014, but it shows our intent and commitment to our customers and workforce that we will continue to invest to maintain on-time delivery, product quality and safeguard jobs."

Maintaining state-of-the-art technology will enable TOMOE Valves to continue producing innovative products for markets that are seeing ongoing advances in technology. The oil and gas industry, for example, is continuing to drill in harsher environments and deeper waters which creates opportunities for equipment manufacturers such as TOMOE to advance their technology to work in these conditions. For this reason the company ensures it maintains a continuous R&D programme in order to meet clients' increasingly complex requirements.

One area of new development for the energy sector is Brazil, where TOMOE Valves is looking to expand its reputation. The company has strategically placed manufacturing, sales and distribution facilities around the world, including in Brazil where it foresees a great deal of work in the future. Nick highlights one recent contract in the region: "This is a £1.3 million contract for the supply of valves that are ultimately destined for Brazil and will form

part of a six skid package to be used offshore on an FPSO. This project represents a great opportunity for us to showcase not only our engineering expertise but also our ability to deliver on time. It is also a fantastic example of the benefits of the customer and supplier (us) working closely to ensure all requirements are fully understood."

This represents just one of the many contracts that TOMOE is working on at present and into the



future, illustrating the demand that the company continues to experience. This is no doubt down to its reputation, which is underpinned by the skill and expertise of its employees. "We are lucky that we don't have a high turnover of staff," Nick says. "We always look to engage our staff in the decision making process, and by doing this we aim to give our people a sense of ownership, which helps us to implement change within the business with little resistance."

Considering that the company continues to be highly successful, Nick believes that the future is more about consolidating what TOMOE Valves has already achieved: "Our focus for 2014 will be to continue to try to make the business leaner to enable us to be more competitive. We will also continue to stay extremely focused on our on-time delivery performance, which is very important to our customers and key to maintaining a good reputation within our industry.

Beyond 2014 to some extent depends on the market conditions. For example, we saw a slight dip in 2013, but the feedback says that this was widespread. The second half of the year was particularly good for booked orders, which gives us a great start to this year. Whilst we are seeing growth we are also seeing the number of suppliers within the industry increase. This makes an already extremely competitive market even more difficult to win orders in. I'm confident though that if we continue to focus on the basics we will be able to maintain a profitable business into the future," he concludes.



With more than six decades of experience the business remains resolutely at the frontier of valve design today, providing such an extensive range of body designs, material options and sizes that customers will be hard-pushed to find an application for which there isn't a TOMOE valve



TOMOE Valves
tomoceurope co.uk

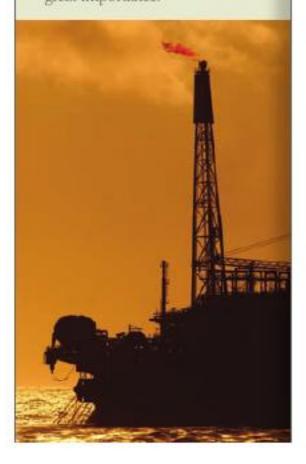
Services
Valves

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# Meticulous SCIVICE

#### TTS GROUP

Using its long presence in China as leverage, TTS Group ASA is breaking its way into the booming Asian rig and drill ship market. Manufacturing and test facilities for offshore cranes are being heavily expanded. TTS provides equipment solutions for the marine and offshore sectors, primarily focused on heavy lift and offshore cranes, including advanced Active Heave Compensated cranes. Well positioned, with subsidiaries both in Dalian and Shanghai, TTS Group has important advantages in the race to take part in the upswing. In this picture the good and long-term relations to Dalian Shipbuilding Industry Offshore Co., Ltd. are regarded to be of great importance.



#### Dalian Shipbuilding Industry

Offshore Co. Ltd (DSIC Offshore) is a leading contractor company that specialises in offshore engineering, construction, repair and conversion. The company, which is located in the bay of Dalian in China, specialises in jack-up/semisubmersible drilling and production platforms, drilling ships, FPSOs, wind turbine installation vessels, and a range of other fixed and floating oil and gas production facilities.

DSIC Offshore can trace its roots back to 1971, when it successfully delivered its first offshore drilling rig in China, and since that time the company has gained considerable knowledge and experience in its field. Its team of over 400 management and technical personnel is considered to be very strong in offshore construction projects, and by utilising the production and engineering support of its parent company (DSIC) DSIC Offshore can work on simultaneous projects in different areas of offshore application. This allows it to achieve consistent delivery of eight to ten projects per year, and has seen it complete more than 30 successful projects in its lifetime.

Since its first delivery in 1971 DSIC Offshore has achieved a number of firsts in its market. For example, in 1982 the company delivered the first Chinese drilling rig for export, completed the first semi-submersible drilling in China in 1998, the first anchor handling & supply vessel for export in 2001, and the first CJ46 self-elevating jack-up rig in the world in 2009 - a project that was delivered ten days ahead of schedule. Accordingly, the company has the ability to engineer and construct a broad range of offshoreorientated projects.

This capability is largely the result of the company's own engineering team and its research and development facilities, which are regarded as some of the finest in China. On site the business possesses various hardware, equipment and systems such as an advanced computer network, SAN and ANS integrated storage system, digitally controlled plotters and professional and industry accepted software including ANSYS & Nautics for FEM & fatigue NAPA, CADDS 5, DNV Nauticus, and PATRAN & NASTRAN.

In order to achieve optimum success the company firmly believes in co-operation throughout the design and development phase. This has enabled DSIC Offshore to develop its patent design of DSJ-300 jack-up rigs capable of 300ft operation depth, as well as make breakthroughs in the development of deepwater and ultra-deepwater solutions, such as FPSOs, 500ft jack-up rigs, sixth generation deepwater semi-submersible drillings rigs, drill ships and wind turbine installation vessels.

At its facility in Dalian bay, DSIC Offshore boasts the latest equipment and technology, enabling it to engineer projects to the highest standards. Its site covers near to 700,000 m2 of production capacity, encompassing dry-docks, slipways, steel processing and block fabricating workshops, as well as a general assembly area, cantilever and leg fabrication areas, offshore module construction facilities, warehouses and steel processing capabilities.

Such capacity means that DSIC Offshore is continuously busy, working on projects for many leading names in the industry. For example, since November 2012 the business has been

Prior to this contract DSIC Offshore had already successfully delivered five of this type of rig, which is a highly efficient offshore system with increased accommodation and capacity. The contract considerably strengthened the company's position in the market, as Mr. Yin Xuelin, president of DSIC Offshore, explained in a press release at the time of signing the contract: "We are so pleased to see that Seadrill has decided to start the co-operation with DSIC Offshore. DSIC Offshore will be a reliable partner on their strategic way to the world's largest operation of modern high specification rigs."

In all its work DSIC Offshore places the

highest emphasis on quality to ensure total customer satisfaction. The business implements a policy of 'meticulous design, professional management, quality workmanship, best service and continuous improvement' through comprehensive QA/QC and HSE management systems. Accordingly DSIC Offshore is compliant with ISO9001, OHSAS 18001 and ISO14001. Quality extends not only throughout the production process however, as the company offers its clients a comprehensive after-sales service. This is provided by professional and highly skilled after-sales service teams, who offer a quick-response service to all client requests.

For more than 40 years DSIC Offshore has been a leading name in the Chinese offshore construction and engineering sector. The business combines skill and knowledge with an innovative approach to projects, enabling it to stay at the cutting edge of the offshore market. With a number of ongoing projects and a favourable market it is likely that this trend is set to continue for the foreseeable future.



For more than 40 years DSIC Offshore has been a leading name in the Chinese offshore construction and engineering sector



Services
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construction, repair and
conversion





Below Kevin Paterson. Dales Marine Services'

contacts manager



A FAST turnoround and quality work is the name of the game for Dales Marine Services Ltd. The firm has completed 60-plus jobs in its specialist fabrication yard in the last six months. But Kevin Paterson, Dales Marine Services' contacts manager, said the company has procedures in place to ensure the quality of the work - welding and fitting - is not compromised.

He said: "We have internal procedures to ensure we are completing the job to a set list of criteria, and, over and above that, we operate using the gold industry standard, ISO9001, and frequently get third party approval while jobs are ongoing, so clients are assured of the best possible service.

"Then, if there's a tight timescale and the job is critical, we have a night shift and robust overtime procedures to ensure it is completed on time we really pull out the stops when needed."

Dales Marine Services has one of the few fabrication facilities in Aberdeen which can operate 24-hours a day - the firm usually operates a night shift to ensure any last minute or quick turnaround jobs can be finished.

The company, which is best known for its ship refitting services, has recently made a push on its fabrication services catering for more difficult jobs, either directly for oil and gas clients, oil and gas sub-contractors, windfarm owners and contractors, or specialist design companies.

Kevin said that Dale's employees relish these technically demanding jobs as it stretches their knowledge, and they learn new skills that can

be passed onto other clients' jobs. He said: "We have extremely experienced welders and fitters and while every job we do is bespoke, there are some that stretch them that little bit more.

"Our welders and fitters enjoy the challenge that something a bit more difficult can bring them, whether it's intricate work on the job itself, or a structure that's so big we need to part assemble it in the workshop then finish the build off beside the dry dock.

"We had one massive job earlier this year for BP where we constructed a walk to work support frame (used to support an Ampelmann gangway system to transport personnel from vessel to platform) partly in the workshop, then outside afterwards. But it was so big we couldn't fit it in our normal yard, which is approximately 400sq metres, and is considered big by most standards.

"This was a fantastic challenge for us, both in build and organisation, as we only had four weeks to complete the fabrication and installation. We demobbed the system for winter and are storing the structure in our yard. This was another challenge as we had to get local authority permission to close the road in between the yards to transport it the 50 yards from the harbour side to storage.

"It does make a huge difference having the dry-dock here and the harbour location, as pieces of fabrications can be loaded straight on to a boat and transported directly to the offshore platform.

The firm also has the advantage of another,

bigger dry-dock at its base in Leith, Edinburgh.

Kevin explained: "Having these three bases is a major advantage for our clients as it means work can be shifted between them if one is busy, so you're not waiting about for one job to finish before yours can start."

Dales Marine Services is renowned for fabrication of structural steelworks and pipe spools, as well as engineering and fabricating highly specialised structures and equipment in carbon steel, stainless steel and non-ferrous materials. It offers these engineering services to the shipping, oil and gas, chemical, power generation, and civil engineering industries.

The company started after Maurice Nicol founded Dales Engineering Ltd in 1987 in Peterhead as a company specialising in heavy fabrication and ship repair. Dales Marine Services was started in 1991 in Aberdeen as an offshoot from Dales Engineering and as part of the Dales Group, and with eight employees – it now employs about 100 people with an additional 20 to 50 subcontractors.

The company operated from various harbour locations in Aberdeen until taking over the only dry-dock in Aberdeen from its previous owner in 2004. It has one of only two shipyards in Scotland that can dock vessels more than 100m long, the other being the company's other facility at Leith in Edinburgh. The Aberdeen dry-dock has docked approximately 360 vessels in the last nine years, an average of 40 to 45 per year.

Since 2004, the firm has increased annual turnover from about £3 million to £24 million in 2012 and Dales Marine Services' general manager and director, Michael Milne, said the business is delighted to have gone from strength to strength.

He said: "We have come a long way since the firm started and many of our staff were with us in those early years, and it's due to the hard work and dedication of these loyal and hard-working employees that we're in the position we're in today. We have got great plans for the company moving forward and hope to offer our quality service of structural fabrication to more clients."



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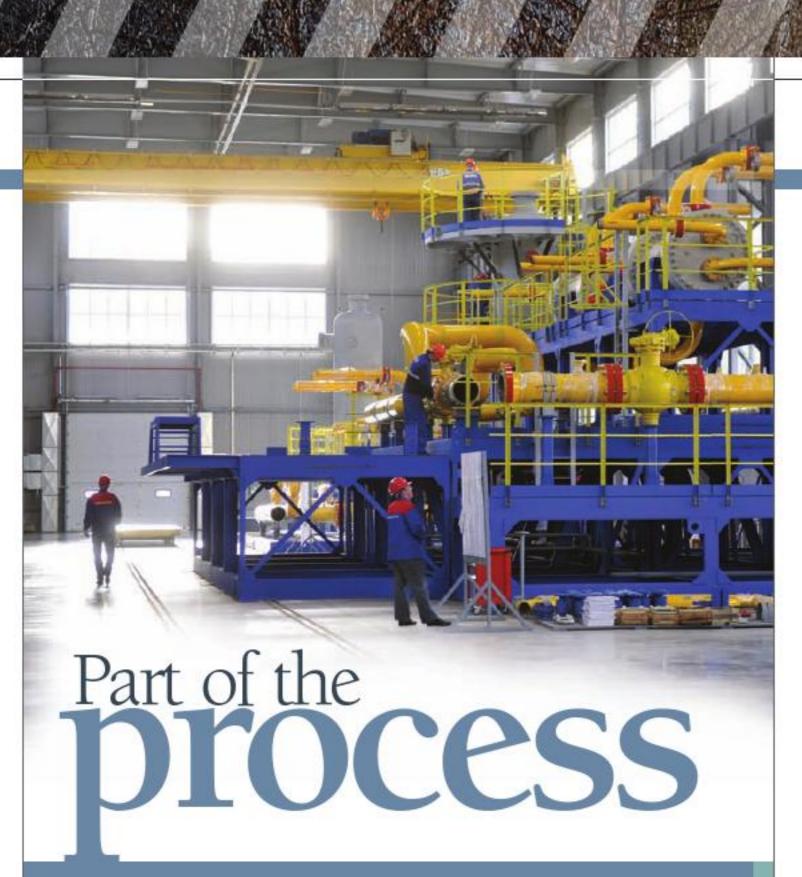


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Based in Voronezh in Russia, KOSMOS-NEFT-GAS (KNG) provides an entire range of services, extending from project development to the manufacture and delivery of equipment for the oil and gas, chemical and nuclear power industries.

From the moment it was established, KNG has acquired many reliable partners, with one of the most significant being Gazprom. Indeed, the company has been designing and delivering equipment for the structural divisions of the Gazprom JSC since 1994. This relationship is based on a 'general agreement on co-operation in the sphere of manufacturing high performance equipment for exploration, production and transportation purposes.'

Nowadays, KNG delivers its products to the following customers: Gazprom Dobycha Astrakhan (flares, gas heaters, dehydration units, etc.), Gazprom Dobycha Nadym, Gazprom dobycha Yamburg, Gazprom Dobycha Urengoy (flares, well control panels, skids for automated well completion), Sibur (design and upgrading various facilities for organic synthesis production, rubbers, plastics and other polymer materials, liquefied hydrocarbon gases), Rosneft, LUKOIL, Russneft (flares, burners, separators, hydraulic fracturing equipment, air heaters), Gazprom Neft Shelf for the first Russian stationary ice-resistant platform 'Prirazlomnaya' (flares, thermally controlled containers, samplers), and more companies from CIS and beyond.

The equipment these customers purchase from KNG is manufactured, certified and developed in strict accordance with the highest technical specifications; it undergoes a complete cycle of tests and is supported by Permits of the Federal Environmental, Engineering and Nuclear Supervision Agency of Russia. In addition, most products are RF patent protected, and the materials have domestic or foreign origin conforming to the required quality of the final products.

It is clear from KNG's relationship with Gazprom that it prides itself on creating close working partnerships in order to foster a collaborative environment. As a result of this strategy, in addition to Gazprom, KNG has also developed associations with well-known foreign companies, such as FMC (loading terminals), Weatherford (well control panels), Cegelec (automation facilities and systems), Schneider Electric (power units), Caloperm (plate heat exchangers), Aker Solutions (subsea equipment for offshore production) and Newpoint Gas (equipment for gas treatment, purification and dehydration). This makes it possible to manufacture products of the level comparable to the leading world manufacturers of the equipment to be used at on- and offshore fields.

The company is very dedicated to these longterm and mutually beneficial co-operations with partners. This is extended by offering clients training services for their engineering staff regarding specific features of product operation, as well as by proposing post-warranty maintenance - through these services, KNG can support its clients in solving production issues.

The organisation also prides itself on continuously upgrading its equipment, applying the latest design and manufacturing technologies. All of these activities are designed to fulfil KNG's main ambition of providing constant quality improvement, alongside the expansion of its services and range of equipment.

Underpinning all of KNG's growth and success are its employees. The company maintains high requirements for education, skills and work experience, and emphasises the value of training and learning for staff. To put this in practice, all employees of KNG attend exhibitions in Russia and abroad, undergo refresher training and participate in round table discussions and seminars.

This dedication to learning also spreads wider than the walls of the organisation, in that KNG



holds an active position in creating a technological and innovation environment in the Voronezh region, as well as participating in all federal and regional programmes of modernisation and technical development, and takes part in unions, associations, and partnerships of industrial and scientific organisations.

An event that illustrates not only KNG's dedication to the area where it is located, but also its deep relationship with Gazprom, is a recent exhibition that was organised by KNG. On November 8, 2013 more than 20 oil and gas enterprises from the region participated at the Voronezh Industrial Cluster exhibition. The Voronezh regional oil and gas cluster was established in 2009 and comprises 36 companies of the region – it is directly managed by KNG.

Officials from the regional department of industry and transportation attended the event, as did Gazprom delegates, headed by the chairman of the board Mr. Vitaly Markelov. Visitors familiarised themselves with the equipment on display and its potential contribution into the oil industry development.

Later that day the regional government conducted a meeting to negotiate the roadmap for development of technologies, products and services of the Voronezh region enterprises for the needs of Gazprom. That roadmap will be approved in the soonest possible time to promote successful setup and implementation of new technologies for the gas industry.

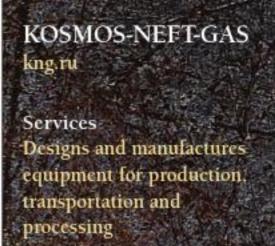
Other developments in 2013 include KNG concluding a Joint Manufacturing and Technology Agreement for oil and gas solutions with Siemens Oil & Gas (Erlangen, Germany). This was completed in June and was widely acknowledged as one of the significant achievements of the year for the company.

Since the business was founded in the early 1990s it has developed into a leading service provider and innovative manufacturer. As it enters its 20th year, it looks set to remain dedicated to both innovation and the success of its customers, a combination that should lead to even further growth.

#### SIMATIC

KOSMOS-NEFT-GAS has been a WinCC OA Solution partner from the start in Russia. Its engineers have a high expertise in the SCADA system SIMATIC WinCC Open Architecture (WinCC OA) and in oil and gas projects.

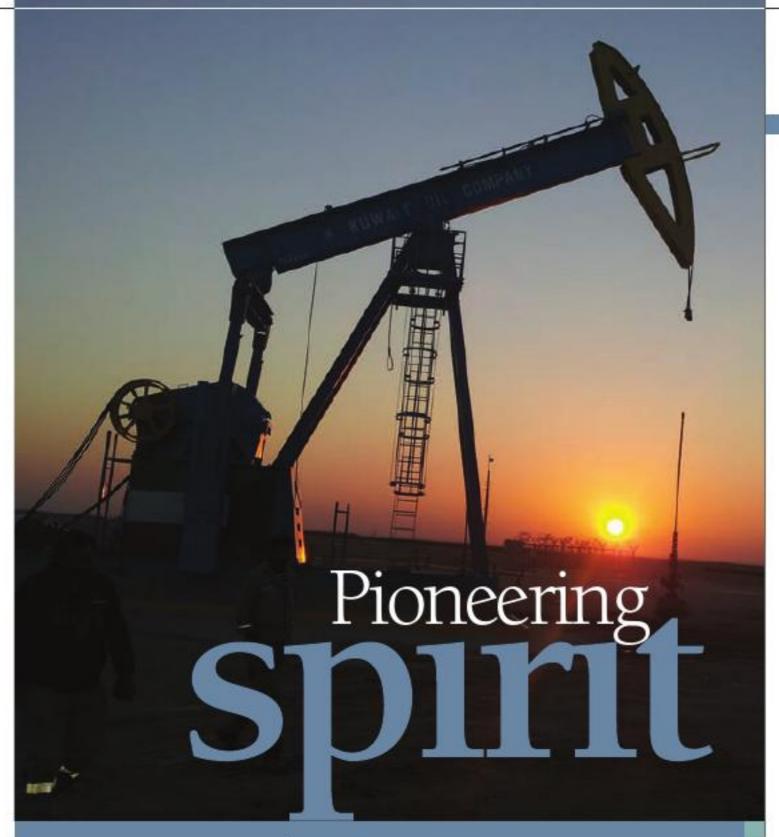
WinCC OA is part of the Simatic HMI family and is designed for use in applications with a high requirement for customer-specific adaptations, large and complex applications and projects that call for specific system requirements and functions. Profitability, efficiency and security are thus always harmoniously balanced. WinCC OA demonstrates its reliability in a multitude of business-critical applications.





SIMATIC WinCC Open Architecture scales to requirements – from single-site systems to networked, redundant high-end systems with more than 10 Mio tags and for distributed systems up to 2048 servers. SIMATIC WinCC Open Architecture is available for Windows, Linux and Solaris.

SIMATIC WinCC Open Architecture provides a platform for OEM/customized developments. Enables fast and effective creation of applications and customized solutions.



For more than three decades SPETCO has been a leader in the provision of pioneering, world-class solutions and services to the oil and gas industry. The company is renowned for its role in revolutionising the industry in its home market of Kuwait, and has a proven reputation for being able to resolve complex problems across the entire value chain, from upstream to midstream production and process requirements.

"We have been successfully operating for 35 years now in the oil and gas business," says Calum McEwan, general manager of SPETCO. "Essentially we are a service provider to the oil and gas sector, although our main activities can be loosely broken into three main areas; production facilities, power plant, and well testing services. Our head office and major operations are in Kuwait and our key clients include Kuwait Oil Company (KOC) and Saudi Arabian Chevron, we also have a branch and facility in Abu Dhabi holding contracts with ADCO, ADMA & ZADCO.

Through its operations SPETCO positions itself as a diverse solutions provider relying on its proven ability to solve complex industryrelated challenges associated with artificial lifting systems, well testing and diagnostics services, production facilities, and power generation projects. This is possible due to the company's highly experienced and expertly skilled employees, who have a wide range of design,

process, fabrication and process knowledge, and allow SPETCO to carry out even the most demanding projects.

SPETCO's operations are divided among three operating divisions - Oil & Gas Well Services Division, Oil & Gas Projects Division, and Power Projects Division. The former is where a large majority of its key services lie, such as well testing, artificial lift equipment, well diagnostics, and wellhead and well completion services. "Previously our focus was predominantly in the production facilities, providing a range of services," comments Calum. "We have been focusing increasingly on well services, where we work closely with the operators at the production facilities covering the entire range of solutions they need in terms of reservoirs and production testing, as well as the installations of equipment.

"For example, in the field of well production testing, we currently have eight test separator units in operation with KOC and in addition we have two units working in joint operations, all of which are operational on a daily basis," he continues. For surface production testing operations SPETCO uses both two-phase and three-phase separator units. These move between locations at the well to test a range of parameters at the site, including gas oil ratio tests and initial production tests.

Also under the banner of oil and gas services is the provision of artificial lift equipment and services, in particular sucker rod pumping systems. "We've recently won a contract for artificial lifting systems, which is now underway to install over 200 units for KOC, and we are also working with a foreign company as well, so it's an area that we see a lot of future work in. It will also be one of the areas that we look to diversify in over the coming years. There is a real increase in drilling in Kuwait, so we hope to add different types of artificial lift solutions so that we can really provide our clients with a complete package."

SPETCO's Oil & Gas Projects Division specialises in handling engineering procurement and construction (EPC) and lease contracts for production systems and production facilities. These include gas sweetening facilities, gas compression and re-injection facilities, and early production facilities, and the company is responsible for engineering, designing, constructing and commissioning the site in co-operation with the clients.

While SPETCO already provides a vast array of solutions, Calum feels that this



diversification is important for the future of the company: "The focus previously has been on acting as more of an agent for our clients," he explains. "But we are really aiming to give our clients a complete solution rather than them having to deal with us and other companies during a project. The ultimate aim is to provide a true one-stop service along with the associated expertise and knowledge."

While there is little doubt that SPETCO has the skill to provide this level of service, Calum points out that one challenge is how, locally, clients can often overlook expertise. "Locally we do experience problems with many companies choosing to deal more with the original manufacturers or larger national companies than with organisations like SPETCO. This means that local companies have often suffered in the market, which is something that clearly needs to change in the future so that we have the same opportunities in the market as the international, major businesses."

Whether this changes in the short-term or



is a slower process there is little doubt that SPETCO will be one business that retains its sterling reputation in the local market. In order to protect this reputation into the future, the company has made some important changes, as he summarises: "We have changed the management structure of the business so that we are really encouraging the younger blood that is coming through as their new ideas and enthusiasm to succeed installs a fresh approach into an established company. These people are very knowledgeable and they truly represent the future of SPETCO."



