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EUROPEAN
OIL&GAS
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Keeping connected

Data replication can overcome the challenges of global, remote E&P

Managing under pressure

Using dynamic modelling can achieve faster and safer designs

Learning to fly

Industry growth is heightening the need for skilled ROV operators

THIS ISSUE: Refinery optimisation

Seamless integration

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> "The problem of inconsistent connectivity and limited bandwidth is compounded by the trend towards ever-more distributed enterprises"

Data. It is vital to the modern oil and gas company, playing a fundamental role in all aspects of exploration and production from the earliest 4D surveying of potential resources, through the controlling of drilling operations, to the effective management of downstream processes. However, as the industry progresses into geographically remote areas with poor connectivity the management and control of this data is becoming increasingly complex for businesses.

The modern world relies on being connected, but how does an oil and gas company operate effectively if it can't access essential data? In this issue Steve Driver of DXSTRO talks us through the challenges of keeping connected, and discusses the advantages of data replication. "The problem of inconsistent connectivity and limited bandwidth is compounded by the trend towards ever-more distributed enterprises," he explains on page four. "The growing number of mobile workers and remote sites spanning home branch, regional and international offices, has meant the centralised architectures employed by most business applications today are out of sync with the distributed enterprise."

Whether you work in an office, branch, on a rig or an FPSO, or at the frontier of remote oil and gas exploration, Steve shares valuable methods for companies looking to improve access to applications and data. With the industry showing no sign of slowing down, it is essential for businesses to do all they can in this vital area sooner rather than later.

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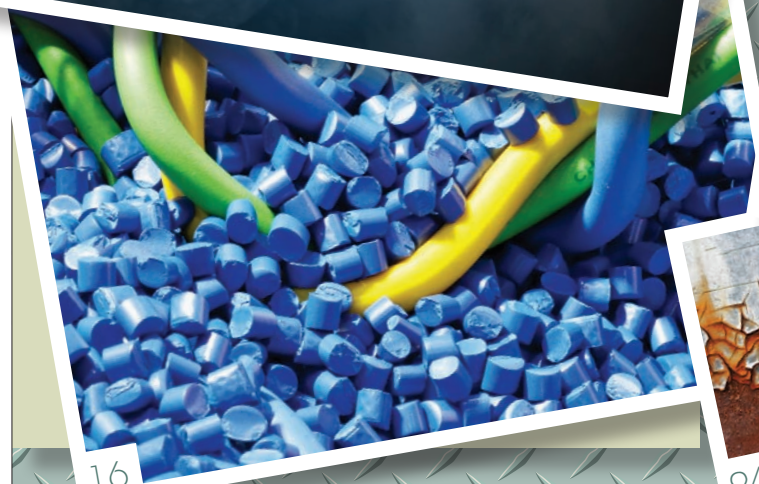
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Keeping connected

DATA REPLICATION ENSURES OPTIMUM QUALITY OF SERVICE ALL THE WAY TO THE EDGE OF THE ENTERPRISE, SAYS **STEVE DRIVER** OF DXSTRO

Geographic remoteness and poor connectivity mean many oil and gas organisations encounter issues when attempting to keep remote sites or workers up-to-date with essential data. Although the increasing pervasiveness of broadband fixed and wireless networks has made physical proximity to the central office much less important than it was, the fact remains that connectivity varies dramatically outside of built-up areas, while the internet was never intended as a backbone for business applications.

The problem of inconsistent connectivity and limited bandwidth is compounded by the trend towards ever-more distributed enterprises. The growing number of mobile workers and remote sites spanning home, branch, regional and international offices, has meant the centralised architectures employed by most business applications today are out of sync with the distributed enterprise.

Latency is a major source of frustration for users of remote applications. Network outages and connectivity issues aside, the fact that an application must communicate via a network during its operation introduces noticeable delays in processing and usability – even over high-speed networks. The effect becomes more pronounced as the distance between the user and the data centre increases.

Where organisations are attempting to run applications locally at remote sites that use large database systems such as Microsoft SQL, Oracle, or IBM DB2 at head office, it can be almost impossible to achieve the level of quality of service (QoS) required to keep the local instance (the slave) in sync with the central database (the master).

This is why a fundamental change in the way business applications are architected is required by users such as oil and gas operators – for whom access to current data is business or mission critical.

Delivering a distributed model

There are several ways in which to provide improved access to applications and data. The first step is to recognise the internet's inability to provide reliable access, and change its role in the application architecture from 'mission-critical backbone' to 'occasionally needed service'. Based on this approach, there are four core technology options:

- *N-Tier Client Server* – closest to the traditional, in-house, centralised application environment, this scenario involves a central database server and deployment of robust client applications at each remote site or user location. Network connectivity is essential, with performance tied to available bandwidth and reliability hinging on network availability.
- *Thin Client 'Application Access Portals'* – a remote control operation where network dependant terminals access one or more central servers. Each user has their own virtual

Below
Steve Driver, managing partner at DXSTRO

machines running on these central servers, on which the applications are loaded and executed. Regardless of bandwidth requirements, network connectivity is necessary to use the application. Latency may be an issue as keystroke and GUI data must be sent between the thin client and the server.

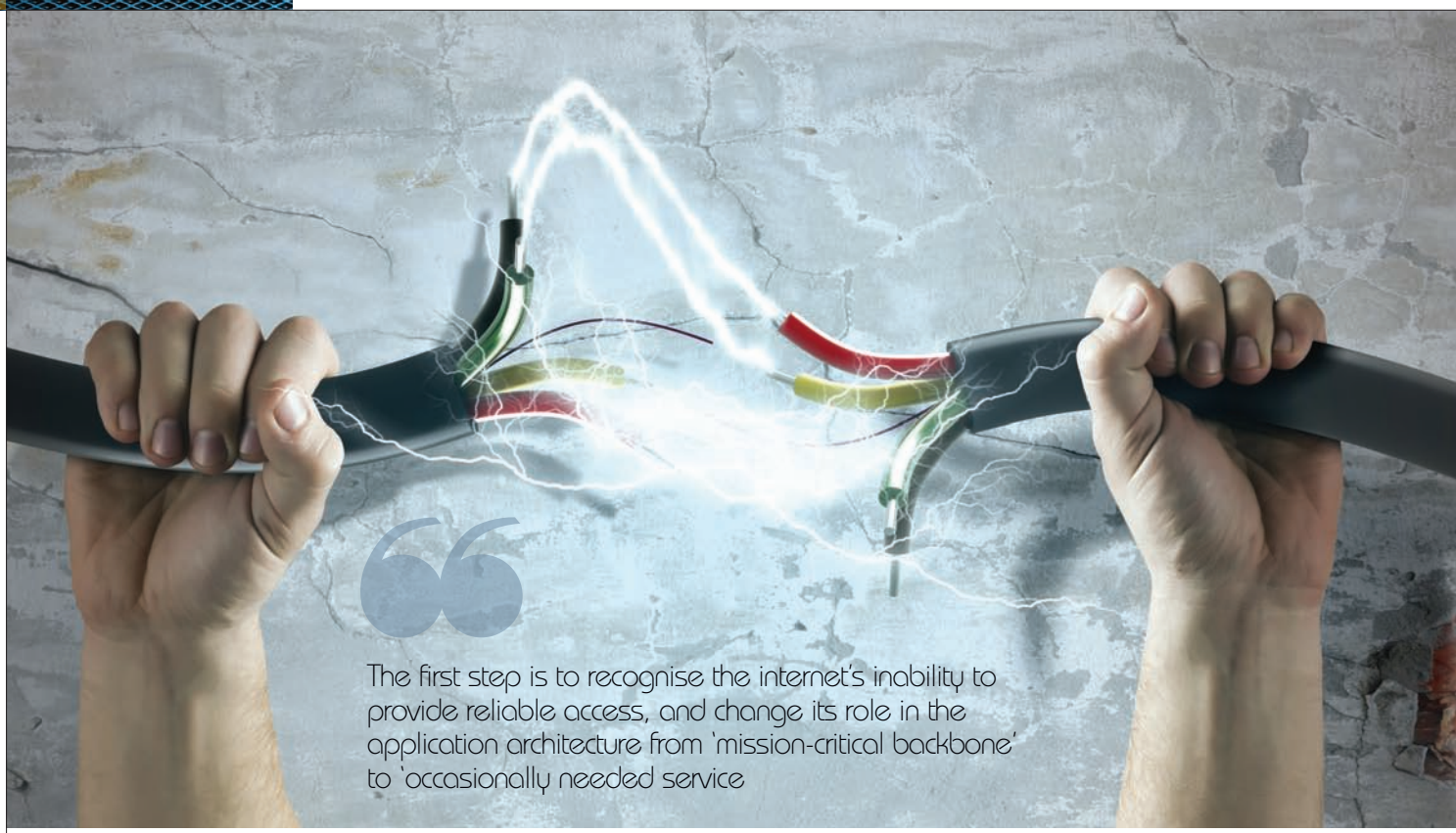
- *Web Client* – encompasses several different client implementations, the most common being web browser based, 'thick client'-based applications using web services technologies, or server-deployed but locally executed. As with the previous two approaches, network and server reliability is the determining factor for application availability.
- *Distributed Applications & Data* – involves deploying independent, replicated database instances together with a robust client application, either in a remote office or on a user's laptop. The database needs to be synchronised at regular intervals, with frequency dependent on application and business requirement. This solution can tolerate frequent network outages and bandwidth restrictions and still allow remote users to continue working.

Breaking from the past

Decentralisation, or the distributed data and applications approach, has become a major trend because when applications are deployed in this way, remote offices do not shut down when network connectivity is slow or lost, and the data centre is no longer a single point of failure and off-the-shelf computers can be employed. Rather than providing all access to the data and business logic from a central location, processing is distributed to smaller servers across the enterprise, reducing the need for expensive, multi-processor servers at the data centre.

However, centralised systems may still be needed for reporting purposes or to serve large sites. In addition, there is a potential for several disadvantages depending upon the technologies chosen to construct a decentralised or distributed solution:

- *Extensive application redesign* – some middleware solutions require special APIs for an application to communicate with the database.
- *Data conflicts* – some data replication solutions also require extensive administrative intervention to resolve data conflicts (because the typical unit of replication is an entire data record)
- *High bandwidth utilisation* – most replication solutions send the full content of all transactions to each site, including all intermediate changes to the same data. The complete dataset must also be maintained at all sites.
- *High maintenance burden* – log-based replication solutions need to be synchronised periodically. Additionally, when sites haven't replicated for extended periods of time, the log file may fill the server's disk and result in downtime and an unscheduled synchronisation session.



The first step is to recognise the internet's inability to provide reliable access, and change its role in the application architecture from 'mission-critical backbone' to 'occasionally needed service

These issues can be addressed using a variety of approaches:

- *Multiple programming language support* – a solution that supports any programming language can eliminate the need for application changes to access or update the database.
- *Partitioning records by update authority* – enables administrators to allow simultaneous updates when they comply with the business rules defined by the user and thus avoid false conflicts.
- *'Net change' model* – bandwidth utilisation is reduced substantially if only data that has been updated since the last replication is sent through the network. It is also possible to partition data so that only the information pertinent to a specific site is sent through the network.
- *'Live' database access during replication sessions* – means synchronisation is not required and log files do not need to be managed.

Read-write access

Database replication technologies allow a rich-client interface to operate uninterrupted via a local database, even during periods of complete network unavailability. They can then allow updates to stream back and forth over the network during periods of acceptable network QoS. This distributed or decentralised model gives all workers – whether they are in a remote office or working from a rig/at sea and using a satellite link – equal access to perfectly performing and fully functional enterprise applications.

Enabling disconnected use of fully functional applications and data is an essential requirement for any distributed approach. This does not mean providing users with read-only versions of their data. It means fully functional, read-write access to data as if they were still connected to the network without degrading application performance. This is achieved using asynchronous update-everywhere replication, as opposed to less efficient message-based or synchronous replication.

Asynchronous update-everywhere replication allows organisations to manage their disconnected remote sites and mobile workforce centrally from the office, regardless of latency or bandwidth. Moreover, it doesn't rely on email or FTP, and it doesn't require all sites to be available at the same time for replication to take place. Such solutions are particularly important in sectors such as marine transportation, offshore oil and gas, and manufacturing and production, but are just as applicable for any organisation needing to manage data across multiple sites, geographies, platforms, or database management systems.

Crucially, users don't have to be connected to a network to access their data. Instead, they can obtain up to date information at any time with the same levels of QoS, performance and management costs as those in the central office – using either simple data replication or complete synchronisation.

Data replication in offshore oil and gas

PTTEP Australasia operates a floating production, storage and offloading (FPSO) vessel supporting its Montara, Swift and Skua oilfields in the southern Timor Sea. To support this sophisticated vessel, the operator needed to integrate offshore maintenance and onshore procurement processes. Moreover, to meet regulatory requirements, it needed to implement a computerised maintenance management system for the FPSO.

In previous projects, it had been using separate solutions for maintenance and procurement. However, the

interfaces were different, so if engineers were working on a maintenance task and needed to order some materials, they had to switch to the other application. Workflow management was also difficult, so a lot of processes involved printing out work orders and sending paperwork around for approvals. PTTEP implemented IBM Maximo, an asset management system to integrate offshore maintenance and onshore procurement as part of an electronic maintenance management system

The biggest challenge however, was to find a way to keep PTTEP's maintenance and procurement processes in sync between its onshore offices in Perth and Darwin and its offshore environment on the FPSO. When the FPSO is at sea, it is only able to communicate with onshore sites via a satellite link – which means the bandwidth is relatively low, and there are times when it can't connect at all. For this reason, PTTEP needed to have separate instances of Maximo in Perth, Darwin, and on the FPSO.

To keep the instances of Maximo in sync, PTTEP implemented DataXtendRE (DXRE) an asynchronous data replication solution that compresses data to minimise satellite bandwidth requirements and automatically transmits and synchronises data between three linked instances of Maximo: a master node that handles background processes and reporting; a slave node for the onshore users to log into; and another slave node on the FPSO itself.

New or changed data is replicated from the slaves to the master and vice versa, so that all three systems are kept in sync over a low bandwidth satellite connection even though they operate independently. Should the connection be lost temporarily, the FPSO's Maximo instance can still support maintenance tasks and procurement processes. This ensures PTTEP complies with its regulatory obligations. O&G

Turn on 2014

The Valve World event in Europe is the world's leading technology event for the valve and actuator industry

Hosted by Valve World, in close co-operation with Messe Düsseldorf, the Valve World 2014 Expo & Conference is held in Düsseldorf, Germany, from 2nd to 4th December 2014.

Expo

The exhibition will offer the latest updates on technical advancements in the field of valves, valve applications and flow control technology and associated products. The technical and commercial staff of around 600 specialised valve companies in the process industries, oil and gas, petrochemical, chemical, power generation, onshore and offshore and many more will be on hand to discuss the features and benefits of their products. The Expo is one of the leading information and order platforms for global business for industrial valves and fittings, and is always committed to showcasing innovation as well as sustainability. Over the course of the three-day event, the organisers expect to attract more than 10,000 professional visitors.

Clearly valves and valve-related products are the main items being exhibited at Valve World Expo, however, other areas will be present, including seals and sealing materials and engineering. Visitors will be from target markets such as oil, gas and LNG, marine and offshore industry, shipbuilding and water, and wastewater management.

2014's event is seeing the Expo take over three halls – in addition to exhibition Halls 3 and 4, now Hall 5 and the adjacent North Entrance will also be opened. This decision was made by the organisers in order to address an expected

WANDFLUH

DIGITAL AMPLIFIER MODULE SD7

The amplifier module SD7 serves as drive for proportional valves and (in the case of the 1-solenoid version) has one, or (in the case of the 2-solenoid version) two pulse-width- modulated current outputs with superimposed dither signal. Being able to be snapped on to top hat rails in accordance with EN 60715, it is excellently suitable for applications in the industrial field. The connections are made through practical terminal screws.

The 2-solenoid version can be utilised either for driving a 2-solenoid valve or for driving two independent 1-solenoid valves. By driving two 1-solenoid valves through a 2-solenoid amplifier module it is possible to save considerable costs in comparison with driving through two 1-solenoid amplifier modules.

Apart from the amplifier function, the SD7 as standard equipment contains a ramping function, which makes it possible to separately set two linear ramps for up and down for each solenoid output.

The command value can be applied as a voltage, current, PWM or frequency signal. The amplifier module furthermore comprises two digital inputs and outputs.

The parameterisation takes place through the USB - interface by means of the menu-controlled parameterisation- and diagnostics software „PASO- SD7“ or else optionally by means of a hand control on the front panel.

The assignment of the inputs and outputs relative to one another is variable. This enables an optimum utilisation of the hardware present and guarantees a flexible adaptation to the application without any programming knowledge.

The changed parameters are stored in a non-volatile memory, so that they are available once more following a renewed switching-on of the control system.

Instead of an analogue interface, all types are also available with field-bus interface (Profibus DP, CANopen, J1939 or HART).

Apart from the 24VDC-version, a 12VDC-version is available.

The family of the digital amplifiers is complemented with a module by the digital amplifier module SD7, which is distinguished by its compact construction and by an excellent price- performance ratio.

WANDFLUH AG, CH-3714 Frutigen, Switzerland, telephone +41 33 672 72 72

rise in exhibitor numbers. Opening the second entrance will allow exhibitors and visitors to use both the South Entrance on the Rhine and the North Entrance with the underground station.

Furthermore, the End Users' Pavilion will be located in Hall 5 for the first time. This is a Special Show where initially some 20 end users, i.e. the exhibitors' customers, will present their corporate portfolios. The aim is to promote matchmaking between exhibitors and end users.

Conference

Also new for 2014 is the location of the Expo's accompanying conference. While it used to be held in the rooms of the adjacent Congress Center Düsseldorf (accessed via the South Entrance), a large proportion of Conference events are now to be held in Hall 4: more compact, transparent and right in the middle of the action. This move means conference content is to be embedded in the exhibition activities and conference delegates are to be brought closer to exhibitor ranges. Since the conference organiser, KCI from Kleve, expects further growth, Hall 4 is ideal to also accommodate growing attendance figures in future.

At the conference, piping and valve professionals from all around the world can update their knowledge of valve applications in a variety of industries with a clear focus on the chemical, petrochemical, power generation, oil and gas and process industries. The conference sessions will be held in English, and the combination of a content-focused, end-user driven conference and a hands-on exhibition offers a unique international platform for content and business. Topics that will be covered in the conference sessions include amongst others: fugitive emissions, control valves and instrumentation, new designs, wear and tear of valves, severe service, sealing, actuation and counterfeiting.

Successful history

The 2014 Expo and Conference is building on a firm foundation of success – the 2012 event saw all the leading companies from the valves and fittings industry present their products at the show. Visitors found that there was intensive linkage between the exhibition, the conference and were delighted with the resulting networking opportunities. The focus was clearly on enabling meetings between manufacturers and end users at the Düsseldorf Exhibition Centre.

"The exhibitors praised the compact diversity of the products presented at the trade fair and the clear presentation in exhibition halls 3 and 4," commented a pleased Joachim Schäfer, managing director at Messe Düsseldorf GmbH, following the 2012 event. With the extended exhibition areas and redesigned conference arrangements, the Valve World 2014 Expo & Conference looks set to be the must attend event for any business related to the valve and actuator industry. O&G

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VALVE WORLD EXPO DÜSSELDORF

Valve World 2014 CONFERENCE

Valve World 2014 Expo & Conference

Valve World 2014 Expo & Conference takes place in Düsseldorf, Germany, from 2nd to 4th December 2014.

For more information, visit: valveworldexpo.com

AGROMATIC AND ARIS GOING THEIR DIFFERENT WAYS: ACTUATORS MADE OF METAL NOW SUPPLIED STRAIGHT FROM THE AGROMATIC FACTORY

The vendor lists of many engineers responsible for the planning, construction and sale of industrial systems contain actuators with the product designations NK, NL, N1, N2, N3, N4, N5, N6, N7, N8, NV, NEx, K, KA, V and VK. These were sold through Aris with their rating plate attached. However, these high-quality rotary, part-turn, linear, valve and gas/air ratio control actuators made of metal have been developed and manufactured for more than 40 years by the German company AGROMATIC Regelungstechnik GmbH based in Oerlinghausen.

As of July 2014 AGROMATIC Regelungstechnik supplies its products to its customers exclusively from its factory. Sales and customer service have been significantly expanded and staffed with experienced specialists, who are already providing an excellent service as has been attested by many customers including those operating in systems engineering serving the gas and oil and shipbuilding industries to mention a few.

Top priority: product care and new developments

AGROMATIC Regelungstechnik produces and constantly improves its compact rotary and part-turn actuators with a torque range from 1 Nm up to 500 Nm as well as its linear actuators up to 5000 Newton and compact valve actuators up to 1000 Newton. All actuators work with absolute precision. They are controlled either by means of a classic combination of cams and switches supported by one or two Hall effect sensors / potentiometers or by electronic control systems utilising switches without any cams. In addition to its own actuators developed in-house AGROMATIC Regelungstechnik also offers standard pneumatic actuators and valves according to customer requirements.

"To emphasise our customer service AGROMATIC Regelungstechnik has maintained a database since we were founded; this enables us to supply our customers with spare parts or replacement actuators for actuators that have been in service in their systems for decades," says managing director Dr. Christian Lutz, explaining a substantial promise his company offers with regard to service.

AGROMATIC is currently upgrading its Ex zone actuators for protection classes I and II, which already have a track record of decades of proven reliability. All NEx series rotary and part-turn actuators supplied to date fulfil protection class 2G Ex de IIC Gb requirements, and have proven their value in systems operating in the oil and gas industry, refineries, oil depots, shipping and more. Ex zone actuators from AGROMATIC designed to fulfil the new regulations due to come into force in 2016 are presently in the development phase and will shortly enter series production.

High-performance production location

The ability to develop and produce standard and custom designs to customer specifications is just one of the strengths of the ISO 9001:2008 certified company AGROMATIC Steuerungstechnik GmbH. A high-precision 3D measuring machine as well as a modern production plant and test laboratory equipped with a climate cabinet to carry out temperature and air humidity tests ensure all AGROMATIC actuators leave the company at the same high level of quality to provide many years of reliable service.

"Our long-lasting products have more than satisfied our customers for years; that is why they are included in invitations to tender, quite often under the name of our former sales partner Aris," explains Dr. Lutz.

"That is why the sales team still has a lot of work to do to set the record straight and ensure satisfied users of our actuators find their way direct to us – the manufacturer and supplier. It goes without saying that we are pleased to show interested customers around our production facility. We are always willing to discuss the possibility of developing and producing dedicated actuators to meet individual requirements."

AGROMATIC employs some 30 employees in Oerlinghausen. Many of them completed their apprenticeship with the business, and as Dr. Lutz concluded: "That is one reason why we benefit from a well-bonded team and in some cases from decades of experience of the people in the company."

Protecting downstream and upstream facilities

Hempel introduces its extensive solutions for the protection of oil and gas plants and equipment around the world.

Downstream and upstream facilities, such as refineries, petrochemical plants, gas processing units, storage tanks, and pipes and pipelines are commonly situated in some of the most remote, difficult to protect areas of our infrastructure. Because of the need for more and more energy supplies, aging structures need to have extended lives and new facilities are needed which require a significant investment. These facilities need to function optimally at all times, because business pressures require faster production at lower cost. In addition, there are stricter environmental and safety requirements. To help meet these needs, Hempel has developed coating systems that are tailor-made for the downstream and upstream segment. The result is products and specifications that satisfy both applicators and facility owners through improved corrosion protection; longer working lifetime; higher chemical resistance; easier faster application and enhanced VOC regulatory compliance.

HEMPADUR 35900 iA two-component, high-build, amine-cured phenolic epoxy that is completely solvent-free and releases practically no VOCs into the atmosphere during application, thus ensuring it complies with extremely strict US environmental regulations, which in turn are gradually being demanded by other countries around the globe. It is specially designed to withstand liquid cargo temperatures of up to 93ºC, thereby making it the ideal protective lining for crude oil and water storage tanks and pipelines without risk of contamination.

HEMPADUR 35760 A solvent-free, two-component, high-build phenolic epoxy (novolac) paint, which cures to a durable tank lining with very high corrosion protection properties and excellent chemical resistance. It can be used for bottom repair with glass mats and filler, or as a tank coating for the full tank.

HEMPADUR 85671 A two-component, amine adduct-cured phenolic epoxy (novolac) coating with very good adhesion and high temperature, water and chemical resistance. HEMPADUR 85671 has a low content of Volatile Organic Compounds (VOC). It is recommended as an interior lining in tanks, pipelines etc. for hot water, brine, crude oil, etc., for coating of potable water tanks as a primer and intermediate coat in specific painting systems.

HEMPADUR MASTIC 45880/1 An excellent epoxy mastic coating with strong wetting properties and excellent durability. It is two-component, high solids and high build epoxy coating. It forms a hard and tough coating, has good wetting properties and low temperature curing. HEMPADUR MASTIC 45880/1 has a low content of Volatile Organic Compounds (VOC). HEMPADUR MASTIC 45880 is for low temperature curing (down to -5°C) and HEMPADUR MASTIC 45881 is for higher temperatures (above 15°C).

HEMPADUR ZINC 17360 An excellent two-component, zinc rich epoxy primer with a long track record - sold in large volumes over many years. It cures to a hard wearing and highly weather-resistant coating. Offers cathodic protection of local mechanical damage. It is recommended as a "V.O.C.-compliant", versatile, long-term primer on steel for epoxy, vinyl and acrylic coating systems in medium to severely corrosive environments. In compliance with SSPC-Paint 20, type 2, level 2 and ISO 12944-5.

HEMPATHANE HS 55610 A two-component polyurethane topcoat, cured with aliphatic isocyanate, with good gloss and colour retention. Contains zinc phosphate. HEMPATHANE HS 55610 is a high solids low VOC available in a large number of colors and can be tinted to customer demands. It is recommended as a VOC-compliant, high-build finishing coat for protection of structural steel in corrosive environment. Suitable for offshore atmospheric exposure. May be specified as a one coat "Direct To Metal" system in mild atmospheric environments such as indoor accommodation units.

HEMPEL'S GALVOSIL 15700 A two-component, solvent-borne, self-curing, inorganic zinc silicate with outstanding resistance against weathering and abrasion. It has excellent chemical resistance within the pH range 6-9. For service temperature range, see below. Applicable by airless spray. Offers cathodic protection of local mechanical damage. It is recommended as a general purpose, heavy-duty, rust-preventing primer and also as a single, complete coating for long-term protection of steel exposed to moderately to severely corrosive environment and to abrasion. It complies with SSPC paint 20 type 1, level 1 and ISO 12944-5.

For over 50 years, Hempel has been providing high performance corrosion protection of assets in the segment of the oil and gas industry for oil and gas companies around the globe. In short, they know what it takes to get the job done right. Hempel paints and protective coatings have proven themselves in environments ranging from the harsh North Sea, to the sub-tropical Gulf of Mexico, and from Asia to the Middle East. Today it is a trusted supplier to virtually every major company in oil and gas segment.

Above: CAN Group's latest contract win will see the company providing ultrasonic inspections as part of structural survey work

Maintaining assets

CAN Group has been awarded a £4 million contract to provide asset integrity services in the North Sea as the firm also announces international growth. The Aberdeen-headquartered company has secured work with Fairfield Energy aboard the Dunlin platform, UK Continental Shelf (UKCS).

The three-year contract with Fairfield Energy will be led by ENGTEQ, the group's integrity engineering business stream, which will provide services such as inspection management and data analysis, with CAN's operations division providing inspection execution and ancillary services on the pressure systems and structures in support of the asset integrity programme.

In addition to domestic success, CAN has also been successful in securing scopes in North Africa. The work covers the provision of specialist inspection services and integrity engineering support and will see CAN carry out a variety of structural inspection services including flare and jacket structure inspections and a comprehensive range of advanced NDT inspection techniques at pressure plants on and offshore.

Adam Byrne, operations director at CAN Group, said: "These latest contract awards are a great boost to the company and underline the need for asset integrity services worldwide. We have enjoyed a sustained period of demand in the North Sea and, as part of our strategic growth plans, we are increasingly rolling out our services across other geographic markets. The internationalisation of our business has seen CAN move into West Africa, Asia Pacific and North America and we are well placed to make the most of these opportunities."

Ambitious growth

Market-leading energy services company Proserv has reinforced its ambitious growth plans after announcing it has signed a definitive agreement to be acquired by major US private equity investor Riverstone Holdings LLC.

Proserv will continue to operate as an independent company under the deal announced, to which Riverstone Global Energy and Power Fund V, L.P., in partnership with Proserv management, has agreed to acquire 100 per cent of the shares of Proserv from Intervale Capital, Weatherford International and certain minority shareholders.

David Lamont, chief executive officer (CEO) at Proserv, said: "This is the start of an exciting new chapter in Proserv's successful journey. The leadership team on behalf of the global Proserv workforce, firmly believes Riverstone is the ideal partner, not only because of their sector focus and expertise, but as importantly because of their shared values and vision for the business.

"Riverstone has an impressive track record of backing oil and gas focused companies with their high-profile portfolio including independent operators and energy service companies. The Riverstone management team clearly understands the value proposition that Proserv is delivering to our customers as well as the key market trends that underpin our ambitions."

Above: Jee's head of courses, Jenny Matthew

Running the course

Jee Ltd has announced the expansion of its subsea engineering public courses programme to Stavanger, Norway in 2015. Jee will run six of its world-renowned public courses in Stavanger throughout 2015. Courses include Integrity Management of Subsea Pipelines, Construction of Subsea Pipelines, Subsea Systems, Risers, Umbilicals and Flexibles, Subsea controls, Engineering of Flexibles.

Jee's head of courses, Jenny Matthew said: "We're continually developing our extensive training programme and in 2015, in response to industry demand, we are excited to launch this suite of public courses in Stavanger, Norway.

"We believe our Norway public courses will fill a gap in the market, and provide subsea companies with a range of local, high-calibre training options that previously, their employees would have had to have gone overseas to experience."

Jee's public courses will be held in the state-of-the-art GE Technology Solutions Centre at Dusavik port, in the heart of the oil and gas business sector in Stavanger.

As an introduction to its subsea engineering and training services, Jee will also be running a series of free subsea pipeline integrity management seminars for Norwegian businesses from 8th to 12th December 2014. The seminars will focus on lessons learnt and best practices that Jee has identified whilst working on integrity management projects.

Above: OPITO International MD Colin Griffiths

A leading role

Former RAF aircrew, Colin Griffiths, is joining OPITO International as managing director to lead the rollout of common safety training standards across the global oil and gas industry.

Mr Griffiths will take up his new appointment, based in Dubai, at the end of October 2014, replacing outgoing managing director Ian Laing, who is retiring after seven years in the role.

Funded by industry, for industry, OPITO has a proven track-record in responding to the global oil and gas industry's training needs. Having successfully designed and monitored safety training standards in the North Sea for many years, OPITO created an international organisational structure to support its global rollout of safety standards and workforce development. Today around 250,000 people in 40 countries are training to those standards every year, helping improve safety and competency in oil and gas.

Mr Griffiths said: "The success of the oil and gas industry is on achieving the right balance between optimising production and ensuring the safety of our people. Safety therefore features in everything we do. Wherever we are in the world, we need to set standards in training and competency before we send people offshore or into other hazardous environments. I am passionate about and totally motivated by getting the safety piece right, which is why I am both privileged and excited to be taking up this international role with OPITO – the standard-bearer for our industry."

Above: Ashtead Technology technician

Meeting demand

A first-of-its-kind subsea training academy has been launched in Aberdeen in the world-renowned subsea centre of excellence at Westhill. The subsea technology training academy will meet global demand for improved competency in the configuration, operation and maintenance of increasingly sophisticated equipment required in more complex subsea oil and gas projects in deeper waters and hostile locations around the world.

Aberdeen headquartered company, Ashtead Technology, has invested almost £500,000 in its subsea technology training academy, which will attract delegates from around the world. In a pilot scheme prior to launch, the Ashtead Technology Academy has already delivered several courses to a number of leading subsea companies, including a three day acoustics course and a one day introduction to offshore survey equipment course. The courses, for support engineers and new recruits from the subsea construction sector, have achieved tangible results and excellent customer feedback. Donald Campbell, senior survey support engineer at Subsea 7 said: "We have been pleased to support Ashtead technology in the development of this groundbreaking training academy. Our delegates have been more than satisfied with the professionalism and knowledge of the training team. Also the level of training delivered has met our needs and that of our staff comfortably."

Security of supply

The European Commission has announced 647 million euros to be invested in key energy infrastructure to enhance security of supply across Europe. This includes 75 million euros for UK projects with cross-border benefits, including electricity interconnection (enabling electricity to be transferred between countries), smart grid and gas storage projects.

Energy Secretary Ed Davey said: "This is excellent news for the UK and Europe. The Commission's decision to fast track funding is a real boost to getting these projects built. The 40 million euros awarded to interconnector projects linking the UK to Norway and France will help strengthen energy security and deliver lower energy bills."

UK projects awarded in this round include the longest proposed subsea cable in the world, the NSN interconnector linking the UK to Norwegian hydropower, and two interconnectors to France. ElecLink will benefit from using the existing infrastructure of the Channel Tunnel and a further cable, FABLink, holds potential to connect to future tidal generation being developed off the Alderney coast. Together these projects would almost double the power the UK is able to receive over its interconnectors.

A further window for projects to apply for funds is expected in early 2015. A total of 5.85 billion euros has been allocated to Trans-European energy infrastructure for the period of 2014-2020.

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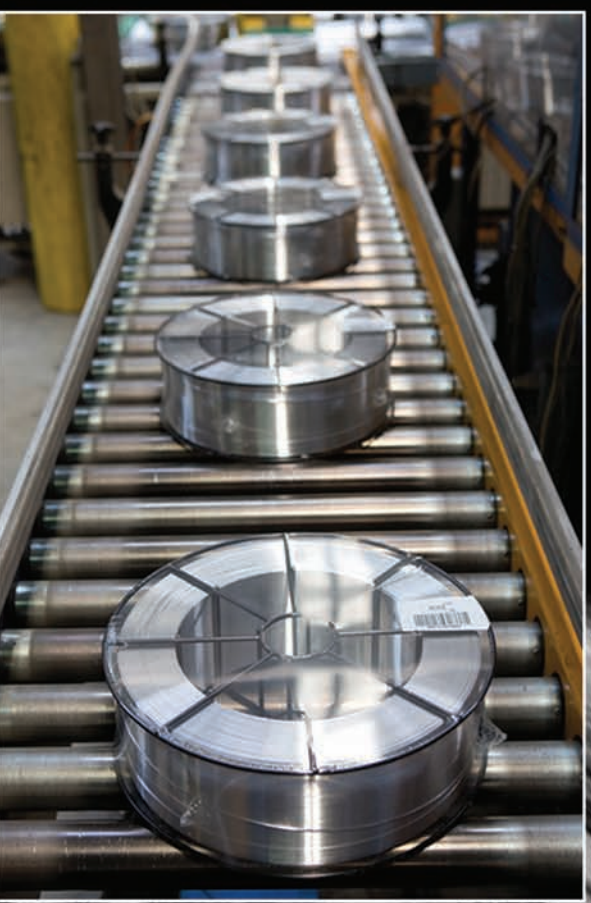

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Excellence in ethylene optimisation

JOHN HAGUE DISCUSSES MIDDLE EAST ETHYLENE OPTIMISATION, FROM DESIGN THROUGH PRODUCTION

Achieving excellence in the ethylene industry is an important strategic goal for many Middle East companies. As global production intensifies, moving further downstream towards heavier feedstocks and higher value products means the need to be faster to market. So, during this particularly strong period of global demand, how can Middle East petrochemicals companies continue to capitalise on the need for downstream derivatives and optimise production?

Process manufacturers must implement best practices to truly optimise their engineering, manufacturing and supply chain operations. Integrated advanced technology plays a vital strategic role in Middle East owner-operator plans to maximise operational performance and improve profitability. Breakthrough innovations in process optimisation software allow new and occasional users to become proficient faster, from design through production, bringing the power of optimisation to more people in engineering, operations, planning, scheduling and across the entire enterprise.

Below
John Hague, senior vice president for the Middle East and North Africa at AspenTech

Outpacing the opponents

The Middle East accounts for about 20 per cent of world ethylene production. No longer reliant upon traditional oil and gas exploration, major Middle East operators are building more sustainable and profitable businesses by continuing to be one of the largest providers and exporters of global ethylene as market demand grows for primary derivatives, including polyethylene and ethylene glycol.

With the natural advantage of cheap feedstock, petrochemical producers across the Middle East region are able to maximise their margins by expanding their operations and portfolios in the downstream sector. According to Business Monitor International (BMI), half of all the new ethylene projects being developed globally are located in the Persian Gulf and through 2017 the Middle East could add almost six million tons per year of ethylene capacity.

Ethylene is one of the crucial building blocks of the petrochemical industry. The increasing requirement for packaging, piping, plastic coatings, paints and similar goods mean that low cost production for polyethylene is in high demand. The Saudi petrochemical industry, for example, has witnessed significant growth. The Kingdom's ethylene capacity expanded at a CAGR of 11.5 per cent over 2005 to 2010. The country's share of the global ethylene market increased from 6.3 per cent in 2007 to 9.4 per cent in 2009, and it now accounts for more than 50 per cent of the Middle East's total ethylene capacity.

Moving forward, Saudi Arabia plans to continue with its petrochemicals development programme, building local demand and by focusing on intermediate chemicals, including adding 75 000 tpy of ethylene glycol, 420 000 tpy of polyethylene terephthalate, 200 000 tpy of paraxylene, 100 000 tpy of linear alkyl benzene and 6000 tpy of polysilicon. In addition, the sector expects to see further growth in basic petrochemicals capacity in the 2016 to 2018 period, when three million tpy of ethylene capacity, as well as substantial downstream facilities, are due to come online.

SABIC (Saudi Basic Industries Corporation) is a good example of a company based in the Middle East, that is committed to performance reliability, safety and operational efficiency in its global high-production capacity plants. This drive for excellence covers its growth strategy in chemicals, plastics, polymers and fertilizers across its manufacturing industrial facilities in Jubail and Yanbu and renowned technology and innovation centres. SABIC is strengthening its strategic business with continued investments in cutting-edge technologies, including process optimisation software and development initiatives to diversify its product portfolio across the world.

With the need to improve infrastructure as compared to the US and its boom in shale gas, the Middle East is reliant on cutting-edge technology and expertise to keep pace with market competition. What distinguishes cracking operations in the Middle East from other regions, however, is the capacity of ethane cracking over other feedstocks. The cost of gas is relatively low, whereas ethylene prices are high. As there are major ethylene cracker building projects in the region, the chemical industry is experiencing excellent potential returns on investment.

Excellence in design through production

There are several key drivers for optimising ethylene complexes in the Middle East. The first is a drive towards energy reduction. A strategic goal across the gulf region is to reduce energy use across the value chain in order to maximise the amount of refined products available for export. A second core objective is a focus on operational excellence. Most Middle East capacity is new and there is an expectation and ambition to ensure that Gulf production is the best operated and lowest cost in the world. A third key aim is the desire to take best advantage of local talent. There has been a huge investment in building technical educational infrastructure in the region, and with newly educated chemical engineers entering the workforce there is the opportunity to take advantage of their current and advanced

Ethylene is one of the crucial building blocks of the petrochemical industry. The increasing requirement for packaging, piping, plastic coatings, paints and similar goods mean that low cost production for polyethylene is in high demand

skills to turn that into a potent force for optimisation and continuous improvement of operations.

Ethylene plants are highly complex, large-scale operations that can process a wide variety of feedstock (e.g. ethane, propane, LPG, naphthas, to distillates and gas oils). Expanding capacity of higher value added products means that cracker capacity will need to move from lighter feedstock (ethane) to heavier feedstock (naphtha).

To gain an edge in ethylene production, the ability to control and manage a project from design through all of its phases to production execution is critical. Middle East companies are embracing advanced technology to maximise production, reduce costs and energy consumption, whilst establishing facilities that yield high-value petrochemical derivatives that deliver less volatile margins. State-of-the-art process optimisation software includes steady-state and dynamic models to guide operating decisions, performance and equipment analysis; offline and real-time plant optimisation and the improvement of linear programming (LP) planning models for better feedstock selection. The real-time visibility provided by leading planning and scheduling tools helps olefins producers to buy, manage and process feedstocks in the most profitable manner, providing a solid competitive advantage.

Many Middle East companies have adopted AspenTech's process optimisation software to addresses oil, gas, chemicals, petrochemicals and engineering and construction (E&C) challenges to design and operate safe plants, whilst ensuring project costs are accurate from concept to construction – all under tight deadlines. The ability to simultaneously model, analyse and design results quickly with sophisticated visualisation tools and identify optimum designs early in the project lifecycle results in design efficiency and overall profitability. Having the right information at the right time, and in the right format also helps to dramatically improve production and enables key stakeholders across the enterprise to make better informed decisions. Greater mobility through cross-platform HTML5 enables process industry professionals to work with aspenONE software through web-enabled devices. This means users can now harness the powerful optimisation software through corporate network connections via tablets, laptops or desktop computers, delivering large amounts of contextualised plant data on a variety of devices, making data analysis faster and easier anytime, anywhere.

Engineering is an integrated lifecycle process from

conceptual design through plant start-up and operations support, enabling users to model, build and operate safer, more efficient and competitive process plants. Cutting-edge engineering software from AspenTech helps the user to visualise energy saving potentials and suggest design improvements. Activated Dynamics Analysis, for example, in Aspen HYSYS software automates dynamic modelling with a single button click to speed up model setup and enable more process engineers to perform compressor operability screening. Expanded pressure safety valve design and rating in Aspen Plus and Aspen HYSYS enables fire analysis scenario calculations - accounting for latent heat and temperature change and rupture disk sizing. All functionality improves chemical and energy operators' compliance with API 520 and 521. The detailed unit rate estimating in Aspen Capital Cost Estimator (ACCE) extends the software's scope further into the detailed estimating phase of a project, enabling easy adjustment of labour and material unit rates as well as materials of construction. The result is expected to enable organisations to achieve up to +/- ten per cent accuracy or better, reducing project risk and improving decision making around the use of capital.

Leading planning and scheduling solutions enable olefins producers to also select optimal feedstock based on operational conditions and demands, thereby extracting maximum value from the available options.

Companies deploying aspenONE Planning & Scheduling for Olefins are able to generate bottom-line benefits ranging from US$6 – $13MM per year with payback in months instead of years. By running the right feedstock, operating with best practices and increasing throughput through improved asset utilisation, companies gain the competitive advantage to sustain significant economic value.

Advanced Process Control (APC) technologies enable companies to improve product quality, reduce energy and raw material usage, grow overall operational efficiency, and increase throughput while maintaining safe and reliable operation. Besides these typical benefits, companies are finding the increased agility provided by APC can also help them adjust to changing economic conditions. AspenTech's APC solution enables companies to make the whole plant more energy efficient by ensuring that operators have enhanced control over the operation.

Excellence in revenue returns

Olefins producers must bring products to market quickly to remain competitive. Advanced software is successfully used in Olefins plants across the Middle East and has significantly improved product quality, plant efficiency and resulted in swift payback in short time scales. Design and operational information is now available anytime, anywhere and is accessible to key decision-makers for greater collaborative, accurate and efficient engineering. Planners and schedulers can use the latest tools to select the optimal slate and blend of feedstocks that will enable them to maximise output while maintaining product quality to meet demand.

By establishing an integrated olefins optimisation process and utilising best in class process optimisation software, Middle East petrochemicals companies can maximise profitability from the plant, furthering operational excellence from design through production. OEG

JOHN HAGUE

John Hague is senior vice president for the Middle East and North Africa. With over 25 years of process industry experience in sales and business development, Hague brings additional focus to expanding AspenTech's presence in the Middle East. Hague joined AspenTech in 1995 and has served in several senior management roles, most recently as senior vice president and head of Global Accounts.
Prior to joining AspenTech, Hague initially acquired extensive experience in the process industries with Conoco, Inc., and subsequently with Advanced Pipeline Technologies, Inc. and Scientific Software-Intercomp (SSI). Hague holds both BS and MBA degrees from Oklahoma State University.

For further information please visit:
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Managing under pressure

REGIS HUGONNARD-ROCHE ON HOW DYNAMIC MODELING CAN ACHIEVE FASTER, SAFER DESIGNS IN ONE ENVIRONMENT

Safety is of paramount importance within the petroleum and chemical industries. The aim of safety systems in processing plants is to prevent damage to equipment, avoid injury to personnel and eliminate the risk of endangering the environment and surrounding community. However, with tight commercial pressures to meet deadlines, every step in the design process is critical to ensure safety and accuracy. Therefore, appropriate sizing, manufacture, assembly, installation and maintenance of pressure relief valves and rupture disks is critical to achieving optimum protection. So, how can engineers speed up their safety analysis and design quality to mitigate equipment malfunction within their refineries and petrochemical plants?

When designing a chemical process and its equipment, safety is a top priority. The main concern for engineers is to plan systems that are reliable and meet standards while considering safety associated with many diverse types of systems (i.e. pressure vessels, columns, flare stacks, etc.). In particular, over-pressurisation of equipment or piping is a major safety concern in a plant.

In order to prevent dangerous bursts, explosions and fires, pressure relief valves and rupture disks are designed and installed to bleed out excess liquid or vapour causing pressure build-up. Process conditions vary considerably at each location in the process plant where there is a pressure relief device. Completing a design of a pressure relief device manually can be a time-consuming and labour intensive exercise. To solve this problem, cutting-edge engineering software contains relief sizing, which uses process simulation data to help automate relief valve and rupture disk calculations.

Powerful tools relieve the pressure

Engineers are focused on ensuring that all activities carried out at the plant are performed in a safe and controlled environment with particular focus on over-pressure protection, preventing reactor runaway, implementing control schemes and evaluating flare systems. Safety concerns arise from unexpected deviations from predicted behaviour, which cannot be explored effectively with traditional steady state modelling.

Therefore, the engineer always requires a solution that is rigorous, but also easy-to-use and will not require rebuilding all the existing models. The engineer cannot afford to lose time building models twice and, therefore, needs dynamic software tools to utilise existing steady-state models to evaluate all areas of the plant without wasting funds.