Through its operations SPETCO positions itself as a diverse solutions provider relying on its proven ability to solve complex industry-related challenges associated with artificial lifting systems, well testing and diagnostics services, production facilities, and power generation projects





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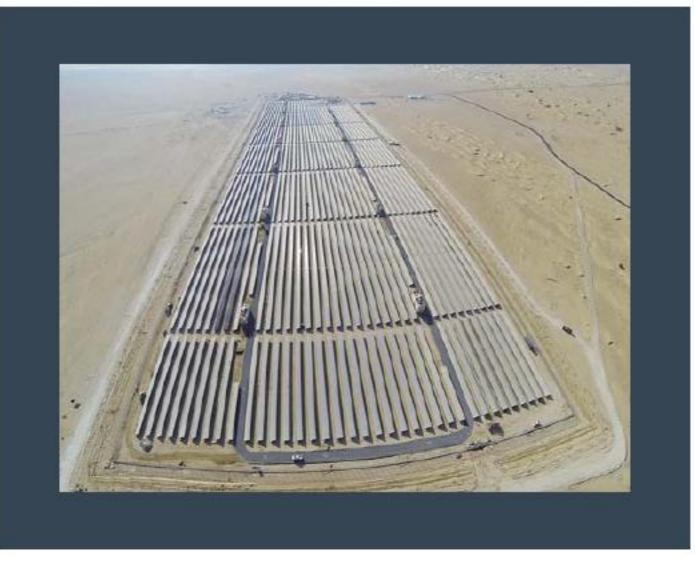




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## Targeting the

#### HAJI COMMERCIAL COMPANY

M/s. Haji Commercial Company and M/s. Danway Electrical & Mechanical Engineering LLC have enjoyed a strong business association right from their inception. Both the companies have worked in tandem under the able leadership of Mr. S.G Nair, managing director of Danway Electrical Engineering LLC, and Mr. Unni Krishnan, general manager, Haji Commercial Co LLC. Trust, understanding, dedication and sincere efforts to meet the deadline of project requirements have been the common chords behind this association to achieve greater levels of success day by days Examples of prestigious projects HCC has worked on with Danway Electrical & Mechanical Engineering include:

- Al Sowah Island Abu Dhabi -LED under deck lighting and LED street lighting
- Shaikh Zayed Tunnel Abu Dhabi - LED tunnel lighting and emergency signage lighting
- Shah Gas Development Development is an ongoing process, and together we focus on tomorrow with great expectations and more challenges in the years to come.

#### With a history dating back

to 1976, Danway Electrical and Mechanical Engineering (EME) LLC has a long history of delivering expert engineering support to a range of industry sectors. Its services have been successfully applied within the energy, infrastructure, industrial and oil and gas markets, as well as in a host of maintenance and testing capacities. Today, the company operates as a fully owned subsidiary of M/s. Al Nowais Investments LLC, a conglomerate established in the UAE that tenders diversified interests in power, water, oil and gas as well as industrial projects within the region.

Danway EME is able to deliver unparalleled expertise in the provision of turnkey electrical, instrumentation and mechanical projects. The company offers a full package of support solutions from design development, through to erection, testing commissioning and maintenance services across a diverse spectrum of industrial and infrastructure related projects. Danway EME operates with full ISO 9001:2008 accreditation alongside its own quality assurance, workplace health and safety and environmental protection initiatives. As such, it is able to guarantee complete customer satisfaction through rapid mobilisation, qualified project management and quality and safety assurance, alongside highly skilled manpower to achieve the timely completion of projects.

"One of the main strengths for us is that we are very particular on giving a prompt service to the customer," explains managing director

S.G Nair. "The timely and prompt service we have delivered has clearly demonstrated that we are a reliable and trusted partner. This is very important to us, as positive testimony and repeat orders are what drive our business. We have worked with Dubai Aluminium for the past 20 years on both major and smaller projects. Our personnel have had a presence at the company continuously during that time, we have just completed one project and immediately been awarded another package on a larger scale. This kind of repeat order shows the trust that our customers have in our company."

At present Danway EME is undertaking a comprehensive portfolio of projects throughout the UAE, including a turnkey 132kV Substation in Dubai, UAE's first photovoltaic solar power plant for DEWA, the installation of airfield ground and apron lighting systems and other facilities for Abu Dhabi Airports Company, and an infrastructure project in Lusail, Qatar. As well as these projects, the company is involved with a major water transmission project in Fujairah for TRANSCO, where a pumping station is under construction to pump water from Fujairah to Al Ain. Within the oil and gas sector, Danway has recently secured a role as a major E&I subcontractor for a project in Ruwais, Abu Dhabi.

Although it has maintained a diverse project portfolio and strong service reputation, the global economic downturn has impacted Danway and the wider engineering sector in recent years, resulting in challenging trading conditions throughout the market. "The last 12 months have been very competitive," acknowledges Mr. Nair. "There were a lesser number of projects awarded in 2012 within this region, which has resulted in severe competition around what is available. When there are fewer projects and a significant number of players, the margins are less and always leading to unhealthy competition. However, the situation is looking brighter for 2014 and there is something of an upward trend in the market at present, especially in Dubai and Abu Dhabi. We expect the market to pick up strongly in the next six months.

"Even though 2013 was fiercely competitive we have done reasonably well in comparison to many of our competitors because we maintain diversified activities. We do not 'put all of our eggs in one basket' by operating in a single sector. We were heavily involved with the Emirates Aluminium Phase 2 projects throughout 2012-2013, which has actually offset some of the areas where we experienced greater

Its robust project portfolio has enabled Danway EME to focus on consolidating its operations and to prepare for a proactive approach to the emerging market in 2014. Part of its strategy has been to relocate its main office to a centralised location in a new facility with its own calibration lab and fabrication facility. "The move to a new location had always been in the pipeline, because we were operating in two to three different locations in Dubai," Mr. Nair elaborates. "We decided to reposition all of our activities under one roof by building our own offices and warehousing as well as a calibration lab. We feel that the company is more consolidated and that we have more control than in previous years. To further consolidate our position, we went live on ERP solutions from SAP during the end of 2013 which has enabled us to embrace industry best practices and has also created transparency on all levels of the business, automating our processes and providing seamless integration across the company."

As 2014 gets underway and Danway anticipates an upturn in the fortunes of the region's economy, the company is considering wider markets as a possible means for expansion and growth. Traditionally, it has operated primarily within the UAE, Qatar and Oman, however markets in Iraq, Libya, Kazakhstan and Azerbaijan all offer interesting opportunities that Danway may be able to capitalise on. In the mid to long-term, Danway is keen to further demonstrate its ability to deliver worldclass oil and gas services and enjoy a boom in natural growth as Mr. Nair concludes: "As the managing director of the company, I would say that I would like to see our turnover and profit double! Maybe I am a bit over ambitious, however the board of directors are very proactive and supportive and that is exactly what we are targeting now. During the past three to four years we have had a lot of success in the oil and gas sector, completing as many as four to five major projects. That is our main strength and that is where we really want to catch on."



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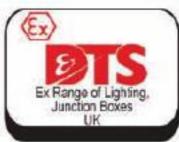
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heights utilising ropes, climbing harnesses and other materials to enable access to working locations in difficult and inaccessible situations. It is a method of access that has been tried and tested for over 20 years. As an alternative or complementary use against conventional systems like scaffolding, suspension bridge constructions and lifting platforms, the techniques and materials have been specifically developed for use in areas like construction and the manufacturing industry.

As business settles in to the new year, 2014 will be far from a slow start as Rutger Lieverse, business development manager explains: "We expect to grow very quickly in the first six months of this year. We noticed last year that the Baltic States were quickly growing and made the decision to open a new training facility in Lithuania with a strategic partner, and that has

developed strongly."

Whilst retaining its main European market interest in Scandinavia, UK and the Dutch waters, activity has grown on onshore projects in the UAE such as Abu Dhabi and Dubai, where it will develop a more permanent presence in the next years. As the market in Africa grows, the business is additionally operating in Ghana and Nigeria.

"When we first started trading, rope access was less common, and at first thought to be unsafe. But as the feeling towards the technique has changed we are finding more that clients are open for discussion to decide what is the best option for the situation. The market is sometimes looking for a combination of scaffolding systems with rope access. In this respect the market is strong and we are able to draw on our experience and adapt our position.

"We are operating with some big scaffolding companies on combinations of scaffolding and rope access. Our specialty is rope access but with strategic partnerships, such as those with the scaffolding companies, we can provide combined specialities," reveals Rutger.

The focus within the oil and gas industry is centred on inspection, maintenance, and modification. "The first activity is inspection work, and is always the start to deciding if there are any maintenance or modifications that are required to an installation or structure. We work



Accessing the





together with the big companies to conduct the surveys and we combine techniques to operate in the best way for the client," Rutger begins. In its interests surrounding maintenance, it covers coating, electrical, insulation, installation, repairs and welding. Developing from its maintenance programme, Height Specialists can carry out modifications such as engineering, lifting operations, installations, deck extensions and lifting new accommodations. He continues: "We train our employees to the highest level in rope access but also on techniques from external trainers."

The employees of Height Specialists regularly undergo training at its official Industrial Rope Access Trade Association (IRATA) training centre and attend Master class courses in the use of specific tools, project management and social skills. The training courses are set up and delivered in accordance with international standards and each project is assigned its own supervisor to guarantee the security and quality of the operations.

Focusing on the conditions that the business operates in Rutger advises: "The challenges are to keep the quality as high as possible, delivering what the client needs whilst ensuring maximum levels in safety. When considering the scale of some of the projects we are involved in, the biggest challenge is ensuring the team

works together to deliver that quality. It is these considerations that we are keeping in mind as we grow within the UAE and Africa. In tendering for the operations, we may not be the cheapest company to operate in such countries, but because of our notable reputation, our services are demanded. If the operating conditions are not right we will change them, as the most important factor is that operations are performed to a really detailed level of safety.

"Some operations are undertaken as part of major projects for shipyards. Most of the time it is possible for the cranes or scaffolding systems to perform the main scope of work, but there is still a big demand for rope access. We carry out a lot of work on super structures and also below heli-decks and similar situations where it is hard to build scaffolding systems. Often the time frame available for the work rules out normal access techniques. Rope access can be used solely or in a combination with other solutions such as crane or scaffolding systems."

With the undertaking of projects in new territories, Rutger begins to look towards Height Specialists' future position in those regions: "The amount of work is growing more vigorously than we expected, particularly in the UAE with onshore infrastructures. There are many high buildings that require maintenance, but also in the Abu Dhabi region the new offshore market is gaining momentum, and although there are many rope access companies, it is our focus on safety and quality, that makes our company a good competitor for that market." Maintaining this reputation, the business is showing similar success in Nigeria and Ghana.

The main focus for the company during the next three years is to raise the revenue in the offshore market alongside other areas, as Rutger explains: "Our long-term vision for growth is focused in five directions. One is offshore, the second is the petrochemical and process industry, the third is the energy and renewable sector and the fourth is infrastructure such as buildings and bridges. Training, advice, personnel and equipment are also of upmost importance and this makes up the fifth focus of Height Specialists.

"To be successful in this industry we need to continue demonstrating our focus and commitment on safety, as well as maintaining standards on quality of workmanship and communication. It is this approach that keeps us working where others simply are unable to perform," Rutger concludes.



The challenges are to keep the quality as high as possible, delivering what the client needs whilst ensuring maximum levels in safety



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Category 5
Category 4
Category 5
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Category 1
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Category 3
Category 4
Category 5

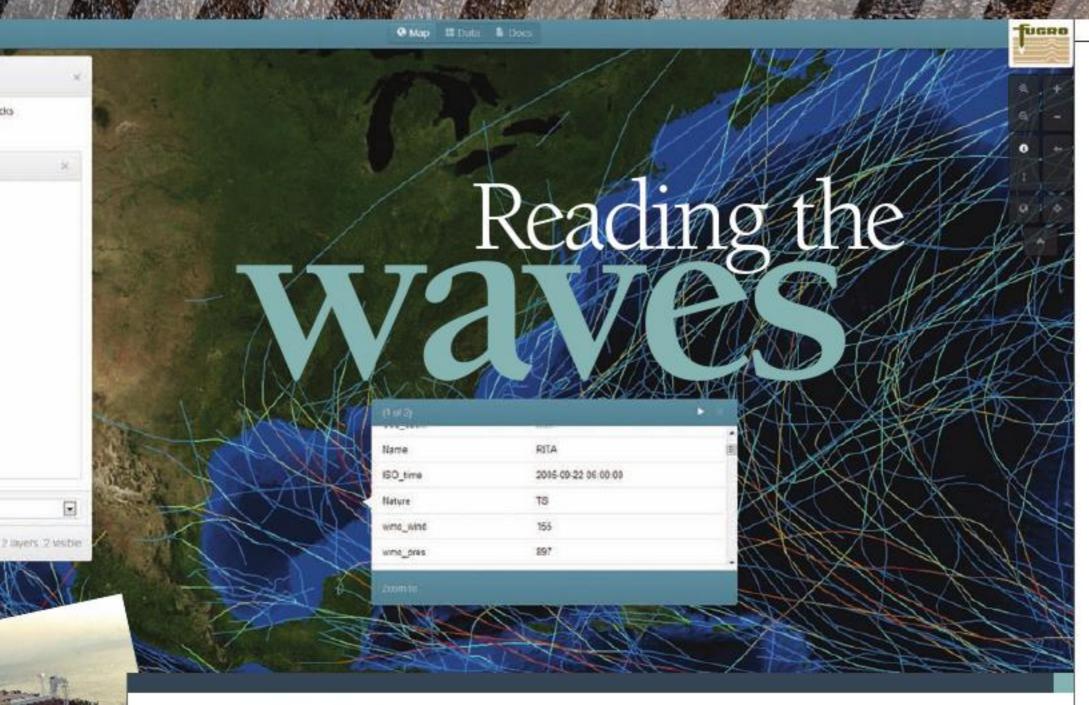
World magery

Legend

Yearly 2010-2013

Tropical Cystone Tracks





In a history that dates back over 30 years Fugro GEOS has gained extensive experience in oceanography. The company evolved from a joint venture between the Fugro Group and Wimpey, becoming fully owned by Fugro in 1996. Since then Fugro GEOS has extended its global footprint to strategic oil and gas locations across the world.

European Oil and Gas Magazine spoke to consultancy director Mark Calverley about the company following another year of growth. "Measurement services have always been at the core of our business offerings. We have invested in sensors and equipment to create the largest commercial equipment pool in the industry, and this allows us to react to our clients' needs in a timely fashion. Clients use the measurements of environmental conditions, such as waves, currents and tides, to feed into offshore design and operational planning. We undertake the quality control of the measured data in-house and provide reports that are accessible to nonspecialists, as well as more detailed analysis for metocean engineers. We also analyse data to support engineering design activities from a combination of measured and modelled data, including our own regional and local models."

The service portfolio includes the design, engineering, commissioning and maintenance of permanent, integrated offshore monitoring systems for major oil companies. Fugro GEOS integrates metocean sensors with other sensors and instrumentation in systems that provide a real-time data display, as well as data storage for other analysis purposes. The data can be used to improve the structural integrity of design - particularly important in understanding the

level of fatigue that infrastructure has actually experienced when compared against the design. "Coupled with our ability to measure structural responses through our online monitoring system, we can offer a holistic service," adds Mark. "Responding to clients' concerns about well-head fatigue, Fugro GEOS developed its 'Deepdata' solution and has successfully sold it to a number of majors. This is an extension to existing response measurements that allow engineers to understand the actual structural behaviour compared against the engineering models used to predict fatigue, allowing safer, more reliable engineering in the future."

Operating on a global scale Fugro GEOS has main offices in the UK, Singapore, Perth and Houston and has undertaken projects in all oil and gas basins. With business experiencing continued growth Mark explains the advantages of being part of the Fugro Group: "We can rely on local Fugro offices to support our operations worldwide, providing local knowledge and logistical assistance. Belonging to the group also assists us in rising to cost pressure challenges by addressing some of those issues through new technologies.

"Our strength as a quality contractor makes us an attractive solution. We have a very strong health and safety record and Fugro GEOS is also the largest company in this business with over 220 experienced personnel worldwide, enabling services to be delivered quickly and efficiently." As a result of its strengths the company has recently renewed its longstanding contract with Shell to support its automatic weather station network and provide measurement and consultancy services for its operations in Malaysia.

Mark goes on to say: "Across the Fugro Group the need for further investment in innovation has been acknowledged." Fugro GEOS continues to develop new technologies and has been working with academic partners to obtain R&D funding from external sources. The MIDAS project was launched in November 2013 and Fugro GEOS has a specialist role to add a survey industry perspective with regard to assessment of the environmental impact of deep-sea mining on the ecosystem and to help promote standard practices for mining companies.

Mark adds: "We have also recently been awarded funding by the Technology Strategy Board, which promotes business-led innovation in the UK. Following this award we are focused on a project on vessel routing, aimed at improving vessel performance and efficiency. We are collaborating with the University of Southampton, which is providing vessel performance knowledge, whilst Triskel Marine is providing some novel technologies for vessel data distribution.

"We have access to new technologies that will help move us forward, in particular marine autonomous systems that can offer cost savings whilst improving the quality of the data, providing much more of a geo-spatial picture than traditional measurements. We are integrating our data across our service lines and can provide a common operating picture, which is of interest to numerous oil companies."

Looking to the future Mark acknowledges
the potential of moving into new geographical
locations: "The Arctic could be interesting,
if the requirements placed on the operators
become clearer, whilst gas reserve discoveries in
East Africa continue to grow, creating a strong
demand for accurate data in the region."

#### **COLLER IP**

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As a global oilfield equipment manufacturer, engineering provider, and aftermarket service company, AXON Energy Products has earned a reputation for delivering the industry standard in innovative technology, design and manufacture. AXON delivers well intervention, pressure, drilling, downhole, tubular and RFID products, as well as rig concept and design through its 34 facilities spanning eight countries.

In particular, the well intervention group has a history dating back to the turn of the millennium. AXON acquired Mechsery - a company founded in 2000 with operations in Scotland and the UAE - in 2011 through its subsidiary, AXON Well Intervention Products (AWIP). Today, the well intervention group has

expanded to over 150 employees in Houston, Arbroath, Abu Dhabi and the Jebel Ali Free Zone. This group designs and manufactures market-leading oilfield equipment, including its own range of high-pressure triplex and quintuplex pumps. AXON's expansive line of well intervention products and services are focused in the following areas: pumping



equipment, cementing equipment, wireline/ coiled tubing units, nitrogen pumps, process and piping, well test equipment, drilling mud systems, air compressors, steam generators and power generation. The company also specialises in the design and manufacture of equipment to meet individual client needs.

When it was last featured in European Oil and Gas Magazine during 2012, AXON's well intervention group reported a 50 per cent level of growth. During the following 12 months, AXON was able to continue this growth despite challenging market conditions. Scott McGinigal (managing director Europe & Middle East,



AWIP) elaborates: "As a pump manufacturer, our group is less reliant on third parties and can therefore offer our customers significant delivery benefits in relation to the market. Another big advantage is that our well intervention group can provide package solutions for a full spectrum of oilfield needs through integration with other AXON product groups. Moreover, our in-house research and development (R&D) capabilities allow for technology-focused product expansion to further serve customers."

As part of the company's continued initiatives to increase its global presence, AXON opened its new R&D facility in 2013. Located in Newcastle and with support from the Let's Grow Regional Growth Fund and Gateshead Council (valued at £300,000), the facility aims to add up to 40 skilled engineering and R&D jobs in the area. This initiative will concentrate on developing and testing new equipment across all AXON product lines, including well intervention. Commenting on the project, Gary Stratulate (chief operating officer, AXON) said: "After visiting the North East England area, it was clear that the region's skills, work ethic, academia, and infrastructure create an ideal location for our new R&D facility. We're excited about further developing AXON's R&D activities to meet the growing demands of our dynamic industry."

At its core, the well intervention group is an engineering company. From the European base in Scotland to facilities around the world, its in-house engineering resources allow for product optimisation to meet or exceed client requirements and industry standards. AXON's ability to continuously develop its product portfolio has also generated a range of complementary services, further tending to client needs. "I believe that diversity within the business is key," Scott says. "The diverse range of products offered by our group and throughout AXON allows us to deliver a wide breadth of services. Reaching different customers in numerous industry sectors has been a key factor in allowing AXON to grow. Our ethos is 'Aftermarket is not an Afterthought<sup>TM</sup>' and we are keen to offer exceptional service and develop long term relationships with our customers.

"AXON offers services from 'cradle to grave'; we are not just present during the design and manufacturing stages but also can support the equipment during operation. Furthermore, we have strong technical experience within AXON, as many of our managers come from operational backgrounds. Due to firsthand experience with



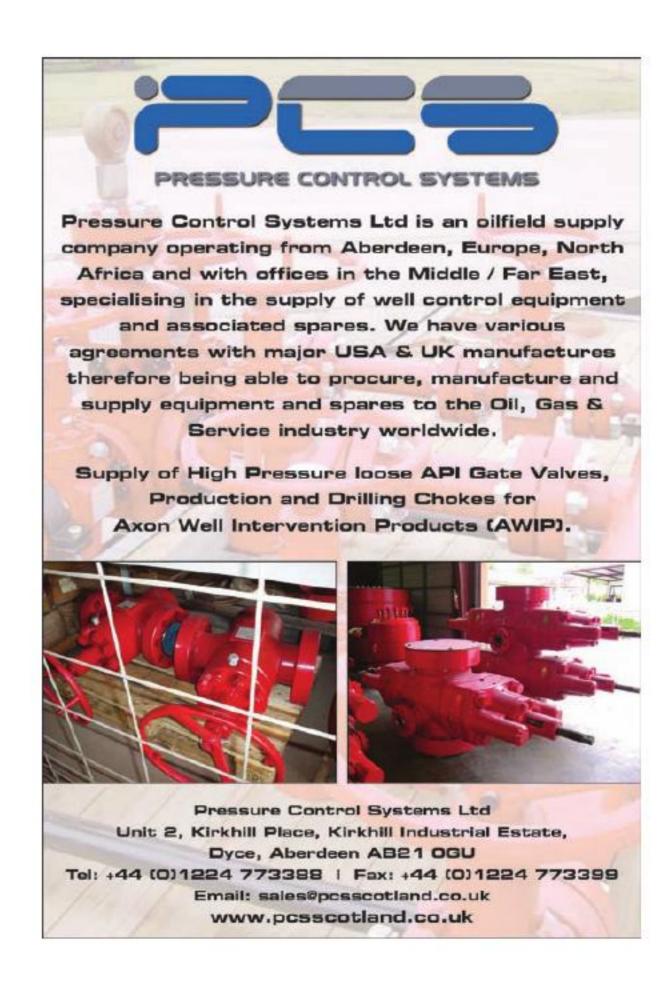
the equipment, they have a sound understanding of how it will be operated, as well as client requirements."

Although the majority of its current business is based on repeat orders from returning customers, the well intervention group remains keen to seek new customers in its current markets and in new markets further afield. As Scott concludes, "The continued growth of our business will be based on further product development via our UK R&D facilities and the development of new manufacturing facilities throughout the world, including Australia, West Africa, South America and Russia. These initiatives will aid in AXON's goal to continually provide greater value to our customers."



As a pump manufacturer, our group is less reliant on third parties and can therefore offer our customers significant delivery benefits in relation to the market







# Independent

Rouge Pipeline Services

LLC (RPS) was setup in 2003 and became an independent company in 2008. From its base in Dubai, UAE, Rouge Pipeline Services LLC provides all its services in the MENA region and is expanding in the Caspian Sea area, India and Far East.

RPS' vision for the next five years

The management's vision for the next five years can be summarised as follows:

- Maintain the zero injury record thereby minimising LTA
- Improve constantly quality in engineering and operation.
- Maintain and increase a strong presence in the Middle East/Arabian/Persian Gulf/North Africa and S.E. Asia
- Increase marketing and operational coverage of other regions like Central West and South Africa
- Sustain its internal growth by acquiring new assets

Despite being operational for just six years the business has grown considerably in this time, currently offering a vast catalogue of services to clients in its home market as well as across North Africa Europe and Southeast Asia. Having

such a broad portfolio gives RPS the ability to provide full assistance to clients, with its personnel skilled in a number of areas such as:

- Cleaning of pipelines and storage tanks
- Pipeline and station maintenance
- Pipeline hydrotesting
- Pipeline drying
- Caliper pigging
- Leak testing/commissioning/decommissioning
- Nitrogen/Helium leak testing
- Fabrication of launcher/receiver and high pressure manifolds
- Inspection of tanks/engineering services/ defects assessment
- Corrosion expertise DCVG/CIPS survey cathodic protection
- Pipeline/tank rehabilitation
- Pipeline integrity management
- Personnel support for OPCO and contractor
- Online inspection services through associate partners
- Project management consultancy, staffing and recruitment services
- Chemical cleaning on HRSG, boilers, furnace, heat exchangers and process piping
- Flushing, chemical cleaning and water treatment for district cooling and chilled water piping
- Media filtration of lube oil and hydraulic oil systems (NAS 6 Cleanliness)
- Jet fuel/hydrant pipeline pressure testing and flushing
- Steam blowing
- Acid pickling and passivation of stainless steel vessels in process, evaporators on desalination

It is not, however, the provision of equipment and services that distinguishes Rouge Pipeline Services from its competitors. The company is widely known for the skill and expertise of its employees, and accordingly it is able to provide a range of staffing and manpower solutions. In this field Rouge provides qualified professionals and offers tailor-made services encompassing technical assistance, project management, manpower, recruitment and consultancy to clients such as EPC contractors, E&P operators and contractors. These teams work directly for the main OPCOs, EPC contractors, and E&P contractors in areas including the Middle East, North Africa and Southeast Asia.

Rouge believes that the core success of a project lies within a successful team, with key emphasis placed on the cohesion of that team as well as the quality, skill and knowledge



of each individual involved. Indeed, quality remains a cornerstone of every aspect of Rouge Pipeline Services' operations, with the business mobilising its management team, technical specialists and support staff in order to implement the provisions outlined in its Integrated Management System.

This system has a number of key areas that the business continuously looks to address, such as maintaining zero injuries and lowering LTAs, constantly improving quality in engineering and operation, increasing turnover through development, and maintaining and increasing a strong presence in its current operating areas while exploring new market opportunities. Achieving success in each of these areas enables the company to assess its effectiveness while ensuring constant feedback so that it may evolve in line with the Group's objectives and its clients' best interests.

Likewise, the company is strongly dedicated to ensuring the highest levels of health and safety throughout its operations in order to

keep its people, and those of its clients, safe. Due to the global nature of its business, Rouge Pipeline Services' employees regularly travel to inhospitable or remote locations to undertake projects working on offshore structures and other dangerous environments. It is Rouge's aim to have zero fatalities and zero harmful incidents in all of these projects, and as such the company has implemented and maintained its Environment Management System by obtaining the OHSAS 18001:2007 certificate.

Rouge Pipeline Services has yet to be in operation for a decade, but it has already proven itself a highly successful and capable business with a strong reputation in the offshore pipeline sector. The company is always looking to the future, aiming to expand into new market sectors and to employ more staff over the coming years. With the ability to already cover all aspects of the modern pipeline industry, any further growth and expansion will certainly ensure that Rouge Pipeline Services becomes one of the leaders in its field.



With the ability to already cover all aspects of the modern pipeline industry, any further growth and expansion will certainly ensure that Rouge Pipeline Services becomes one of the leaders in its field





PSE's high volume technology offers a revolutionary drying technique for large or small diameter pipelines and process systems sensitive to moisture, such as gas pipelines, LNG tanks and production systems, ethylene, refrigeration and indeed any low temperature production systems.

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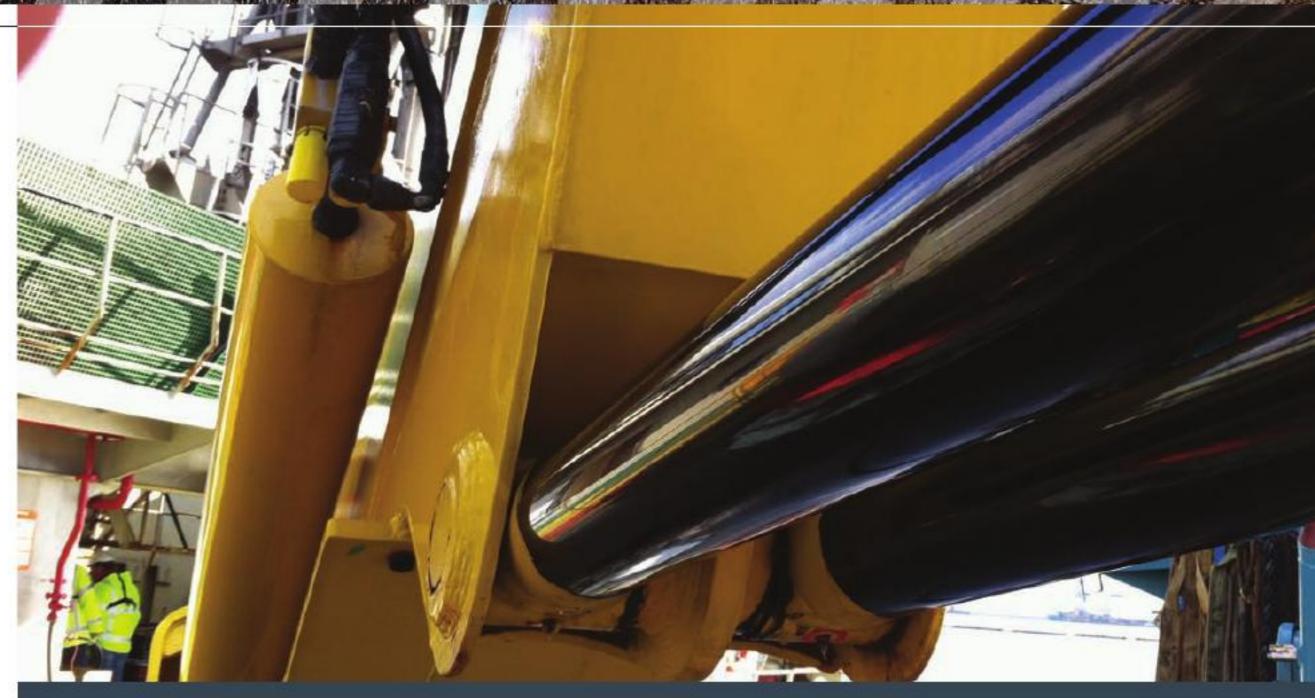
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# 

Below

A similar crane, equipped with chromium plated cylinders, after the same amount of time (25 months) as the crane above



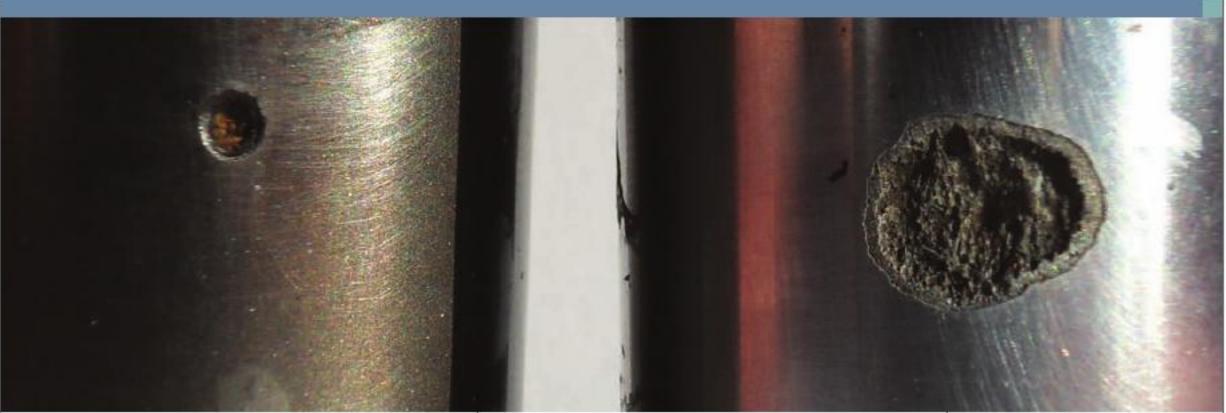
Founded in 1984, Dutch Galvanic plating firm WMV Europe BV has spent 29 years dedicated to the research and development of hard industrial coatings for the offshore oil and gas and marine industries. Meeting the requirements of a challenging and demanding environment, these coatings offer an exceptional combination of non-stick, good wear resistance, anti galling and marine corrosion resistance. Highly suitable for harsh conditions, WMV coatings are smooth, pore free, relatively thick and can guarantee a weld-like bond.

Benefiting from its own research laboratory, WMV is dedicated to finding innovative coatings for machines and tools for companies worldwide. This commitment has proven highly fruitful, with WMV generating a huge amount of interest for its latest innovation, the semi-ceramic Lunac 2+ duplex coating. Aware that galvanic coatings offer cost efficient benefits as well as moderate up to sufficient corrosion resistance and reasonable to good scratch and wear resistance, the company also knew that delamination, limited salt water/ chloride resistance and pore issues with nickel - chromium coatings are regularly recorded. Looking to combine the strengths of galvanic coatings with the superior wear and tear resistance, anti-galling properties and high

hardness of many HVOF ceramic coatings, WMV was also aware of the frequent brittleness issues and/or increased seal wear of most HVOF ceramic coatings, and has thus come very close to creating the ideal combination of vital properties in severe environments.

Viewed as one of the most innovative coating systems since the company's inception, the partly ceramic, partly galvanic alloy, non-HVOF coating system boasts a unique combination of properties; developed to have a thick three layer (120-150 um) coating system that merges high hardness (Hv >1200/2100), anti-galling and weld quality bond properties with an almost unrivalled sub-surface corrosion protection capability, better known from zinc coatings. Furthermore, it is specifically friendly to seals, and is different to most full ceramic coatings as it can even handle small accidents. These combined characteristics have given the Lunac 2+ duplex coating an excellent reputation for robustness in most offshore applications and resulted in the coating gaining one of the highest-level EPQ (NBD 10300) corrosion testing qualifications in the industry.

Following 14 years of continuous development, Lunac 2+ duplex comprehensively merges all of the required properties for an almost compromise-free coating for hydraulic



equipment. When combined with ductile modified nickel and applied to hydraulic pistons, shafts and axles, the Lunac 2+ duplex has been described as one of the most superior and suitable materials in the market, particularly in offshore use involving heavy lift applications. Pistons up to 3920 millimeters can be (partially) plated in accordance with the Lunac 2+ duplo system (50 + 70/100 µm) and still be cut afterwards. Tests have shown that welding in close proximity to the coating zone is permissible, as is nitrogen cooling for shrinking. Meanwhile, lock door hinge-pins operating in sweet and salt water-air compounds inflict no damaged to the coating, as Lunac 2+ duplex is more corrosion resistant than most high-grade stainless steel.

Due to the company's extensive database and six steps of dedicated alloy and tool steel pretreatment, which have been developed over the last 29 years, WMV is able to offer the very hard obtainable full substrate bond.

The typical characteristics of Lunac 2+ duplex coatings include high resistance to scratches by (quartz) sand, with the top layer showing an effective hardness of Hv2100 and a minimum matrix hardness of Hv1200. Showing 0.020 µm/min/gr/mm2 wear in an environment with SiO2 grit 400, 1.98 m/s, the Lunac 2+ coating's abrasive wear resistance was a 23 fold better than hard chromium (0.460) or a 43 fold better than hardened DIN 1.2379 steel (0.860). Impressively, the Lunac 2+ duplex coating has also shown signs of partial self-healing properties in pores and small defects and can handle water/air interfaces at a satisfactory level.

With a special crystal structure and the modified ceramic content, the (non lubricated / non foreign particle) adhesive wear resistance of the Lunac 2+ coating is equal to most sintered technical ceramics adhesive wear resistance.

The adhesive wear resistance increase compared

to hardened steel DIN 1,2379 on 1,2379 HRc 68 at 0.25 MPa, 0.7 m/s is +/- 17 times. The Lunac 2+ duplex salt water corrosion protection capability is qualified according to the NBD 10300 (Rijkswaterstaat Netherlands 2010) or EPQ corrosion testing, based on ASTM G59-97 (2003) /G61-86 (2003) and ISO 17475 standards and ASTM B117 1000 hours salt spray testing (in practice > 3100 hours rating 9-10), provided that the base steel is free of micro defects and ground to a low roughness beforehand. The final Lunac 2+ surface is

#### Above left

After cleaning the 3.0mm hole in the Lunac 2+ duplex coating still measures 3.0mm after 1000 hours NSS testing

#### Above right

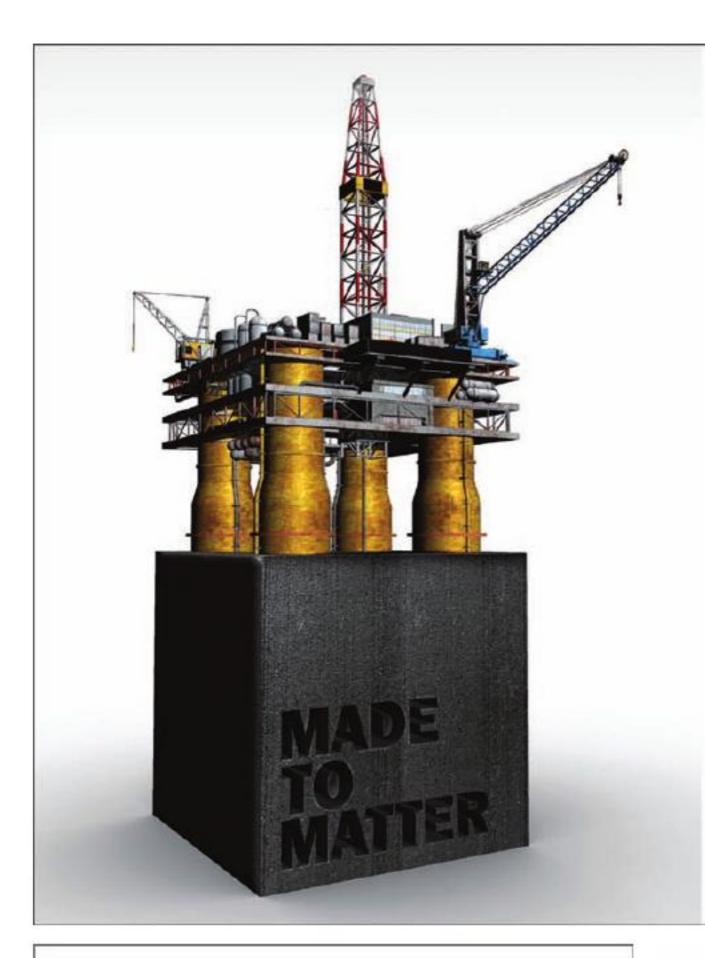
After cleaning the 3.0mm hole in the duplex chromium coating appeared to have expanded to av. 9.0mm after 1000 hours testing due to sub surface corrosion



smooth (Ra 0.11-0.3  $\mu$ m) and the coating will not peel off even after a plastic deformation, however the top layer of the Lunac +2 can show microscopic cracks if stretched more than 0.28 per cent. Lunac 2+ duplex is designed to withstand the harshest of environments.

Although the outer Lunac 2+ surface becomes slightly tarnished following a long period of non-use or (sea) water contact, it is considered as one of the most distinctive coatings for hydraulic cylinders and axles that has no major limitations. Attractively priced, it is scratch and corrosion resistant, seal-friendly and creates a weld-quality bond with the substrate. With 12 years of uninterrupted service already being reported by early users of Lunac 2+ mono, and two and half years of the latest ultimately corrosion resistant Lunac 2+ duplex version, both plating systems boasts truly ground breaking and unique properties.







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Today SHI is fully regarded as a major industry player with diverse construction projects including the world's first UNG floating production, storage and offloading (FPSO) facilities and arctic shuttle tanker, as well as drillships, jack-up rigs and other special vessels



The rise of Samsung Heavy

Industries (SHI) as a major player within the heavy industries began in 1974. Shortly afterward Samsung Shipbuilding was established, and the company continued to grow with the acquisition of Daesung Heavy Industries. Construction of the Geoje shipyard was also started during the same period and shipbuilding operations commenced in 1979; this was celebrated with a steel material cutting ceremony, signifying that construction of the plant's first vessel had begun. By the end of December 1979 Dock One of the Geoje Shipyard was complete and SHI was picking up the momentum that would see it become a leading name in heavy construction and shipbuilding.

The company continued to evolve during the next decade by merging three of its heavy construction divisions in January of 1983. Samsung Shipbuilding, Samsung Heavy Industies and Daesung Heavy Industries became

amalgamated into a single organisation. By February 1983 Dock Two was completed at the Geoje shipyard and this gave SHI expanded construction capability as well as a centralised management structure with which to guide the company's development. Throughout the 1990s, SHI made important strides in showing itself to be a premier force in heavy

industry and shipbuilding. It further expanded its production capability with a third dock at the Geoje shipyard and delivered its hundredth vessel as of December 1994. The company began to define itself as an industry leader, adding several ISO accreditations to its name, and during 1996 became the first organisation to be awarded the ISO 14001 environmental management system certificate.

Today SHI is fully regarded as a major industry player with diverse construction projects including the world's first LNG floating production, storage and offloading (FPSO) facilities and arctic shuttle tanker, as well as drillships, jack-up rigs and other special vessels. At the beginning of the new millennium the company showed no sign of losing any of the tenacity that had propelled it into a leading market position. Between 2000 and 2004 it developed several sizes of TEU-class container ship, and by 2005 it won a contract to supply the aforementioned arctic shuttle tanker, which was completed and delivered two years later. By 2006 the company had delivered 500 ships, and since that time it has continued to produce some of the world's largest and most revolutionary vessels.

Currently SHI is led by president and CEO, Dae-young Park, and as of June 2013 employs 13,167 people. By December 2012 the company could claim sales of KRW 13,358,611 million, spirited by its domestic operating sites, Geoje Shipyard, Power and Control Systems and Daeduk Research and Development Centre, as one



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#### **ADVANCED** INSULATION

Opening a production facility in Korea close to Samsung Heavy Industries meant that Advanced Insulation was able to meet any requirements on site. A major concern in building an offshore platform is weight and the fact that platforms are becoming heavier. With Engineers on the lookout for materials which can dramatically reduce the overall weight, Advanced Insulation launched ContraFlame® MS400 - H120 Lightweight Under-Deck Insulation. The system is fully certified, and with its phenolic GRP coating acting as a jointless barrier across the entire system, it is suitable for under-decks in the splash zone.

well as 15 overseas branch offices and a further two manufacturing subsidiaries. The Geoje shipyard today operates three docks, the longest of which is dock number three that comes in at 640 metres long, 97.5 metres wide and 13 metres deep. The facility boasts the world's highest rate, with each dock capable of turning over ten ships per year, allowing Geoje to launch 30 vessels annually. This impressive rate of delivery is inspired by the company's scientific approach to vessel construction, which includes the use of large ship blocks combined with shortened times for engine installation. Instead of using the conventional system of assembling smaller blocks, SHI made huge blocks five to six times larger than those typically used, weighing as much as 3000 tons. With this method, SHI is able to greatly enhance facility efficiency and reduce construction time.

The use of advanced technology during construction has bolstered the efficiency of shipbuilding at SHI, which has developed remarkably intelligent robotic systems throughout its building process. These include a spider automatic welding robot for LNG cargo tanks, a wall-climbing, vacuum blasting robot and an inspection and pipe cleaning robot. This enables the company to record a 68 per



cent automation rate, ensuring quality, safe construction and security. At every step of the production process SHI is dedicated to observing the strictest standards in quality, environmental and health and safety control, ensuring client peace of mind and an excellent end product.

SHI continues to go from strength to strength and 2013 has proven to be another fruitful year for the company. Its stellar reputation and industry-leading manufacturing facilities have allowed the division to secure a number of important contracts throughout the year that will allow it to further demonstrate its shipbuilding prowess. Throughout June 2013 the company won several contracts with distinguished operators from around the world, including orders for drillships, jack-ups rigs and turnkey solutions for FPSO. UK drilling company, Ensco placed its eighth order with SHI for a new drillship during June. SHI's drillship market share is 42 per cent.

During June 2013, SHI also announced that its Nigerian subsidiary (Samsung Heavy Industries Nigeria), had received a letter of agreement to supply the world's largest FPSO. The agreement was later confirmed as a full turnkey contract valued at around three billion dollars, with construction due to commence in 2017. The sizable vessels will be 330 metres long, 61 metres wide and capable of storing 2.3 million barrels of oil once completed. Commenting on the project, Dae-young Park said: "Following the turnkey contract to supply the ultra-large offshore plant worth \$2.7 billion that was signed with INPEX in 2012, our offshore plant construction competencies have gained global recognition by winning another ultra-large turnkey contract. We will lead the global offshore plant market with our technological excellence." owe



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The vessels constructed by SHI have likewise developed a strong reputation throughout the world and operate with distinction in various projects. In January 2013, Transocean set a new ultra-deepwater (UDW) record of 3.1 kilometres with the UDW drillship Dhirubhai Deepwater KG1. The vessel was constructed at SHI in Korea during 2009 and is rated for a water depth of 12,000 feet with a total drilling depth of 35,000 feet. The Dhirubhai Deepwater KG1 carried out the project while working for Indian state-owned Oil and Natural Gas Co (ONGC) off the nation's coast. Transocean operates a fleet of 82 mobile offshore drilling units and held the previous world record for ultra-deep water drilling at a depth of 10,194 feet. The drill was undertaken by the KG1's sister ship the Dhirubhai Deepwater KG2, which was built in 2010.

With an impressive rate of growth and a host of world firsts to its name, Samsung Heavy Industries has set a precedent for excellence that it will seek to maintain well into the future. Despite a challenging year throughout 2012, the world's leading shipbuilders anticipated an increase in demand in following years as energy companies seek new drill sites amid dwindling supplies. According to UK based researcher Douglas-Westwood, industry spending on exploration could reach \$335 billion by 2016, and the strong orders taken by SHI during 2013 could be an indication that the oil and gas industry is indeed entering an aggressively expansive period.

Whatever the case, SHI will be on hand to provide its clients with world-class ships and offshore facilities that can meet the increasing challenges that they will face in the oil and gas market. With its five core values of people, excellence, change, integrity and co-prosperity, the company is committed to not only developing its own staff and reputation, but to offering mutually beneficial, turnkey solutions throughout the world's oil and gas market.

#### **NOREQ AS**

Harding was formed in 2013 when Schat Harding and Noreq AS was merged together in order to form the world's leading manufacturer and supplier of lifesaving equipment. Harding developed the first lifeboat (FF1200) fulfilling the new regulation, DNV 406, for the North Sea and it is also the developer of the enclosed davit system. Harding has a long and impressive track record with Samsung Heavy Industries and has been a trusted supplier for years.

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#### Established in 1973, C&P

Engineering Services Ltd is an award winning electrical and instrumentation (E&I) services company that has a reputation for minimising risk through the provision of safe, professional and versatile solutions.

Tristan Jones, sales and marketing manager at the organisation, gave a few more details about what the Swansea-based company can provide: "The company is dedicated to supporting the compliance, performance and integrity of E&I assets and construction projects," he said. "It has a workforce of around 60 employees and is vastly experienced in technically challenging and highly complex E&I construction project demands - onshore and offshore, upstream and downstream, throughout the UK and internationally."

The company is most active in the UK but as Tristan mentioned, is developing contracts with operators and manufacturers onshore and offshore across EMEA and the Asia Pacific Regions. The types of services on offer include delivering E&I construction projects and the maintenance, modification and protection of the integrity and lifecycle of E&I assets, which also includes hazardous area electrical 'EX'/ATEX inspection, verification, installation, modification and repair services.

In order to meet the needs of customers that are working in hazardous and demanding environments, C&P has developed an approach whereby it listens to customers' specific objectives and adds value to their E&I construction projects and asset lifecycles with a 'thinking and doing' attitude.

Tristan explained: "By working as an extension of the customers' team, C&P is able to focus on optimising efficient responses, quick turnarounds and continued improvement efficiencies - whether the customer requires a one-off solution or full turnkey E&I construction and specialist project management."

By creating a strong combination of quality installation, proven consultancy advice and effective project management, C&P has developed a competitive edge that is maintained by its highly skilled workforce. The company is well recognised for its ability to react and plan effectively to customer demand, understanding clients needs through construction, commissioning and validation. It is also known to complete each job safely, on time, within budget and performed to plan.

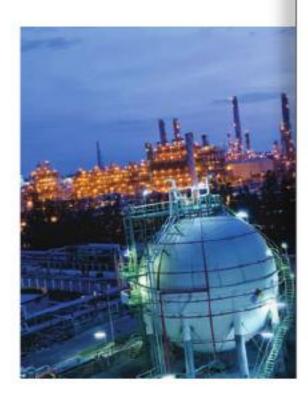
"Safety is also of course our priority and HSEQ is at the core of our culture," added Tristan. "It is the blend of training, instruction, technical procedures and the experienced management and supervision that the company has on-site that has enabled it to provide a low risk profile and this is also one of the many reasons that C&P has sustained long-running relationships with its customers."

Thanks to these close relationships the company can keep abreast of industry issues and ensure it is ready to help clients with challenges as they arise. As Tristan clarified: "Operators and manufacturers are still facing a number of barriers and challenges with regards to properly maintaining, modifying and protecting their electrical and instrumentation equipment or delivering an E&I construction project. For



example, not enough resource to manage a dedicated programme, a lack of specialist skills or qualifications in-house, minimal downtime, risk of operating in hazardous areas that may contain or have activities that produce, explosive or potentially explosive atmospheres and the compliance with legislative and regulatory requirements.

"Moreover, incidents such as the 2010 Macondo accident have also highlighted the economic consequences of not paying sufficient osci-



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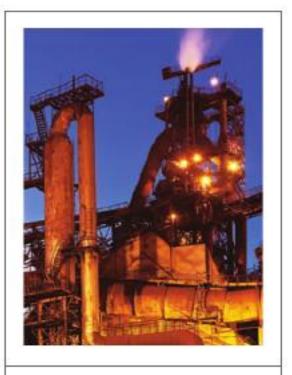
attention to operational risk management. The industry is seeing increased scrutiny with regards to the inspection of operational and strategic risk, and consequently there is also focused attention and greater awareness of the risks surrounding equipment integrity and service delivery.

"As a result of these issues C&P has been experiencing an increase in enquiries from companies offshore and onshore seeking specialist consultancy advice and maintenance support with regards to the integrity and lifecycle of their 'EX' hazardous area assets. As such, it is providing assistance through services such as inspection, verification, installation, modification and repair."

By improving the management of construction projects and equipment through economies of scale, flexibility of response, value engineering and innovative thinking, C&P can help operators and manufacturers to decrease risk, minimise operational cost, and protect their staff and the environment. It can also help customers to ensure they are complying with legislation and meeting health and safety expectations and requirements, as well as enhancing productivity and continuity.

Over the course of 2013, C&P has been focusing on proactive integration and continuing improvement efficiencies for clients and going forward into 2014 it will be looking to increase and improve the operating capacity of the business. "We will continue to invest heavily in training and development to ensure that our employees have the right skill set for the industry's changing environment, such as increasing our multi-skilled E&I workforce," added Tristan.

Following 40 successful years of business, C&P has established itself as a market leader. Paul Bunyan, CEO concluded with some words about the future: "What began as a small company in 1973 providing E&I services to local heavy industry in South Wales in the UK, has now developed into a new level of excellence in engineering, and achieving 40 years in business in the engineering construction industry is a fantastic milestone and a remarkable achievement. We are confident that our 41st year in business will be a year in which C&P lays the foundations for future success."