Key priority areas include maximising safety without over-designing pressure relief systems, designing control schemes effectively and having reassurance that the tools used meet the industry standard for reliability. Now engineers can perform relief device design analysis, sizing and documentation from within the process simulation, reducing the time spent to complete overpressure protection studies. Dynamic simulation modelling enhances the precision, capability and credibility to develop realistic and reliable solutions for the actual plant system.

Today, advances and innovation in software both within individual disciplines and also in the integration across the workflow creates tremendous value for many companies, resulting in capital and energy savings, increased safety and reliability, as well as optimised designs with dramatic improvements in engineering quality and productivity.

Many companies have turned to AspenTech for improved safety through better operational procedures, control system design and proper relief-valve and rupture disk sizing. aspenONE Engineering is an integrated lifecycle solution from conceptual design through plant start-up and operations support, enabling users to model, build, and operate safer, more efficient and more competitive process plants. Aspen HYSYS Dynamics and Aspen Plus Dynamics have been successfully used in basic control studies, advanced control studies, operability studies and safety/

HAZOP studies. Companies are able to meet tighter product specifications through improved understanding of plant operability issues, ensure faster and safer plant start-ups, and avoid unplanned downtimes, resulting in maximum plant availability and productivity.

Activated Dynamics in Aspen HYSYS extends AspenTech's competitive advantage in automating engineering knowledge and dramatically reduces the steps required to set up a dynamic model, thus both saving time in dynamic model set up and affording experts more time to focus on solving tough engineering challenges. Expanded relief valve design and rating in Aspen Plus and Aspen HYSYS makes the aspenONE solution more comprehensive. New calculations for the fire scenario account for both changes in latent heat in wetted, mixed component vessels over time and changes in relief loads over rising temperatures in unwetted and wetted situations. Rupture disk can now be sized and rated and multiple valves configurations can be explored to better design for non-sizing scenarios with smaller relief loads. Adding to prior methods for compliance with API 520 and 521, the software now also provides calculations to comply with the API 2000, 7th edition for the protection of storage tanks.

With aspenONE Engineering software, engineers can achieve the following:

- Save up to 70 per cent in man-hours per overpressure protection projects by avoiding tedious and redundant work
- Develop inherently safer design by analysing multiple over-pressure scenarios
- Consider multiple valves to avoid over-sizing and increase installation flexibility in low relief load situations
- Automate the generation of relief device documentation
- Easily maintain and locate process relief information
- Link with Aspen Flare System Analyzer from both Aspen Plus and HYSYS to quickly create flare scenarios

Reported benefits using dynamic modelling can generate $15 million savings through improved and faster start-up procedures. The avoidance of over-designing relief systems can achieve $10 million in capital cost savings, improved safety through better operational procedures, better control system design and proper relief-valve sizing delivers enormous benefits. Operators can achieve better design decisions through detailed analysis of the trade-offs between process operability and process integration. Quotes from leading engineering companies include:

"The new safety environment in Aspen Plus V8.6 will not only allow us to standardise our relief system documentation company-wide, but it will also provide us with the confidence that the calculation methodologies across the company are high-quality and accurate by using conditions already captured in our current process models."

"The new Aspen HYSYS' safety analysis functionality is great for the relief analysis of the process unit. We can now quickly estimate relieving fluid properties and conditions, size the relief valves and produce required documentation all without leaving HYSYS. This will minimise errors, improve the quality and speed up our work significantly."

Working faster for safer solutions

The measure of any safety relief system is determined by the robustness of the design. Pressure relief valves must be designed to protect against all eventualities and should be installed to react to these conditions within the operation.

Pressure relief device design and sizing can be a tedious, lengthy process and when time is precious, managing under tight timescales requires efficiency. Relief device sizing with leading-edge engineering software allows the user to design a pressure relief device quickly using the process information at the location of the valve. The tools can also serve as an accuracy check to ensure that safety equipment has been properly rated and will perform properly, if needed. It helps designers complete their work faster, so that safety equipment can be installed and implemented sooner.

Keeping pace with innovation is essential to remain safe, compliant and competitive. Using dynamic modelling software delivers reliable results, saving time while doing more detailed evaluations and allowing engineers to better simulate potentially hazardous situations, improve design effectiveness and prevent catastrophic equipment occurrences. Equipping engineers with powerful tools relieves the pressure to perform safe, accurate engineering models and ensure that projects meet standards and that their companies will save equipment, costs and, most importantly, lives. OEG

ASPENTECH

AspenTech is a leading global software provider that optimises process manufacturing for energy, chemicals, engineering and construction, and other industries that manufacture products from a chemical process. With integrated aspenONE software solutions, process manufacturers can implement best practices for optimising their engineering, manufacturing and supply chain operations.
Regis Hugonnard-Roche is AspenTech's business consulting director with responsibilities for developing aspenONE Engineering sales in Europe and ensuring customers gain the full benefits in their daily use of AspenTech's engineering software. Regis has held several positions as customer support engineer, including business consulting, before joining the sales organisation. After several years of key account management for clients across Europe, he took the lead for AspenTech's engineering Business Consultants team for EURA. Prior to joining AspenTech in 1998 Regis worked for three years as a process engineer on different plants and processes. He holds a DUT of Chemistry from the University of Lyon (France) and a Bachelor of Chemical Engineering Honours from the University of Teesside (UK).

For further information please visit:
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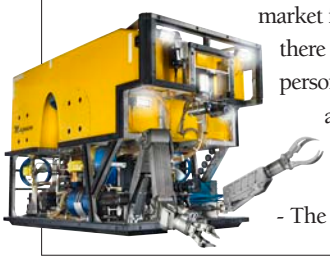
Learning to fly

AS THE INDUSTRY GROWS THERE IS AN INCREASING NEED FOR SKILLED, WELL TRAINED ROV OPERATORS

The need for a skilled, competent workforce in the global oil and gas industry has never been greater, and there is a very real concern that if not enough personnel are being trained now, then future needs will not be met.

The International Marine Contractor's Association (IMCA) has highlighted that, due to the projected growth in the market for Remotely Operated Vehicles (ROV) operations, there will be a shortfall of approximately 2000 ROV personnel through 2012-2017. It is believed that this is already an underestimate, with the figure in reality being far higher.



Meanwhile, a report by Douglas-Westwood - The Market for Work Class ROV Operations from 2008-2017 - showed that ROV expenditure was expected to more than double by the end of the period.

The Underwater Centre in Fort William has been training people for the subsea industry for the past 40 years, working closely with industry to help meet the challenges that the recent increase in activity is creating, as well as to help reduce the projected shortfall of skilled, competent staff.

Its latest training course for those working with work class ROVs is the direct result of ongoing industry collaboration, and has been made possible thanks to significant support from companies such as Fugro, Lawsons Engineering, Kongsberg, FMC Schilling Robotics, and Digital Edge. The course syllabus was developed with the help of Technip, which also provided a Triton XL32 and TXL simulator.

A global first for an independent training provider, the five-week course significantly enhances The Underwater Centre's comprehensive suite of ROV training courses.

Steve Ham, general manager of The Underwater Centre, said its main aim is to change the way industry recruits and trains its staff. "The course was intensive and challenging for the first batch of students but it has been very successful," he said. "The requirement for the course came from industry in recognition of the fact that there is a shortage of skilled, competent personnel in the sector. It also currently takes a significant amount of time for ROV pilot technicians to work their way through the ranks - the aim of this course is to help reduce that time by providing the necessary core skills and practical application required to operate work class ROV systems.

"It is aimed primarily at those with a background in electrics, electronics, hydraulics and mechanics, and provides training in key areas such as ROV industry familiarisation, electrical and electronic systems, work class ROV hydraulics, as well as High Voltage awareness and Working at Height training; all succinctly included in the five-week course, therefore avoiding any additional cost – both financial and of time – to attend further training elsewhere. Fundamentally, the course aims to speed up the time, and ultimately reduce the cost of moving staff into more senior roles.

"In the first course, the students worked well together as a team, considering their varied backgrounds and cultural differences, as would be expected in a normal offshore environment. The course includes a combination of classroom theoretical learning, as well as the important practical elements, whether in our newly created Mechanical Workshop or Electrical Workshop, or on our ROV support vessel, Loch Sunart, which is moored out on Loch Linnhe.

"The intensity of the syllabus did surprise some of them; however, they used any available time in the evenings or at weekends to maintain the pace. They worked hard during their time here and all feel they have gained significant knowledge and experience, which they can now apply to their roles offshore. The combination of classroom and workshop training and practical application of their newly developed skills will be a great benefit."

There are different classes of ROVs – observation or inspection class and work class – and each ROV is used in different ways for undertaking different subsea tasks. While the smaller observation class ROVs are used more for inspection work, checking the integrity of a structure or diver observation, work class ROVs are much larger and are used primarily for subsea construction and survey applications throughout the industry, and around the world. They are continually being developed in both size and capability in order to fulfil the ever-increasing demands within the offshore oil and gas industry. As such, it is important that industry and training providers continue to work together to develop courses based on requirements.

"There is a significant degree of flexibility in terms of course content and syllabus in order to keep up to date with current industry trends, and plans are underway to extend the work class ROV training on offer," said Steve. "We have two more courses scheduled for the end of the year, which will give us time to further refine the course and its syllabus. More courses are scheduled for 2015. We will continue to work closely with industry to develop courses based on its requirements, whether for modular competency-based courses, or more advanced training." O&G

Case study - Shamsul Bin Haron

A graduate in aerospace electronics was one of the first students to take part in the inaugural training course in work class ROV (WCROV) operations, which was launched by The Underwater Centre in Fort William in June.

Shamsul Bin Haron, a 26-year-old graduate from Singapore Polytechnic, made his first trip to Scotland to join three others on the new Work Class ROV Operations course.

Shamsul is currently working as an ROV Pilot Technician Trainee for ASROV Pte Ltd, a subsidiary of Alliance Seaworks Sdn Bhd, based in Singapore and decided to make the change from aerospace to subsea after seeing ROV documentaries on National Geographic.

"After working in the aviation industry for a couple of years, I decided that it made more sense to change my career path and started researching ROV training after seeing some very interesting documentaries. It was when I was doing this research I first came across The Underwater Centre," he said.

"I was originally signed up to take part in the ROV Pilot Technician course here at the Centre, but when my boss found out about this new course he felt it would be much more worthwhile for me to sign on to this, as it covers so much more."

In the first week, the students completed ROV industry familiarisation, which includes working conditions, the work environment and legislation affecting ROV operations. They also began training in ROV Operations, where students were introduced to a wide range of operational procedures and skills. The theoretical training was reinforced with real-world practical activities designed to prepare them for the operation of a work class ROV in the coming weeks.

In week two, the students received practical training in ROV electrical and electronic systems, and the following week they carried out their first ROV flight in open-water

"In our third week, although there has been a lot of information and study involved, the course instructors are very knowledgeable and showed us how we can apply what we learn in the working environment.

"We were able to familiarise ourselves with ROVs and were given the opportunity to take our first flights with an inspection class ROV, before moving on to the work class ROVs. I had no prior experience with working on work class ROVs and I believe the course helped me greatly, using the experience and advice of the instructors to help in my everyday role back in Singapore.

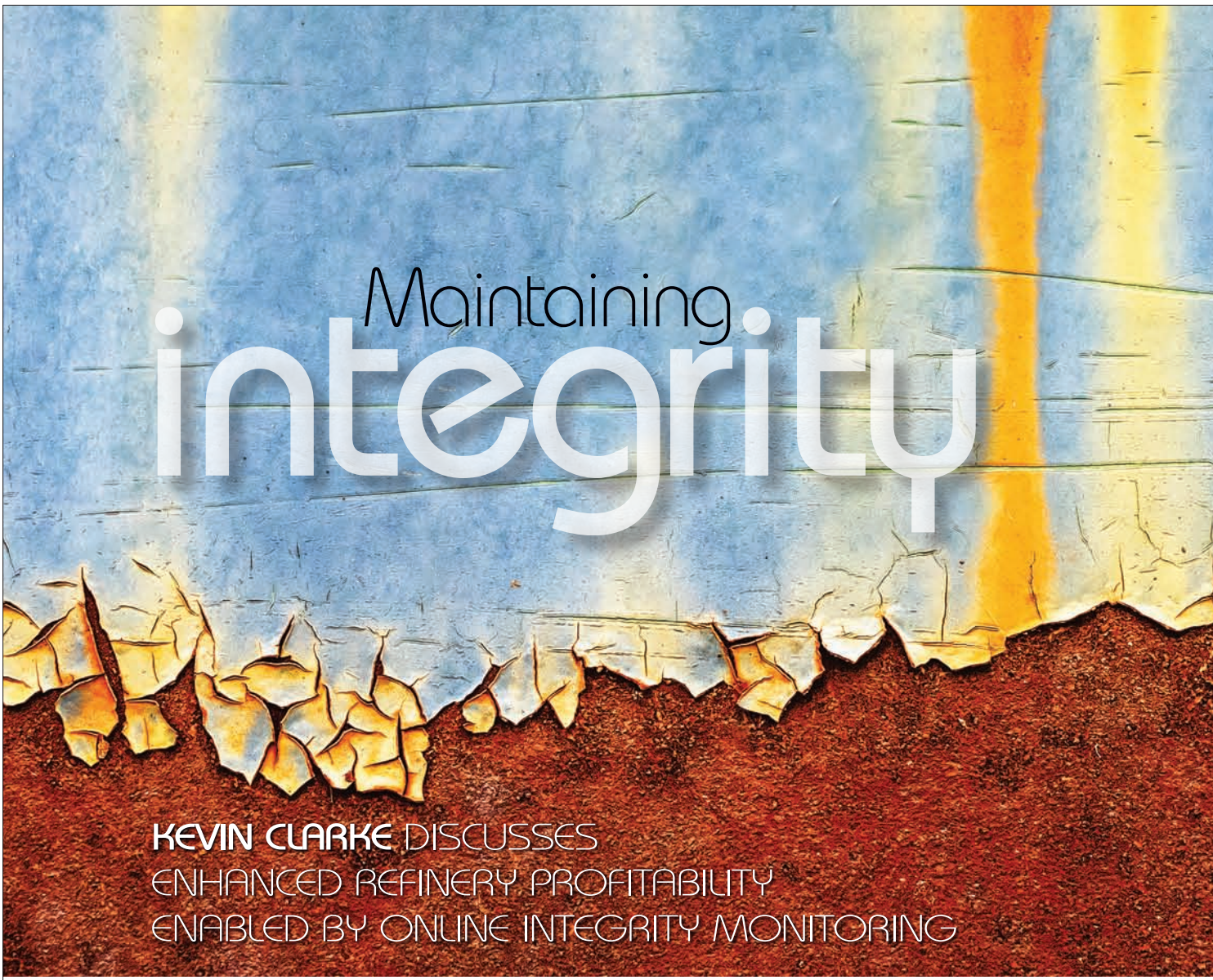
"The course is as close to what I would experience in my working environment and this will give me great confidence in my ability."

For the remainder of the five-week course, Shamsul and the other students were provided with training in high voltage awareness, working at height, ROV maintenance and an introduction to hydraulics.

THE UNDERWATER CENTRE

The Underwater Centre is a purpose-built subsea training and trials facility and is based on the shore of a seawater lake, Loch Linnhe, sheltered by the surrounding mountains. Its unique location allows it to provide year-round training and testing in an open-water environment, while still being centrally located in the largest town in the Scottish Highlands. With access to depths of over 100 metres, it is the ideal location to perform realistic and industry-specific saturation and air diver and ROV pilot technician training, as well as providing a convenient location for subsea equipment trials. The course is, therefore, delivered in a contextual training environment, ensuring it replicates conditions found offshore.

For further information please visit: theunderwatercentre.com



Maintaining integrity

KEVIN CLARKE DISCUSSES ENHANCED REFINERY PROFITABILITY ENABLED BY ONLINE INTEGRITY MONITORING

In these challenging times, European oil refineries are searching for ways to do more with less. By keeping input costs low and valuable outputs maximised, refineries can achieve significant competitive advantage. However, decision making to enable enhanced profitability is often hampered by a lack of real time plant integrity knowledge. Corrosion is an ever-present problem in refineries. Lack of knowledge about how the corrosion is occurring across the facility can either result in unexpected corrosion issues requiring reactive maintenance, or demand an overly conservative approach to crude purchasing, inhibition and maintenance. All of these issues lead to a reduction in profitability from what the refinery can really achieve.

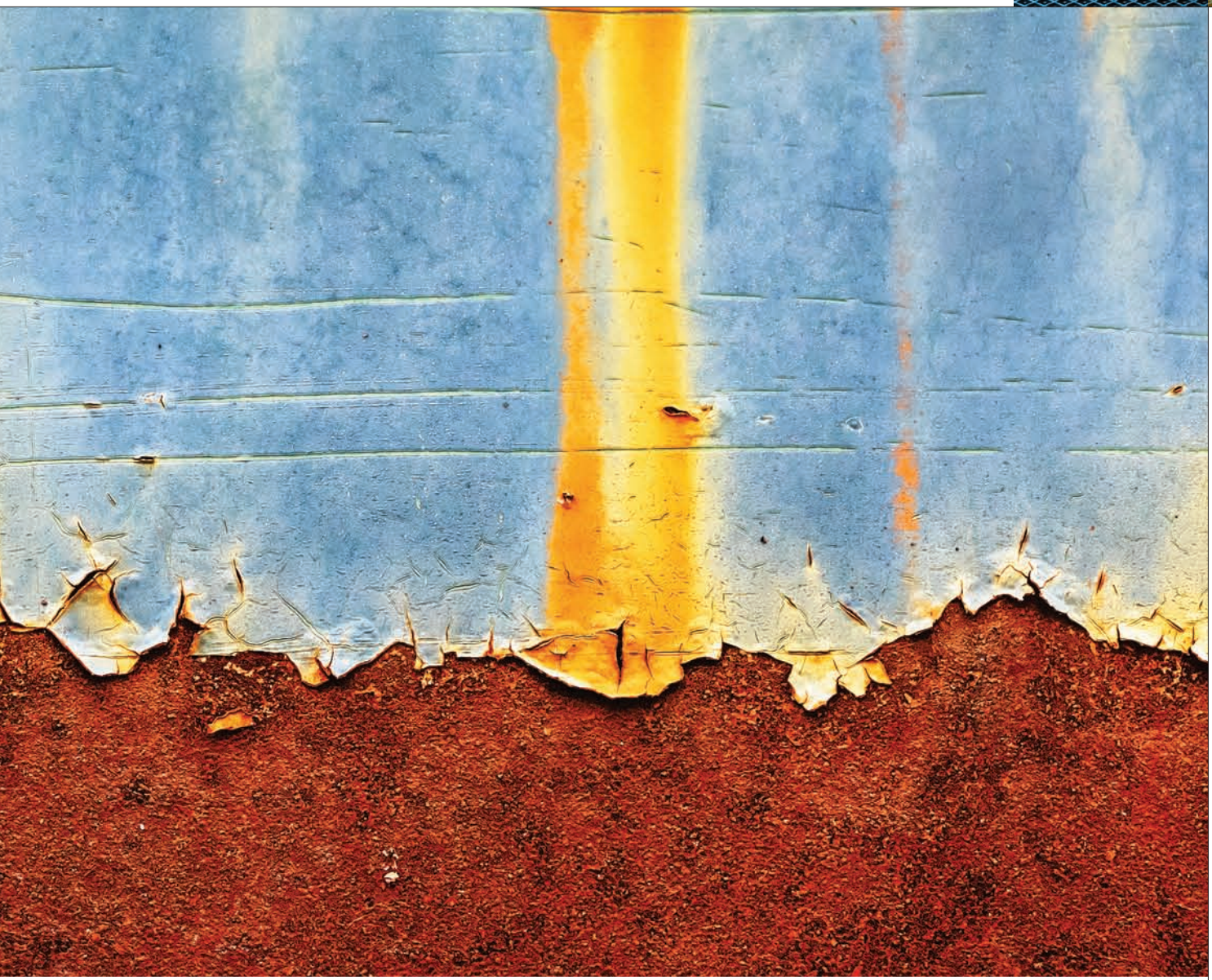
Corrosion and erosion occur in every facility, whether oil or gas, refinery or platform. While the focus here is on European refineries, the concepts are valid for all.

Internal corrosion occurs in refineries when certain fluids interact with certain metals under certain operating conditions. The type of corrosion and the rate of metal loss depend on the above parameters. These parameters vary over time as refinery operational decisions are made, for example, in changing the crude oil diet and therefore the corrosion rates also vary over time. Traditionally, wall thicknesses are measured manually at very sparse time intervals, usually when the refinery unit is shut down. The difficulty is in knowing the pipe thickness in real time, as these parameters vary and so the risk of corrosion varies with the refinery in service.

Regular integrity measurements taken online afford the additional benefit of reliable in service corrosion rates to be determined. Refiners can use this insight to better inform decisions: to more effectively plan maintenance activities to avoid unplanned outages and maximise plant availability at crucial times, and to take advantage of 'opportunity crudes' (crudes which are generally cheaper than market price but also are likely to be more corrosive) when they are available, thereby leveraging the asset to its maximum potential and maximising profit. This crude diet flexibility is absolutely essential to profitability these days.

Three Part Plan

Dealing with corrosion in refineries generally comes down to three factors; metallurgy, integrity monitoring and inhibition. Metallurgy is one facet of corrosion control and mitigation. Refinery operators can utilise alloys, which are more resistant to the fluid and operating conditions experienced in a given



part of the facility. However, no alloy is immune from all types of corrosion and building or replacing pipework with these alloys can be a substantial capital expense (CAPEX). In addition, it is not possible to change the metallurgy with the refinery in operation.

The other two facets, monitoring and inhibition, are used for both aging and new facilities and can both can be done without a shutdown and the costs are substantially less than replacing pipework with special alloys. Monitoring and inhibition are the minimum tactics that should be a part of any corrosion detection and mitigation plan.

As everyone in this industry knows, inspections are not only necessary, they are mandated. However, the basic mandated manual inspection does not provide the real time insight required for profitability enhancement. To deliver these benefits, permanently mounted sensors are required. The Permasense system delivers a previously unobtainable quality and frequency of wall thickness measurements from the high-risk areas of the facility affording a large range of decisions to be made on the run, which would otherwise be non-optimal. Permanently-installed sensors can also be mounted onto new piping to validate or monitor metallurgical upgrade decisions. They allow for an extremely high degree of accuracy, removing inherent manual inspection variabilities in measurement position, equipment used and equipment operator. Having frequent measurements that are both direct and accurate, are not possible using inspection personnel, particularly when the areas in question are in difficult to reach places or hazardous, such as very hot pipes often encountered in refineries. However, the online monitoring system can be used to focus the attention of the exiting manual inspection team towards where they are most required.

Better informed decisions using ultrasonic measurement sensors

The Permasense sensors are the heart and brains of the monitoring plan. The sensors are ultrasonic and are mounted on stainless steel waveguides that distance the electronics from the intense operating temperatures (up to 600°C (1100°F)) of the pipework or vessel. These stainless steel waveguides conduct the sensor signal to the pipe wall and back, giving a very accurate measurement of wall thickness. This reading is then sent continuously via wireless signal to a receiver that collects all of the sensor data from the facility. Besides wall thickness, they can also measure metal wall

O&G

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temperature. Sensors are usually placed in strategic, at-risk locations or where past experience has shown corrosion has occurred, often in a grid formation to ensure detection and reliable monitoring of more localised corrosion attack.