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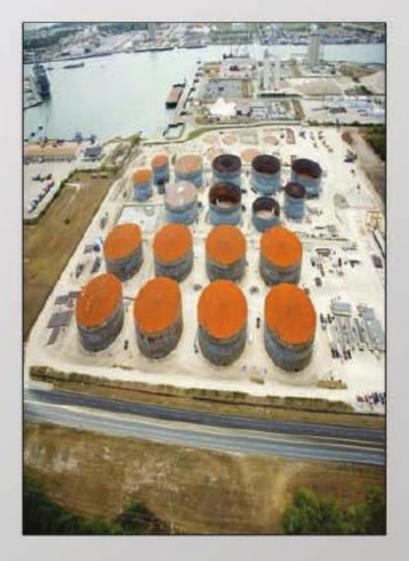
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Located on Florida's east coast, some 60 miles away from Orlando the state-ofthe-art terminal of Seaport Canaveral has been responsible for an important boost to Florida's economy. The total cost of development of the terminal was valued at around \$150 million and today it delivers an independent supply of petroleum products including gasoline, diesel, biodiesel, jet fuel and fuel oil. The facility boasts a storage capacity of just under three million barrels of refined products in 24 tanks across 36 acres and employs transport infrastructure for the loading of barges, seagoing vessels and trucks. Its two jetties have a maximum draft of 12 metres to accommodate larger import vessels and a network of dedicated pipelines compliments these, serving cruise ships calling at Port Canaveral.

The completion of Seaport Canaveral was announced in February 2010 by independent global terminal operator VTTI, creating as many as 300 direct and indirect jobs in transportation, shipping, maintenance and service, with a permanent terminal team that today comprises of 23 employees. The terminal's contribution to the economy of Florida is valued at around \$30 million annually, with an additional yearly boost of approximately \$5 million for Port Canaveral.

Juriaan Steenland, current general manager of Seaport Canaveral has an extensive background in VTTI, operating as business development manager within the group until 2009 and as deputy general manager of Seaport Canaveral LLC until 2011 when he took his current position managing the busy terminal. Since taking over the position of general manager, Juriaan has guided the terminal as it transitions into an efficient, lean and mean organisation, and has overseen its development to include a \$2.5 million project to bring bio-fuel to the facility in 2012. Commenting on the decision to increase the breadth of products that the terminal is able to handle in a press release

Below Juriaan Steenland, general manager of Seaport Canaveral



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confirming the opening of the facility, Juriaan said: "We see a clear market for bio fuel, with federal mandates and the incentive to earn tradable 'energy credits' both driving a move in this direction. And this may intensify from 2015 with possible new regulations requiring cruise ships to switch from heavy bunker fuel to the friendlier diesel-grade oil. We're ready for them."

Today, the terminal is able to handle bio-fuels as part of its standard product portfolio, increasing its potential market and preparing it for future trends in renewable energy sources. Bio-fuel is a relatively new product within the US in comparison to petroleum and brings its own challenges. Unlike blending ethanol into gasoline, bio-fuel thickens when the temperature drops. This makes bio-fuels more difficult to blend, requiring heated storage to maintain the product. This is a feature that Seaport Canaveral has chosen to retrofit into one of its storage tanks. "We currently deal with

bio-diesel and we are able to load mixes from one to 99 per cent, which is fairly new in the US and has also been unique for us," says Juriaan. "We have invested heavily in making sure that the integration of bio-fuel has been done safely and is carried out in an environmentally friendly way. We also worked with a local contractor.

Local contracting is something we are keen to do, to support the local community. The work was completed under budget and on time so that the discharge from the first vessel was entirely successful. Overall, it has been a very good project.

"At the core of the terminal's success has been its focus on effective and efficient operation through the entrepreneurial spirit of the team. Although we are part of a global company we are still very lean and mean, of course that is meant in a nice way," Juriaan begins. "I think that with the people that come to this company, there is more entrepreneurial spirit that is

firm's experienced professionals can deliver the total EPCM package with uncompromising quality and value. PENN PRO is honored to serve VTTI Seaport Canaveral, one of the fastest growing energy storage businesses in the world and a highly prized client. TEAM, PENN PRO's subsidiary, focuses on all aspects of aboveground steel tank integrity management. TEAM serves the giants in the storage industries including VTTI Seaport Canaveral. TEAM specialises in petroleum, chemical, and water tanks and pressure vessels.



Today, the terminal is able to handle bio-fuels as part of its standard product portfolio, increasing its potential market and preparing it for future trends in renewable energy sources

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#### **Cargo Trade Development**

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allowed to come to the surface. Running a terminal of this size with only 23 people, 12 of whom are outside of the office is amazing. We have already won a number of awards within our three and a half year existence and we have been recognised for the unique way we run the terminal."

Key to the operation of the terminal is the importance that is placed on the role of the individual in the company in the day to day running and guidance of the business. At the beginning of each working day, the terminal team meets in an informal way to discuss any issues that might arise or simply just share a recent experience. "Whoever is in that day will attend and everybody contributes and joins in," says Juriaan. "Sometimes people will just want to say that their son won last night's soccer match and on another occasion they may have an observation on how we can improve on safety. It is a way to inspire people and make them feel part of a team and as a manager, it's great for me to see all these faces and know what is going on in the organisation."

This informal management style has enabled Seaport Canaveral to develop new management and operational practices that have increased the efficiency of the company without the sacrifice of having to compromise on quality, safety or the satisfaction of customers and employees alike, as Juriaan elaborates: "Starting a company like this is a challenge in itself, but it is also about how you move people from their previous jobs, experiences and practices to their new positions. Obviously everybody has done it in their own way, so we have to focus on how to do this as a team and looking at how to be more efficient. It's not about cutting the free coffee machine and putting in a quarter machine, it's truly about asking the whole team how we can do things more efficiently. In 2012, We were able to save a million dollars of expenditure through this way of working that we could cut away without hurting employee satisfaction. For example, we have changed things like the coveralls we use and actually improved product quality of the personal protective equipment (PPE) we use, and still save money. So I can say that I am very proud of the guys and what we have done. And let's be clear, that was \$1 million in 2012, half a million in 2013, which is \$1.5 million less organisational fat going forward.

The dedication of the team at Seaport Canaveral extends from its management team through to its operation and maintenance

personnel. Although the terminal is operated by a relatively small contingent of core staff, the majority of the day-to-day operational maintenance of the facility is carried out in-house. "Normally it would be 70 to 80 people running a terminal of 2.8 million barrels of oil at full storage capacity," Juriaan confirms. "We are able to do this with a lean group with most of the work we undertake carried out in-house. The magic word 'outsourcing' is not something we use, so if there is an emergency call in the middle of the night and something needs to be fixed, we don't have a contractor that we call, our own maintenance teams will go out and make the repairs."

Seaport Canaveral extends its focus on developing a collaborative team spirit to the wider local community by reaching out to offer support to its neighbors. Juriaan believes that the role of the company is to not simply benefit itself, but also support the local community that it serves. "We want to work with the local community," he says. "But we do not want to intrude and have a say in how they run the schools or community organisations. We donate money directly to those organisations we know are dedicated to running positive programmes and spend it well. What we want to see there are rolled up sleeves, not fancy presentations or slide shows. I think overall in the community it is seen as a positive thing and it is from the heart. I know that a lot of my team members are involved in voluntary work in their own time to give something back."

As Seaport Canaveral heads into 2014 it is ready to meet the challenges of a changing market. As environmentally friendly fuels are increasingly adopted in a range of applications, the terminal is well positioned to develop further facilities to enhance its capabilities in compressed natural gas. As a newer terminal, Seaport Canaveral has greater scope to adapt to meet market conditions and its future looks very bright indeed, as Juriaan concludes: "I do feel that all of the terminals in the State of Florida will have a hard time going forward, with a declining fuel consumption, but I think as a new state of the art terminal with a deep draft we can actually take advantage of that and be more competitive than our competition.

"I think that as long as you accept change and are willing to reinvent yourself time after time, you can be very strong. I am grateful to have a great team who believe in this way of looking at things and are willing to follow me in this vision." osc



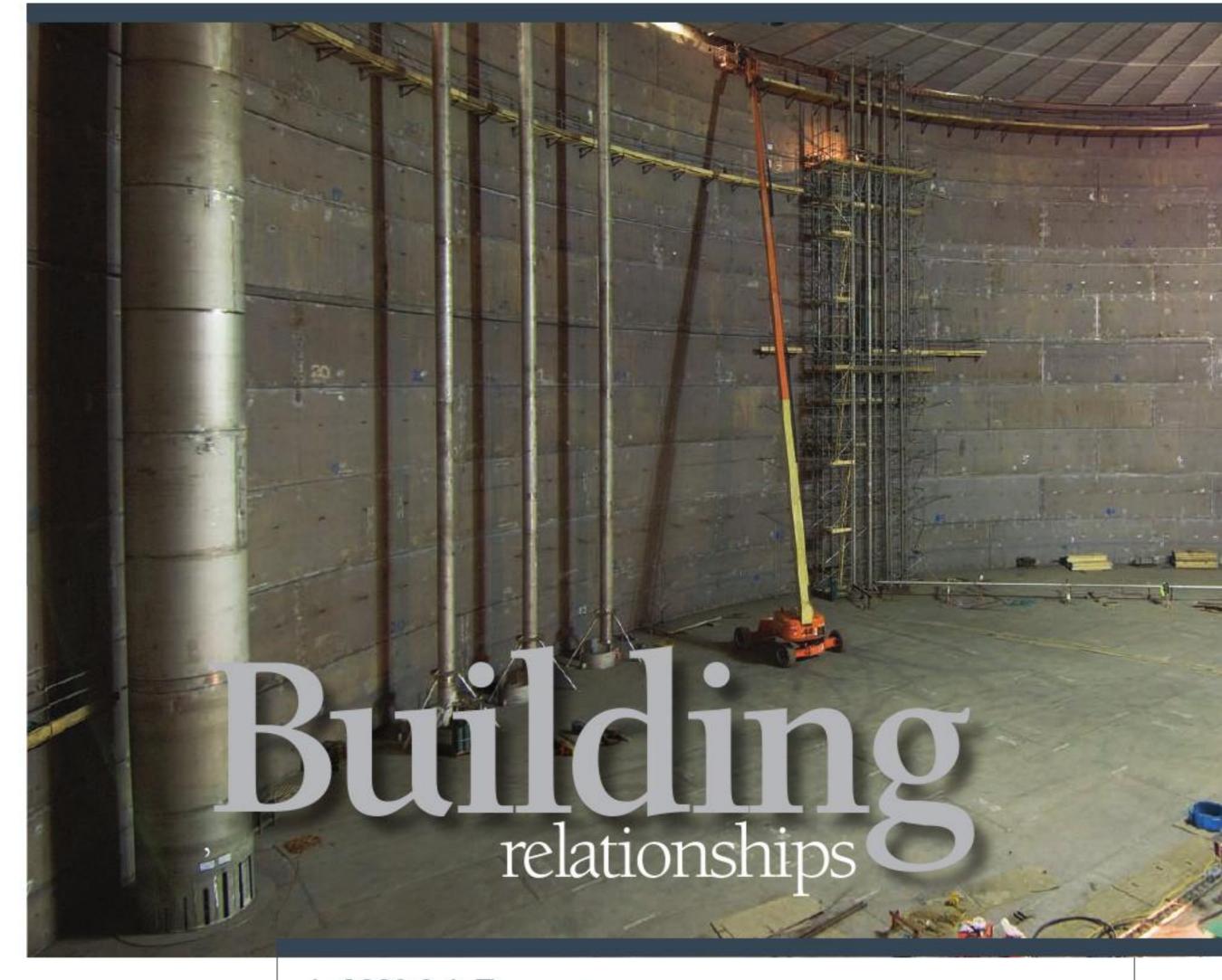
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#### **PORT** CANAVERAL

With nearly four million revenue cruise passengers annually traveling through its terminals, Port Canaveral is the second busiest cruise port in the world with homeported and port of call ships from the world's top cruise lines, as well as a growing cargo port centrally located to service all of Florida and the Southeastern United States, annually handling millions of tons of bulk, breakbulk, and project cargo. Along with its parks, marinas, beach, restaurants and other entertainment options, Port Canaveral opened Exploration Tower, a new \$23 million sevenstory attraction in November 2013.







In 1998 Bob Thomson witnessed organisations selling off their workshops and operating solely from an office perspective. Seeing an opportunity to continue offering a service that many storage tank companies were moving away from Rhyal Engineering was formed. "As a specialist storage tank and vessel contractor the main core of our business is the design, build and refurbishment of large diameter, site constructed storage tanks for the oil and gas producers both nationally and internationally," begins Bob, managing director at the business.

Dealing mostly with the petrochem sector, the tanks range from between five metres in diameter up to over 80 metres and the company can be tasked with the design, installation or refurbishment of tanks, but additionally offers itself as a specialist pipe work and structural steelwork contractor.

Rhyal Engineering is one of the only privately owned, family run specialist tank construction companies in the UK. "We are able to offer flexibility, and are more approachable than many of our competitors. We make decisions in-house and we also have a strong focus on building relationships. Over the years we have received repeat business with clients who recognise our interest in moving their project forward, designing and structuring our supply to suit," explains Bob.

Project manager Simon Judd adds: "Through very open and close relationships with the management of Rhyal Engineering, our clients are able to discuss their projects with us from day one. Right from the point where they are just thinking about a new concept they know that we will do our best to help them. A lot of projects that we have won have been the result of a long process of discussions.



Phillips 66 in Bantry Bay, Southern Ireland, where the company has completed the total refurbishment of an 80 metre diameter floating roof tank in mid 2013 and is now progressing with another of the same size. This involves the replacement of the tank floor, floating roof, access stairways, platforms and ladders, together with the refurbishment of the shell plating and wind stiffeners. The company has also been performing tank refurbishment works for the Murco Refinery and SEMLogistics Fuel Terminal (Old Gulf Refinery) at Milford Haven for the past 12 years and continues to do so.

The largest tank contract completed by the company to date has been the fabrication and construction of two 160,000m3 cryogenic LNG storage tanks for Whessoe at Milford Haven. This major project took almost three years to successfully complete, and makes Rhyal Engineering the only company in the UK with recent construction experience of these large complex structures.

Operating throughout the UK, Europe and sometimes internationally, Rhyal Engineering is attracting specialist contracts designing and fabricating tank farms and installations for export. Aside from regular storage vessels, its specialist knowledge is being called upon by the LAGUNA-LBNO project consortium as it looks into the feasibility, design and installation of large cryogenic tanks situated underground.

Reviewing the market conditions Bob recalls:





As a specialist storage tank and vessel contractor the main core of our business is the design, build and refurbishment of large diameter, site constructed storage tanks for the oil and gas producers both nationally and internationally

"We are currently installing additional gasoline storage in a terminal expansion project for NuStar in Grangemouth, providing them with the design and build of three large tanks, together with all associated piping, platforms and stairways. We are also working for Ineos at Grangemouth refinery, and we are also completing the refurbishment of two small tanks at the Ineos Dalston Fuel Terminal."

The company also provides Exxon, Fawley Refinery with all of its tank maintenance through a contract that was taken over in 2010. This is for the design, supply, fabrication and refurbishment of all site tanks as a result of Exxon's planned maintenance regime, which are mainly jack-ups, new bottoms, shell plates, wind stiffeners and roof replacements. Additional successful work at the Fawley refinery site has led to an extension of the contract to 2017.

Similar works are being completed for

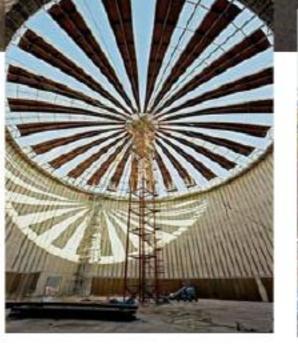


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"We were lucky enough to have been fairly busy throughout the recession. Our busiest year to date was in 2009 with a £25 million project with BP for bioethanol implementation across four UK Terminals." Discussing the project Simon adds: "Work became more difficult in 2010 but we managed to secure a couple of decent sized projects that kept us going. We have noticed a steady increase in work since up to the beginning of 2013, when an increased number of enquiries have been secured and once again we are exceptionally busy."

Employing around 200 people Bob comments that at times it has been a struggle to recruit the right kind of people during busy periods. "We are in a strong position with facilities to train people, whereas many competitors sold off their workshops and are not developing the skilled operatives required, which has resulted in an overall shortage of skilled people in the industry.

"For this reason, over the last twelve years we have continued to take on four apprentices per year, both boilermaker platers and welders, who have come through our own workshops and are continually being placed into the site construction environment. Some have gone on to supervisory and senior posts within the company and we also try to bring in young engineering and management graduates wherever possible. We are also always looking to enhance our operatives skills and abilities through both tuition and training, because we recognise the benefit to both parties and the fact that we as a company can only perform as well as the people that we employ."

Looking towards the future Simon summarises: "Our core business will always be oil and gas and petrochem, as well as the ongoing maintenance of existing assets within the UK and overseas, but also a lot more potential for additional storage in all of these areas. We have an interest in other sectors: waste to energy, and bio fuels, the decommissioning and new nuclear work, and the renewal of coal fired power stations to bio mass burners."

The company also recently established itself in the Middle East market with a contract to design and supply tank materials. Furthermore, with shale gas projects producing results in the US Bob added: "It's quite buoyant out there and there is a lot of interest across many sectors. We aim to be at the forefront of all the sectors so that we are in the right place at the right time."



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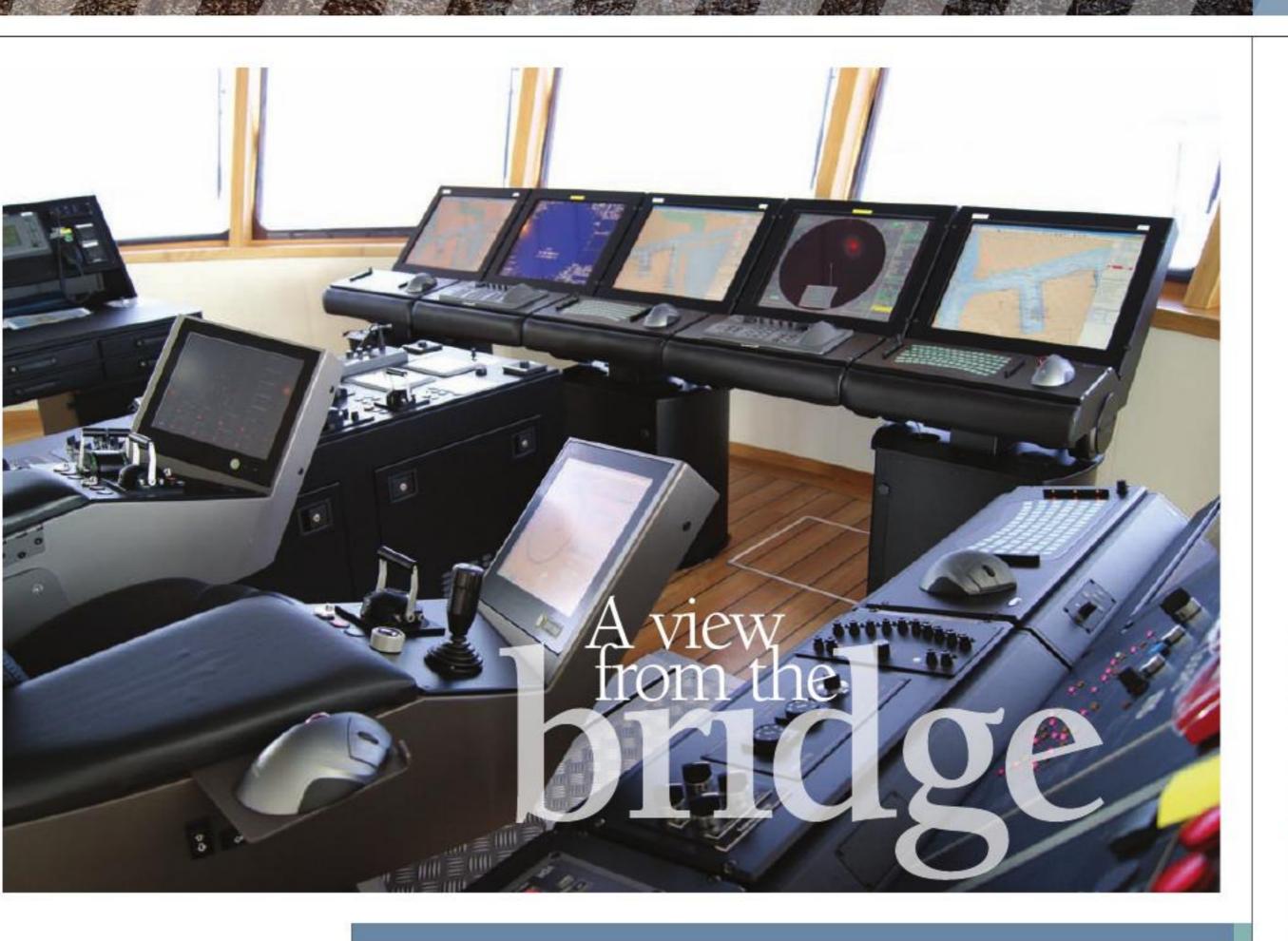
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#### Marine Technologies (MT) has earned an impressive reputation as an industry

leader in the development and production of integrated control systems for offshore vessels since the company was established during 2002. Last featured in European Oil and Gas Magazine in February 2010, the company has continued to supply a host of positioning and control systems while expanding its portfolio with new products to navigate the vessels of the future.

MT is headquartered in Mandeville, Louisiana, and operates offices in Norway, Singapore and Brazil to better serve its global client base. The company was originally founded with the objective of developing an improved dynamic positioning (DP) system. Within 16 months of the company's inception, the first vessel equipped with MT technology was awarded DP-2 classification by the American Bureau of Shipping (ABS). Following on the heels of this success, the company continued to grow and has become a one-stop solution to the shipping and offshore industries. Its wide range of products includes a number of cutting-edge vessel control systems and related services that are packaged and delivered as type-approved solutions to meet a full range of IMO classes. MTs extensive product list includes

complete DP and joystick solutions provided by its Bridge Mate brand, as well as sophisticated bridge systems such as the MT Bridge Mate integrated bridge system (IBS), which carries DNV NAUT-AW class notation for enhanced nautical safety incorporating a built-in ground avoidance system (GAS). The NAUT-AW class represents the most comprehensive bridge class notation in the industry today, confirming MTs reputation as a world-class provider of state-of-the-art vessel positioning and control solutions.

Marine Technologies has far surpassed its original goal to develop a superior DP system in compliance with IMO guidelines for DP-2 class. Its commitment to support market demand with cost-effective DP systems has led MT to deliver more than three hundred systems worldwide, the majority of which are DP-2 class design. Bridge Mate DP systems have penetrated the maritime marketplace, earning the company a trusted reputation for bringing added safety through functional design and software, reduced installation and servicing costs, less commissioning time and improved spare parts availability, as well as superior fleet management though the ability to offer remote operation and service assistance.



#### **GUIDANCE MARINE**

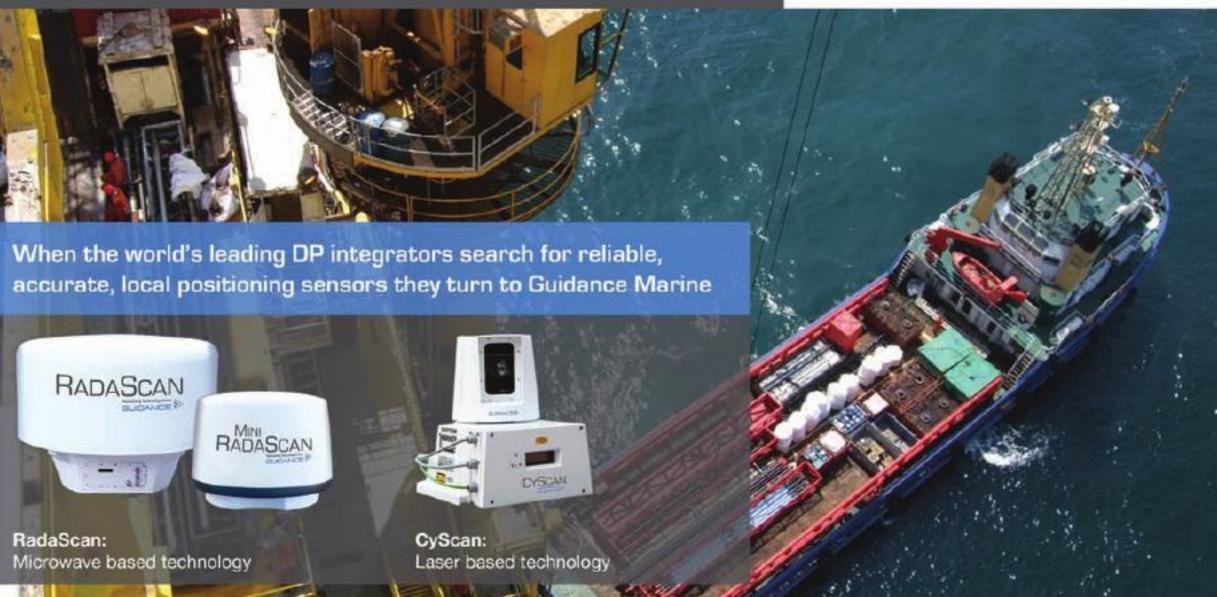
Guidance Marine, a division of Guidance Navigation Ltd is a leading international developer and supplier of position reference sensors for Dynamic Positioning (DP) and other sophisticated vessel control systems. The company's laser and radar CyScan, RadaScan and Mini RadaScan sensors can be integrated by all major DP manufacturers and are used on a daily basis by all OSV and PSV operators for DP1, DP2 and DP3 class vessels. Guidance is the only company able to supply three local reference systems offering the greatest choice on the market. Based in the UK, Guidance understands the importance of quick deployment and has sales and service capability in all major oil producing regions of the world.

Recently, Guidance Marine is pleased to announce that it has secured orders for the supply of the latest 500m+ range capable MiniRadaScan position reference sensor to Marine Technologies Pte Ltd, Singapore. The MiniRadaScan will be integrated into Marine Technologies Dynamic Positioning solution for a series of eight 6000 BHP PSVs scheduled for delivery to China Oilfield Services Limited within 2014. An option exists for four more sister vessels with additional 9000HP, 12000HP and 15000HP vessels planned for 2015 onwards. Mr Frode Klepsvik, managing director of MT-Marine Technologies Pte Ltd Singapore, stated: "The MiniRadaScan system was chosen due to the robust, all weather capability of microwave technology. It has been supplied with four microwave targets per system. The combination of 360 degree sensor coverage with intelligent ATEX approved targets makes choosing the MiniRadascan a simple decision."







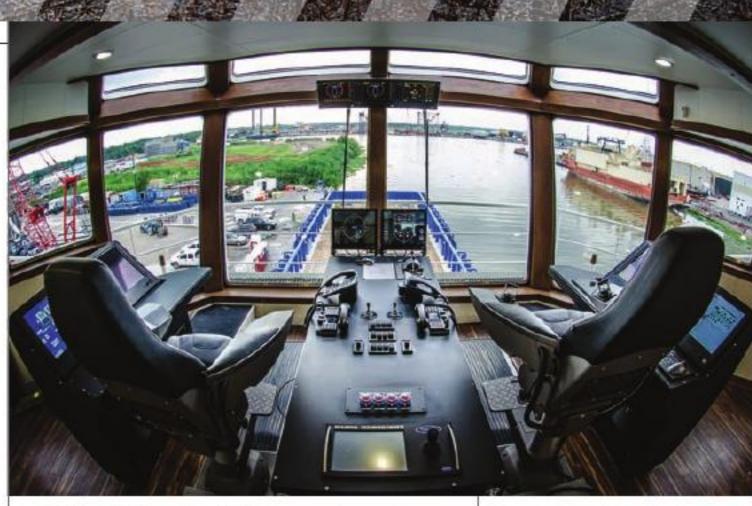


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Bridge Mate's IBS solutions are based on a concept of segregated architecture comprising a dual redundant network, flexible console and monitor options, and highly-durable, marineapproved computers without fans or hard disks. Core to the design of the Bridge Mate IBS is the optimisation of the human-machine interface, taking into account the fact that different information is required for different tasks. All applications, including ARPA radar, electronic chart display and information systems (ECDIS), conning, integrated control and alarm system (ICAS), cameras, sensor control and monitoring, are available on any of the Bridge Mate multifunction workstations. This gives operators unique redundancy and flexibility, including secure satellite communication solutions allowing for remote diagnostic and monitoring applications to enhance operations and provide the most effective systems maintenance. Although MT has targeted the offshore market, its IBS can be adapted for operation on board all sea-going vessels, making it an extremely versatile marine tool.

MT's Bridge Mate DP and IBS products are complemented by the MT C-Comm brand, which focuses on global broadband solutions. C-Comm's end-to-end communications systems are comprised of very small aperture terminals (VSAT) that can be placed both above and below deck providing global C and Ku band coverage through strategic co-operation with Intelsat. C-Comm delivers a host of communication options, including voice over IP (VolP) phones, vessel tracking, weather service, electronic navigation charts (ENC), content management, Global System for Mobile Communications (GSM) and more. MTs C-Comm provides customers with a wide range of benefits including a comprehensive, secure C and Ku band communications package offering accessibility through global coverage and enhanced user-friendliness through seamless roaming, as well as improved crew welfare and well being through voice, Internet, e-mail, entertainment and health care (telemedicine) options. In addition, C-Comm delivers value to its customers through the availability of remote monitoring, diagnostics and maintenance training, while ensuring predictable costs through flat-rate fees.

In 2013, MT was awarded a prestigious contract with Siem Offshore to provide a complete bridge package for the company's new build 243-foot infield support vessel (ISV) of Ulstein SX 163 design. The ISV will be built at Fjellstrad Verft in Norway for delivery in



2014, with the potential for a second vessel to follow. MT will supply its Bridge Mate IBS along with DP, joystick and thruster control systems to the new vessel. Throughout 2013, MT also demonstrated its commitment to developing improved user understanding of the principles behind DP by conducting training courses in Singapore in co-operation with Maersk Training of Denmark. Both basic introduction and advanced simulation courses were offered throughout the year allowing students to become familiar with DP technology and gain a practical understanding of the operation of associated equipment. Marine Technologies' DP training center in Singapore is accredited by the Nautical Institute (NI) in London and follows IMO and IMCA guidelines. The training programme was very successful and highly regarded in the industry.

During the upcoming year, MT will continue to define itself as a market leader in DP, IBS and communications solutions. With existing projects in place and the potential to grow additional business and expand its product portfolio further, the company is well positioned to make great advances during 2014. MT's new two-in-one Ku band VSAT antenna - the MT-BB100 MKIII - promises to contribute to the company's vision to improve maritime DP and communication technology. The MKIII is based on C-Comm's field-proven BB90 and BB100 technology and features a redesigned parabolic dish for optimal RF performance and feed incorporating cutting-edge computer simulation software commonly used in aerospace missions. In addition to being constructed from lightweight, yet incredibly rugged materials, the antenna maintains remarkable tracking performance at all times, regardless of ship vibration and heavy sea conditions.

With its impressive portfolio of products and services, Marine Technologies' vision to set new industry standards is destined to extend far into the future.



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Marine Technologies marine-technologies com Services Vessel control and positioning systems

#### JEMAR NORPOWER

Jemar Norpower AS is a long time producer of strong and speedy workboats for seismic vessels, oil companies and harbours. Currently three models are available: 23ft, 26ft and 30ft. All models have GRP hulls with a keel that gives the workboats their well-known stability and sharp manoeuvring.

The propulsion system consists of a strong diesel engine (200-425HP), a solid marine gear and an 800mm propeller.

The workboats have a unique combination of speed and strength. The 30ft model reaches a top speed of 24 knots, and the same boat has a bollard pull of more than three tons - making it probably the speediest tugboat in the world!

The Jemar Norpower workboats are renowned for their seaworthiness, solidity and stability. They can be used for numerous purposes and are especially suited for tugging, inspections, cargo, crew change and oil spill recovery. A Jemar Norpower workboat will get you quickly to your destination and get the job done in a safe way also in rough weather. You can transport equipment/cargo on deck or take with you up to 11 passengers. The solid boats can operate in shallow waters and close to land as well as on the open sea. Towing points, cranes and winches may be mounted for lifting and tugging.

Solid fenders on the railing give the workboats protection and watertight compartments below deck secure that a workboat will not sink even with the engine room filled with water.

The Jemar Norpower workboats are produced by seasoned craftsmen and can be customised to a customer's special needs. Before being dispatched a workboat is thoroughly tested. Each workboat has a Boat Certificate from a maritime classification society.

Jemar Norpower AS has for many years been a member of NOSCA, the Norwegian Oil Spill Control Association and its workboats are an important part of the equipment needed to recover oil spill at sea.





NOSCA – the Norwegian Oil Spill Control Association, was established in 1992 to bring together governmental, scientific and private industry members to create a knowledge platform for oil spill response. The organisation was originally founded in Norway, where it continues to operate but today it works in co-operation with companies globally and aims to be an advisory body for everything related to oil spill response and research.

As a non-profit co-operative of companies, NOSCA operates with a spirit of co-operation focused on the exchange of ideas to better address the serious ramifications of oil spills and leaks. It works closely with industry players and governments and currently has 35 members including the Norwegian Coastal Administration, NOFO (Norwegian Clean Seas Association for Operating Companies), SINTEF and others.

NOSCA primarily co-operates with industry players through its yearly NOSCA Seminar, which is routinely attended by around 60 international participants from 15-20 countries. "The seminars are held yearly in Norway for three years and the fourth year are held abroad," explains NOSCA chairman Trond Gulbrandsøy. "The seminar includes presentations that are given by both Norwegian and foreign parties

from governments and private industry, focusing on sharing thoughts on oil spill response, the techniques that are used and how we can learn from them."

The company also participates in seminars and exhibitions hosted by partners around the world. It is one of the three founding members of Interspill. The Interspill steering committee counts 11 members today and arranges the European oil spill conference and exhibition in a three-year-cycle. Furthermore, NOSCA contributes to the success of IOSC (International Oil Spill Conference) in the US and Spillcon in Australia. Throughout 2014, NOSCA members will attend and support various international events including the HSE Med 2014 Summit in Florence on the 21st to 22nd January and the Arctic Oil and Gas 2014 Summit from 28th to 29th January. NOSCA will also support Arctic Oil and Gas North America during March and the International Oil Spill Conference in May in Savannah, with the Interspill conference to follow in Amsterdam during 2015.

As well as being an active participant in the exchange of knowledge and information, NOSCA takes part in the practical side of oil spill response research and development. Norway is one of the few countries in the world to undertake full-scale on-water testing of oil spill response techniques, these tests are organised by NOFO and provide NOSCA members with a unique knowledge base and research tool for product testing and preparedness.



"The NOSCA seminar includes an on-water exercise," Trond elaborates. "We have a full-scale exercise, which is normally done with us acting as observers. We have an observation vessel, which we use to follow the exercises that are undertaken by the Norwegian coastal authorities and/or NOFO.

"I think the only way to learn is by doing," says Trond. "We need to exercise not just once per year, but frequently. In this sense I think the NOSCA seminar is one of the most important



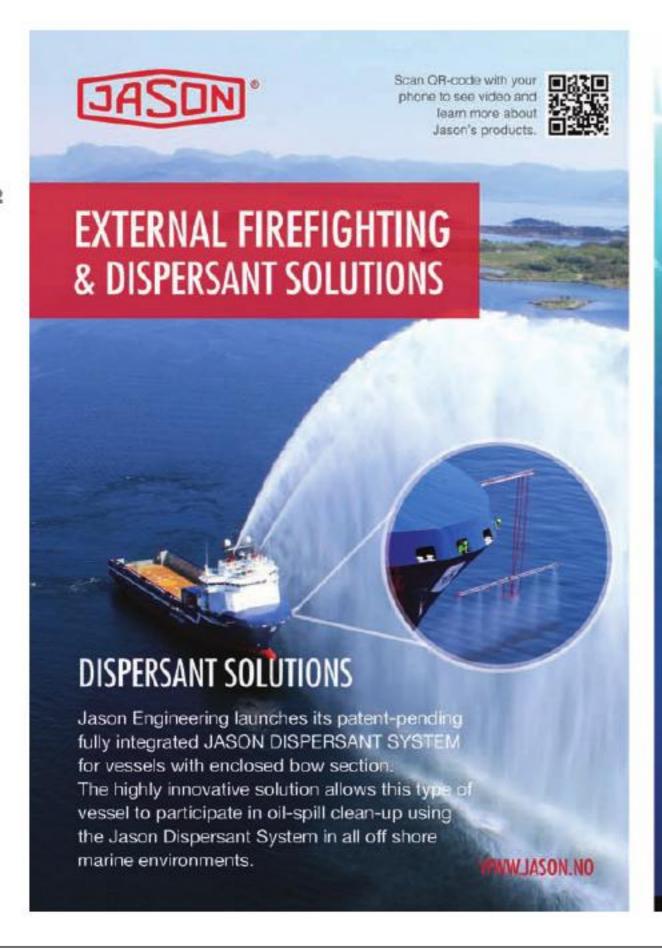
As the complexities of oil spill management are better understood, industry leaders are designing their response capabilities to most effectively meet the challenges of spills that may occur in the future. Naturally, avoidance is the best solution and is something that all operators work towards, however should the worst happen there is a consensus that a rapid, effective response is paramount. Increasingly, companies are investing in new technology and equipment to ensure that they have the necessary tools to deal with any eventuality, as Trond observes: "More so in recent years, I think people are becoming more focused on being prepared and the deployment of larger equipment that is more able to deal with the oil spills that may occur.

"At NOSCA we have everything from detection by satellite through to detection by radar and other means of detection to enable us to respond in an efficient manner. We look at the whole picture, which I think is the most important thing. Different countries are using different techniques to collect the oil, but we still think that collecting the oil and removing it from the environment is the most effective way of addressing spills, but you still need the other tools in the toolbox. A given scenario needs different tools and as it develops the tools that you need will change, the nature of a spill can change in days or even hours so that the strategy that was in place is no longer applicable."

In the future NOSCA will continue its work with the world's governments and oil and gas operators to ensure the industry and the environment are best protected against the harmful effects of oil spills and leaks as Trond concludes: "The important thing for us is to stay on the course that we are on and in saying that, to learn from experience. It is important to adapt also to the things that you learn instead of just carrying on doing the same thing, which is dangerous. So the course we set is to learn from each other globally and to research new techniques and equipment to maintain a continual improvement of techniques, technology and response times."







#### JASON

Jason Engineering, the world's leading manufacturer of dispersant spraying systems for marine oil spill, and marine fire-fighting solutions, is pleased to announce the patent-pending JASON DISPERSANT SYSTEM model DSP-XB.

The DSP-XB has been developed in collaboration with chemistry experts from SINTEF and allows for vessels with enclosed bow section to spray dispersant anto oil spill with high precision and at vessel speed up to 18 knots.



Dispersants are a highly effective way of combating oil spills at sea. The DSP-XB comes out from the enclosed sides of the bow using a hydraulically operated support beam with twin manifold spray nozzles. It has variable nozzle flow-rate as well as variable dispersant pump pressure/flow control in order to ensure the optimal result and effect on the oil spill.

The solution is designed for both new vessels as well as for retrofitting onto existing vessels. Jason has followed the strict requirement of the NOFO standard that stipulates for oil leak handling equipment to be mobilized and ready for action within 30 minutes. The DSP-XB is remotely controlled by an electric/hydraulic control system and operated from a wireless control panel. In addition, the control system has the potential to be fully remote controlled, in the event downlink from external equipment, such as a helicopter detecting spills via infrared cameras, radar etc. in order to take control of speed, direction, dosage of dispersant, etc.

The DSP-XB is fully tested in extreme conditions with the safety of personnel in mind. For arctic conditions, the system is fitted with deicing equipment in the form of explosion proof trace heating to avaid outage and situations that may require personnel to perform risky operations.







#### Azeri Mi Drilling Fluids LLC

(AMDF) was founded in 1997 as a joint venture between M-I Swaco, which owns 49 per cent of the venture and SOCAR, the state oil company of Azerbaijan Republic, which controls the remaining 51 per cent of the business. Decree 200 of the president of Azerbaijan Republic established SOCAR on 13 September 1992 and the company continues to carry out oil exploration, exploitation and preparation with a workforce of up to 70,000 people. Today, M-I Swaco is a subsidiary of M-I L.L.C., which was founded as a joint venture between Schlumberger and Smith International during 1999. Originally Smith International owned 60 per cent of M-I L.L.C., while Schlumberger retained the remaining 40 per cent. During 2010 Schlumberger acquired Smith International, and since then M-I L.L.C. has continued to trade as

M-I Swaco and provide its expertise to the oil and gas fields of Azerbaijan.

The formation of AMDF during the 1990s was in response to a growing need for energy solutions within Europe and beyond. Two thirds of Azerbaijan is rich in oil and gas reserves and since the dissolution of the Soviet Union SOCAR has worked with western oil companies to take advantage of oil and gas discoveries untapped by Soviet exploration. During 1994 the Azeri, Chirag and deepwater Gunashli (ACG)-International Contract No. One was signed by President Heydar Aliyev and a number of participating international companies. The project is often referred to as the 'contract of the century' due to its estimated potential, which is thought to be considerable. Following this the Azerbaijan International Operating Consortium (AIOC) was formed, osc



consisting of 11 major international companies including BP, Amoco, LUKoil, Pennzoil, (now Devon US), UNOCAL, Statoil, McDermott, Ramco, TPAO, Delta Nimir (now Amerada Hess), and SOCAR (Azerbaijan). Since then the consortium has further developed with new members including Exxon, (now ExxonMobil), ITOCHU and INPEX, while McDermott, Ramco and LUKoil have gone on to sell their shares in the project. Since 2006 a further BP led consortium has been in operation in the Shah Deniz field, which has large reserves estimated.

Azeri Mi Drilling Fluids services a number of customers, and provides services to large operators carrying out works individually within Azerbaijan. Commenting on the relationship between AMDF and its clients and the benefits of mutual co-operation to Azerbaijan's invigorated oil and gas sector, general manager Nick Hore elaborates: "The company was formed some 17 years ago as the base to bring the expertise of M-I Swaco into the Azerbaijan Republic and help develop knowledge of the Azerbaijani specialists in new oil drilling technologies. SOCAR has provided the base, infrastructure and key locations within Azerbaijan, and as time has gone on it has provided us with an operations base in two dockside areas where there are plants that are used to mix drilling fluids, which are then sent offshore to service drilling operations. Azeri M-I enjoys the advantage of being part of such companies as SOCAR and M-I Swaco, and this advantage is expressed in developing the local workforce, gaining access to key infrastructure, as well as being part of the national oil industry and being intimately involved in development of that industry.

"The main customers are the two large

consortiums operated by British Petroleum, which are the AIOC and the Shah Deniz consortium. They are by far the largest players in the market, looking after the Azeri-Chirag-Guneshli and Shah Deniz large gas project.

Down the years we have also provided services to a number of larger operating companies including SOCAR, Exxon, Total, LukOil and JOGMEC – the Japanese National Oil Company. A lot of companies have come to explore, but by far the most successful have been the consortiums set up by BP."

As well as the local knowledge and infrastructure provided by SOCAR and the drilling expertise provided by M-I Swaco, AMDF is also able to draw on the support of M-I-Swaco's parent company Schlumberger. "It is a massive advantage to be able to combine the extensive expertise in the company's segment," Nick explains. "This is within the fluid side of the business, but also the management of drilling waste that also makes up a huge percentage of our business here. Being able to combine our expertise with subsea experts, geo-science experts and all of the other joined disciplines in our industry means that we can provide a much more integrated solution to the customer and obviously draw on all the expertise that exists in Azerbaijan."

AMDF provides drilling fluids and associated services with the benefit of extensive experience and support. It provides drilling waste management including cuttings collection, transport, treatment, and re-injection and drying services. The company's drilling fluids and systems include water based and non-aqueous options, which can be supported with drilling fluids simulation software including ECD





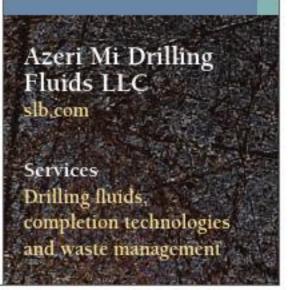
and ESD management, real time performance management bridging agent selection and engineering applications.

The company's expertise and ability to deliver trusted solutions have resulted in an increase in demand, as Nick observes: "One of the things the market is demanding is the use of ultra-fine grind barite. This is a technology that is available to all of the competitors, but rather then using conventional barite and instead using ultra-find ground barite we have brought great stability to the fluids we supply and great assurances to the completions process. We have had to upgrade our milling facility to keep up with the demand for that technology."

As AMDF moves into the future it is well placed to take advantage of Azerbaijan's increasingly important oil and gas market as Nick concludes: "I would say that this year one company's main focuses has been on developing our local talent and increasing the level of nationalisation and Azerbaijani content that we use. We have spent tremendous amounts of money on training, so we have been doing a lot of recruiting to fuel the pipeline, if you will for further national development. That is probably the current key focus for AMDF as well as maintaining performance at historical levels."



AMDF provides drilling fluids and associated services with the benefit of extensive experience and support





#### Global Logistics Service Provider

The Rulewave Group is a global logistic services provider and specialises in the management and movement of multi-scale tonnages, by any mode of transport to anywhere in the world.

We offer a comprehensive service of excellence which includes every aspect of international forwarding, by Road, Rail, Air and Sea - value added multi-modal services.







Rulewave has established offices in Amsterdam, Rotterdam. Emmen, Antwerp, London, Aberdeen, Houston, Singapore, Melbourne, Moscow, Baku, Istanbul, Mersin and Erbil.

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**Below** Torben Hansen Bredthauer, logistics director at Danbor Ltd

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The Danish company Danbor
Group was founded in 1974, and for the last 40
years it has provided logistics and stevedoring
services. Today, Danbor Ltd is positioned within
the UK in Montrose and Aberdeen, Den Helder
in the Netherlands and in Esbjerg in Denmark.

Danbor has specialised in creating flexible service solutions to oil and gas operators as well as service companies. The organisation consists of the wind division specialising in wind turbine logistics, the Offshore Construction Group (OCG), working with the production and maintenance of offshore units, the H2S safety services division, offering safety solutions to onshore and offshore projects tailored to customer expectations, and finally, the logistics division. Logistics operations account for nearly half of the revenue at Danbor, covering all logistics services within oil and gas, from agency, custom clearance and freight forwarding to stevedoring and warehousing.

The logistics division is strong within the North Sea oil and gas sector, particularly through freight forwarding and transport between the major oil and gas capitals through sea, airfreight, road haulage, and courier businesses. Additionally, the organisation offers agency services directly to oil and gas and rig operators across a variety of technical areas, procurement, document clearing, custom clearance, bunkering and warehousing.

It is through a history of displaying a high focus on operational safety that the business has developed an expanding client base, rewarded with the premium service and complemented by a full understanding of their needs. Torben Hansen Bredthauer, logistics director explains: "Oil and gas is a 'here and now' industry. If our customers need the product from A to B tomorrow, we make sure it is there. We communicate to our clients, having tracked the packages ourselves. We know exactly what is going on and operate proactively to make sure that they get the service and their products on time. In this industry time is money.

"We have a strategic position that we are looking to develop to grow the business. From our location in Montrose we aim to establish a viable and efficient solution for oil and gas operators."

Managing director for Danbor Ltd, Jens Panum Have, located in Aberdeen adds: "In 2014 we are investing substantially into developing our location in Montrose. By the end of this year we will have a fully operational base that will provide more space and accessibility than is currently available in Aberdeen. One of the biggest problems in Aberdeen is space and access to the harbour. We think Montrose, 45 minutes drive south of Aberdeen, is the answer to this issue."

The company has successfully undertaken numerous projects for seismic vessels out of its location in Montrose, and has generated interest amongst oil and gas operators and contractors. Whilst operating at speed, health and safety remains a dynamic part of everyday operation with regular audit procedures ensuring an efficient and safe system, as Jens adds: "In our business safety is everyone's business, and everyone is involved in developing and maintaining the safety culture."

Employing 550 personnel across a range of divisions and skill sets, Danbor implements training plans for all employees, whatever the position or level. "Through annual appraisals we discuss future skill sets, needs and requirements to fulfil the job. It is through this that we are able to keep the position filled with the highest level of skill. We currently have apprentices across a range of skill sets and it is our future goal to establish an international apprenticeship scheme where we can transfer the employee between different sites within the North Sea and on a global scale," says Torben.

The logistic success displayed in the oil and gas industry is from experience gained from a knowledge and history of making custom clearance, as Jens details: "We have dealt with local and national legislation in all countries operating in the North Sea. Although most are part of the EU, each has its own national legislation. If a small mistake is made in the handling it has the potential to cost money in delays. We support the companies throughout the process, ensuring the correct actions are followed throughout the freight moving procedure. By being locally present across the North Sea platforms we will gain an overview of how the supply chain is working for specific clients and will be able to provide appropriate consultation to achieving the best solution in terms of money and service."

Following the opening of the new office in Den Helder in August 2013, the business progresses into 2014 with the opening of a new office in Stavanger, Norway, further establishing key strategic positions around the North Sea.



"From our various positions we will be targeting local oil and gas operators to get the quay site operations up and running, and working to facilitate rig operators and other contractors within the oil and gas business.

"Our long-term focus incorporates a greater field of operation with planned global growth across Singapore, Houston, Dubai and Doha.

The positioning of Danbor as a viable and global player within the oil and gas sector is a strategy set to significantly grow revenue in the next few years, whilst controlling a growing market dominance in the North Sea," concludes Torben.



Oil and gas is a 'here and now' industry. If our customers need the product from A to B tomorrow, we make sure it is there





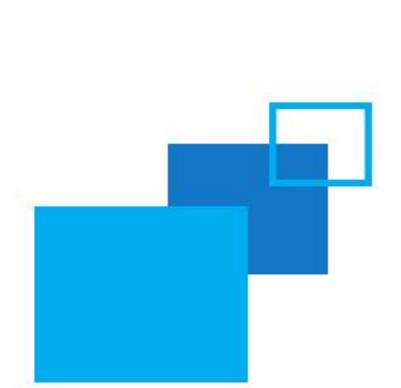
There are those who say that any port will do in a storm, but Montrose offers so much more. With new deep water berths, refuelling facilities and work on further refurbished berths scheduled to complete this summer, Montrose Port offers a deeper commitment to the energy industry.

We understand the needs of the oil, gas and renewables sectors. That's why we offer great service, flexible project zones, workshops, storage and a warm welcome.

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# Specialist Services Group

is a global supplier of modular buildings and packaging solutions for the oil and gas and utility industries. Established in 1982, it has developed an international capability in the provision of design, engineering, manufacture, installation and support across a broad range of products and services as Chris Ridley, group sales and marketing director begins: "Our core strength comes from the diverse backgrounds and experience of our staff. As a solution orientated business we are able to provide a number of cost effective, internationally compliant applications for the most challenging requirements of our clients."