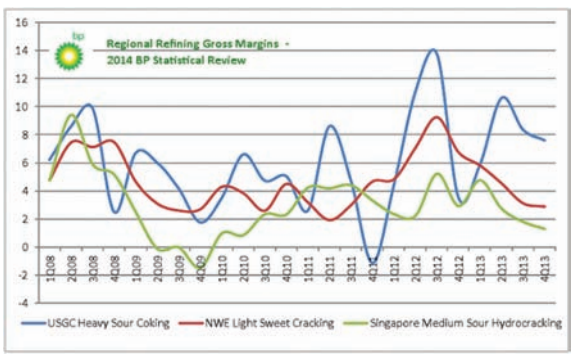
Above: Six sensor array BP Whiting Refinery

Each of the sensors is equipped with a long-term battery that is designed to last for up to a decade. These devices are intrinsically safe for use in hazardous environments and have been widely used in the industry for a number of years, with over 7500 sensors installed around the world in over 70 facilities.

Collecting this sensor data automatically and transmitting it to facility engineers gives a current picture of the integrity of the plant pipework. The system goes further than that by collecting and showing data from the past so that trends can be identified, corrosion rates can be shown with accuracy and better informed decisions can be made as to how to best use assets to their fullest extent.

It's no longer light, sweet and easy

Processing light sweet crudes through refineries is relatively easy and these crudes are expensive, yielding a thin margin for the products produced. Additionally, heavy and sour crudes are becoming more prevalent as light sweet fields become depleted. The differential input costs between running a light sweet crude diet and a higher TAN blend of heavy sour crudes is significant, due primarily to the significant discount for the latter.



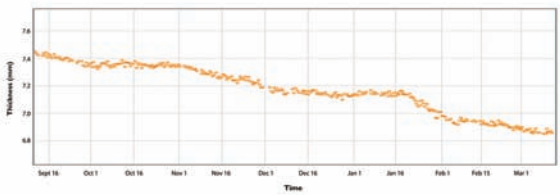
Above: BP Profit Rate Variability chart

The difference in gross margin for a 200,000 bpd USGC

conversion refinery between lowest and highest margins (since 2008) was $90 million per month. This represents a significant portion of the net profit for some facilities and could make the difference between net profit and loss. Refineries need to be poised to take advantage of short-term upswings in margin by ensuring plant availability when these opportunities arise. The refinery must also be ready with adequate monitoring such that any increases in corrosion rates can be detected, monitored and acted upon.

Cover your assets

Refineries that are processing high TAN or sour crudes need to know how these highly acidic substances are affecting their pipework since it is more corrosive than lighter crudes. Once the sensors are in place and running, refineries can see the pipe thickness and chart the corrosion over time. As we can see from this diagram, corrosion rates can vary depending on the crude diet.



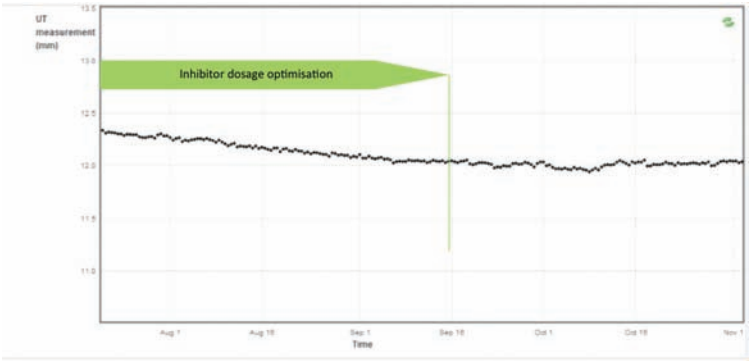
Above: Example of intermittent and varying rate corrosion stretch

With or without the more expensive alloys mentioned earlier under metallurgy, the sensors allow the facility operators to see where they are regarding integrity and then to deploy relevant mitigation strategies. For example, if the corrosion rate is faster than expected for a period, then this information informs root cause analysis and leads to better informed mitigation strategies or maintenance schedules.

Alternately, if a scheduled downtime is approaching and the Permasense system shows that they have plenty of pipe thickness remaining, refineries can potentially increase the run length or push operating windows by processing more aggressive crudes in order to take advantage of the higher margins these crudes deliver.

Corrosion inhibition

The third part of the plan involves using inhibitors. Inhibitors are chemicals that are injected into the fluid to reduce the risk or rate of corrosion attack. There are many different chemicals and strategies available and it is often difficult to ensure the correct strategy is employed and to measure its effectiveness on controlling the corrosion. Online integrity monitoring can be used to optimise the corrosion inhibition strategies as the process parameters and fluids vary over time. The data can also be used to validate the effectiveness of the inhibition strategies. This sensor measurement history shows how a crude plant stabilised the corrosion by adjusting inhibitor injection rates in stages, all the while monitoring its effectiveness.



Above: Bringing corrosion under control

Inhibitors and metallurgy are two tactics employed to attempt to change or reduce the impact of corrosion within the facility, but the most important component is being able to measure and monitor the pipework integrity and see what the effects of these or other methods are having. With this knowledge, refiners have the information to make better decisions on what they can and can't do and which tactics are working and which are not.

Conclusion

The use of the Permasense integrity monitoring system informing corrosion inhibition and metallurgical upgrades can significantly improve operator awareness about the integrity of their pipework system and whether mitigation tactics, if necessary, are having an effect. This means that these facilities are in a better position to know their operational limits and optimise their strategies accordingly to maximise plant availability, flexibility and, ultimately, the profitability of the refinery.

KEVIN CLARKE

Kevin Clarke is the sales director for Permasense. He has over 27 years of experience in the downstream and oil and gas sector. Previously, he was a lead partner and director at KBC Advanced Technologies plc, with a specific focus on developing Russian and Eastern European client accounts, and overseeing delivery of consultancy projects. Mr. Clarke also held various executive vice president positions. Earlier in his career, he worked at the Elf Oil Refinery in Milford Haven, UK, where his various roles included operations superintendent and operational planning superintendent. Mr. Clarke holds an MBA and a BE degree in chemical engineering from Imperial College. He is a chartered member of the Institution of Chemical Engineers.

For further information please visit: permasense.com

The right cleaning solution

PROSAFCO NV

At Prosafco NV we have only one concern: to guarantee the safety of what happens on your workfloor. This is something that we, as a manufacturer and distributor of personal protection equipment (PPE), are extremely good at. Our range covers everything from gloves to protective headgear, safety footwear to portable gas detectors, safety harnesses, to products that protect the skin. So, if what you are looking for relates to safety, we can supply you with what you need.
The wide range of safety standards makes selecting the right PPE far from straightforward. But our many years of experience make us the right partner to assist you when you need it most. And because we have such good stock management and our own distribution network, you can also rely on us for the right products at the right time.

Group Victor Peeters was founded in 1955 by Mr. Victor Peeters, as a modern cleaning company that has since worked in government and industrial markets. The company has positioned itself as a leader in modern cleaning techniques and today ensures that its highly motivated team of employees and modern equipment is available to clients seven days a week, 24 hours a day. "Almost 60 years since the business was founded Group Peeters is still a family business and we are quite proud of that," says commercial director, Bart Vanstiphout. "After all, it says something about the nature of the company. We are a business of hardworking people and quite often generation after generation works for us. Group Peeters now has more than 800 employees, a fleet of over 400 vehicles, is spread across nine locations in Belgium and the Netherlands, and continues to grow."

The company offers a comprehensive package of cleaning services throughout the industrial, sewer and tank sectors including solutions for pipelines, storage tanks, production units, air fin coolers, reactors, industrial chimneys and flare installations. Furthermore although cleaning remains the company's core activity, Victor Peeters has grown to offer an extended service package including catalyst exchanges, tank coatings, waste management, camera inspections, infrastructure maintenance, blasting, turnaround management and control, consultancy and tailored training, as Bart elaborates: "Our experience and expertise has turned us into an all-round provider of industrial services in a multidisciplinary way, which allows us to offer our clients a single point of contact. As Group Peeters complies with the highest QHSE standards we are the perfect partner for projects on any site. From shutdown management and cleaning, coaching and training of management or local contractors, to customised equipment and rapid response teams – we assist clients to reach the full potential of the their installations."

From its headquarters in Herentals, Belgium Group Peeters has grown to achieve a turnover of 89 million euros in 2013 and the business continues to invest in education, equipment and innovation, reaching as much as 11 million euros in 2014. The company has recently opened an international division that has allowed it to reach clients in new markets. "The reputation of Group Peeters has led us to several partnerships outside of Belgium's borders. Through the first successful projects in France and Germany during 2013 and ongoing projects in Malaysia and Dubai during 2014, we decided to spread our knowledge and services. We created an international team to assist in increasing the productivity and business performance of the companies we work with. For every project we can assign the right specialists needed to perform the job," Bart says.

"Many multinationals are looking to increase efficiency, to maintain high standards and expect knowledge of their installations from their partners," he continues. "Customers want a supplier with the same standards and values as their own. There is more and more awareness and attention for sustainable processes like reduction of emissions, environmentally friendly detergents and the health and safety of workers throughout the full scope of operations."

The development of bespoke industrial cleaning services is increasingly important for Group Peeters as the company continues to expand and reach new clients. Its continued investment and delivery of targeted solutions has allowed the company to build an international reputation for quality and innovation, as Bart outlines: "Group Peeters is a pioneer in industrial services. We are ahead of the curve in making sure that our technologies, machinery and fleet

WVT INDUSTRIES

The Victor Peeters Group and WVT Industries share a long history together and what started out many years ago as a supplier/customer relationship soon grew into a solid partnership.
The capability of WVT Industries to tailor-make cleaning chemicals and the experience and specialised equipment of Peeters Cleaning enabled the partnership to set itself apart in the cleaning industry by offering successful customised cleaning solutions that few others could achieve or match.
WVT Industries will continue to support the Victor Peeters Group as their preferred supplier for chemical cleaning products and wish them every success in their future international expansion.

KAMAT

High pressure pumps

KAMAT has been a leading supplier of high pressure technology for 40 years. KAMAT plunger pumps, with 10 to 800 kW input power and pressures up to 3.500 bar, are built for use in water jetting, the process industry and water hydraulics.
In particular, the MCH-head is designed for the oil and gas industry with pressures of up to 1000 bar and flows of up to 3.500 l/min per pump, it is made for pumping abrasive slurries with particles up to 350 µm and viscosities of up to 2.000 mPas, and is seawater resistant and according to API 674.

are constantly updated in line with the newest trends and developments. In co-operation with our clients the company's engineers develop bespoke solutions to establish safer, environmentally friendly and cost-saving ways to finish projects. We have our own research and development hall, where we develop, build and test new designs and innovations.

"Recently we developed a boiler cleaning project for Dow Chemicals in Germany. This concept was based on automation to provide a 'non-entry' method for safer working conditions. We develop new techniques with non-entry and automatic cleaning whenever we can to ensure the health and safety of the people involved. As a result of the success of this project we are now rolling out a similar project for another customer. Another interesting project was an innovative rail for Holtec in the US to conduct our air fin cleaning system over the air fin coolers automatically. The combination of the rail and our air fin cleaner prevents the cooler from experiencing downtime and eliminates the need for cranes for cleaning. Following the installation local people were trained to operate the equipment. The system brings a return cooler capacity of up to 35 per cent and is much safer than manual cleaning."

Although Group Peeters provides flexible, custom-designed solutions in a broad spectrum of applications, the majority of its clients operate within the petrochemical and energy sectors, where they rely on the company's ability to quickly address ad-hoc projects and its strong dedication to HSE standards. For example, during September 2014 Group Peeters completed a project at the Valero Pembroke refinery in South East Wales, where it cut out approximately 25 square metres of 15 centimetres thick concrete refractory from a 'riser' efficiently and cost-effectively.

As Group Peeters continues to grow and establish a wider customer base it will rely on its highly trained staff and strong knowledge base to carry the business forward, as Bart concludes: "Our people are the most valuable asset of the company; they are the heart of the business and its ongoing continuity. Our focus is not on short-term profit but on long-term returns. We pay a lot of attention to safety and the health of our team, sustainable operation and environmentally friendly methods. As part of our growth we plan to open a new location in Lutherstadt Wittenberg, east of Germany. We selected this location for two reasons; first of all it is situated in the industrial heart of the region, and second because it is a perfect base from which to fulfil the demands of surrounding countries in the south, such as Poland and Romania as well as Denmark in the north. We have also become established in the Middle East within Saudi Arabia and Abu Dhabi. Furthermore, we will make big steps in innovating and bringing in techniques such as the use of laser technology-online and bringing chemical cleaning in-house." OEG

Group Victor Peeters
grouppeeters.com

Services
Industrial cleaning and services

Keep on rolling

Top left
Stainless quarto plates

Top middle
A plate inside one of the new heat treatment furnaces at Outokumpu's quarto plate mill in Degerfors, Sweden

Top right
Outokumpu coil products

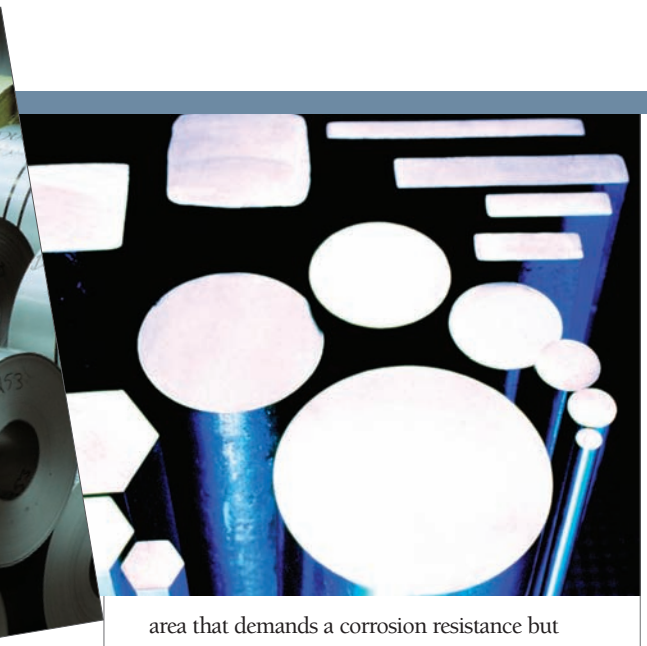
Far right
Outokumpu long products

Outokumpu is a global leader in stainless steel that has been instrumental in developing the stainless steel industry into what it is today. In a history that is as old as that of stainless steel itself the company has operated from established sites in Germany and the UK, where stainless steel was invented in the 1900s and in Sweden, where duplex was invented. "We are a material supplier creating advanced products that are efficient, long lasting and recyclable, complementing our vision to help build a world that lasts forever. Stainless steel is a perfect example of such a material that will help us achieve that goal," says Dr Bernd Beckers, director technical marketing. Today the company has facilities covering all continents with production resources in China, Finland, Germany, Mexico, Sweden, the UK and the US, with a global sales and service centre network that is close to its customers.

Following the integration of Inoxum, the former stainless steel arm of ThyssenKrupp, the business has been actively undergoing a major transition period. "This is a major transition for us that will enable us to further grow our market positions across the globe," highlights Bernd. Its operations in Europe, Middle East and Africa (EMEA), in Americas and in Asia-Pacific (APAC) have helped the business to achieve sales of 6745 million euros and stainless steel deliveries 2,585,000 tonnes in 2013. Employing more than 12,000 professionals in more than 40 countries, it has headquarters in Espoo, Finland. "Today we are organised into five business areas. Beyond Coil EMEA, Coil Americas and APAC we have established business areas targeting long products, and quarto plates.

"The main rationale behind the restructuring is to sharpen the profile of our offering, and adapting to a regional approach. Across Europe the overall stainless market continues to struggle with overcapacity and to operate within this tough climate we need to take a streamlined approach to our coil activities. In contrast, the US has shown to be one of the important growth markets and we are in the phase of ramping up our stainless steel mill in Calvert, which both melts and rolls coil," he adds. The mill, which is expected to be in full production by 2016, was incorporated as part of the business transition.

Outokumpu has been supplying its products to the oil and gas industry for over 50 years in both upstream and downstream applications, and its high performance products have proved to withstand some of the most aggressive environments across the globe. "From extracting and processing the oil to the final customer delivery there is an application



area that demands a corrosion resistance but increasingly important are the strengths and benefits of the products," says Bernd. Recognised for its strengths, in March 2014 the business announced its largest-to-date duplex order. Delivering 22,000 tonnes of duplex 2205 stainless steel to a natural gas field project in Oman, the company is well progressed into the order that will continue to autumn 2016.

Commenting on the trends seen outside of the business, Bernd points out: "The market continues to grow globally and this is very positive for stainless steel. Globally, average growth rates of five per cent in 2015 and 2016 are expected, with four per cent in 2017. We now have a strong foothold in the Americas, where our market share in the growing NAFTA market is 20 per cent." Benefitting not only from its long experience, but also a high degree of technical expertise, the company utilises a wealth of R&D resources that maintains its position at the forefront of application engineering, for example developing new solutions for specific segments, such as oil and gas.

From enhanced grades that offer better corrosion resistance and higher strengths to a new umbilical tubing development within the subsea environment, the potential of its portfolio continues to grow. "Seamless super duplex umbilical tubing is the only available solution at present, but we have recognised the strong interest from oil companies to find alternatives and successfully developed a welded umbilical tubing solution, which we launched with one of our partners that offer tight dimensional tolerances and a substantial reduction of the number of orbital welds in the umbilical," explains Bernd: "The development of a lean duplex with a pitting resistance equivalent number (PRE) above 28, meeting the requirements from Norwegian offshore is another example of our recent product development activities. EDX 2304 - a modification of the mature duplex 2304 grade with higher corrosion resistance and higher mechanical strength - is an ideal material for structural offshore applications."

The company attended ONS 2014 in Stavanger where it further promoted its aim of developing a solution working with its own clients, as well as the customers' customers, with the engineers, the end users and the oil and gas companies. "We are looking towards teaching the industry about recent developments in stainless steel production, and through being close to the market and understanding the challenges we can find the best solutions. Through consolidation and restructuring capacity we have set the foundations for the future but now we must execute our promises. We have reorganised our production capacity and product portfolio and we look ahead in a good position to be an even stronger partner to our customers in the future," Bernd concludes. O&G

> Outokumpu has been supplying its products to the oil and gas industry for over 50 years in both upstream and downstream applications, and its high performance products have proved to withstand some of the most aggressive environments across the globe

Outokumpu
outokumpu.com

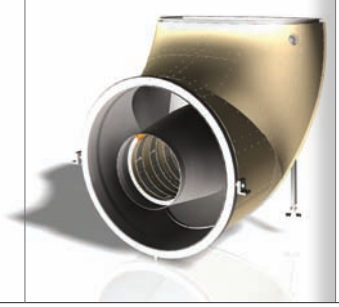
Services
Global producer of stainless steel

Isolating the solution

POLUX LTD

The offshore environment is a demanding sector, requiring dedication towards the welfare of workers and equipment. Both off- and onshore process work is often required, and in this area Polux Ltd is a leading supplier of threads, heat treatment, thermocouple, equipment and power cables, and other solutions, all of which can be delivered quickly and efficiently to a rig or offshore installation.

For 20 years Isolated Systems and Polux have worked closely, with Isolated Systems trusting Polux's PTFE coated stainless steel sewing threads to meet its most demanding requirements. Polux looks forward to continuing this relationship into the future.



Established in 1970, Isolated Systems Limited (ISL) began life as a modest venture serving the heating ventilation and air conditioning (HVAC) industry and has since grown to become a leading supplier of bespoke engineering solutions around the world. Today exports account for more than 25 per cent of the company's annual turnover and ISL continues to expand the global reach of its products and support services. When the business was last featured in *European Oil & Gas Magazine* during September 2013, ISL sales manager Barry Bend revealed how the company had enjoyed record sales for the financial year ending in May 2013 and how ISL had recently launched a new calcium silicate product range of low, medium and high grade thermal pipe isolation specifically targeted at the offshore oil and gas sector.

Moving forward to the present day, ISL continues to deliver tailored solutions to blue chip companies in a broad base of sectors including oil and gas, power generation, semi-conductors, marine, pharmaceutical, commercial building services and HVAC. Furthermore the financial year ending 2014 has proven to be another highly successful period for ISL with its annual turnover again breaking records, rising from £5.1 million to £7.5 million. "This has exceeded all expectations, with a staggering amount of performance," says Barry. "Our market penetration is currently better and stronger than ever."

ISL currently sub-divides its product range into five categories comprised of anti-vibration products, expansion compensators, flexible connectors, acoustic products and thermal insulation. Within its thermal insulation portfolio the company's range of calcium silicate pipe insulation, first released in 2013, has proven to be a huge success. Recently ISL secured a £1.9 million contract to supply calcium silicate elbows and straights for isolation aboard a floating platform to be deployed in Norwegian oilfields. As well as taking advantage of calcium silicate's non-combustible properties and maximum temperature range of 1000ºC, the project will also exploit the products' robust construction and outer weather protection provided by an anti-static silicone coated glass fibre fabric, which is water proof and UV resistant.

"Isolated Systems Limited's calcium silicate high temperature pipe insulation is able to protect very high temperature installations," Barry explains. "It is also very robust. Its equivalent predecessor was like wrapping a bandage around a pipe, whereas with calcium silicate you can stand on it and work on the installation. It is easy to remove and easy to fit, it is very lightweight in construction and has very good longevity in use. It is also easy to use in terms of servicing pipe work, as technicians can remove it, carry out any necessary maintenance work and replace it very easily."

While the company's calcium silicate pipe insulation has proven to be a highly successful addition to its product portfolio over the past 12 months, ISL has also entered into an important agreement with Rolls Royce by becoming a fully approved and accredited design and manufacturing house for the company. "We have been working with Rolls Royce Marine Turbines for the last three years and we were called in to offer a solution to a thermal insulation problem they had on their industrial turbines," Barry elaborates.

"Conventional insulation was amongst other things, very bulky by the time it was able to provide the correct temperature protection. Therefore ISL developed a new product in the thermal insulation world, which is a microporous solution that only consumes a portion of the space that its competitors in the field would have done. As a consequence of that

work designing and manufacturing products for Rolls Royce Marine in Bristol word got out and we are now talking with, and doing work for Rolls Royce Energy Systems in the US. As part of becoming accredited with this design and manufacture status Rolls Royce audited the company, which is a very strict and rigorous process that takes years. We believe that there are only 75 companies within the UK to hold this accreditation, which is quite an accolade."

During 2014 ISL has worked to position itself in close proximity to its current and future clients, by becoming an associated member of the British Pump Manufacturers Association (BPMA) and the Pump Distribution Association (PDA). This will allow the company to expand its customer base and continue to increase its market share. Further to growing its presence within the pump sector, ISL is also keen to further develop its business in the fan market as Barry explains: "We want to start focusing on the fan industry as it is closely related to the pump industry because if you pump something you need to cool it down, so the fan industry and the cooling industry are close cousins of each other. We have some fan customers, but like the pump market the fan market is very large and we only have a very small percentage of loyal customers in the sector, so that is where we will focus next."