Over the last 30 years Specialist Services Group has developed into a highly resourced responsive global company with international facilities in Dubai, Abu Dhabi, Aberdeen and Singapore, from which it supports clients worldwide. "Our main activities are divided into five business units, Modular Buildings, EPC, Drilling, Testing and Production, Modular Hire and Service, Maintenance and Spare Parts," continues Chris. With a client base including Petrofac, Woodside, BP, Shell, SBM and Halliburton to name just a few, Specialist Services provides a broad product range of turnkey innovative solutions, meeting unique

certification requirements in all international oil and gas operating regions.

In 2012 the procurement, QHSE department, modular buildings and hire division moved to a new 350,000 square foot facility in Jebel Ali, which acts as the company's centre of excellence for the manufacturing of onshore and offshore modular buildings as well as Middle East and Africa hire centre. "This has enabled us to focus on innovative product development and is the world's largest specialised A60 module fabrication facility supplying products all over the world. Our clients are supported with a dedicated design process that enhances lean manufacturing, and the large fabrication volume capability we have cuts delivery times for customers all over the world," explains Chris.

DNV GL, a major global third party inspection agency, recently awarded the Manufacturing Survey Arrangement (MSA) to Specialist Services, displaying the trust in the quality of its systems, internal process and methods that consistently produce products with a 100 per cent acceptance with minimal inspection requirements. "The MSA is important for Specialist Services as it allows the manufacturing, testing and inspection of our own DNV 2.7-1 Offshore Containers and DNV 2.7-3 Portable Offshore Units throughout the build cycle without the need to call in DNV GL for intermediate in-process inspections," explains Chris.

"As a group we have experienced a significant growth and will achieve a 30 per cent increase in sales this financial year. EPC in particular has grown significantly in the last year with the development of our Abu Dhabi facility and some sizeable awards for our technical module buildings. Our forward pipeline is extremely strong and we look forward to a further year of expansion ahead," says Chris.

Specialist Services has been awarded a contract from Sea Trucks Group for the provision of a osc-









"Our Asia Pacific business has tripled in the last three years with significant growth in our HIRE fleet, DTP product sales as well as securing two significant offshore accommodation module projects in Australia. We are continually expanding our service and sales teams in the region to meet the significant growth in demand for our products. The key to our success has been our rapid response and lead times as well as the ability to build products that meet varied specifications and certification requirements

216 man accommodation extension for Daewoo Shipbuilding and Marine Engineering's Arkutun-Dagi Project operated by Exxon Neftegas Limited in Sakhalin, Russia. With the project expected to commence in Q4 2014, Specialist Services agreed to a very tight deadline, with their project completion by March 2014. With limited time available for the production and installation of the accommodation units, the contract demonstrates market confidence in Specialist Services' capabilities, as Chris points out: "We provide an overall solution for accommodation units on a sale and/or hire basis and give clients a unique solution which assures that their mobilisation requirements can always be met.

"These modules offer Sea Trucks Group the flexibility to use them on their complete fleet of multi-purpose vessels and have been designed to the highest industry standards in order to do this. Our ability to deliver such units with the ABS/MLC compliancy is only possible due to our offshore experience and in-depth ties with the various bodies required to verify such modules design and manufacture," explains Chris. Through a fundamental understanding of clients' needs, Specialist Services ensures high levels of comfort and protection of life offshore and the process of Front End Engineering Design (FEED) supports innovative concepts that promote cost effective manufacturing processes.

Specialist Services has continued to expand its drilling, testing and production products and this year developed an early production facility. We are currently designing innovative modular solutions for EPF applications, which we hope to launch in the first quarter of 2104. "We have also recently produced the world's first quad certified modular building that meets certification and legislative requirements for the US offshore, Europe and Asia Pacific regions. This is the first time a single unit has been manufactured to ATEX, IECEX, DNV 2-7.2 Zone 1, NFPA 496 US coast guard/ABS.



throughout the region," highlights Chris. Specialist Services attended both Offshore

Europe 2013 and OGA 2013. Each event provides a significant opportunity to present Specialist Services as Chris explains: "These are key events for Specialist Services that provide a tremendous platform to launch new products and keep clients informed about developments. Although it is often difficult to quantify the success of these events we can specifically attribute a number of orders with new clients to the events this year. In particular a large order for our DTP division for China signed at the OE event in Aberdeen. It is a demonstration of the diversity of visitors to the international events that we target."

Firmly into 2014, the mission ahead for Specialist Services Group is to continue successfully engineering, manufacturing and delivering world-class products that enhance oil and gas field development and protect life and assets. Summarising the future outlook, Chris concludes: "The restructuring of the business into five units with engineering, procurement, project management and dedicated aligned facilities is a platform designed to grow each sector significantly from facilities in the Middle East, Scotland and Singapore. Our vision is, by 2015, to be the market leader and preferred supplier across our core product offerings."

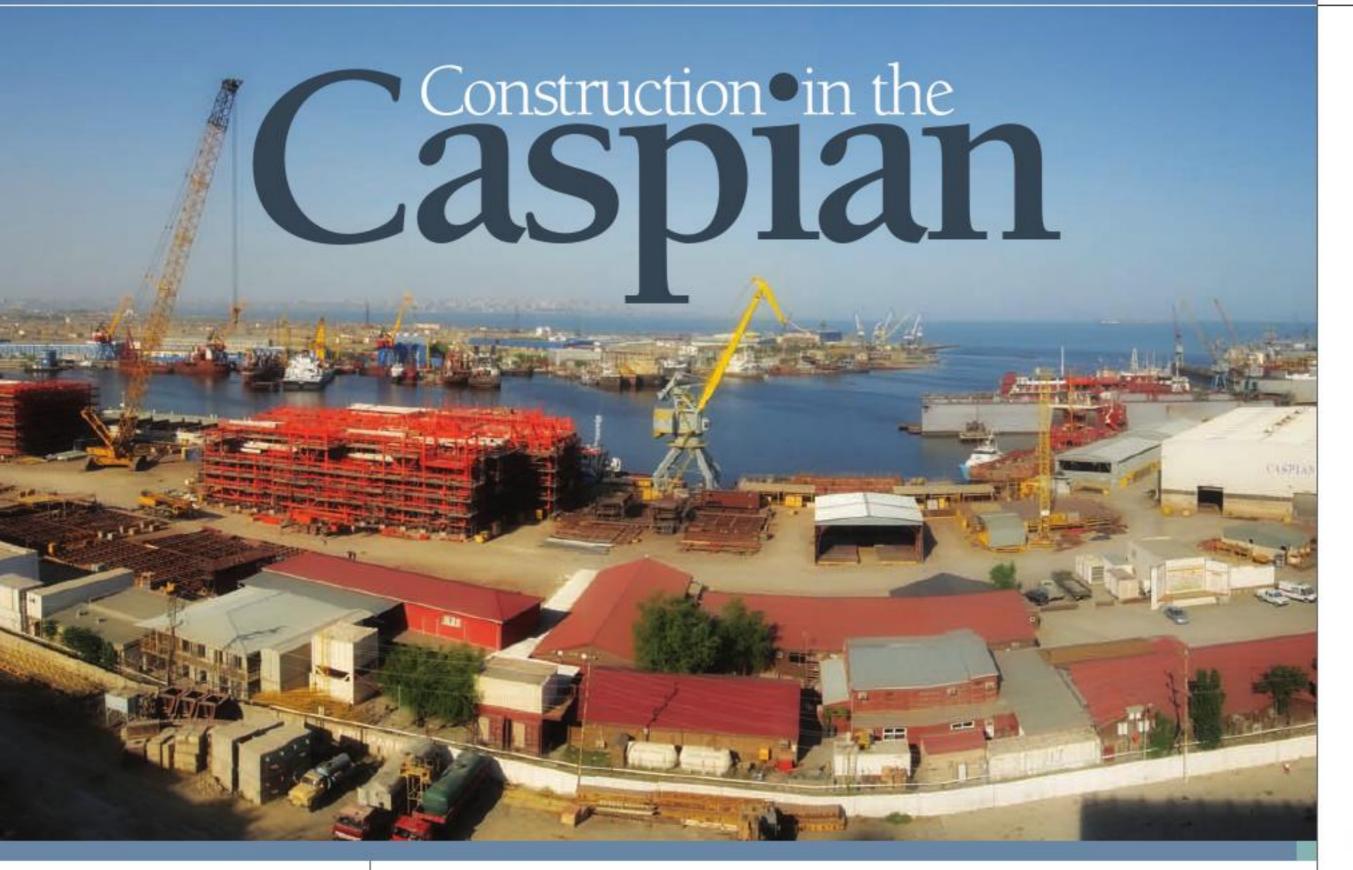
### **PDC SYSTEMS** LIMITED

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 offers the original design and manufacture of combined pressurisation fire and gas control panels (CPFG), manufactured to meet clients project specific requirements. Our 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.



Firmly into 2014, the mission ahead for Specialist Services Group is to continue successfully engineering, manufacturing and delivering worldclass products that enhance oil and gas field development and protect life and assets





# Caspian Shipyard Company

Limited (CSC) is the first international shippard in the Caspian Sea region serving the offshore oil and gas industry. The company was established as a joint venture between Keppel FELS (Singapore), the State Oil Company of the Azerbaijan Republic (SOCAR) and Lukoil Trade House.

The venture was formed to support the drilling and production activities of oil companies operating in the Caspian Sea, specialising in the building and refurbishment of drilling rigs, production topsides, accommodation modules, special-purpose barges, floating cranes, and other infrastructure products needed for offshore.

As an ISO 9001, ISO 14001 and OHSAS 18001 certified company, since 1997, CSC has undertaken more than 30 projects, and completed each one on-time or ahead of schedule and on-budget, working to the highest HSE standards. Such achievements have been recognised by its clients, and the portfolio of drilling contractors, oil companies, and oil and gas service companies includes organisations such as Maersk, Transocean, SOCAR, BP, Total, Lukoil, Agip, Topaz Marine, Swire Seabed, Bumi Armada and Saipem.

Investigating the notable achievements, European Oil and Gas Magazine spoke to Chandru Sirumal Rajwani, president of the business: "We pioneered the construction of the first international-class jack-up rig in the Caspian, and a prototype design, engineering and construction of the first international-class semi-submersible in the Caspian, as well as the first four-strip mating of a jack-up production unit in the world.

"Our technical and managerial ability is proven through our zero ecological mishap record in project execution, which further enhances the competency and professionalism of our personnel."

Geographically, the company is located ten kilometres southeast from Baku city centre in the Bibiheybat area with good accessibility by road and sea. The yard area is approximately 60,000 metres squared with a large warehouse and workshop providing plenty of space to perform the electrical, mechanical, piping, maintenance and outfitting work, and mobile and floating cranes offering large lifting capacity. On site and ready to assist in operations are trucks, forklifts and transporters, shifting materials to and from the large 500 metre load-out quay.

Credited for achieving new levels of customer value and satisfaction in the region, Chandru explains: "CSC is part of the Keppel family, and with a strong partnership with SOCAR the business has ensured that customers both within





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### Blue Water Shipping has completed several, historic transports to the Caspian Sea:

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- » Longest cargo shipped on the river system with the longest item measuring 132.8 m.
- Widest cargo ever through the river system measuring 17.35 m.

Contact: projects@bws.dk



Azerbaijan and the Caspian Sea get value for their money. Many clients are repeat customers as a result of the mutual interest in performing the job right the first time, in a safe manner, within budget and on time.

"We also ensure that we provide solutions to our customers during the project execution stage and work together as a team with our vendors and sub-contractors. Through the support of our parent company, Keppel, we have a competitive edge for rig building in the Caspian. Keppel owns its proprietary designs for semi-submersibles and jack-ups and controls a sizeable market share in rig building. With this strong background we are able to provide full engineering, design, procurement and construction solutions to our customers."

The strategic alliance formed with SOCAR is an important aspect in the success experienced in Azerbaijan. The alliance has offered support in projects and the company has returned its support through delivery of projects in the region including the building of the first jack-up, Gurtulush, the first semi-submersible, Heydar Aliyev and the first Shah Deniz Platform, TPG 500.

In June 2013 CSC was awarded the contract to build an \$800 million, sixth generation, semisubmersible drilling rig with Caspian Drilling Company. "We are honoured to be awarded this prestigious major contract and will endeavor to successfully deliver this rig to Caspian Drilling Company on-time and on-budget," says Chandru. The project is divided into two contracts, with Keppel FELS in control of the design, engineering, project management, procurement of builder furnished equipment and bulk materials and CSC taking care of the construction of the rig in Azerbaijan. The lower hull construction is being carried in the Baku shipyard and the upper hull and consolidation of the construction being carried out at the CSC yard.

The strike steel for the lower hull was carried out in September 2013, during the inauguration of the new Baku Shipyard by his Excellency Ilham Aliyev, President of Azerbaijan, and the strike steel for the upper hull in December 2013. Most of the steel has been ordered and is either already in Baku or in transit. With construction on schedule the business continues to work very closely with Caspian Drilling Company, Baku shipyard and Keppel to ensure that the construction is executed seamlessly.

There are many opportunities ahead for companies looking to invest in Azerbaijan, as Chandru highlights: "The oil and gas sector is



buoyant and growing. The Shah Deniz Phase 2 project preludes the many others that will follow." However, the interests of the business extend beyond the boundaries of the shipyard. As well as providing direct employment to many Azeris and supporting local related businesses, CSC is trying to contribute to a wider local community.

"In 2012 we started to collaborate with Azerbaijan Diplomatic Academy (ADA) and we began making a contribution to ADA's endowment fund. ADA's Writing Centre is named after Keppel, and we sent our staff for some of ADA's educational programmes to provide training to them.

"We are also trying to extend our help to the less privileged, having adopted the Special Boarding School for children with speech impediments located at Sahil Settlement. We donated some furniture and computers to the school and set up a volunteer team among CSC employees that organises occasional entertainment outings for the school's children," explains Chandru.

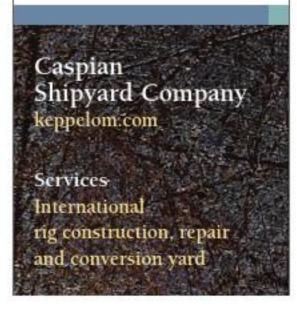
Having fully immersed itself amongst the community, the focus for 2014 is predominantly on construction projects, as Chandru details: "We are working on the delivery of the DSS 38M semi-submersible and vying for future semi contracts that are in the pipeline to ensure that we are a strong partner of Azerbaijan. Beside projects for the Azerbaijan market we will look at opportunities within the region to make Azerbaijan a one-stop build and repair facility of the Caspian Sea."

Looking towards strategic goals over the next few years, Chandru summarises: "We are concentrating on the execution of rig building in Azerbaijan and assisting our partners to ensure that Baku becomes the centre for oil and gas activities in the Caspian when it comes to building and repairing marine and offshore vessels."

# BLUE WATER SHIPPING

Blue Water Shipping creates global transport and logistics solutions and for more than 40 years the company has gained a thorough and in-depth knowledge of the Caspian area. For decades Blue Water Shipping has co-operated closely with Caspian Shipyard Company, and in 1998 the two companies completed a historic transport of a jack-up rig through the narrow Russian Volga-Don river system - the first jack-up rig ever to be transported through the river system. A comprehensive expertise in project logistics enables Blue Water Shipping to create tailor-made transport solutions for the oil and energy industry to the benefit of the client.







Founded in 1977, ASRY (the Arab Shipbuilding and Repair Yard Company) is the Arabian Gulf's most experienced ship and rig repair yard, with more than 35 years of experience in the optimisation of marine assets. Beginning operations with a 500,000 deadweight tonnage dry-dock and two accompanying jetties, the shipyard has offered its services to a varied range of vessels since its inception; the spectrum of which has only diversified over the last 20 years, following the introduction of two floating docks of 252 metres and 227 metres in length in 1998 and twin 255 metre slipways in 2008.

Today a global leader in the repair and maintenance of all vessel types, as well as offshore rigs and craft, ASRY has the experience and knowledge to deliver an efficient and reliable service in all sectors it operates in. Boasting a leading range of facilities, the shipyard can offer maximum flexibility when accommodating ship schedules and provides the on-site presence of all major specialist workshops, major repair subcontractors and classifications, thus ensuring all repair requirements can be dealt with promptly in one single location.

As the oil and gas industry continued to flourish in the Middle East, ASRY, keen to

expand its service offering, made the strategic decision to form its specialist division ASRY Offshore Services in September 2008; a wise move that has boosted turnover and led to ASRY Offshore Services becoming a critical part of the shipyard's portfolio of capabilities.

In addition to jack-up drilling rigs, ASRY Offshore Services can accommodate drill ships, semi-submersibles, cable and pipe laying vessels, offshore support and construction vessels for repairs, mobilising a skilled 'riding squad', surveying or component construction. On top of this, the division has the expertise to offer construction services to small and medium sized rigs and offshore vessels.

Previously in European Oil and Gas Magazine in May 2012, ASRY Offshore Services was looking to expand its services further with a new fabrication area; a strategic plan that has since come into fruition. Equipped with a broad range of pipe fabrication machines and a vast targeting area, the pipe fabrication workshop has capabilities for auto Oxy cutting, pipe cutting/ bending, drilling, threading, lathes and grinders, beveling cutting and a number of other portable manual bending and cold cutting machines as well as a selection of welding machines. Furthermore, the workshop has a separately controlled area for specialised welding work where renewal, conversion, new installation and other services are carried out by a team of highly qualified personnel.

Having established and developed a strong reputation for providing quality rig repair projects to customers operating in the Middle East, ASRY Offshore Services has become a major player in the oil and gas industry. This coveted position in the market offers the division an excellent platform for growth and continued expansion into new ventures as and when the market demands it. Despite the major successes the offshore division has enjoyed over recent years, there has been no significant change to the company's core priorities, as general manager of ASRY Offshore Services Andy Shaw discussed: "Clearly the company needs to ensure it remains aware of what developments and events are taking place around it, and is able to react to these accordingly. However, the most important thing is for the company to be seen as the very best rig repair yard operator in the Middle East."

This long-term dedication to surpassing customer expectations through high quality services has resulted in ASRY winning a



multitude of awards, the most recent being the Shipyard of the Year award at the Lloyds List Middle East and Indian Subcontinent (MEIS) Awards in October 2013. Viewed as one of the leading honours within the region's shipping industry, judges hailed the yard's ability to grow, improve and expand during challenging market conditions while competitors floundered. Previously winning the award in 2011, this second accolade in the Shipyard of the Year category joins ASRY's increasing portfolio of awards such as the Safety Award at Lloyds List MEIS awards in 2012 and similar awards from both Lloyds List Global Awards and Seatrade MEIS Awards in 2010.

Having set the foundations for ongoing growth through internal and external expansion, ASRY's board of directors held the final board meeting of 2013 in mid December, under the chairmanship of His Excellency Shaikh Daij bin Salman Al-Khalifa. Centered around the approval of a number of initiatives to enhance the company's position during 2014, the meeting

focused on the re-organisation of the firm's corporate structure, the huge potential to be found in the Saudi market and the approval of the 2014 budget that emphasises control on operating expenses.

Due to be rolled out in the first half of 2014, the restructure of the organisation aims to boost efficiency and enhance productivity in the face of severe competition and new competitors in a limited and evolving market. Meanwhile, as a result of strong relationships between Saudi Arabia and Bahrain, particularly in economic partnerships, ASRY views the Saudi market as significant for potential projects on the repair of military vessels, commercial ships and offshore platforms. To develop a stronger presence in this market, the company opened a new representative office in the Eastern province of Saudi Arabia where it can offer its broad range of services. In a competitive market, these new initiatives prove ASRY is committed to meeting the demands of its growing client base well into the future. ONG

# GATES E&S BAHRAIN WLL

Gates E&S Bahrain WLL teamed up with ASRY in 2002 to provide hydraulic services to vessel owners and operators. Today, Gates provides hydraulic expertise with specialist repairs and test equipment, based in a purpose-built workshop located in ASRY's premises, Hidd. This facility, which houses a test-cell built in compliance with API 16D standards, has been operational since 2013. The company's product and services scope includes the supply, installation and commissioning of hoses, hydraulic solutions, pumps, filtration and flushing-systems and pumps.









# POWERING PROGRESS™

### **GATES E & S BAHRAIN WLL**

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Uncoil's roots go back to the 1970s when Ata Ahsani repaid his educational scholarship to National Iranian Oil Company/Mobil by working with the Seven Sisters in Iran, going on to later join the board of directors of Ira Engineering and Construction Company as a partner and managing director. He was instrumental in growing Ira's turnover from \$1 million in 1972 to \$50 million by 1978. Following Iran's Islamic revolution and the nationalisation of numerous private companies, Ata Ahsani emigrated and founded Isomer

Limited, a UK market consultancy firm offering expertise in the Middle Eastern and North African energy markets. Unaoil was established by Ata Ahsani in 1991 and the company has progressed consistently ever since.

Commenting on the development of the business from its early days to its present form, chief operating officer Saman Ahsani elaborates: "The core model of the business has always been to invest in local capability to provide local execution at international standards. We have done that in a number of product and service





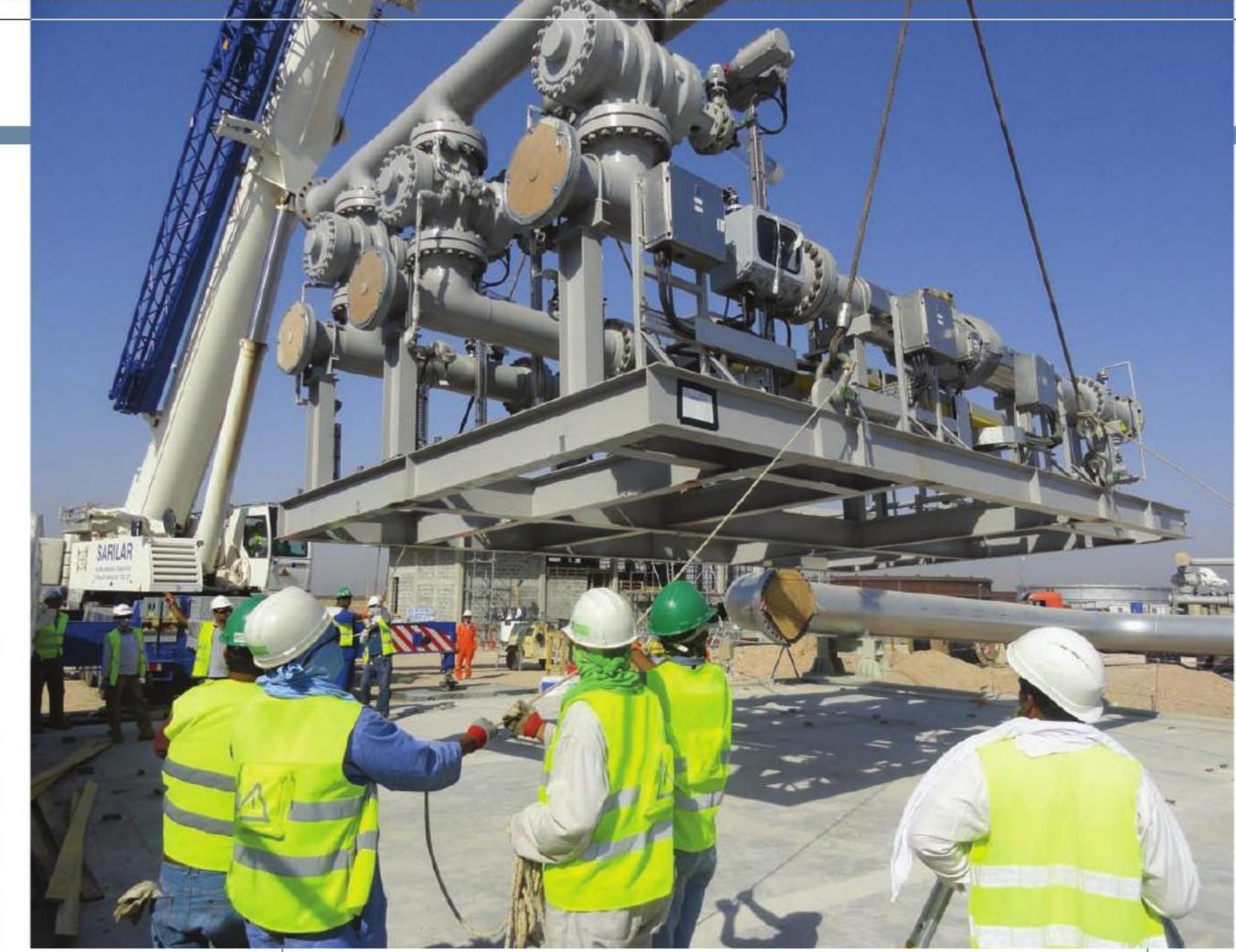
UnaE&C recently achieved ISO9001 and ISO14001 certifications as well as recognition from a major client for two million manhours without lost time incident. "This is something that is very important and is at the heart of the business

lines historically; for example we established a production chemicals business called UnaChem in 2005 which, thanks to its success as a local blender of demulsifier and corrosion inhibitor, was later acquired by Weatherford in 2008.

"We also set up our manpower and workforce solutions business in 2006. Since then, it has operated camps catering for as many as 3000 personnel and has trained and seconded hundreds of qualified local and foreign personnel to key oil and gas projects globally. Most recently, over the past three years we have grown our engineering and construction business to deliver major turnkey projects for the oil and gas industry as a local onshore contractor. So, from what our chairman began in the 1970s, our activities have come full circle with a significant portion of our revenues now forecast from our engineering and construction business."

Today, Unaoil operates in three main areas within the oil and gas sector. The first is its engineering and construction business, UnaE&C. The division is headquartered in Dubai and undertakes engineering, procurement,

O&C >



construction and construction management projects (on an EP, EPC, and EPCM basis) from the concept stage through to commissioning. Unaoil has over 20 years of experience in operating profitably within the Middle Eastern, North African and Former Soviet Union markets, and its engineering and construction capability offers its customers 'boots on the ground' access to these increasingly dynamic regions. Its management team is comprised of key specialists with detailed local knowledge, which allows UnaE&C to deliver turnkey



projects from the wellhead to the export terminal focusing on pipelines, pump and compressor stations and medium-sized power plants.

UnaE&C recently achieved ISO9001 and ISO14001 certifications as well as recognition from a major client for two million man-hours without lost time incident. "This is something that is very important and is at the heart of the business," says Saman. "We are particularly proud of our ISO14001 certification because we are one of the first companies in Iraq to operate with this accreditation. This is particularly important to us because clients look at us and see that although we are smaller than other companies we take quality, health, safety, and the environment seriously and we invest significant time and resources into maintaining these high standards. It is this focus on quality and our certifications that have helped us drive our business forward."

Unaoil's second area of operation is the provision of oilfield services and equipment through its subsidiary, UnaRoteq. This division operates a number of joint ventures, which have grown rapidly in recent years. For example,

Technical Field Services Limited, a joint venture between Unaoil and RBG Middle East, recently secured contracts from the BP-led Rumaila Operating Organisation (ROO) for flowline testing, in-situ machining, and hot tapping for the Rumaila oilfield in Iraq. Similarly, Severn Valve Solutions Iraq (SVSI), a joint venture between Unaoil and Severn Glocon, has been awarded valve technical support contracts from Shell at the Majnoon oilfield as well as from ROO. To support these activities, in 2013 Unaoil established its North Rumaila Operating Base, which provides a full range of accommodation as well as offices and technical field services workshops. This investment, as well as other capital expenditure in infrastructure at Zubair and Fao, has helped establish Unaoil as a leading local contractor in southern Iraq.

In addition to its UnaE&C and UnaRoteq divisions, Unaoil also provides specialist technical manpower to the global oil and gas, power and industrial markets through its group company Global Energy Technical Resources (GETR). The division has access to some 70,000 industry specialists and is in a prime position to support its clients through the complete lifecycle of a project from concept to completion, such as providing hook-up and commissioning and construction management teams. The company remains true to its vision of empowering local communities by actively supporting local content through technology transfer and training. This has allowed GETR to meet increasing local content requirements with competent talent pools in the Libyan, Adriatic, Iraqi and Caspian markets.

Although the global economic downturn has created challenging marketing conditions, Unaoil has been fortunate in that it operates within markets where the oil and gas sector continues to benefit from high growth and investment. The oil and gas sector in frontier markets like Iraq, Kazakhstan, Azerbaijan, Libya, Algeria, Angola and Nigeria is pivotal in allowing these nations to develop their economies and people. This has resulted in heavy investment in these countries by national and international oil companies, as Saman elaborates: "Whatever else is happening in the market globally, these countries will be investing first and foremost into improving their oil and gas industry as the key to improving their economic position. The amount that has been spent in these countries on the upstream onshore market has been huge.



National and international oil companies like BP, Shell and Exxon continue to invest billions into countries like Iraq and Kazakhstan."

In 2014, Unaoil will look to consolidate its operational presence within its targeted markets in preparation for repeat business as these frontier markets increasingly become important producers. To facilitate these operations and ensure that it has access to the best engineering talent, Unaoil recently acquired a 40 per cent stake in the Romanian company Pureworld Engineering, an engineering firm with over 60 qualified engineers. Commenting on the importance of this investment, Saman explains: "When it comes to lump-sum turnkey contracts, the importance of engineering is in managing execution risk. Normally, engineering only represents around five to seven per cent of the value of the project, but if you get your engineering wrong you risk doubling or tripling your construction costs. So, it is absolutely paramount for us to double-down on our engineering investment by having our senior engineering team in Dubai work closely with our colleagues in Romania." With a reputation for delivering outstanding engineering quality, the investment into Pureworld Engineering will help ensure that Unaoil is well placed with leading local knowledge, equipment and technical expertise to meet the challenges of the world's up-and-coming oil and gas producers.



The company remains true to its vision of empowering local communities by actively supporting local content through technology transfer and training





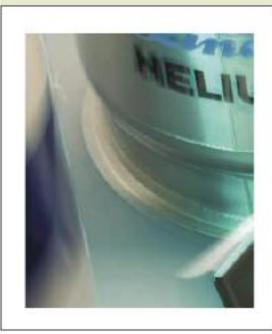


# DEMACO HOLLAND BV

Demaco is a specialist in cryogenic infrastructures. Its relationship with Linde Kryotechnik was established over 25 years ago and since then many successful projects have been executed. The value-adding contribution of Demaco consists of design, detail engineering, manufacturing, testing and installation of vacuum insulated transfer lines and valve boxes for liquefied Helium and Hydrogen.

Apart from the involvement of Demaco in the scientific market, the company is active in the markets of industrial gas, automotive, medical, food, space, pharma, and last but not least LNG.

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# An entity within The Linde Group,

Linde Kryotechnik operates from its base in Pfungen, Switzerland, and specialises in the design and delivery of low temperature cryogenic systems, components and services for liquid hydrogen and helium applications reaching temperatures as low as minus 271 degrees Celsius. Since it was last featured in European Oil and Gas Magazine during 2011, the company has continued to develop new technologies and win contracts with prestigious universities and research projects, as well as with key players within the oil and gas and industrial sectors. Its products have found customers all over the world, but its most lucrative markets have been in Central Europe, the US, China, and Japan. In addition, increasingly both Russia and India have presented attractive opportunities for the company.

Today, Linde Kryotechnik employs approximately 80 highly specialised technicians, engineers, and staff in supporting disciplines. Besides its technological expertise, one of the company's key strengths comes from its membership within The Linde Group, which began in 1992 after having previously operated as a cryogenic department within Sulzer. The Linde Group's full history in the field of low temperature cryogenics, however, can be traced as far back as 1932, when Linde supplied the world's first helium liquefaction plant to the

University of Charkov in the Ukraine. Thus, it could be said that Linde has a lifetime of experience with cryogenic engineering and as such, it has become a leading industry practitioner in the field.

The presence of Linde Engineering and associated fabrication plants in the US has made it possible for Linde Kryotechnik to establish a strong market in the country, while developing an esteemed reputation with its clients, as CEO, Klaus Ohlig elaborates: "The US is a very important market for us, we have a long track record of projects in the US and lately received two orders from the Michigan State University."

A further benefit of its integration into The Linde Group comes from its supply of plants to Linde's Industrial Gas Division. The link ensures a constant feedback of operational experience to Linde Kryotechnik, which eventually provides a perfect platform for a permanent evolution of its technology.

Throughout 2013, Linde Kryotechnik executed projects in a diverse range of locations, within a mixed portfolio of industries. Inside of Europe, the company started project execution of a small helium refrigeration plant for the university in Salerno, Italy, as well as a project for GSI in Germany. During the same year, Linde Kryotechnik maintained close contact with customers within its market and has identified a number of opportunities that it will tender for

O&C ≥



over the coming years, as Klaus explains: "The work that is currently carried out for GSI is a predecessor of a project that the research centre will establish in Darmstadt, called the FAIR project. This is currently being realised and will require a large helium refrigeration plant.

"The second upcoming project will be the European Spallation Source, or ESS for short. This will require three helium refrigeration plants for a linear accelerator that will be built in Southern Sweden. We expect requests for quotations on both projects by the end of 2014 with contract placements probably in 2015. In addition to these anticipated projects, stimulus capital is expected to be released in Japan to replace cryogenic systems that were installed over the past decades.

Although it operates within a niche market, the company's orders have remained strong and it anticipates that this trend will continue well into 2014 and beyond. At present it is completing various cryogenic helium plants including for example a helium liquefaction facility for Gazprom in Russia, which is expected to come on-stream in the first quarter of 2014.

As one of its research and development projects, the company was part of a partnership with a number of industry players as well as research institutions in developing new technologies relating to hydrogen liquefaction, as Klaus details: "An important project during 2013 was Linde Kryotechnik's involvement in the IDEALHy project (www.idealhy.eu). This was a research project geared towards developing an optimised liquefaction process for large-scale hydrogen plants to meet potential future needs of clean energy applications. Among others, partners of this project within the European Union's 7th Framework Programme included Shell Global Solutions International B.V. from the Netherlands, the University of Dresden, SINTEF Energi AS from Norway, and Kawasaki Heavy Industries Ltd from Japan."

As 2014 gets underway, Linde Kryotechnik is positioned to successfully tender future contracts, while developing its technology and engineering skill set to meet the demands of the future market.



The presence of Linde Engineering and associated fabrication plants in the US has made it possible for Linde Kryotechnik to establish a strong market in the country, while developing an esteemed reputation with its clients

Linde Kryotechnik linde-kryotechnik.ch

Services Cryogenic equipment and services

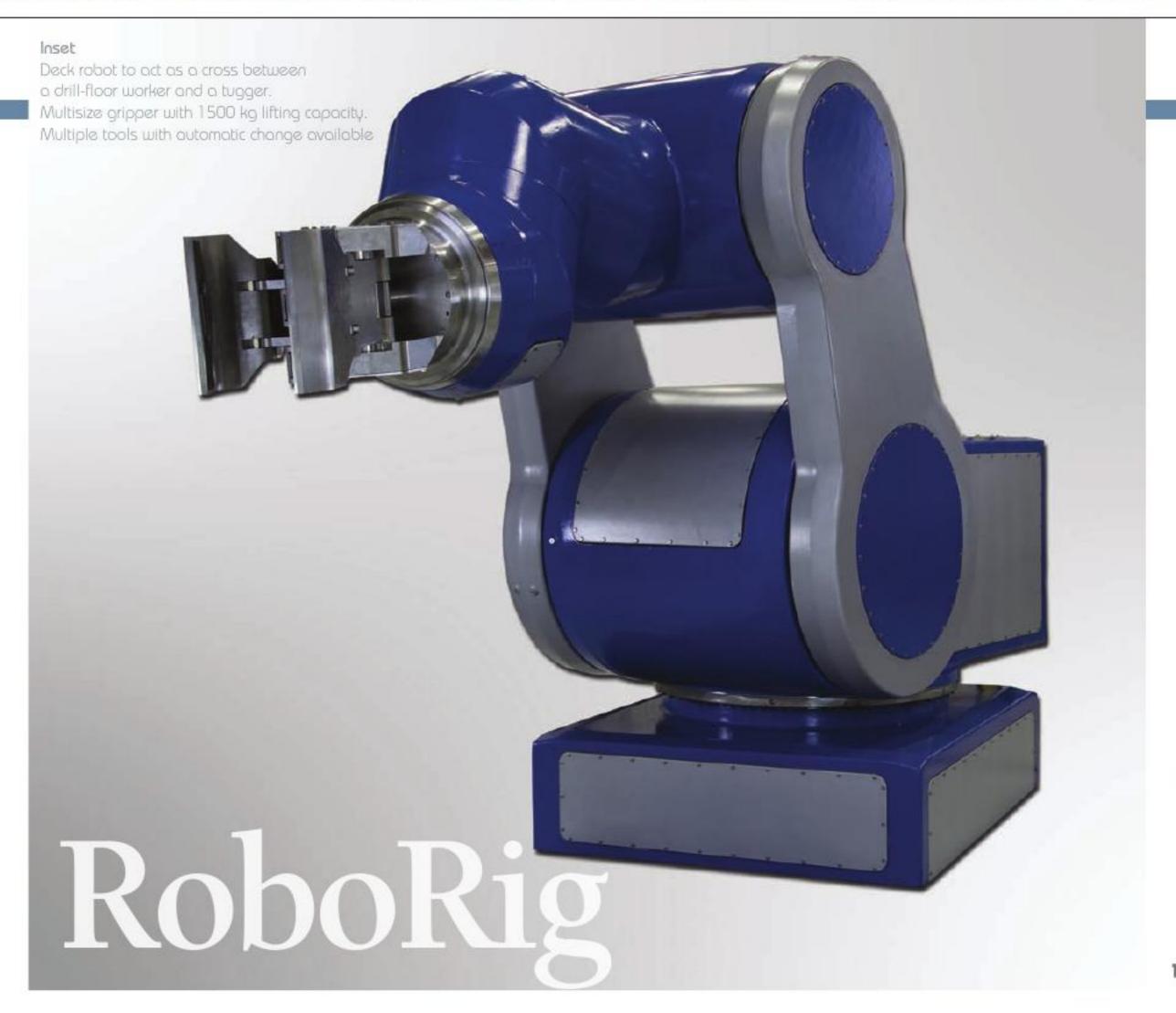


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### Below

Picture shows the world's first fully robotized drilling structure. This prototype has been run successfully over 200 times



The future of drilling has received a reboot with the introduction of an innovative autonomous robotic drilling rig for unmanned land, offshore and deepwater drilling operations. The electric robots are designed to sit on any drill-floor, setting new standards in quality, safety and efficiency.

Robotic Drilling Systems (RDS) has a proud history forming from Seabed Rig A/S, a company that first began in 2005 developing a drilling rig to be submerged at the seabed for cost-effective drilling in deep waters and Arctic areas. The Stavanger based business then began to work on the robotic drill design that would change the future of drilling with implementation possible on existing and new drilling structures, both offshore and on land.

In an interview with European Oil and Gas Magazine Kenneth Søndervik, vice-president of sales and marketing, explained: "We saw that any tools developed for use 3000m below the surface on the seabed could be

easily implemented on the topside." RDS was successful in securing an information-sharing agreement with NASA, based around the technologies used on the Curiosity Mars Rover.

The agreement allowed the business to case study the Mars Rover to create an efficient autonomous robotic system based on those operated by NASA. More sophisticated than those seen in other manufacturing industries today, Kenneth says: "The software suites that we created do more than just carry out preprogrammed tasks. One big difference between an automated system and a robotic system is the latter can be re-programmed to do something else, but will still be governed by moving at preprogrammed paths.

"Our system takes a different approach. Sometimes it is more efficient to move from A to C to B, and next time it's more efficient to move from A to B, so the robots will always calculate and execute the most efficient path. The system does not require the operator to give several

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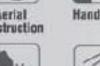
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Robotics







commands, instead the solution works on overall commands such as trip in pipe or change BHA. Since this is a fully robotized electric system we also have the ability to simulate and execute tasks using the same control system, meaning that simulated results will always correspond with reality.

"Self thinking and self preservation is incorporated into the robots themselves. As an example if one electric motor is showing more heat, the system will recognise this and close down, utilising other motors to complete the task. Our robots can carry out work performed by humans and automated machines today and importantly can be incorporated into existing infrastructure."

Most automated operations on drilling rigs today work by mimicking human activity, such as a hydraulic arm that moves drill-pipe from setback to well centre. RDS' approach differs from this. Why would you mimic human behaviour instead of designing the machines for most efficient machine use? RDS believes it has solved this by looking at the drill-floor as one factory floor, designing multitask robots to both reduce machines needed as well as increasing efficiency of the robots. The pipe handling robot for instance is able to pick up from a horizontal position, bring to vertical, build and move stands, handle multiple sizes and change all the tools itself to operate the different functions within the boundaries set by the existing drilling structure, resulting in a quicker, more efficient pipe handling system.

The world's strongest fully electric robot for the oil and gas industry is capable of lifting 1500kg at three metres reach and will perform the human tasks and lifting throughout the day, picking up the smallest through to the largest products and acting as a fully robotized roughneck. "The electric system uses intelligence that can establish the weight of items and adjusts the speed of acceleration and movement in accordance with the size and weight of material that is being lifted," says Kenneth.

"The long-term goal is to combine our technologies to create fully autonomous robotised drill floors. We firmly believe that once this technology is more recognised other industries will see the benefits," he continues. Stavanger area has a history as a robotic community, but world robotics remains a niche market. Utilising the geographical position, the business has secured its place at the forefront in the development of robotic tools, attracting some

of the best engineers in the industry.

Focusing ahead, Kenneth highlights: "The aim of the business during 2014 is to become much more efficient with universal tool adaptations to keep people away from the drill floor. We are also developing a fully electric roughneck, a change that we believe is important to the industry in bringing it to the levels other manufacturing industries have been working towards since the late 1970's.

"We want these tools to be able to function problem free for years. Another benefit from running an electric system is the elimination of outside sensors on the rig floor. Our systems calculate their position by the use of the motors and all other equipment including the drivers is within the tool itself."

The plug & play system can be taken to any drill floor, plugged into power supplies and communication cables and the system is ready to operate. The installation method surrounding the introduction of the system eases the process from very first stages through to usage and service.

"We would rather have slightly bigger sized electric motors on one tool, so we can bring in line the motor sizes on different tools, reducing the number of spare parts that need to be associated with the equipment.

"The control of the hardware is situated inside the robot itself. If it needs repairing, there is no need to repair it on the rig side, you simply take out the hardware and replace it with a new one. Once the item is sent away and repaired it can be returned and replaced in the unit. We don't want the rig to be dependant on having all the motors in stock, and by reducing the number in use, we also reduce the number of spares required, greatly reducing the operator cost," explains Kenneth.

The systems can be remotely controlled offsite in an offshore office, on land or a surface vessel. A simulated reality combined with a surveillance system is used for operation and visualisation of the system, and by using the same models for design and construction and in the simulator, it will be possible to run the entire system with the actual control system.

With a growing portfolio of easily adaptable equipment, RDS provides robots that operate as a deck robot, pipe handling system, roughneck, and the elevator working towards a fully automated and fully robotised process. Kenneth concludes: "Our main focus is to make processes easier, smoother, quicker and safer, and that incorporates every aspect from installing tools to repairing the tools."

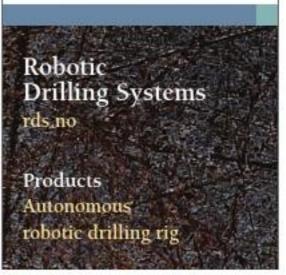
# NABTESCO PRECISION EUROPE GMBH

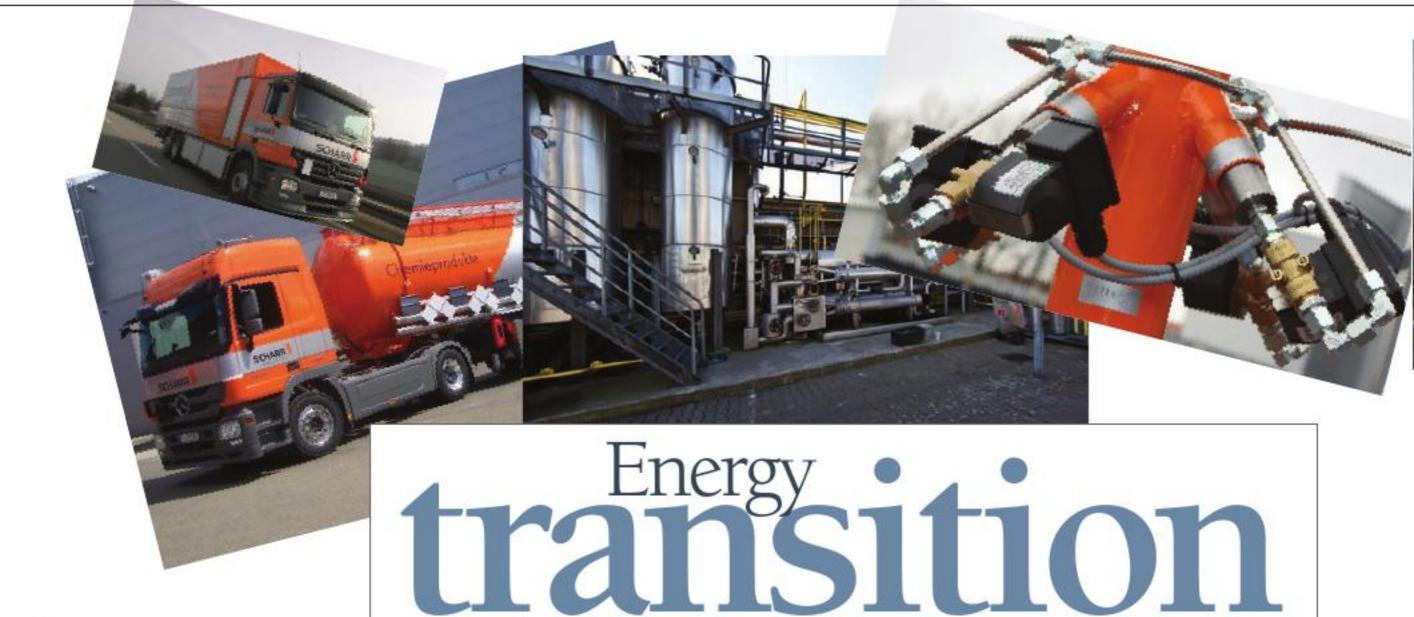
Nabtesco Precision Europe GmbH in Düsseldorf, the European distribution center of the Nabtesco company formed in 2003 from the two Japanese companies Teijin Seiki and Nabco, is known primarily for its reduction gears used in robotics. However, Nabtesco also develops trochoidal gears for numerous other applications requiring high precision and performance. With a market share of more than 60 per cent for robot-gears, Nabtesco is the world market leader in this segment. The more than four million gears already delivered by Nabtesco worldwide are being used increasingly in mechanical and plant engineering, semiconductor, medical, antenna and food technology, as well as the wind and solar energy sector. Since the company's trochoidal gears feature excellent positioning accuracy and stiffness, high efficiency of about 85 per cent and a very compact design, they are often the first choice for demanding applications in these areas as well.

### Below

Picture shows how the Visualizator™ mimics all movement real-time on drilling structure. The Visualizator™ will be used as the main screen for rig operation, and can be set at any angle showing all or only some information according to user preferences. Same software and screen will be used for simulations







Energiewende. It is a term that has been in the press in recent months, but one that has been at the forefront of Friedrich Scharr's company policy since its founding over 130 years ago in 1883. Translating to energy change, or transition, it was the fundamental basis of the family run business that began selling coal to end users and small industries, replacing the

main fuel at that time, wood.

Having developed from a hydrocarbon trader, the business is today an international energy solution provider. "We are a fully independent company that provides a very large range of energy products, fluids and technical services," begins managing director Rainer Scharr. Supplying to over 200,000 customers, it has interests that extend beyond natural gas, wood pellets and propane. "We are the largest LPG trader in Germany, and the number three propellants and special gas producer and distributer in Europe," he continues.

In 2013 the business recorded and the group achieved a turnover of around 800 million euros, built on strong working relationships with customers, partners and employees totalling 550. Through partnership with ExxonMobil in Germany, the group has responsibility over the lubricant supply chain. The technical division completes maintenance and modernisation of heating facilities commercially and privately, building gas treatment facilities for biogas and sewage treatment plants.

"We supply a range of customers from private households in the region and small enterprises all the way to large industrial customers. Our products are also sold through our wholesale business," explains Rainer. Using its strong market position in supply and distribution, Friedrich Scharr has established long lasting business relationships, built on quality products and services delivered by qualified staff, as he highlights: "We recognise that most of our products are not unique so it is important to provide a service beyond that of our competitors. Being an independent business offering a full range of energy products and services strengthens our position as a neutral advisor for our customers."

Reflecting on the benefits of remaining a family owned and managed independent company, Rainer says: "Short internal communication routes supports quick decision making, highlighting our flexibility. Although we have expanded continuously, developing our markets in several directions, we have always remained close to our customers, keeping our internal networks lean and focused."

Friedrich Scharr is proud of the numerous subsidiaries in the group, an attribute that makes the business adaptable. Since its initial conception the company has kept firm control of local and traditional roots in South West Germany, providing products and services to end consumers. In contrast, dealing with LPG and







propellants the business operates internationally with custom extending across Europe and beyond. Under the subsidiary Scharr CPC, it is renowned for the high standards of the supply chain from source to its customers.

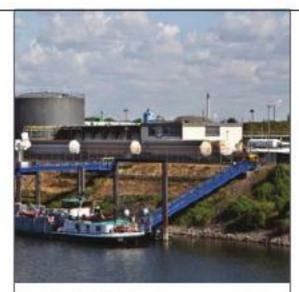
"We handle over 350,000 tonnes of LPG and special gases annually, ensuring highest purity and cleanliness. Transporting through dedicated capacities we have very strict requirements for the vessels ensuring the quality of the product. We operate and enforce quality and safety management systems to ensure the performance of our products and services, and we are dedicated to speaking the language of our customers," says Rainer. Scharr CPC has a 9000 cubic metre LPG and special gases storage facility located on the Rhine in Krefeld, Germany alongside production and purification facilities. The three modal storage solution can use all possible forms of transportation, which is very important to the customers.

The group manufactures a range of products such as Aeron, providing propellants and aerosols to the technical and cosmetic industry, and Krelin, a special aerosol used in shaving gels that foams on the skin. "And it is through our technical department that we are able to produce patented solutions. We have a patented installation plant called Prolimix, which is an effective LPG air mixing unit used widely in biogas conditioning with installations in Germany and in the UK, through an exclusive distribution agreement with Flogas," explains Rainer.

Focused on developing its employees for the specific needs of the group services the business undertakes training in quality and safety management, and on a regular basis uses internal and external monitoring audits under ISO 9001 and 14001. With established systems and expertise it has undertaken work with major companies, including refineries, and agreed exclusive marketing mandates for production of refineries, especially in the LPG business.

At the end of 2013, Friedrich Scharr completed the acquisition of Sailer, an Augsburg based company with a 90,000 cubic metre storage capacity for middle-distillates and a large wholesale business for heating oil, diesel and alkylat fuels. "The next important phase is to integrate this into a part of the Scharr Group. We aim to continually take steps to develop our position in different markets with plans to renovate and enlarge our storage in Krefeld and add some smaller facilities," says Rainer.