Indeed the past 12 months have been incredibly positive for ISL and there is no sign of this success diminishing in the future. As the company continues to deliver bespoke engineering solutions throughout its market sectors, it is sure to add further companies to its growing list of clients. O&G

> Indeed the past 12 months have been incredibly positive for ISL and there is no sign of this success diminishing in the future

Isolated Systems Limited
isolatedsystems.com

Services
Industrial noise, vibration and thermals management solutions

Bigger and better

Essentra Pipe Protection

Technologies, which forms part of the Component & Protection Solutions division of Essentra plc, specialises in the manufacture of high performance innovative products from commodity resins to engineering-grade thermoplastics and polymer alloys for use in a range of end-markets, in particular the oil and gas industry.

Until recently Essentra Pipe Protection Technologies traded as MSI Oilfield Products, with the business only changing its name in October 2013 when the entire Group rebranded to Essentra. This abstract name was specifically chosen to capture what each of the constituent businesses manufactures and supplies; namely millions of relatively small but essential components which often play a critical enabling role in the products of the Group's customers, everywhere and every day.

John Boben, president of Essentra Pipe Protection Technologies, highlighted that being part of such a large group is of major benefit to his business: "As part of the Essentra plc organisation, Essentra Pipe Protection Technologies is extremely well resourced to support and service our customers in the energy industry," he stated. "The Group has the financial capability to add capacity, deliver value-added product innovation and establish operations in new markets around the world. Additionally, our CEO, Colin Day, who is also a non-executive director of the energy engineering consulting and services company AMEC plc, is very supportive of the future of the oil and natural gas industry and of Essentra Pipe Protection Technologies' position in that industry."

John continued with some history on the Pipe Protection Technologies business, noting it was established 34 years ago as a plastics injection moulding company manufacturing thread protectors for oil and natural gas drilling pipe. "Then, in 1994, the business was acquired, subsequently to go on to become part of the extensive worldwide organisation now known as Essentra plc," he added. "Today Essentra Pipe Protection Technologies is a market leader with operations in four countries which – over and above our headquarters in Houston, Texas, US - are Veracruz, Mexico; Edmonton, Alberta, Canada; and Aberdeen, UK. And we are in the process of adding manufacturing capability to an Essentra site in Paraguay, to support our current commercial activities in Brazil and our future regional expansion efforts in South America."

The Houston headquarters is where the company opened a state-of-the-art manufacturing facility in 2012. "This 136,000 sq. ft. facility provides injection moulding, CNC threading, tool building and product warehousing utilising the latest moulding and part threading technology, along with robotics and automated part handling equipment, to assure the highest quality," John pointed out. The project represented a significant investment – an approach that is required when working in a fast moving sector like oil and gas; Essentra also believes that its strategically positioned, modern facilities are one of its key strengths. "They mean we can serve customers wherever may be required," said John. "No other supplier of pipe protection products serves more locations than we do, and furthermore, we provide the widest range of product offerings available in our industry."

Of particular note is the recently launched MaxX line of thread protectors. "This is a leader in our industry," explained John. "This high impact resistant product was developed in response to newly enacted thread protector specifications by the American Petroleum Institute (API) to assure maximum protection for the threaded ends of pipe used in oil and natural gas drilling operations."

The Essentra MaxX thread protector is available in sizes ranging from 2 3/8" diameter to 9 5/8" and is of an all-plastic design. The MaxX was the first product to be certified by independent laboratory testing certified to comply with the API specification. Following the

success of the initial MaxX product, Essentra has responded to customer feedback and designed and launched a complimentary product line to service drilling wellsite applications that require protectors, which allow pipes to be lifted individually onto the drilling floor.

The product is a perfect illustration of how Essentra Pipe Protection Technologies is at the forefront of product development. Indeed, alongside new products, significant research and development (R&D) is dedicated to creating new plastic resin formulations to assure that the company is providing the highest quality products at competitive prices to better service its customers. As John put it: "As a leader in our industry, our engineering and R&D resource is critical to meeting, and exceeding, the exacting requirements of our customers."

These customers are well-known brands in the energy industry and include major and independent oil producers, drilling contractors, oil service companies, OCTG pipe manufacturers and pipe threaders, as well as a cross section of other companies that provide services to the energy industry.

"Without being able to mention specific customer names, we have been successful in securing long-term commitments from some of the major players in our industry for the supply of a variety of our pipe protection product offerings – from thread protectors to lifting bails, pipe chocks and bumper rings," said John. "We continue to expand our market reach to customers outside North America, and several customers now specify the Essentra MaxX as their protector of choice when an API certified product is required.

"Our products are used in all exploration and production drilling applications both onshore and offshore, as well as for pipe protection needs for transmission and pipeline applications. As a global industry, our customers require a close working relationship with the ability to provide our protection products wherever the need arises. As a result – and as a trusted partner to the industry - we must 'think global but act local' when servicing their pipe protection requirements," he continued.

Essentra Pipe Protection Technologies has invested millions of dollars into facilities, the latest manufacturing equipment and R&D over the past few years and has plans in place to continue that going forward, to support the growth expected in the industry. Over and above expanding further in South America, the business is determined to move into areas where it believes new opportunities will arise. "We see exciting times ahead for the energy industry throughout the world and we are keen to expand our geographical footprint into other markets globally," confirmed John. "It is likely to come from M&A opportunities, which are an integral component of Essentra's overall business growth strategy, and we see great opportunities ahead. The recent growth in North American oil and natural gas exploration, as a result of horizontal drilling and hydraulic fracturing technology, continues to evolve and is expanding into other regions of the world," he added. "We will continue to expand our manufacturing capabilities and capacities, as well as our emphasis on innovation and new product launches that support our customers' needs. We aim to service our industry in more locations globally than any of our competitors, and will be bigger and better than ever, continuing to be a leader in support of the opportunities that lie ahead for our industry."

A manufacturing legacy

Founded in 1864 by Albert Taylor, A. Taylor & Son Ltd was established as a tinsmiths and sheet metal worker in Kirkstall, Leeds. 2014 marks the 150th anniversary of the company and coincides with one of the most significant events in its history, the relocation and commissioning of a new machining and assembly facility based in the former premises of H.Pontifex and Sons, a site steeped in history with roots dating back to 1796.

"To mark the occasion the company has joined forces with the Leeds Rugby Foundation, who through their Heritage Committee have their own celebrations to commemorate 150 years of Rugby in the city," explains director, David Minskip. "Leeds Rugby Foundation is a registered charity that delivers projects in the heart of the community, harnessing the power of sport to make a lasting, positive impact on individual's lives. As a charity the Foundation has an amazing opportunity to change lives through sport."

Today A. Taylor & Son continues in its proud tradition of delivering high integrity fabrications to a variety of industries, with a specialised focus on the oil and gas sector over the past 40 years. As such the company is regarded as one of the UK's leading sub-contract manufacturing engineers with a broad base of standard as well as bespoke solutions.

"With the general demise of the sub-contract sector throughout the UK over recent years the company has invested heavily in purchasing its own machine tools to create an impressive and diverse group of both conventional and CNC machines housed in a modern purpose-built machining facility," David says. "A. Taylor adopts a 'quality without compromise' attitude having held BS5750 and then ISO 9001 accreditation since 1992, and is supported by a highly skilled workforce with a wealth of experience in the most exacting of industries; every day peoples lives depend on the integrity of 'Taylormade' products."

Indeed the company has invested significantly in its equipment and facilities in recent years to ensure that it is able to guarantee

the continued delivery of its highly acclaimed services. The purchase of the former H.Pontifex works was announced during November 2010 and A. Taylor wasted no time in beginning the daunting task of relocating its workshop to the new location. The phase of readying the site for use involved the construction of a 9000 sq ft extension to the new premises to house the company's largest machine tools, including a recently purchased floor borer. Over the following three years the buildings were gutted and re-fitted to create a modern, well-appointed facility to house a growing portfolio of machine tools. "To support the new site a decision was made to move the company's head office to Pontifex and further land and offices were purchased in 2012 opposite the works," David reveals. "With Pontifex' fully operational staff finally relocated in January 2013."

While A.Taylor has significantly invested in its equipment and facilities, the company has also worked hard to ensure that it maintains long-lasting relationships with its clients and with its staff. A key advantage for the firm is that it enjoys a high retention rate amongst its employees, with 2014 seeing three long-serving members of staff celebrate 25 years' service, Tim Edgley purchasing expeditor, Les Foster plater and Alan Griffiths QA manager. This continues the company's tradition of cultivating long-term relationships and industry defining expertise.

A. Taylor has developed a full turnkey service package that offers clients high quality solutions in precision fabrication, welding, machining and finishing, as well as rigorous inspection and fulfilling demanding documentation requirements.

David adds: "As a company we accept quality is a given in this industry and our long history and reputation bears this out, but we are also passionate about continual improvement and we are making massive strides in adopting the best practices of our customers who are keen to partner us to mutual benefit.

"Over the past 18 months we have introduced many initiatives to improve our own performance and that of our supply chain to ensure we stay ahead of our competitors, and we are seeing the results of our hard work come to fruition. We have never been a company to rest on its laurels; on the contrary we have plenty more innovative solutions to implement whilst we begin to plan our next phase of expansion."

Within the oil and gas industry the company is able to supply critical components including deepwater production tools, ROV equipment, subsea control modules, shipping skips and baskets, large guide base fabrications, protective structures, canopies and the largest overtrawlable frame assemblies.

These specialist fabrications have applications all over the world and will remain in great demand as the global requirement for energy continues to rise. As such, A. Taylor is ready to meet the needs of the future market and expects further growth as it transitions into the coming years, as David concludes: "A. Taylor believes its future is in the hands of its employees - a highly skilled workforce who will not only maintain but also raise the standard set by previous incumbents.

"In 2013 the company opened its training academy to train tomorrow's young engineers and already boasts award-winning apprentices that are leading the way in industry. By increasing its scope and delivering a first class service the company is ideally positioned to take advantage and add further value therefore galvanising its position as a strategic partner to all its clients." O&G

> A. Taylor has developed a full turnkey service package that offers clients high quality solutions in precision fabrication, welding, machining and finishing, as well as rigorous inspection and fulfilling demanding documentation requirements

A. Taylor & Son
ataylor.co.uk

Services
Fabrication, machining and engineering

In safe hands

With 40 years of experience

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

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

As the business has continued to grow, JBS has changed location and moved into larger premises several times throughout its history. During 2009 construction began on a bespoke building located at the Dales Industrial Estate in Peterhead, Scotland, and by 2013 new business and a significant increase in turnover increased requirements for larger structures. "We have recently been awarded an RSA grant, which will help us to achieve our long-term goal of building a new and larger fabrication building next to our existing site," Iain explains. "Ground works on the new facility will be commencing in November this year for the new fabrication facility to be complete by spring of 2015. The new building will have 20 tonne and ten tonne cranes, 720 sq m floor space and large end door (10m high x 8m wide) for easy access for loading/offloading inside the workshop with trailers."

The JBS facility sits on a 1.75-acre site and has an indoor fabrication area of 36 metres by 20 metres with a 15 tonne overhead crane, while the engineering division machine shop has a 24 metre by 22 metre floor space with a five tonne overhead crane, various lathes, milling machines as well as vertical and horizontal borers. It also houses the JBS commercial division, which has numerous wood working machines, tooling and stock items as well as a one-acre site for storage and handling. As well as its main Dales Industrial Estate location, JBS maintains a second site some seven miles away that undertakes fabrication work in an area sized at 548 square metres, with a further 614 square metres of outdoor space. The expanding JBS main facility provides a one-stop-shop solution for clients' design and fabrication projects, while its small

site is able to take on smaller projects or lend support to ongoing projects at the larger site.

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

waiting for transport companies and quotes that add time and additional cost to the work.

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

With its growing reputation and continued investment in larger facilities, JBS is enjoying increased demand for its offshore capabilities including the installation of structures built in-house. As such, the company currently has a good core of offshore personnel that are quickly available to go offshore to a client's facilities. Furthermore, JBS has a strong record of completed projects and is currently close to completing a HoldBack Structure with Technip for the Greater Stella Project, as Iain explains:

"This project is currently being completed over the next two weeks. This has been our first major scope of work for Technip in the subsea market and is exactly why we are building the new larger fabrication facility to accommodate the demand of larger subsea structures."

With this projects and host of others, JBS has identified itself as a first-class design and fabrication solution to clients within the oil and gas market.

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

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

JBS Group (Scotland) Ltd
jbsengineering.co.uk

Services
Specialist engineering and fabrication

Refreshing dedication

Located on the Western Coast of Norway in the maritime hub of Aalesund, Volstad Maritime AS is a privately owned company that owns and operates vessels, which are actively working across the sectors of seismic exploration, diving, offshore IRM and construction. The establishment of the company in 1952 saw Volstad construct its first vessel, which remained present in the Norwegian and international fisheries until 2007. Since then the company's fishing activities have been nets, long lining, purse seining and trawling, both for shrimp and for whitefish. The company currently operates one factory trawler in Norwegian waters, supplying large quantities of fish into the European market.

The company entered the seismic exploration field with its vessel, 'Tau', in 1982, which, since its construction has remained in active employment, and today supports AUV operations in Brazil. As the business entered the new millennia, its fleet steadily grew, acquiring another seismic exploration vessel before penetrating the subsea market in 2005 with the DSV Bibby Sapphire. Having developed an expertise in the field, the multi-role diving support activities were further enhanced two years later when it acquired a second DSV with a capacity that enabled the business to operate with 18 divers at up to 300 metres depth. In the period between 2008 and 2012 the bond between vision and actual growth was further strengthened, when Volstad acquired five newbuilds from Fosen Shipyard, operational as construction, research and subsea support vessels.

With over 60 years of dedication to the sea, in October 2014 Volstad Offshore AS entered into a bareboat charter contract with its vessel Tau, with a duration of two years firm commitment and a further three, one year options. The agreement followed the declaration of the option to extend the time charter for its vessel Geco Bluefin for one more year up to 31st December 2015. The heightened activity is far more than a surge in demand, and as such the business has had the foresight to prepare itself for the future years ahead.

With 2015 on an ever-nearing horizon, the delivery of two new multi-role vessels from Kleven Myklebust Yard becomes equally near. Both ships are to be equipped with a 250 tonne heave compensated offshore crane and capabilities for cable laying from the carousel, trenching, ROV operations and various IMR work. When delivered, the full operating fleet of Volstad will consist of ten vessels, reflecting to some degree, the popularity of the business amongst its clients. Volstad originally placed the orders for the newbuilds with Bergen Group Fosen, but the projects have now been sold to Kleven. The vessels are of ST 259 CD design from Skipsteknisk, the same as the sister vessel 'Grand Canyon', which was delivered in 2012. At 127 metres long, the large and highly advanced vessels will each be able to accommodate 104 persons.

The environment has long been a consideration for Volstad, which has selected chemical free water treatment for all its engines and further plans to save large volumes of chemical waste. As one of the majors in offshore

shipping, the company is a real front runner in using new environmentally proven technology and it has recently decided to change the engine and HVAC water treatment regime. In order to have functional systems, it is very important to treat the water-cooling in the engines and in the HVAC systems. Historically this was achieved through the use of a chemical mixture to avoid corrosion, scaling and biofilm. However, the latest series of new ships will benefit from Norwegian patented 'EnwaMatic' technology that is based on filtering and treating the water with minerals balancing, removing oxygen and neutralising the water. The unit is fully automatic while it protects the engine or the HVAC system's internals.

In keeping to the central requirement to reduce emissions to air and sea as much as possible, the protection of HVAC and engine cooling systems is a proactive step towards safeguarding the environment. As an alternative to chemical dosing, continuous treatment and filtration will prolong the system and component lifespan without risking the environment. The instant that water enters the system it causes flash corrosion, and during operation it will form scaling, bacterial contamination and fouling, which has a significant impact on energy consumption, motor components and overall life cycle cost.

When specifying a water treatment regime consideration must be given to its efficiency, its whole life cycle cost, how easily it can be implemented and managed, and what potential risk it presents to personnel and the environment. A major worry for ship owners has been the fact that whenever an engine cooling system or an HVAC system is drained, the water has to be treated as special waste since chemicals are being used to avoid corrosion, scaling and bacteria. Having considered the challenges of the industry and developed appropriate solutions, Volstad strides towards the conclusion of the year with a strong fleet, backed by a reassuring past, ready for a prosperous future. O&G

> The environment has long been a consideration for Volstad, which has selected chemical free water treatment for all its engines and further plans to save large volumes of chemical waste

Volstad Maritime AS
volstad.com

Services
Owner and operator of seismic exploration and offshore vessels

Commitment to quality

Established in 2001, PV Drilling has developed its services significantly over the last 13 years to become one of Vietnam Oil and Gas Group's leading subsidiaries. Operating as a member of the International Association of Drilling Contractors, the company is a well-reputed provider of drilling rigs and drilling-related services, while also supplying manpower for onshore and offshore drilling projects.

Formed with a clear strategy of becoming the leading drilling contractor in Vietnam, as well as serving the global market, the ISO 9001:2008, OHSAS 18001: 2007, ISO 14001: 2006 certified company has diversified its portfolio to provide customers with a wide range of services that are divided into two main areas. The first of these is the management and operation of onshore and offshore drilling rigs, which plays a critical role in yielding revenue and profit for the firm and contributes to 60 per cent of its total revenue as well as 70 per cent of its net profit. Meanwhile, the second strand for PV Drilling is the delivery of both traditional and high tech well and drilling related services such as well testing, mud logging, MWD, LWD and directional drilling. To ensure the delivery of integrated, optimum solutions, PV Drilling acts either independently or via its reputable partners such as Baker Hughes and BJ Services.

Accompanying the company's services is its fleet of three high quality jack-up rigs, one land rig in operation in Algeria and one semi-submersible tender assist-drilling (TAD) rig. All of these rigs are the latest generation of their kind, including the jack-up rigs that are all Keppel Fels MOD V B class models, capable of operating at up to 400 feet water depth and drilling at a depth of up to 30,000 feet. Built in 2007, the PV Drilling I is an ABS/A1 self-elevating drilling unit, with an overall dimension of 234 ft x 208 ft x 25.5 ft; can accommodate 110 persons and is currently drilling for the next discovered oil and gas field, known as Ca Ngu Vang. The remaining two jack-ups were delivered in the first and final quarter of 2009 respectively.

Meanwhile, its land rig, PV Drilling 11 is a

2700 HP design VFD type rig that is capable of operating under ambient temperature conditions from 0 degrees Celsius to 50 degrees Celsius; able to drill to a maximum depth of 23,000 ft, the land rig is currently drilling for the developed oil and gas field MOM-3 of PVEP in Algeria. The last rig in the company's fleet is its semi-submersible rig, PV Drilling V-TAD, the eighth tender assist-drilling rig in the world and the latest generation of its kind.

Boasting state-of-the-art technology, the PV Drilling V is considered the most modern TAD rig to use Keppel Fels' revolutionary SSDT 3600E HP design; developed by Keppel O&M's deepwater technology group (DTG), the ground-breaking design enables the rig to be deployed alongside deepwater floating platforms for the first time. Furthermore, the enhanced design enables the rig to work in harsher environments and work on high pressure high temperature wells via its BOP control system, which has a working pressure of up to 15.000 psi; the PV Drilling V is also the first TAD rig to be capable of operating at 30,000 feet maximum drill depth, at a water depth of up to 4000 ft.

Through providing five of its assets on hire to international drillers in offshore Vietnam, PV Drilling currently occupies more than 50 per cent of the local drilling market; this percentage is likely to grow in the coming years as the company looks to add several advanced jack-up rigs to its fleet, as well as an additional semi-submersible rig. The acquisition of further assets reflects an ongoing response to the rapidly moving market and the company's intention to realise a strategy of expansion in the near future. Included within this strategy is the delivery of a new 400 ft jack-up rig from Keppel Fels, which is due for completion in February 2015. A prime example of the company's commitment to continuous investment and improvement of its assets, the rig, named PV Drilling VI, will be furnished with the most advanced technology in its field and primarily serve the global market operating from Southeast Asia, the Middle East and the Gulf of Mexico.

Held in high prestige, PV Drilling believes its success stems from the commitment and quality of its human resources, who constantly strive to enhance their knowledge and skills in mastering the technology and services within the drilling sector, which thus adds value to clients. It will therefore come as no surprise that the company views the development of personnel as a top priority in its strategy for growth and

is dedicated to the development of its highly skilled personnel through a suitable recruitment policy, a systematic career development plan and competitive compensation and benefits scheme.

Having earned over $330 million (total revenue of $480 million) in revenue from its own rigs by the third quarter of 2013, PV Drilling looks set to continue flourishing in a market with strong exploration and production (E&P) activities. Furthermore, as older-generation rigs are gradually replaced following stricter safety regulations coming into effect, the quality conscious company is in an enviable position as the market searches for high-spec rigs. O&G

> All of these rigs are the latest generation of their kind, including the jack-up rigs that are all Keppel Fels MOD V B class models, capable of operating at up to 400 feet water depth and drilling at a depth of up to 30,000 feet

PV Drilling
pvdrilling.com.vn

Services
Professional drilling solutions

Building the hub

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

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

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

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

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

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

MASTENBROEK TRENCHING TECHNOLOGY

Mastenbroek is pleased to work with Koop Watermanagement in the design and manufacture of its deep trencher requirements. Mastenbroek deep trenchers are used for horizontal de-watering on pipelines, construction sites, and open cast mining, together with soil mixing for cut off walls, soil stabilisation and load bearing areas.

Mastenbroek is proud of its global reputation as a pioneer of trenching technology for applications including utility trenching, sub-surface drainage and offshore product trenching.

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

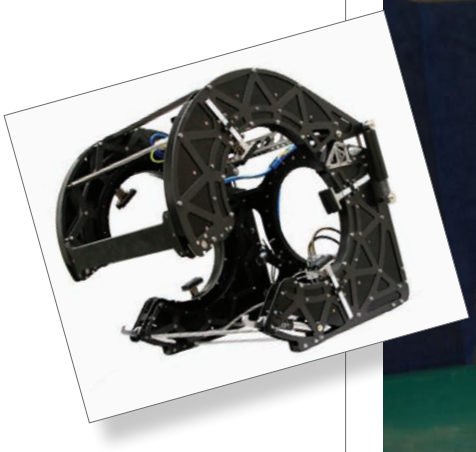
Another major challenge was the extraction of saltwater, which meant discharge could only be done into surface water that consisted out of saltwater; because the pipeline route had very few of these discharge points available, multiple pump stations were installed. Meanwhile because of the high levels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

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

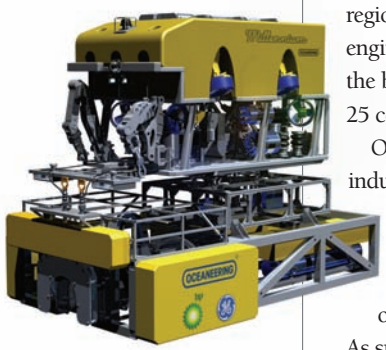
> We have a large fleet of equipment, with several machines and a number of trenching machines for horizontal drainage, which means we supply almost everything ourselves throughout a project

Koop Watermanagement
koopwatermanagement.com

Services
Dewatering systems



Subsea investigation



Celebrating its 50th anniversary during 2014, Oceaneering International was founded in 1964 as the Gulf of Mexico based company, World Wide Divers. As the demand for subsea and diving services grew so too did the company and in 1969 World Wide Divers merged with two other diving companies to form Oceaneering International, Inc. Since that time Oceaneering has transformed from a small regional company into a truly global supplier of engineered products and services. As of 2014 the business employs over 12,000 people across 25 countries.