The group is currently in discussion surrounding enlarging the partnership with ExxonMobil, and with strategic meetings in place, the entire management team begins to develop the vision of the years ahead, as Rainer concludes: "There are a lot of changes in the energy market and we have to look closer at renewable energies, energy efficiency, and focus our company, especially the communications on that aspect. It is very important in the customers' perception to actively advance in the essence of Energiewende, improving our products and reaching more intensive cross-selling opportunities within the group, intensifying partnerships internationally and establishing new business relations." OKG





We are the largest LPG trader in Germany, and the number three propellants and special gas producer and distributer in Europe







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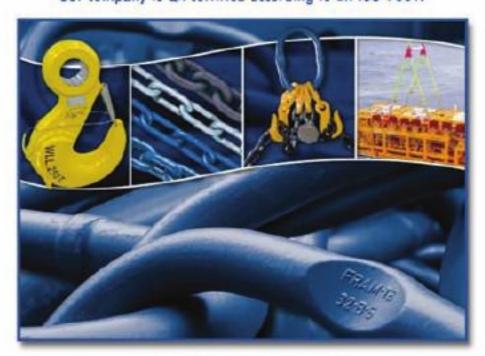




Kjættingfabriken AS was founded in 1909, and our main office is located in Kragerø, the southern part of Norway.

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Sembracine SP has over 40 years of unparalleled expertise and experience in the offshore energy industry, and today it can design, procure, manufacture and commission facilities for both oil/gas and offshore renewable energy, both in the North Sea and internationally.

Andrew Thomson, business development manager, explained that the company has been

through several owners and changes since its foundation: "The company originally started out as 'Sea &r Land Pipelines Ltd', a subsidiary of the Doris Group in the late 1960s, immediately after the discovery of gas by BP, offshore from Bacton in Norfolk. In 1986 the Wimpey Group bought the company, which was renamed SLP Engineering Ltd, to become part of their offshore construction services group. Since

that time we have had numerous owners, UK, Brazilian, Dutch, and as of September 2012, a large Singaporean company SMOE Pte Ltd, a subsidiary of Sembcorp Marine, purchased 70 per cent of the company, with the remaining 30 per cent being owned by eight members of the current management team. To reflect the new ownership, our name was changed to Sembmarine SLP Limited. Our current operations are centred on our yards and facilities in Lowestoft, with a sales office in Aberdeen."

He continued with more details of what the company can offer: "Our main services and core business are the design, procurement, construction, commissioning, installation and hook-up of offshore structures for the energy sectors, whether oil, gas, wind, wave, or tidal energy. We have also had some experience in the nuclear industry, being involved with fabrication of components for the Sizewell Nuclear plant in Suffolk.

"Our products range from 4500t accommodation modules, production and process platforms, normally unmanned installation (NUIs) and minimum facilities platforms (MFPs), to offshore wind farm substations. Our Offshore Services Group





provides integrity surveys, deconstruct/ construction and decommissioning services, in addition to the commissioning and hook-up elements of our EPIC contracts. We are proud to be one of the few remaining true single-source EPIC capable companies in the UK."

The division Andrew referred to has been active over the past two years thanks to changes in sector activity, as he highlighted: "2012 saw the UK's highest number of offshore projects being installed in almost a decade. Although 50 per cent of these projects were subsea installations, a market in which we are not particularly active, the spin off tie-in work meant that our Offshore Services Group was kept busy. The period also experienced beneficial changes to the government's taxation on shallow water gas extraction, which resulted in the 'Dash for Gas' resurgence in activity in the Central and Southern North Sea in terms of drilling and new development. This created an immediate interest in our NUIs and MFP's, and saw the installation of our 18th MFP to-date."

The customers who approach Sembmarine SLP for its services are many and varied, but include Nexen UK, Centrica, ConocoPhillips, BP Norway, Shell UK, and Pemex. Many are long-term clients returning with repeat orders; others are for one off bespoke designed projects. Indeed, at time of writing the company was working with Nexen on a sixlevel accommodation module as part of a £2 billion project named Golden Eagle, which is the second LQ built for the client. "This is a 2000t 140 man accommodation module that is due for completion and sail away in May 2014," explained Andrew. "We are progressing on target, with the roof deck lifted into place in September of 2012; the Helideck is due to be lifted into position in early January."

Andrew credits several factors as the reasons that customers such as Nexen return time and again: "First and foremost, is our corporate attitude to safety. All of our employees, site visitors and subcontractors are empowered and encouraged to stop any act that may endanger life or threaten the environment, and we are proud of our world class safety record which currently stands at over four years without a lost time incident.

"We are also renowned for our attention to detail, providing the highest standards in quality and finish. We schedule for the known, plan for worst case, and anticipate the unexpected. We also have an enviable ability to take a project from conception through FEED to hook-up, and then establish telecommunications to the clients head office within six hours of installation!"

Finally, it is Sembmarine SLP's employees that Andrew sees as crucial to the company's ongoing success: "We currently have approximately 400 highly skilled members of staff, and are in a similar position to most other oil and gas related companies, in that we have a high average age workforce. The long-term future of the industry is totally reliant upon the ability to attract young employees.

"We have recently re-established an apprenticeship scheme. Earlier in 2013 we took on eight apprentices from the 18-22 year age group, and are continuing to work closely with local colleges and universities for skills training and course selection. Being part of a multinational corporation, we are also exploring an employee exchange training scheme with our Singapore based parent company, to enable both companies to benefit from the knowledge base and production techniques that each company has developed over the years."

Given the successful contracts underway and a management team determined to steer the company in the right direction, the future for Sembmarine SLP looks bright. As Andrew stated, he and the Lowestoft team have big plans for 2014: "We are focusing on facility enhancements and taking steps to engage with our supply chain more openly.

"Looking to the next three to five years, we want to expand globally, through staged phases, through growth and acquisition where necessary. We aim to maintain and increase our EPC & EPIC capabilities, to include the renewable energy sector." He added: "The future for Sembmarine SLP is not just bright; we may need to issue sunglasses as part of our PPE!" oxe



### MTE LTD

MTE Ltd provides unique solutions to onshore and offshore oil and gas, nuclear, renewable, chemical and petrochemical industries worldwide. Underpinning each and every solution, is the company's commitment to delivering a complete service: design, fabrication, project management, testing, certification, supply and installation.

MTE Ltd is pleased to be working with Sembmarine on the Golden Eagle project. MTEs scope of work includes H60 rated blast walls and A60 rated fire walls both complete with insulation, blast rated doors and fire rated windows. Work is well underway with sail away planned for summer 2014. MTE has previous experience with Sembmarine SLP working on Babbage, Thanet and Valhall.

Sembmarine SLP sembinarineslp.com Services Design, procurement, construction, commissioning, installation and hook-up of offshore structures





Chempex-HTE is a highly specialist engineering company operating within the refining, petrochemical and chemical industries. The company originally existed as a state-owned venture, until 1991 when it became a private organisation. Today, Chempex is a private Czech joint-stock company owned by current or former employees and currently employs around 35 specialists. As such, it retains decades of experience and continues to focus on the design and supply of fired heaters, waste heat recovery systems and burner systems.

The company manages an independently approved quality control system that is ISO

9001, environmental management ISO 14001, health and safety management OHSAS 18001, compliant and is strictly observed to ensure customer satisfaction and peace of mind. This dedication to ensuring its client's needs are met, coupled with over a decade of experience has allowed Chempex to supply its heat transfer systems across the world and collaborate with some of the market's largest names, as managing director Radomir Pospíšil elaborates: "Chempex' knowledge and skills are demonstrated by hundreds of fired heaters and accessories installed in Europe, Asia, Africa and Australia.

"The majority of the company's customers



are formed by large supplier companies such as CB&I, Lurgi, Foster Wheeler, Bertrams Heatec, Schwitzerland, Prokop Engineering and UNIS, Czech Republic, which provide complete infrastructure for refineries. Apart from these, Chempex is also involved in projects commissioned by individual refineries directly including Česká rafinérská Litvínov, Slovnaft Bratislava, Pančevo Refinery, Kirisi Refinery, Mozyr Refinery, Rjazan Refinery, Płock Refinery, and Gazpromneft, Russia, for example."

At present, Chempex is primarily focused on the design of fired heaters for the refinery industry and secondarily on pyrolysis heaters. It maintains a thermal and chemical engineering department that is responsible for carrying out heat transfer studies, while the technical realisation of projects is supported by the company's mechanical department, static calculations team and piping strength analysis specialists. Its sales and procurement department represents a key point of communication between Chempex and its clients to ensure that every requirement is fulfilled. "Chempex wields highly specialised knowledge in the field of heat transfer, which has been cultivated by years of experience and close co-operation with customers," Radomir says. "The company not only provides the design of heater units, but offers supervision during erection, precommissioning and commissioning. The insights that are gained on construction sites are then used on new projects.

"Due to the variety of customers who have different technical requirements and company standards, Chempex employees remain in close contact with current developments in the field. High flexibility and a willingness to visit customers on-site are some of the key strengths of the company."

The strong reputation and leading industry knowledge that Chempex commands are powered by its investment in finding the most qualified engineers and in the development of its knowledge base and development tools. The company profits from close co-operation with the relevant departments of the Technical University Brno and offers topics for study and supervision of diploma theses. Promising students are often given the opportunity to go on to become Chempex employees, which ensures that skilled engineers are developed for the future market. Furthermore, its engineers are continuously developed through handson experience and regularly attend courses on new computation software and language courses to ensure that Chempex employees are ready to meet the challenges of the market as it continues to develop.

In addition to its focus on the development of its personnel, Chempex strives to ensure that it uses state-of-the-art, specialist equipment and tools to enable it to deliver first-rate design solutions to its customers. The company employs cutting-edge design programmes to aid its engineers that range from well known industry tools to custom applications that are designed in-house, as Radomir explains: "Apart from standard commercial software tools, Chempex has its own algorithms for thermal computations that have been developed by its employees since the very beginning of the company's existence. The results of the in-house computing software



The company's collaboration with important scientific institutions including VUCHZ Brno and Technical University Brno allows it to access specialised equipment. Burner testing rooms and intensive computational fluid dynamic modelling of burning processes can be solicited from the university, allowing Chempex to create designs with a full package of design tools.

All of the equipment designed by the company is fabricated by reliable suppliers on the basis of long-term co-operation, so that Chempex customers can order with complete peace of mind. It offers full turnkey solutions, including the delivery of cylindrical heaters that are manufactured entirely in-shop and can be delivered at sizes of up to five metres in diameter as a single part. This greatly reduces the cost of installation and Chempex is able to produce any type of heater used within the refinery industry,

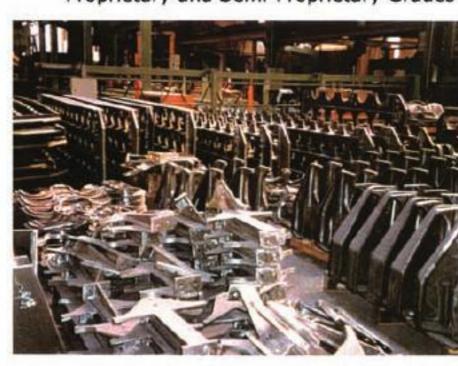
such as heaters for platforming units, HDS units, hydrocracking, crude oil and vacuum distillation units as well as hot-oil units, visbreaking and various heaters of special use. The only limit to size and complexity of heaters is in transporting the finished products.

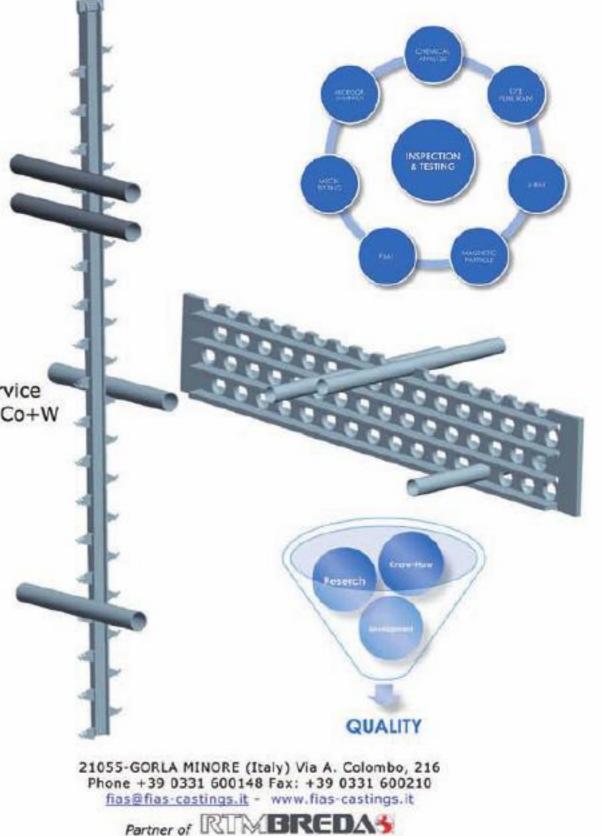
Currently, Chempex is completing deliveries for refineries in Russia, Belarus, Iraq and Poland, where it is undertaking the revamp of a convection section of a pyrolysis heater in Plock refinery. In addition to these projects it has invested into quotations for future projects including hydrocracking units for Mozyr refinery and block of heaters for crude and vacuum distillation units, distillate unionfining unit and CCR platforming process in Moscow refinery. Throughout 2014, Chempex considers Russia to be its key market with several emerging opportunities. With its strong portfolio of completed projects, world-class industry knowledge and first-rate facilities, Chempex is well placed to continue to lead the way in specialist fired heater design.





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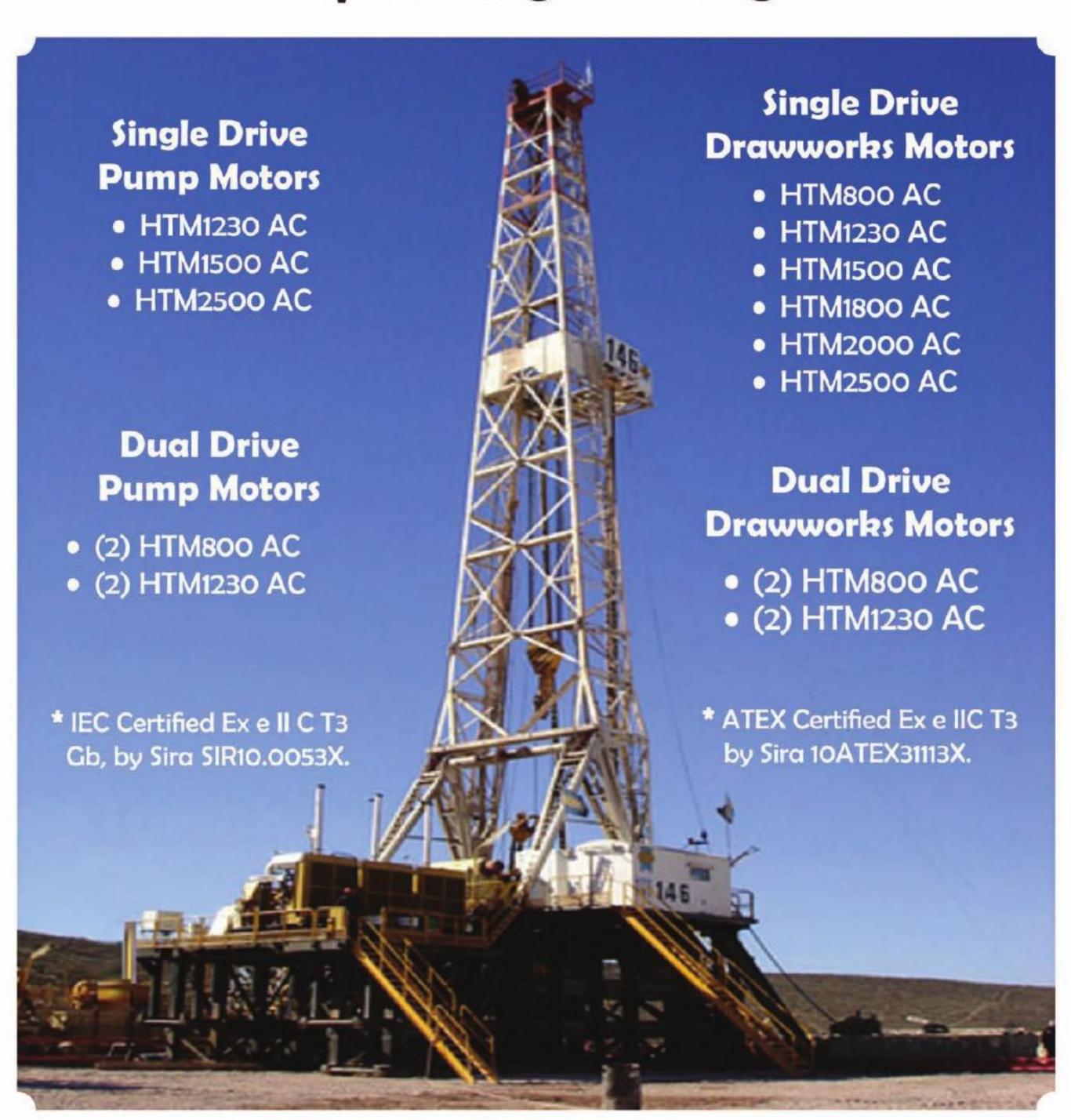








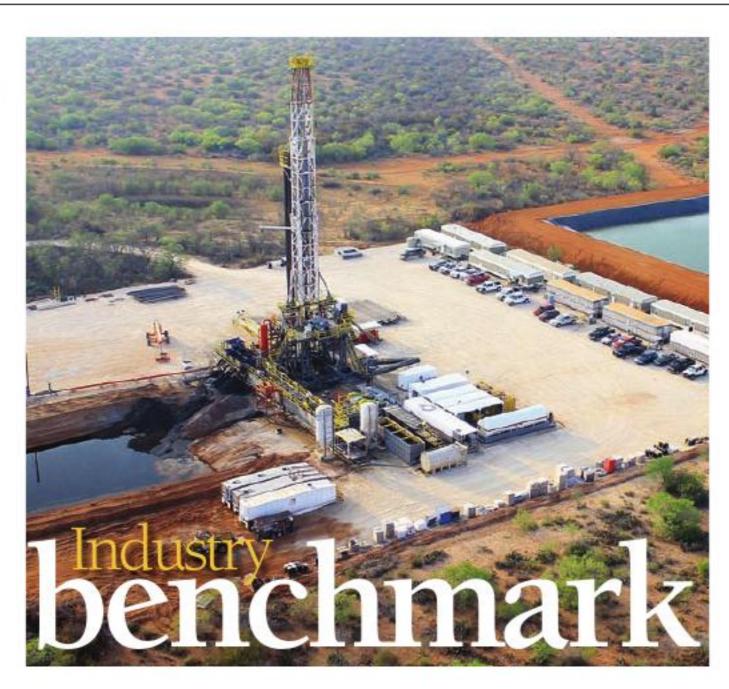
# "Powering today's Rigs for tomorrow's Energy" & "Repowering Land Rigs"











### Above and below Sparta Rig working on location in South Texas (Eagle Ford Shale play)

# An industry leader in the

manufacture of drilling rigs, Integrated Drilling Equipment has developed a global footprint and an excellent reputation for high quality, customer driven products. By combining resources, expertise and 30 years of industry experience, IDE has all the capabilities in one place to deliver a one-stop-shop to customers requiring high quality API certified drilling rigs and rig related components. A specialist in comprehensive rig services, the company offers other services such as rig modifications and rig refurbishment.

Last featured in European Oil and Gas Magazine in October 2012, IDE's president and chief operating officer Richard Dodson elaborates on the firm's progression over the past year: "Since our rollout of IDE's new rig designs in 2009, which are centred on the concepts of safety, faster spud to spud cycles and cutting edge control systems, IDE quadrupled in size over 2012. The advancements we have made since October 2012 have been focused primarily on three core areas: continuous improvement of our current designs, manufacturing processes and project management; a new design for our modular platform rigs, and the expansion of automation technologies, controls and service. We also became a Public Company in December 2012, and therefore began to streamline how we measure and track our performance, both collectively and individually."

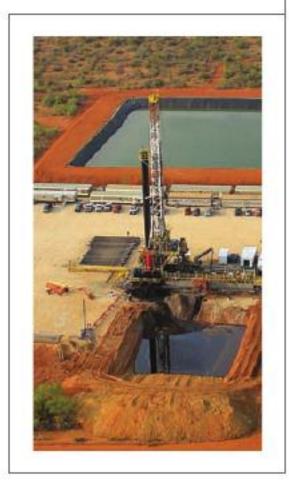
With the shale gas boom in the US driving demand for rigs, the Texas based IDE has delivered more than 50 rigs over the past seven years through a combination of new-build contracts and refurbishment projects. "Our customer base ranges from small domestic independent drilling companies, large international and publically traded drilling firms, to national oil companies and their subsidiaries," says Richard. A key factor to IDE's success and excellent global reputation is its fast service response to customer requirements for specialist drilling solutions, whether it is for harsh environments or for areas where quick, efficient rig moves are essential.

"Our service response to customer needs has become an industry benchmark by which others are compared; as some companies grow, service takes a back seat to more lucrative product lines, however at IDE this will remain one of our core offerings and we accept this role with a great deal of pride and passion! Another differentiator is our ability to customise rig packages for our customers and to refurbish and reconfigure existing rigs to compete more effectively in the horizontal rig market," highlights Richard.

In 2009 the company noticed a shift from DC Silicon Controlled Rectifiers (SCR) control house-based rigs to AC Variable Frequency Drive (VFD) control systems and has positioned itself to become a leader in this area with the Centurion VFD system. Developed through years of experience, the fully customisable, engineered and tested Centurion VFD system has been specifically designed for drawworks, mud pumps, top drive and rotary table operations for both land and marine applications.

A provider of three market leading selfelevating and modular land drilling rigs, the Sparta Drilling System (SDS), self-elevating drilling system (SEDS) and Desert One, IDE is committed to continuously enhancing its technologies for customers requiring high quality drilling rigs for shale opportunities and horizontal drilling needs. The offshore modular rig solutions, with integrated drilling systems, are designed to increase drilling efficiency, reduce non-productive time (NPT), deliver maximum rig-up safety/efficiency, offer improved management of available rig power, reduce platform-to-platform move times and improve drilling envelopes.

Combining two industry proven structure technologies, a hydraulic winch raised parallelogram substructure and a vertically erecting mast, the SDS is a highly efficient and safe rig that is suitable for well programmes requiring minimal drilling time and fast rig moves. Meanwhile, the patent pending SEDS is



a box-on-box substructure with a bootstrap style vertical mast, which extends with drawworks. Accommodating up to 1.5 million lbs. of static hook load, SEDS' self-erecting mast is 152 feet long and can be assembled and put up with minimum crane usage. Lastly, the Desert One series drilling system is a modular box style rig structure that has the ability to transport in a single load, making it ideal for rig moves within a desert environment.

The company's domestic customers are most active in the Marcellus, Backen, Eagle ford, Permian basins as well as other Shale plays. However, following the opening of oil exploration and production for private companies in Mexico in the middle of 2013, IDE is currently working with numerous companies in the country to meet the future need for offshore platform rig and land rig requirements, as Richard discusses further: "In 2013 we have focused on growing our footprint in Mexico with our new modular platform rig designs and are working closely

with numerous companies in this area. We feel strongly that Mexico is a significant part of our manufacturing and product line diversity going forward and have multiple rigs now working there, where we are offering a very responsive service and support capability."

Moving into 2014, the technological and geographical developments within IDE over recent years are certain to ensure the innovative company has a positive future of continued quality solutions and excellent service, as Richard concludes: "Moving into 2014, the advances we are making in our drilling controls, automation, hydraulics and walking systems, coupled with our improved proprietary rig designs, will provide a significant opportunity for growth. We have a vision to expand our manufacturing footprint in terms of geographical diversity and product line expansion. If we duplicate the growth we achieved from 2009-2012 we can easily see our revenue topping the billion dollar plateau within the next three to five years." OSG



A key factor to IDE's success and excellent global reputation is its fast service response to customer requirements for specialist drilling solutions, whether it is for harsh environments or for areas where quick, efficient rig moves are essential

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# JOLIET EQUIPMENT CORPORATION

At Joliet Equipment Corporation, powering equipment has been our focus and commitment for over 75 years. We are proficient offering flexible, quality motor solutions and service to our customers, such as IDE (Sparta and SEDS Rigs). We take great pride assisting IDE with professional service and products to meet their unique requirements for AC or DC drilling motors, repairs and service. "Joliet Equipment Corporation is an industry leader with the most expansive AC and DC drilling motor line up," says Tim Tibbott, Joliet vice president. "Joliet products are engineered, designed and built as dedicated motors for the drilling industry." With the shift from DC-SCR based rig to AC-VFD control systems Joliet has many horsepower options available at 400HP, 800HP, 1230HP, 1500HP, 1800HP and 2500HP. The 'HTM' models are form wound, copper bar rotor and equipped with high-strength alloy shafts powering single and dual drive mud pumps, draw works, top drives and frac pumps.

Tibbott adds: "Our state-of-the art products are manufactured to ISO9001-2000 Quality Standards, offer ATEX/CE certification by Sira meeting all industry certifications while providing maximum quality and highly reliable performance. And you'll receive the same quality from our traditional DC standard 1000HP and New high torque series and shunt wound drilling motors." Our headquarters in Joliet, Illinois, houses a repair & test facility and boasts one of the fastest turnaround capabilities in the nation. "Joliet Equipment Corporation is one of the largest suppliers and repair shops in the US offering IDE and other customers an extraordinary combination of unmatched expertise, quality, exceptional value, competitive pricing and ongoing support," says Tibbott. "We are unique in the drilling motor field with a reputation second to none."

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