Oceaneering Subsea Asset Integrity (SAI) is an industry leader in the provision of high quality inspection and integrity management centred services that has grown in line with Oceaneering International's wider strategy of organic growth and targeted acquisitions. As such, SAI today represents one of the largest suppliers of integrity services in the world, operating globally in North and South America, Africa, Europe, South East Asia and Australia. Indeed SAI also shares in the wider Oceaneering group's 50 years of experience to deliver services in a safe, innovative and cost-effective manner in a number of applications within the oil and gas, chemical, power and construction industries.

Today SAI provides advanced 'real-time' subsea inspection techniques with both ROV and diver deployed solutions, which can be broadly broken down into subsea radiography and ultrasonic services. These include its Neptune ROV and diver-operated Trident ultrasonic systems, which allow versatile subsea piping inspection. "Our Neptune and Trident ultrasonic systems provide 360 degree circumferential coverage through 0.5 metre axial length allowing corrosion mapping of pipework, flowlines jumpers and risers," explains sales engineer, Mike Killeen. "The systems can be deployed with pulse echo and phased array probe configurations to perform such inspections. In addition, the systems can be deployed with time of flight diffraction (ToFD) probes to check crack detection and weld inspection. The Neptune system is ROV deployed and is rated to 3000-metre water depth; to date its deepest dive is 1700 metres.

"In addition to performing inspections of rigid piping, the Neptune and Trident can be used for flooded annulus detection on flexible piping," Mike continues. "Upon detecting flooding within the annulus region the system can then take thickness measurements of the tensile armour wires to aid in remaining life assessments. Neptune is the only ultrasonic system on the market with a proven track record of successfully detecting the flooded or non-flooded status of flexible piping having O&G

performed scans on over 200 risers worldwide since its introduction."

Further to these systems SAI also operates a system known as Magna Scan, following the acquisition of the Houston based company Spectrum. Magna Scan has been adapted for use in marine environments as an ROV deployable tool called Sea Turtle, which tracks along the top of pipes and locates defects for further inspection. The system functions as a scanning tool prior to inspection utilising the Neptune or Trident systems.

Presently Oceaneering International owns and operates two thirds of the world's workclass ROV systems, which gives the company enormous scope in integrating inspection systems with ROV units. Furthermore, operating as part of the wider Oceaneering Group provides SAI a strong base from which to develop market-leading solutions, as Mike elaborates. "Being part of Oceaneering International gives us the financial backing to produce a number of inspection systems, which gives us greater flexibility operationally to meet customer requirements. There are currently six Neptune systems in existence positioned globally in Houston, Angola, Perth and Aberdeen. This allows us to deploy systems where they are needed and when they are needed."

As well as ensuring that the company is geographically close to its clients, SAI is keenly aware of the operational requirements of subsea operations. With five decades of experience in operating in the offshore environment SAI is well placed to deliver the right solution in a professional manner, every time. "Understanding customer requirements is the key to any sales process and selling inspection solutions to operators is no different," Mike says. "Failure to understand pipe coating when performing ultrasonics for example, can prevent inspection data from being obtained. This is not good for the customer and it is obviously not good for us. We make use of questionnaires to fully capture details of a piping system, which is critical for an internal inspection solution. Alternatively through a consultative sales process these details are captured anyway and allow us to develop multiple solutions for the client."

As such, SAI is well placed to continue to grow and increase client awareness of its services over the coming years. "SAI has great potential to grow significantly over the next few years. New tools are being developed while the current tooling is being developed further," Mike says.

"Although the inspection tooling is well used, SAI is only beginning to scratch the surface in terms of where the business can go. Operators are becoming more aware of the inspection services we can offer, which is something that is clearly linked to obtaining more business. In addition to awareness of the techniques available to the operators there are various life extension projects that are ongoing and in planning that will push the requirement for these tools.

"The next 12 months will be about getting in front of operators to increase the awareness of what we have in our service toolbox. In terms of product development the Magna Scan, Neptune, RITS and the Digital Radiography Tool all have plans in place to take them closer to fulfilling their potential. The next three to five years will involve opening SAI bases in new locations around the globe, which will be dictated by customer demands. The subsea factory is on every operator's lips at the moment and is something that Oceaneering is developing inspection tools for," Mike concludes. O&G

TIS HYDRAULICS

TIS Hydraulics is a fluid power specialist that has been established in Aberdeen for over 20 years and services the oil and gas market.
For the last decade TIS has developed a strong working partnership with Oceaneering by supplying key components such as hydraulic fittings, hydraulic valves and bespoke hose assemblies, and ensuring stock levels are maintained to meet project critical delivery times.
TIS Hydraulics is continually looking to improve on the support and service provided to customers, and the extremely positive relationship it has with Oceaneering is a testament to this.

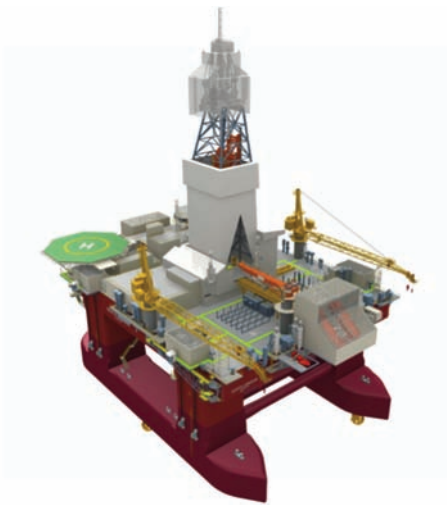
Oceaneering Subsea Asset Integrity
oceaneering.com

Services
Subsea inspection techniques

A multinational venture

Based in Norway, North Sea Rigs AS (NSRAS) manages the design and manufacture of cutting-edge, high quality oil rigs on speculation targeting the North Sea market, particularly the Norwegian sector. Although NSRAS itself was officially incorporated during 2011, the roots of the company actually date back a decade earlier, when managing director Stephen Adshead was heavily involved in rig construction for the North Sea. "We started working with China ten years ago in building fit for purpose rigs for the North Sea, especially the Norwegian sector," Stephen explains. "In 2005 we arranged the financing of, and signed a contract for four rigs with a company called OffRig ASA. Awilco Offshore ASA then bought that company, and Awilco then sold that company to COSL Drilling Europe AS, which is a subsidiary of China Oilfield Services Limited (COSL). That set the scene of building Norwegian standard rigs in China at the RAFFLES shipyard, which is now the Yantai CIMC Raffles shipyard."

Following the financial crisis in 2008 the market experienced a significant decline in demand for new rigs, however as per the cyclical nature of the oil and gas sector, by 2011 there was a recognised need for the replacement of old rigs and the introduction of a new fleet. As such NSRAS was formed in 2011 and began talks with the Yantai shipyard to discuss the appetite for oil rigs built to Norwegian specification. During 2012 the company had agreed contracts with the shipyard and determined the necessary level of funding to build its first rig. The contract for the construction of the North Dragon was signed at the beginning of 2012, coming into effect at the end of the year, while the company's second rig, Beacon Atlantic was commissioned during 2013. The North Dragon and Beacon Atlantic are each based on a model designed by Global Maritime, a company with which Stephen has worked with since 2005, when it provided the designs for the initial rigs that he and his team brought to market.



Today NSRAS has two rigs under construction and a contract in place with the Yantai CIMC Raffles yard for a third due to come into effect at the end of 2014. The company believes that during the coming years there will be an increasing demand for new offshore equipment within the North Sea sector and that NSRAS is well placed to provide a leading solution to the region's operators. "I think that while there are a lot of older rigs becoming available to the market at present, many companies – particularly majors – require a higher grade fleet for their drilling operations," Stephen elaborates. "Many of the rigs that are available are 30 to 40 years old, even though they have been refurbished they are seen as higher risk assets compared to modern designs. The rigs we build and the equipment on board are such that we use the very latest of equipment that is available. We

work with several major suppliers including Global Maritime, Kongsberg, NOV, Siemens, Rolls Royce and CIMC Raffles. Over the years all of these companies have all being working to steadily improve the products that they supply to market with more efficient designs, and as such we have that built into the rigs."

The relationship between NSRAS and many of its associated partners has lasted for a decade, resulting in a strong bond of excellent co-operation and continued development. Equally, the close relationship between its majority shareholders has also been vital in allowing NSRAS to finance and deliver its leading rig designs. Originally the company was established with three investors with a fourth investor, China International Marine Containers (CIMC), joining later to become

the largest shareholder. CIMC (which has major shareholders such as China Ocean Shipping (Group) Company (COSCO) and China Merchant Group), contains seven listed companies and more than 300 subsidiaries globally. This has provided NSRAS with a strong base and reliable source of finance from which to operate. Furthermore, the ownership of Yantai CIMC Raffles Offshore Limited by CIMC Group, ensures close co-operation between NSRAS and the yard in securing financing and finalising projects.

Indeed the multi-national ownership of NSRAS and the strong base provided by CIMC is a key strength for the company and a necessary reflection of the current market, as Stephen observes: "I think that in today's financial markets, Chinese financing is needed for these kinds of projects as it is not easy to build rigs

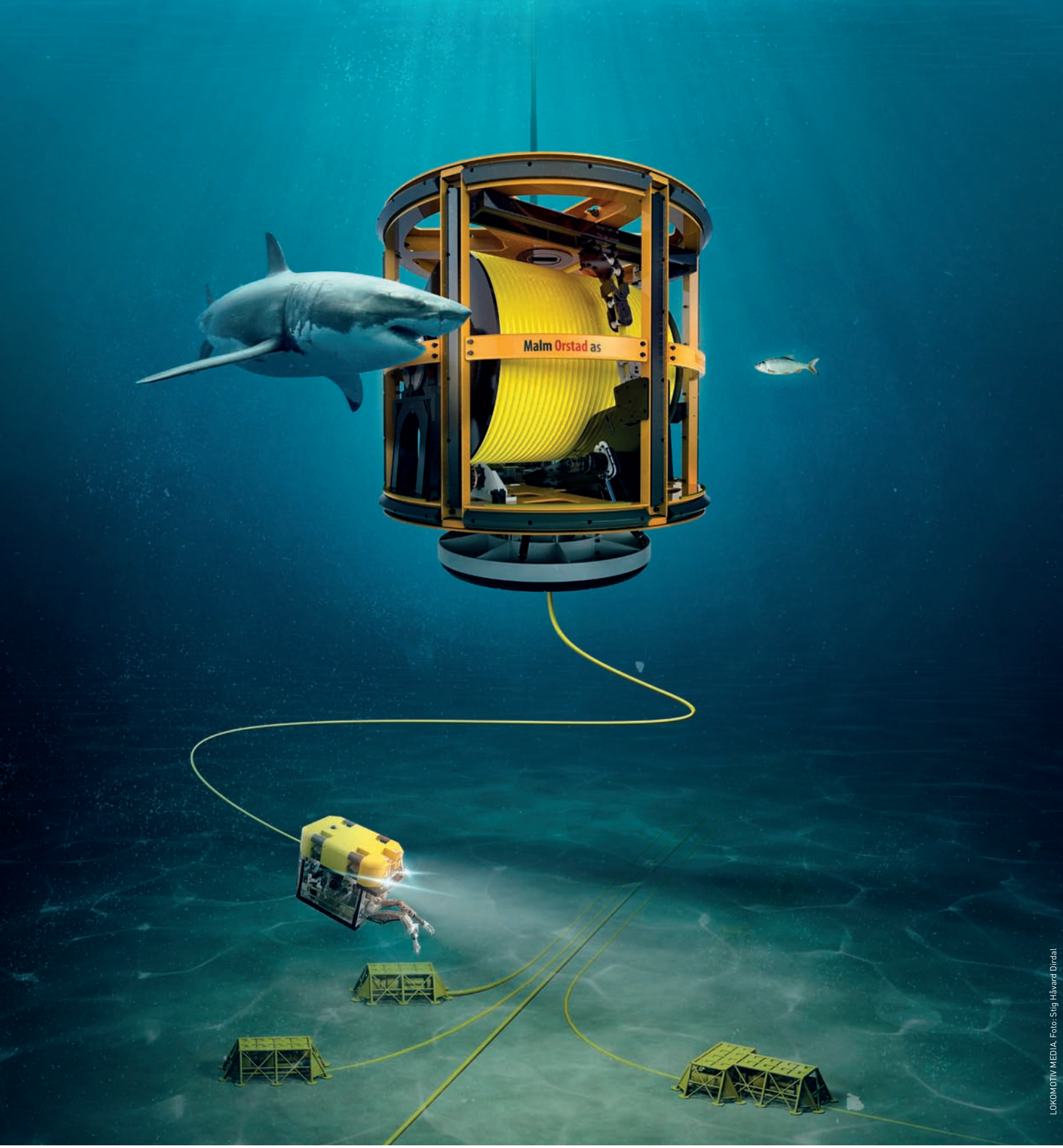
on speculation. Therefore having access to the financial markets in China and additionally access to the other Far Eastern funds is a real advantage. For example, we have Hong Kong and Singapore investors that are involved in the building of these rigs, which gives us access to the kind of money that still isn't available in London, Oslo and New York."

Although the world's demand for energy continues to increase unabated, the cyclical nature of the offshore oil and gas market often results in volatile and challenging trading conditions. Presently many operators are cutting back on their offshore operations, resulting in an increase in the number of rigs available for charter and worse, the low cost of oil continues to drive down the price of rig charter and sales. However, NSRAS is confident that the market will begin to improve and experience far greater activity over the coming years, resulting in a revitalised demand for modern rig designs. This will bolster the economies of Europe, Norway and China, because although the rigs are built in China, many of the company's partners are based in Europe, meaning that 60 per cent of the value of the rigs can be termed as local content within its native Norway. "We see our future growth as fairly robust and we predict that the oil price will also recover in the future," Stephen says. "As long as the price of oil per barrel is in the range $80 to $100 then that will make the projects we are targeting viable. Within the Norwegian Continental Shelf something like 27 rigs have been used but analysts believe long-term demand in the future will exceed 35 units and we see ourselves as being very much a part of that." O&G

> I think that while there are a lot of older rigs becoming available to the market at present, many companies – particularly majors – require a higher grade fleet for their drilling operations

North Sea Rigs AS
northseargs.com

Services
Offshore rig construction management



LOKOMOTIV MEDIA. Foto: Stig Håvard Dirdal

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Challenge Us

The missing link

Sandvik Riser Technology

(SRT) is part of Sandvik Material Technology, one of five business areas of Sandvik AB, and a global company involved in the development and production of advanced stainless steels, special alloys, titanium and other high-performance materials. Formed in 2003 in Stavanger, SRT's main focus is on the engineering, development, sales and marketing of the ClikLoc connector to the well completion and intervention market. This smart connector for topside and subsea riser applications improves safety and reduces cost.

The design replaces the requirement for the use of flanges and other sophisticated connectors that require numerous tools to complete the connection, aiding the possibility of completing high pressure riser joints without tooling. The ClikLoc connector is a revolution in multiple 'make and break' connections, reducing cost by making riser connections safer by eliminating the hazards of falling objects and further, can speed up installation considerably.

Originally developed as package for use in the North Sea market, several years of intervention and calculation went into the application design before its launch in 2009. It was field proven in several projects at the NCS and soon extended to the waters off the UK and beyond, attracting business in the Gulf of Mexico and Brazil. "Our product is not only reliable but saves valuable time for the client," says Tore Salte, business development manager, continuing: "In situations where work is undertaken at rigfloor due to lift frame application and need connecting landing string to the cased wear joint without rotation. This is one of the main benefits for the topside application."

The safety conscious technology eliminates the risk of falling objects and vastly reduces exposure time for handling crew. Typical topside applications for the product include coil tubing stack up risers, lifting frame applications, end connectors for dry tress and various applications within intervention and completion work. The product is constructed using a super duplex material that supports the use of the product on a global scale across varying working conditions. "Our design has been finalised according to ISO 13628-7, the workable completion standard, and one that employs a high degree of verification and testing before delivery into the market.

"Testing has been one of the greatest challenges, due to the lack of appropriate test equipment in the market. In response we have invested into a four point bending machine to undertake testing in-house. We have also appointed DNV as a verifier for our products as we launch variants into the subsea market," points out Tore. This drive towards self-assurance saw an investment of 15 million NOK, complementing the years of development and improvement in the technology. With a customer portfolio consisting of businesses that include Statoil ASA, Det Norske Oljeselskap AS, BP Norge AS, BG Norge AS, ConocoPhillips Norge, Island Offshore AS, and Schlumberger, it is clear that the strengths of the connector are well regarded in the industry.

Conventional rigging of a typical 30-metre tall riser tower would involve more than 900 potential falling objects, and as Tore explains: "Operators are constantly looking for ways to reduce exposure safety risk to their personnel, and the potential of falling objects. Whether for use in a coil tubing/wireline BOP, or across the various equipment used in intervention work, assembled connections vary greatly and the connector can be fitted to all variations of connections. This flexibility is a key aspect of our offering."

As an example, with a threaded connection, the failure of mis-threading is a common problem and repair causes costly delays for the rig. Through the use of the ClikLoc connector the problems can be eliminated, reducing the operational downtime. In another project, a customer on the Norwegian continental shelf was looking for a safer and more time saving alternative to the conventional rigging of coil tubing stack-up risers. The introduction of the connector for topside well intervention ensured that the operator was able to increase safety for its offshore crew and minimise the

time for the riser tower to occupy the platform skid deck. SRT provides an installation and supervision service, although the simplicity of the product often means that once proficient in the method of installation, clients are able to perform tasks unaided.

Adding to its list of successful contracts, SRT undertook a project with BP Norway on the Skarv field, supplying connectors to be used in the completion of a semi-submersible within a tension frame. The goal of the project was to create an easy 'make and break' connection between the landing string and the cased wear joint, as well as putting into various wireline BOP's and coiled tubing operations. As it branches into more subsea work, typical applications of completion and workover risers is likely to show substantial increase. "We have also had active involvement with ConocoPhilips in Norway on the Ekofisk field. There, our application has been used across the riser and installation of the coiled tubing. Every time an intervention is carried out on that field, our equipment is used," says Tore.

The functional advantage of a fast and secure connection without tools is supported by the easy and vibration free locking mechanism, which has been operationally proven in harsh environments. "Across our entire target market the product has been very well received and as clients begin using it, they immediately recognise the benefits. The method saves vast amounts of time and the simplicity of the operation ensures that the client can perform the operation, disconnect and move onto the next task. Looking further ahead we expect to see an expansion of demand into specialty subsea qualification and in line with this, full performance tests with DNV start in November 2014," Tore highlights.

With the company's technology set to reduce life cycle cost and implement a safer operation for clients' offshore crew it is ready to design and implement a quick and effective solution to any existing application.

There is a new field of activity unfolding in Norway, and the potential for subsea application in significant. SRT is also undertaking some initial investigative operations and works with the Brazilian market, which has huge potential for work now and years to come. Concluding, Tore says: "As we look ahead we aim to establish ourselves as a complete workover riser supplier extending beyond the connector and tube into the supply of a complete workover riser." OSG

MALM ORSTAD AS

Malm Orstad AS is an independent contractor specialised in the mechanical sector of the oil and gas industry. The company's main areas are engineering, machining, welding, hydraulics, assembly and testing. Malm Orstad offers a complete package solution to simplify projects and provide a single point of contact. With 145 highly qualified employees, the company has a very flexible organisation enabling it to carry out larger complex projects.
Its main market is in Norway but the company's exports to other countries has increased the last few years, and today it exports approximately 30 per cent of its turnaround to countries like the UK, the Netherlands, Germany, Russia, Turkmenistan, the US, China, Angola, Nigeria, Brazil, Singapore, Malaysia and Korea.

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> The safety conscious technology eliminates the risk of falling objects and vastly reduces exposure time for handling crew

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Services
Engineering and development of high performance materials

Good vibrations

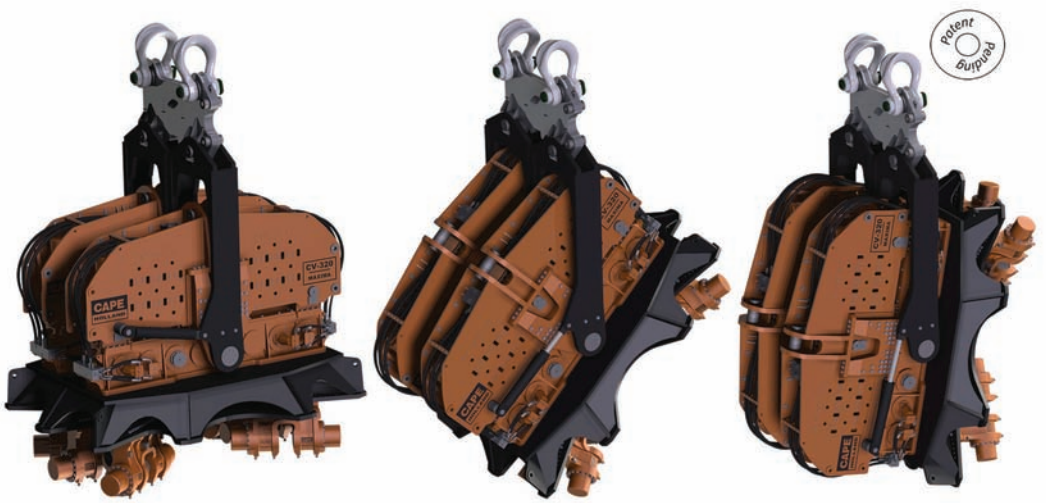
CAPE Holland was founded in 2002 by a father and son team set on extending the family links within the piling sector, which began in the 18th century. Managing director Laurens de Neef provides an insight into the activities of the group as it grows within its market position: "Although starting as an international piling equipment trading company, we soon started engineering and constructing special equipment for the piling industry. With a large fleet of hydraulic impact and vibro hammers for sale and for rent, our involvement in the offshore market deepened. Our breakthrough success offshore was the development of a multiple linked vibro hammer for the Riffgat Offshore Wind Farm project in 2012, driving 30 monopiles of 750 tonnes, fast and silently into the German North Sea floor."

To be able to satisfy the demands of the market the business not only designed its range of vibro hammers in-house, but it also manufactures the technology, specifically for the offshore market. Recognising its strengths, in October 2014 it was announced that FoundOcean Group had acquired a majority stake in the CAPE Holland Group. Commenting on the arrangement Laurens points out: "FoundOcean has a wealth of experience in the offshore market and over the past 50 years has built a global sales network. The strategic move to join such a strong organisation is key in our efforts to achieving future growth, and offering both services as a package can be a great benefit to the customer."

Whilst the development and manufacture of vibro hammers, power units and hose reels has promoted its position at the leading edge of the offshore industry, Laurens adds: "We offer operational assistance for our own equipment, and piling equipment from others and our in-house engineering department is strong in coming up with project specific solutions. Within the oil and gas industry our equipment is frequently used for installing pin and skirt piles for jackets and other substructures, but also for various types of anchor piles such as FSOs." Other applications include the installation of starter piles for pipelines, where the ability to extract piles is particularly important. Extraction methods are also increasingly valuable for decommissioning projects, where old piles can be removed completely.

Vibro technology has proved itself a great contributor in the reduction in the cost of installation and environmental impact within the offshore wind sector, but with a broad spectrum of clients, its benefits go much further. "We expect significant growth in the use of vibro hammers across the oil and gas industry. The technology can be used as an upending/handling tool, which will significantly reduce handling and installation time, reduce the amount of additional equipment required and improve safety," says Laurens.

Not only did the Riffgat project demonstrate the benefits of a vibro hammer for installing very large piles offshore, but critically it was the trigger for the main offshore renewable utility companies to pay close attention, as Laurens points out: "This resulted in further test projects, including the current large scale joint industry test at Cuxhaven to verify the lateral resistance and certify installation by vibro hammer. The outcome of this test, expected early 2015, is likely to change how



> Vibro technology has proved itself a great contributor in the reduction in the cost of installation and environmental impact within the offshore wind sector, but with a broad spectrum of clients, its benefits go much further

piles will be installed in the future.

"Our latest developments have resulted in the CAPE Vibro System™, which can be configured with an upending option. The system is able to pick up a stored pile, upend it to a vertical position, lift it to the correct position and drive it down, whilst correcting verticality while driving if necessary, in one single handling operation without the need of a gripper or seabed installation frame, saving valuable time." Subsea operations in up to 100m water depths are possible with few alterations and deeper operation is possible with an air compensation system. With the choice of configurations and pile clamps, this system can be deployed for almost any pile diameter including XXL monopiles.

"With the renewable sector having gone through a quiet period due to political uncertainties it has now stabilised and an increased number of projects have been given the green light. The vibro hammers will make a big contribution to reducing noise compared to the noise created by traditional installation methods. As the industry is slowly changing and focusing on the logistics, our CAPE Vibro System is able to shorten the critical path and allow a safer operation. Oil and gas contractors really benefit from the upend vibro as a combined handling and installation tool. The vibro hammer can get the piles from their storage frame to a stable position, eliminating the risks of the jacket or template falling over. In parts of the world where very weak soil layers are present, the technology is often chosen by contractors to eliminate the risk of pile run," explains Laurens.

Growth for CAPE Holland is inevitable as it satisfies the expected increase in demand from both the renewables and the oil and gas market, as Laurens concludes: "We strongly believe there are substantial efficiency improvements to be made in the installation process of foundations and other piling solutions, and particularly in the logistics of a project." OSG

CAPE Holland
cape-holland.com

Services
Construction and piling equipment

A loyal partner

Founded in 1999, ITC Hydraulics Services Ltd (ITC) was established to provide onsite hydraulic services to the offshore, subsea, agricultural, mobile and industrial sectors. ITC has grown steadily since its inception, rapidly moving into a new workshop facility near Oldmeldrum, Aberdeenshire in 2002. By 2012 its continued growth meant that the company had outgrown the premises, therefore ITC further expanded its workshop and office so that today the business is contained with a 6000 sq ft, purpose built facility that allows the business to re-enforce its established reputation as a leading supplier of high quality hydraulic solutions.

"The new ITC facility has enabled us to grow significantly over the past two years, increasing our turnover from £750,000 to £1.5 million within the space of a year, with expected turnover in excess of £2 million projected for the next financial year," reveals managing director, Ian Clark. "This has also allowed us to increase staff levels. Increased workshop space and overhead crane facilities have made our process much more efficient and allowed ITC to take on larger projects, which we could not accommodate in the past, as well as resulting in a much more efficient and safer workflow."

Today ITC continues to specialise in the design, manufacture and supply of all types of hydraulic equipment, components and accessories to a diverse cross section of industries. Within the oil and gas industry the company is a leading name in the manufacture of bespoke equipment for various offshore applications including pipe-handling equipment, blowout preventer (BOP) control systems, rig skidding and BOP equipment. Further to its manufacturing capability ITC maintains a proven track record in the refurbishment of equipment such as drilling equipment, ROV handling equipment, winches and deck cranes. This broad base of manufacturing and refurbishment expertise has enabled ITC to ensure full order books throughout 2014 and into 2015, as Ian elaborates: "ITC has recently been awarded a number of refurbishment contracts from a number of market leading offshore service companies, which will take the company well into 2015. We also have a number of new build manufacturing jobs, due to begin in the New Year."

Indeed throughout 2014 ITC won several contracts at a significant combined value, demonstrating the company's trusted market reputation. "With the award of in excess of £1 million in contracts earlier this year we have been able to highlight the confidence that major players within the oil and gas sector place in ITC," Ian says. "The awarded contracts were from three different clients and included the refurbishment and commission of equipment offshore and the building of 14 offshore hydraulic power units for safe area use. We are proud of the repeat business that we receive from our clients as word of mouth goes a long way."

As the company continues to win new contracts, so too does it win new customers within the UK and further afield. While the majority of its current projects are located within Aberdeen and the North Sea region, increasingly the company is seeing demand for its products around the world. "The offshore market has been extremely busy this year and 2015 looks to

be no different," Ian observes. "We have seen an increase in our involvement in projects overseas and predict a further increase over the next few years. We are delighted that our customers come back to us time and time again as this demonstrates our strong relationship with our clients old and new and their trust in ITC."

A further advantage for ITC, with benefits for both itself and its clients, is its position as a distributor of Amca products as Ian explains: "ITC is proud to be the sole Scottish distributor of Amca products including proportional, high pressure/high flow direction valves that are ideal for harsh marine environments as they include no aluminium components. Our customers are very satisfied with the product and we aim to build, test and deliver standard spec valves from stock with a quick turnaround. These can also be supplied with ATEX compliant electrical control.

"In fact, as our client needs change we have constantly added to our products and services, including investing heavily in new rental equipment," Ian says. "This includes ATEX zone 2 flushing units with pulse flow, capable of providing up to 600 litres per minute, and safe area and zoned electric driven hydraulic power units from 7.5kw to 75kw. We have an ongoing build programme for the manufacture of new rental equipment with a range of other products to be ready for the start of 2015. We've also started our own electric department enabling us to design and build our own electrical control panels in house,"

With a broad base of loyal clients and strong order books to take it into 2015, ITC is in a strong position to capitalise on its current momentum and continue to increase its turnover for the coming financial year, continuing its tradition of high quality performance, as Ian concludes: "The company's success is demonstrated throughout the business – from impressive turnover figures and glowing customer feedback through to continuous repeat business and orders as well as its high level of staff retention. ITC has performed exceptionally well financially, having achieved year-on-year increases since it was first established. Over the course of the next three years the company is targeting around 300 per cent growth in turnover."

CLARK INTEGRATED TECHNOLOGIES

Clark Integrated Technologies (CiT) has worked in partnership with ITC Hydraulics since 2012 to support, maintain and manage its IT infrastructure to enable it to focus on expanding and growing itsbusiness. The future is bright for ITC Hydraulics, and CiT is delighted to continue working with such a focused, forward thinking organisation, where technology is appreciated and valued as an asset within its business.

ITC Hydraulics Services Ltd
itc-hydraulics.co.uk

Services
Hydraulic engineering services

Time for a check up

Right
Abraham Albertus Lagaay, founder of the company

Worldwide marine medical supplier and registered pharmacy Lagaay International has developed a reputation for excellence since pharmacist Abraham Albertus Lagaay founded it in Rotterdam in 1879. Originally operating under the name Pharmacy Lagaay, the company's strategic location in the Port of Rotterdam led to an expansion into the marine industry through the provision of medicines and medical equipment to operators and charterers working in the area. As the marine industry developed over the last century, so too did Pharmacy Lagaay as it expanded its services to meet the needs of customers across the globe. Officially founded as Lagaay International BV by its new shareholders in 2000, the company was split from the regular pharmaceutical part of the business in the same year, which thus enabled it to completely focus its attentions on opportunities within the marine sectors.

"Back in 2000 we had the regular pharmacy and Lagaay International BV, however in 2012 Pharmacy Lagaay ceased to exist. In 2001 my shareholders also acquired Mediscore, a medical supply company that was supplying to businesses in the greater Rotterdam area. Mediscore was actually also supplying to ships via ship chandlers and agents, so you could argue that they were actually a competitor of Lagaay International. Following this development, my shareholders acquired another company a couple of years later called Havena BV, which produces any kind of first

aid kit; the three companies were put together into one holding, operating from Rotterdam. At the beginning of this year we merged Mediscore together with Havena, whereby the name Havena ceased to exist. So today Lagaay International operates as part of the Lagaay Group, providing everything medically related on the sea, while Mediscore provides all medical products on land and produces first aid kits," explains managing director Joris Alberda.

Strengthened by its 130 years of operational experience and the acquisition of complementary organisations, Lagaay International benefits from a strong presence in areas such as Norway, Denmark and Holland, and also enjoys successes in the UK. However, as the shipping industry in Europe continues to recover from the economic slump in 2008, the company has also witnessed an increased level of interest from the thriving Asian region, as Joris highlights: "Traditionally, demand has mostly come from the Northern European area, but what we are seeing at the moment is that we are getting requests from all over; a notable area is Singapore, where we have been getting more and more business over recent years."

Key to the ongoing demand for Lagaay International's service is its commitment to securing health and safety on board through the provision of high quality products and an unrivalled service. Adaptable to market changes, the company has recently responded to an influx in enquiries regarding Ebola with the production of a Lagaay Ebola precaution kit for its clients. "During the summer of 2014 we had a meeting about what we should do, if anything, about the Ebola crisis, but we felt that the disease was/ is mainly present on the mainland of Africa. However, after the summer we began to receive a lot of requests from clients sailing to the west coast of Africa; to meet this demand we created an Ebola kit, which contains Ebola suits, goggles, shoe covers and so on. We have seen that for a lot of offshore and shipping companies it is a psychological purchase to give the crew a feeling of security. "

Moreover, the company is currently in the process of setting up a new website to help clients keep track of their onboard medical stock. Due to be completed in the first quarter of 2015, the free of charge Medical Care System (MCS) service will remove the burden of managing medical stock for customers, and will enable Lagaay to consolidate the ordering of medical supplies to one stock-up order per year.

Although it is anticipated to be hugely beneficial to clients once it is fully operational in 2015, Joris believes the MCS will also provide Lagaay International with opportunities to meet the needs of new customers that were previously logistically impossible to serve. "We send packages all over the world on a daily basis, but the logistics of medicine is always a tricky business in the sense that there are still certain regions around the globe where it is impossible to get medicines in to or it is extremely expensive. Sometimes I have to say no to clients because I just cannot supply the products they need in a certain region; that has always been our biggest challenge. Having said that, we are able to service 90 per cent of the major ports worldwide and we have a global network of local partners that can help our clients when supply from Rotterdam is not possible or to short notice. We try to plan as much as possible with our clients to order in advance, and we hope that the medical care system also helps with this advanced planning so we have less issues of medicines not being on board because we could not supply. There are still a lot of ships and rigs that we are not yet supplying, which we see as a big opportunity for growth," he concludes. OSG

> Key to the ongoing demand for Lagaay International's service is its commitment to securing health and safety on board through the provision of high quality products and an unrivalled service

Lagaay International
lagaay.com

Services
Global medical supplier

Remote controlled

Operating as part of the wider Oceaneering group, Oceaneering Brazil has a long history of serving the South American oil and gas industry since it began providing diving services to Petrobras in 1973. Further subsea intervention services would be introduced in 1979, and since that time Oceaneering Brazil has continued to develop its service offering to clients in Brazil and abroad. Today Oceaneering Brazil specialises in remotely operated vehicles (ROVs), ROV tooling, blowout preventer (BOP) control systems, umbilical control cables, pipeline repair systems, subsea field development hardware, installation services and inspection services.

At present Oceaneering Brazil manages over 1000 employees across its Niterói umbilical manufacturing plant, which began operation in 1999 and its Macaé operational base, which was opened later in 2001, as well as its Rio de Janeiro office and offshore. Although its main area of business is located in its native Brazil, Oceaneering Brazil serves a broad base of clients at home as well as the surrounding region. “It is no surprise to reveal that our main client is Petrobras, however in addition to this Shell, McDermott, Aker, Repsol, Queiroz Galvão, OGpar and several others are well served by our products and services,” explains ROV manager Wayne Betts. “Although Brazil is our main focus as it is an important market, we still provide

ROV services to customers in Argentina and Colombia and have our eye on other emerging markets in South America."

The services on offer from Oceaneering Brazil include turnkey ROV and umbilical solutions supported by strategic businesses such as ROV tooling, service and rental, asset integrity management and speciality connection solutions. The Niterói umbilical manufacturing plant for example, offers a complete service package of engineering, qualification tests, project management and the manufacture of thermoplastic and steel tube umbilicals. Furthermore, the facility is able to offer several product related services such as umbilical termination assemblies, hydraulic and electrical tests, pipes and hose cleaning, maintenance and repairs, reel construction and remodeling.

Oceaneering is the world's largest manufacturer and operator of Work Class ROVs and as such is the leading provider of ROVs to the oil and gas industry. The Oceaneering group employs over 330 Work Class ROV systems and more than 2700 ROV offshore personnel worldwide. Within Brazil the company currently operates over 30 ROV systems with staff trained at the ROV Training and Excellence Centre in Macaé. These ROV units can perform various supporting tasks to operations such as drilling, completion, installation, construction, maintenance, intervention and inspection in offshore oilfields – making them a vital component in subsea engineering and projects.

Furthermore Oceaneering Brazil and indeed the wider Oceaneering group, offers an extensive service offering within its ROV tooling business, which completes the company's extensive turnkey package, as Wayne details: "The ROV tooling business works mainly with ROV units to solve subsea challenges for the oil and gas industry. The business unit is able to provide a broad range of services and engineered products on a rapid or long lead basis. The services provided include engineered ROV intervention tooling; project management and engineering; rental tooling packages; skids for subsea intervention in Xmas trees; manifolds and so on; hydrate remediation systems; the management of customer-owned tooling (tool pool); flow assurance and decommissioning."

As such the Oceaneering fleet is available in service and rental applications that are designed for a host of installation and workover operations including deepwater projects, such as equipment testing and flushing. Additionally, bespoke capabilities and solutions are available for long-term lease or on a spot basis for

services comprised of hydraulic control, tests and flushing units, umbilical reels, chemical injection, pumping systems, electrical downlines, heave compensated retrievable umbilical systems and service and rental tooling.

Oceaneering Brazil's membership of the wider Oceaneering group means that it has the ability to share resources and resolve issues very quickly, which is vitally important in the ROV business where operational uptime is considered to be a fundamental concern. Furthermore the company maintains a live operating system that informs it of any issues affecting any ROV system around the world. "This can be viewed in real-time in any Oceaneering office," Wayne elaborates. "Having this high visibility allows us to focus regional and worldwide resources to work through any issue as quickly as possible to ensure that we are providing the best possible service to our customers. O&G

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Over the last 38 years Serthi Hidraulica has provided hydraulic solutions and products to meet customers' requirements for hydraulic power control and precision positioning. Allied to Eaton Vickers distribution, it offers design, manufacture and service provision, always paying attention to relevant quality and safety standards.

Its main line of products includes:

- **Valves, Pumps and Motors**
- **Linear and Rotary Actuators**
- **Hydraulic Systems (Cylinders and HPU)**
- **ROV launcher Electro-Hydraulic Power Units**

EATON | Vickers

www.serthi.com.br
serthi@serthi.com.br
+55 (0)11 4223 4777

"We have specific strengths targeted at each business sector operating in Brazil. In the ROV market for example, we have the highest uptime performance in the industry, which is made possible with a highly trained and experienced workforce coupled with an onshore inventory strategy to support it," he continues. "For the umbilical market we have an engineering team able to provide global solutions, a complete qualification lab and expertise on encompassing the use of steel tube umbilical systems worldwide. Overall I would say that being part of a global and wealthy company gives us some advantages, such as a great portfolio of products and services, strong engineering capabilities and the ability to make significant investments when the need arises."

Of course it can be argued that no amount of financial support and infrastructure is of much use without a talented team to use it. Indeed Oceaneering Brazil is acutely aware of the need for skilled engineers and operators within the oil and gas sector and strives to ensure that it has the best team to deliver projects to clients. This balance of market-leading technology and a world-class team will drive the business forward in 2015 and beyond. "One of the main differentiators for the ROV group is training and competency," Wayne says. "We focus on training our onshore and offshore personnel, ensuring that they have the correct knowledge base and superior skill sets to effectively perform the job to the best of their ability.

"Over the next 12 months we will focus on growing the parts of the business, which are still relatively small in Brazil, but have huge potential to grow," he concludes. "Our vision for the next three to five years is to be Brazil's largest product and services provider within our market segment and the preferred choice among our customers, suppliers and employees." OGG

> We focus on training our onshore and offshore personnel, ensuring that they have the correct knowledgebase and superior skill sets to effectively perform the job to the best of their ability.

SERTHI HIDRAULICA

Serthi Hidraulica is an ISO 9001:2008 certified Brazilian company specialised in the manufacture and design of hydraulic and fluid power special devices. For the last 38 years Serthi has operated in the Brazilian industry leading markets, mainly the automotive, rubber, mining, steel mill, and oil and gas sectors. Over the last years Serthi developed a partnership with Oceaneering, supplying products and providing solutions that better meet Oceaneering´s demands and expectancy, including hydraulics cylinders for the A-frame and Electro-Hydraulic Power Units (EHPU) for the ROV launcher and the Umbilical Winch Control. With its expertise, Serthi always aims to increase its participation in the global market, and supplying to renowned companies like Oceaneering is proof that technology and creativity walk together. The continuous improvement brings new opportunities and once you feed them with an experienced team it becomes success. That's why Serthi is proud of this relationship.

Oceaneering Brazil
oceaneering.com.br

Services
ROV services

Maintaining quality

Founded in 1975, VENKO Group has developed a reputation for excellence in delivering superior independent coating solutions to clients within a range of industries. Active in providing services for outdoor applications such as high-tension pylons and substations since its inception, the company has since expanded its presence in the railway, construction, and oil and gas industries. To accommodate its broad client base, VENKO has split its services into three divisions, VENKO Outdoor, VENKO Indoor and VENKO Offshore.

Previously featured in *European Oil & Gas Magazine* in April 2014, the group has continued its success story with a number of awarded contracts from blue chip clients, as Tom Herok, business unit manager of VENKO Offshore points out: "Following our first three-month contract for one Perenco platform in early 2014, we have been awarded our second contract for another platform with Perenco in the UK. Once again, this is for full maintenance including scaffolding and painting services. The decision to award us this contract was based on our quality, efficiency, project support, safety performance and a fixed price per square metre; these strengths made all the difference. VENKO Offshore was also recently awarded a confidential six-year contract with a blue chip client in the UK and is in the middle of executing a project for Total, which we were awarded end of last year."

Using experience gained from its current Shell contract, the division is working on the fabric maintenance of a 40,000 m2 platform by Total in the Netherlands, as Tom states: "This contract is in full operation at the moment and is going well. We have also been working with Centrica in the Netherlands; the company has platforms on both sides of the pond and wanted some work executed in the UK. Because we have offices in the Netherlands and the UK we can efficiently provide our customers with a high quality local service from both locations."

Proud to operate with a different philosophy to competitors, VENKO provides customers with cost-saving benefits with a fixed pricing structure that avoids unexpected costs, says Tom: "Our way of working involves a five-year guarantee at a fixed price per square metre for full platform projects or select items on the platform. This means value for money to customers and is a way of working that is slowly changing the views of a conservative market that is used to the standard hourly based contract. However, this is our usual day-to-day business; the biggest change for the company at the moment is the launch of a fabric maintenance jack-up barge, which will be a real game changer in the future for VENKO operations."

Working with Jack-UP Barge B.V., the self-elevating platform supplier, VENKO Offshore is soon to introduce an innovative, cost-effective, purpose built offshore fabric maintenance (FM) jack-up installation. Not only minimising generic barge issues such as a lack of suitable equipment for high intensity, which leads to an increase in operational costs through interface delays and issues, the fabric maintenance jack-up barge has been specifically designed and developed to meet the future needs of major mechanical work-scopes and fabric maintenance projects. "We are currently in contact with our clients to confirm their needs and get industry relevant input that

> For surface protection operations, the company will use hybrid blasting systems, suitable for any site conditions, to significantly increase abrasive retrieval and site cleaning

will further optimise the design of the barge, which will thus maximise efficiency and other benefits for our customers. We want to ensure that by the time the barge is fully operational we will be able to serve the majority of the market, while delivering a cost-effective service in maintenance projects," highlights Tom.

Designed with ergonomic integrated systems, where all plant and equipment is housed internally to allow premium deck space for container storage, the FM jack-up barge also boasts an integrated hose management system, which will free the deck from trailing air hoses and cables. Moreover, the crane capacity will ensure VENKO Offshore is able to support increasingly demanding campaign requirements. For onboard clients and contractors, the jack-up has a spacious and well-equipped instruction room, approximately 150 beds and superior living standards with high specification amenities.

For surface protection operations, the company will use hybrid blasting systems, suitable for any site conditions, to significantly increase abrasive retrieval and site cleaning. Meanwhile, thanks to fixed equipment set-ups and connections, the FM barge is ready to use 'plug and play', which will result in major time reductions during interface. Due to be operational in the second half of 2016, the unit will be available for projects within the UK, Dutch and East Irish Sea sectors.

Keen to provide customers with a highly efficient, cost-effective solution, the company will have one point of contact for clients requiring fabric maintenance services. The one-stop-shop will be responsible for both the FM jack-up barge and the marine crew, which will ensure both barge and crew are available at the same time. "We often see a mismatch between the availability of the barge and the painting crew or fabric maintenance crew, so matching them up will result in minimum standby costs and a team that is used to both working together and working on that specific barge. This will lead to an increase in efficiency, which will lead to benefits to the client," says Tom. O&G

HOLLAND MINERAAL

Holland Mineraal BV, founded in the Netherlands in 1976, is a producer and supplier of abrasives and blasting machines. Our company has become an international leader in the field of surface treatment and has been ISO 9001-2008 certified since 1997.

We represent respected manufactures and continuously develop proven concepts. We're expanding our horizons. A selection of our extensive range of products in the offshore industry are: blastpots PED approved, vacuum recovery systems, blastrooms, portable dust collectors (ATEX), portable recycling systems, nevel-jet-wet blast system, vacuum blasting machines and a complete programme of abrasives.

Our in-house engineering department and team of experts, both with major experience in the field, will be pleased to provide you with objective and expert advice on complex projects.

VENKO Offshore BV
venko.nl

Services
Independent coating specialist

Channelling ambition

Founded in 1980, Process Control Equipment (PCE) has grown to become an international supplier of valves and instrumentation built to suit a variety of applications. The company is heavily involved within the oil and gas industry but also supplies the chemical and petrochemical industries, giving it a diverse client portfolio and an operational understanding of several industrial sectors. This has made the family-owned business an increasingly important player in the international oil and gas market, as sales director, Richard Jackson elaborates: "We are a true valve distributor holding large inventory to support our customer needs across Europe, we have the ability to automate valves at our in house Valve Actuation centres at each of our locations. Our ability to service our clients has made the business what it is today. We don't walk away from problems and are always striving for improvement. We hold gate, globe check, ball and butterfly valves from sizes ½" to 30" in stock with the ability to source larger sizes from our key principal suppliers.

"The aim for PCE is to grow through MRO agreements and project work. We have two separate divisions specifically designed for each. We understand how to run larger projects and have just completed a project in excess of $16 million dollars."

In recent years PCE has moved to capitalise on its continued success and made significant investments into its international facilities. These include strategic investments in new areas where the oil and gas market is highly active, as well as facilities that will aide the business in its established bases. Presently PCE is headquartered in Teesside, UK and maintains further locations in Scotland, Spain and the Netherlands, as well as a further base in Germany that is currently under development. "We have made new investment in stock and testing facilities as well as valve automation

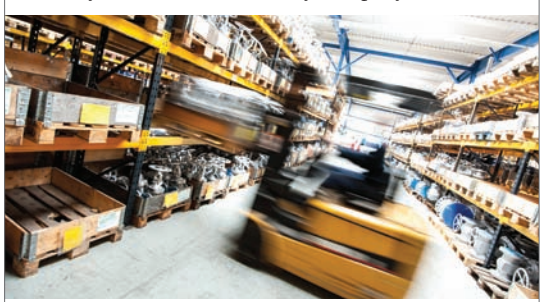
SWI VALVE CO., LTD.

SWI Valve Co., Ltd. (SWI) is a leading manufacturer of industrial valves with over 28 years of experience in manufacturing and international selling. SWI's product range includes forged gate/globe/check valves and forged/cast ball valves to bellows seal valves, cryogenic service valves, and positive isolation block & bleed valves and automation valves.

Process Control Equipment (PCE) is SWI's key partner in Europe, consistently penetrating the market with the full range of SWI products and stocking its forged gate/globe/check and ball valves in PCE's regional warehouses in the UK, the Netherlands and Spain.

centres across the business," Richard says. "These are either fully completed or underway at the time of writing and we are also hiring highly competent staff at each location who can provide the best service to clients.

"The investment in this has been around three million euros over the past one and a half years, which for a family company is a



significant amount of money," he reveals." "We are anticipating the branches that we have established to grow significantly over the coming years and while we do not necessarily expect the UK market to grow, we believe that we will be able to gain market share in other areas."

In over three decades of operation PCE has never lost sight of the fact that it is its reliable service and stalwart commitment to customers that has differentiated it in a competitive marketplace. Indeed the company places great emphasis on its loyal and skilled workforce that has enabled it to develop long-lasting relationships with both clients and suppliers alike. In today's challenging market it has been recognised that there is a skills shortage, however PCE is committed to investing into its workforce to ensure that the business remains strong today and well into the future.

"We run apprenticeship schemes and we also hire graduates so that we are able to bring people into the company through several routes. It may sound clichéd but people make our business,

Innovative Flow Control Solutions

for Critical Services in the Oil & Gas Industry

SWI VALVE

- Cryogenic Valves for LNG Projects
- Metal-seated Ball Valves for Platforms
- Forged Gate, Globe & Check Valves for Refineries & Petrochemical Plants
- Bellows Sealed Gate & Globe Valves for Zero Leakage Application
- Block and Bleed Valves for Gage Isolation and Piping / Instrument Interface
- Fully Automated Valves, Pneumatic, Electric, Hydraulic & Gas Over Oil Systems

SWI Valve Co Ltd

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and if we find the right people then we will accommodate them and help them fit into the company," Richard explains. "In some areas it is not too difficult to find personnel, in fact people will approach us, yet in other areas like Scotland it can be very competitive when looking for people. There is an engineering shortage at present and in the 30-50 age group this is particularly prevalent."

Despite the competitive nature of the oil and gas market and the increasing demand for talented engineering personnel, PCE manages a dedicated staff of 75 across its various locations. These, in conjunction with its strong network of suppliers, enable the company to deliver its comprehensive portfolio of valves and associated instrumentation equipment. However, the company recognises the help and support of key suppliers such as Neway, SWI and Jamesbury, which have all collaborated with PCE and established trusting, long-lasting relationships.

The range of valves provided by PCE within its portfolio extends to floating ball valves, trunnion mount ball valves, as well as cast steel gate, globe and check valves. These are available in a variety of different materials including stainless steel, alloy, duplex, cast steel and so on. Furthermore the company offers a range of diaphragm valves, parallel slide valves, hygienic valves, single and dual plate water pattern check valves as well as brass, carbon steel and stainless steel non-fire safe ball valves. This impressive product portfolio is accompanied by a full range of instrument tubing, stainless steel twin ferrule fittings, manifolds, air distribution manifolds, gauges, solenoid valves, brass compression fittings and instrument enclosures, meaning the PCE is able to supply the right solution every time. Associated equipment includes weatherproof instrument enclosures that are suitable for transmitters and manifolds, and options such as windows and anti-static devices. OEG

ROTORK

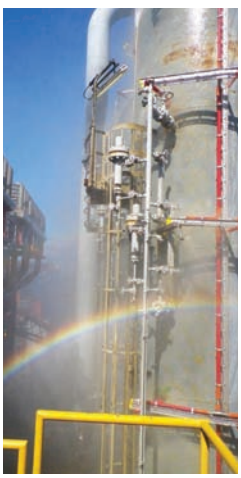
Rotork UK, manufacturer of electric, pneumatic, hydraulic and electro-hydraulic valve actuators, instrumentation and manual gearboxes, congratulates Process Control Equipment on its well-earned, continued growth.
Rotork UK has recently moved to a new £8 million manufacturing and operating centre in Leeds, from where it offers enhanced levels of support to its valued customers. In addition to manufacturing Skilmatic electro-hydraulic failsafe valve actuators and Rotork Gears valve gearboxes, the new facility supplies actuation solutions and service support for the entire range of Rotork flow control products. The 5550 m² workshop facility also includes Rotork's largest UK product stocking centre.

As the company grows it will continue to deliver its extensive service offering to an international market. As a comparatively smaller business PCE is able to operate with significantly reduced overheads than larger rivals and is typically more agile in delivering quotes and finalised solutions quickly. Indeed its reputation and continued success fuels a considered yet determined ambition within the company, as Richard concludes: "PCE still feels like a young and enthusiastic business and our aim is to continue to grow through strategic acquisitions and through strong organic growth. We feel we are ideally situated to make PCE a strong player across the European valve scene and still hold plans for other global markets." O&G

Process Control Equipment Ltd
pce-ltd.co.uk

Services
Valves and instrumentation

A critical service



Blaze Manufacturing Solutions, which was established in 2006, designs and supplies expert fire safety and loss protection systems for the oil and gas industry. The family-owned business has grown rapidly over the years, and this year the firm invested half a million pounds in its head office in Laurencekirk, and a further £30,000 in its office in Kemnay, near Inverurie, Aberdeenshire, to focus on specialist environmental engineering. The specialist company, which was established to serve clients in the Brownfield market, also has a regional office in Great Yarmouth to cope with demand from southern North Sea operations and a southern sales office in Milton Keynes.

Blaze has secured a number of contracts with major oil and gas operators since its inception including Petrofac, Perenco, Amec, EnQuest, TAQA, Apache, Wood Group and Talisman Sinopec, and employs 40 full-time members of staff and 80 sub-contractors to meet demand from clients. Its specialist workforce is spread across the company's offices in Laurencekirk, Aberdeenshire, Kemnay, Aberdeenshire, Great Yarmouth and Milton Keynes. The company's success meant its turnover reached £13.7 million last year, and it forecasts that this will rise to £22 million in the financial year from 2014-15.

Blaze Manufacturing, managing director, Howard Johnson, said: "We have grown prolifically over the past three to four years, doubling our turnover year-on-year over the past four years. In 2010 the company's turnover was only £258,000, and this has grown to around £15 million for this year to date.

"As turnover rises, so too does our workforce, and both factors resulted in the need to move into our new headquarters in Laurencekirk, which features newly built and refurbished workshops to support the manufacture and distribution of products. While we created these workshops to accommodate the massive influx of new business, we also created a base for design engineers on the north side of Aberdeen. This was established because as the company grew and began to move further south we found that we were vulnerable to losing some of our core staff through the need to travel that extra distance. As such, we now have offices in

Aberdeen, Newcastle and Great Yarmouth, the main advantage of this is that we are able to service projects locally."

Presently the company's activities are focused on customers operating in Brownfield sites within the North Sea UK continental shelf, where the age of offshore equipment increasingly demands innovative solutions to ensure that platforms remain cost-effective, efficient and above all safe. "Some of the operators have platforms that have had a long field life and with the price of oil currently down at $85 a barrel they are looking at 'how we can add value to ensure they remain compliant and safe'," Howard said. "This is certainly something that

changes with the economics of the times, and over the past six months there has definitely been a change in attitude with some of the operators in Aberdeen."

At present there are around 380 oil and gas platforms in operation on the UK continental shelf of which, 80 per cent are estimated to be older than 30 years. This long service life has resulted in corrosion damage to pipework, resulting in an increased need for loss prevention engineering and greater demand for capabilities and engineering solutions to support aged infrastructure such as service and maintenance, retrofit design services and installation.

"At the moment we are about to go into a chemical cleaning project and this is really top-market because while there are a lot of operators who are looking to upgrade their equipment, there are equally customers who do not want to rip out their existing pipework and would like assistance in cleaning their piping, and even undertake a phased replacement of equipment," Howard said: "There are also performance testing and verification applications where we are required to go in and clean the system and in the event of failure could result in the partial replacement of equipment."

In terms of equipment, Blaze Manufacturing has introduced several products that allow operators to strengthen their loss prevention capabilities in emergency situations. The in-house designed Flameshield 300 piping system for example, is a flexible fire hose system that is blast resistant, anti-corrosive and stronger than traditional materials. Furthermore, Flameshield is designed with a 25-year life span and is cheaper than existing alternatives. Operationally, Flameshield can be installed without the need of 'hot work' that would normally generate dangerous sparks, and it is therefore an excellent Brownfield solution.

As Blaze Manufacturing has continued to grow, so too has its reputation as a market-leader in the niche area of loss prevention in Brownfield sites within the oil and gas industry. The business has been recognised in various business awards over the years, winning the Grampian Award for Business Innovation and Business Excellence in 2012 and 2014 respectively.
As the company continues to develop it will look to move into new markets to enable it to maintain the impressive growth it has enjoyed throughout its history, and continue to provide a top-class service to its clients. Howard said: "The focus for us over the next 12 months will be on the Dutch and Norwegian markets, as well projects in Aberdeen. Everything that we have done so far has been focused on active fire and loss prevention. However, by bringing together other aspects of Safety Critical Solutions such as HVAC control systems, dampeners, fire and gas detection to service the Brownfield area we make ourselves much more attractive to our clients as an integrated service provider." OSG

As Blaze Manufacturing has continued to grow, so too has its reputation as a market-leader in the niche area of loss prevention in Brownfield sites within the oil and gas industry

Blaze Manufacturing Solutions Ltd
blazeman.co.uk

Services
Fire safety and loss protection systems

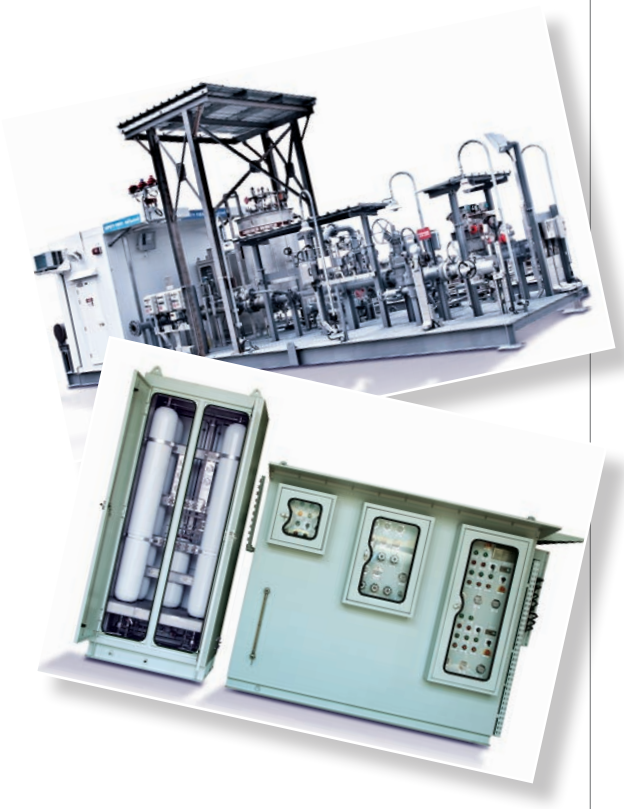
The full package

Established at the turn of the millennium, Petronash approaches the oil and gas industry with a mission to enhance its clients' performance and productivity. The business was incorporated to deliver services before diversifying into a full manufacturing unit in 2003. Today Petronash is known globally for manufacturing high quality equipment essential for the oil and gas industry, including wellhead control panels, chemical injection skids, wellsite packages and instrument control panels at its modern manufacturing facilities located in Jebel Ali, Dubai; Houston, US and new base in Dammam, Kingdom of Saudi Arabia (KSA), due to begin production by June 2015. Furthermore, the global presence of Petronash is maintained by its headquarters in the Jebel Ali Free Zone, Dubai supported by offices in Qatar, Abu Dhabi, Oman, Milan, India and Malaysia.

Petronash has been highly successful in responding to the changing needs of the oil and gas industry and employed a strategy of ensuring that it has bases close to its clients in areas of rapid growth and high activity. Commenting on the company's move and continued growth in the US for example, managing director Mr. U.M. Rao reveals: "The US market has huge potential. We have established a base in Houston, which is known to be the Mecca of worldwide oil and gas business and also grants us access to the markets of Canada, Mexico and South America. The new manufacturing facility in Houston, Texas is as big as the company's facility in Jebel Ali. It has all of the state-of-the-art automation equipment required to turn out the fabrication of goods very quickly. As the facility was nearing completion, we secured orders from Philips within the US as well as Exxon and Shell operating in West Africa. Production of these orders has already commenced and is progressing well."

Further orders that highlight the global scope and scale of the projects delivered by Petronash include ventures with ONGC India where Petronash was able to execute a large turnkey project, supplying and replacing wellhead panels on 35 different offshore platforms consisting of 417 wells. All of the panels were replaced without the need of costly downtime or production interruption. Additionally, Petronash is the only company to have successfully executed three back-to-back Khuff Gas Chemical Injection projects for Aramco, which involved 255 skids with all delivery times reached within the agreed timeframe.

"Our multi-discipline expertise allows Petronash to innovate products, which in turn reduces downtime and enhances production for our clients," Mr. Rao explains. "For example, the company's recently developed wellsite packages and modular skids reduce the amount of time required to start production from wells following the



completion of drilling, enabling quick revenues to productions companies. This package also allows the client to deal with one vendor rather than manage multiple companies, eliminates site works and reduces production interfaces."

As the company continues to grow and expand, Petronash will ensure that it maintains a market-leading product portfolio that caters to the strict requirements of the oil and gas sector. As such the research and development of new products remains vital to the business. "Innovation and research and development play a very important role within any organisation in keeping up to date with technology and for diversification," Mr. Rao says. "Petronash has a separate R&D division within Petronash Engineering in Chennai, where new products are continuously developed and tested."

In tandem with the development of new products and services, Petronash works to ensure that it invests in its workforce and production processes to support the business as it continues to expand, as Mr. Rao elaborates: "Global expansion and a growing workforce go hand in hand. While we have continuously focused on increasing the company's workforce in line with expansion, we have also invested in automation processes and technology to keep the reliance on manpower to a minimum and increase product quality. Petronash also operates a training department in Dubai where training for all new global recruits is provided."

With a strong global footprint and continued investment in its manufacturing facilities, processes and workforce, Petronash has developed a truly global service offering and earned a reputation as a reliable partner within the oil and gas industry. As the company moves into the future it will seek to build on its current success and continue to engage with existing clients as well as new customers over the coming years. "With our wellsite packages and modular skids accepted by Aramco, there is a lot of potential business expected from these products and we are also expecting several other projects over the next few months," Mr. Rao concludes. "We intend to market wellsite packages to other onshore companies worldwide and also diversify into the EPC business, especially for offshore clientele. In five years time we intend to position ourselves as an established EPC contractor with most of our package offerings coming from Petronash manufacturing units." O&G

> Our multi-discipline expertise allows Petronash to innovate products, which in turn reduces downtime and enhances production for our clients

Petronash
petronash.com

Services
Engineering
and manufacture

Engineering excellence

ILF Consulting Engineers (ILF) was founded in 1969 by Adolf Feizlmayr and Pius Lässer. Today ILF operates as a group of international and independent engineering companies with its main offices located in Innsbruck, Austria and Munich, Germany. Supporting over 30 subsidiary offices throughout the Middle East, Asia, Africa and North America, ILF presently employs more than 1800 dedicated staff involved in the execution of complex industrial projects for international clients all over the world.

The annual turnover of nearly 200 million euros is the result of projects in the core business areas of oil and gas, water and environment, energy and climate protection, and transport and structures. ILF Consulting Engineers has grown to offer its clients a comprehensive engineering and consultancy services that covers the entire breadth of the project cycle with applications in consultancy, design and planning, procurement, construction supervision and start-up.

Last featured in European *Oil & Gas Magazine* in April 2014, the company's director of midstream discussed the application of ILF services within the oil and gas industry. Business area categories include pipeline systems, upstream facilities, underground storage facilities, tank farms and terminals, refineries and petrochemical plants. During the past six months, ILF has embarked on several international pipeline projects for regions as diverse as Canada and Iraq, including recent growth in the upstream exploration and production sector.

"Over the past six months we have had the opportunity to increase our projects in Canada. Local staff have grown from two to 70 over the past two years," elaborates area director for project pipelines, Tobias Walk. "We are also happy to have contracts in place now with leading operators in the region such as TransCanada and Enbridge."

In Iraq, ILF is involved in numerous projects including the highly publicised mega project

to provide the front-end engineering design (FEED) for the pipelines of the country's Common Seawater Supply Project (CSSP). The CSSP of the South Oil Company is designed to supply seawater to the oil fields Zubair, Tuba, Rumaila, West Qurna, Majnoon, Gharraf, Halfaya and Missan in the south of Iraq. "We received the contract for the FEED in August 2014 and immediately mobilised our team. With mobilisation during September, project execution started in October 2014. The CSSP project is creating a significant workload for our offices in Abu Dhabi and Munich," Tobias states. "This new pipeline system will provide 12.5 million barrels of seawater per day to the major oil fields in Southern Iraq. We are leveraging our proven abilities to provide the system optimisation and the associated pipeline system selection including its design."

As a result of the CSSP, treated seawater will be injected into the aging oilfield reservoirs. This will act as a secondary recovery method to maintain the pressure within the reservoirs, significantly increasing production. The pipeline intake and seawater treatment facility will be located about 40 km south of Basrah on the west bank of the Khor Al Zubair River. Following completion of the system, throughput capacity will reach 24 m3 per second. Two pipeline corridors will feed the oilfields over distances up to 150 km, making the CSSP one of the biggest plants of its type in the world.

The company's ability and experience in delivering projects around the world allows ILF to meet its clients' needs even in the most challenging environments. This experience also reflects the ability to remain flexible and quickly identify and react to regions poised for investment growth while maintaining historical support offices. Relating this to the CSSP projects, Tobias points out: "To be honest the CSSP is a challenge considering the additional effort required for security. Fortunately Abu Dhabi is a common operation centre for ILF and the client, with joint execution from our O&G headquarters in Germany. Since the political situation is complicated in this region, we try to balance our exposure risk by operating in more stable regions within North America, Europe and the Middle East."

ILF will continue to focus on winning contracts around the world. "We will focus on large international oil and gas projects as well as increase our focus on upstream and midstream projects," Tobias concludes. "We consider upstream, in both onshore and offshore markets, as a strong area for potential growth. Certainly, and in parallel, we will continue to expand our international footprint in the midstream market." O&G

> This new pipeline system will provide 12.5 million barrels of seawater per day to the major oil fields in Southern Iraq

ILF Consulting Engineers
ilf.com

Services
Owner's engineering, feasibility studies, concept design, basic design, FEED, detail design, procurement services, construction supervision and commissioning support

No plans on ice

Established in 1984, family run organisation Wessington Cryogenics Limited has become a leading manufacturer of pressure vessels used for the transportation and storage of cryogenic gases such as nitrogen, oxygen, LNG, argon, helium and carbon dioxide. With a coveted presence in a broad range of industries, the company has accumulated an impressive portfolio of customers; this includes major companies such as NASA, Haliburton, The Ministry of Defence, Cern, Linde and Scottish Gas Network. Despite the diversity of its client base, the oil and gas market represents approximately 60 per cent of Wessington Cryogenics' annual turnover.

Celebrating its 30th year in operation in 2014, the pioneering company has witnessed incredible growth over recent years, which stems from its expert personnel, fast response to customer demand, keen eye for finding new

markets, and ability to produce high-quality bespoke products on time. Furthermore, Wessington Cryogenics has a long-term commitment to R&D and product development, which leads to ongoing innovation in the most stringent and evolving markets.

Previously featured in *European Oil & Gas Magazine* in August 2013, Wessington Cryogenics has continued to push for innovation within the cryogenic market; a drive that has resulted in the launch of new tanks such as the 40 foot LNG ISO container and the PVT-60,000 bulk vertical static tank. Designed as a standard 40-foot ISO container for the safe storage and transport of LNG, the ISO VAC 40-LNG is built around a 40 foot ISO frame with Blair corner castings and lockable valve protection cabinet, which contains the valves, gauges, vacuum check gauge connection as well as a separate document holder. With the option of cryogenic transfer pump configuration, the tank is approved for road, rail and sea transport and can be produced with working pressures up to ten Bar. Other features include high vacuum super-insulation, stacking capability from nine units high to ISO 1496-3 (192,000 kg max), a full set of decals, and numerous valve and pipe work options to ensure optimum versatility to both the end user and operator.

As part of the PVT series of industrial tanks, the robust, PED approved PVT-60,000 bulk vertical static tank is suitable for the bulk storage of liquid nitrogen, argon and oxygen. Designed with a small footprint, the series can provide maximum storage capacity while taking up minimum ground space. Offering years of safe and efficient operation, the vessels provide extra versatility through the incorporation of dual liquid fill/decant valves; additional features include full pressure building circuitry, while all safety and control equipment is fitted as standard. Customers also have the option of adding a lockable cabinet for increased protection and security. Previously available in a capacity range of 2000 to 25,000, the new tanks' up to 60,000 litre capacity will provide customers with more storage accommodation while taking up little ground space.

A small enough company to remain adaptable to market opportunities and large enough to boast a strong portfolio, the well-respected Wessington Cryogenics is able to deliver high quality solutions to standard project requests while also continuing with its tradition for the innovation of its product range, as Paul Rowe discussed with *European Oil & Gas Magazine* previously: "Even while we are working on big standard projects we aim to continue

innovating and enhancing our product range, whether that is an extra valve or new feature on a custom made item that we then realise is useful for other clients. That feature will then be put into the whole range. We have certain product ranges where every single one will be completely bespoke, this is particularly true for the laboratory side of our company, where we get the most basic concept outline and we then slowly design a product from the ground up."

Wessington Cryogenics' groundbreaking work is carried out at its 70,000 square foot bespoke manufacturing premises in Tyne & Wear, which boasts six overhead cranes, a large storage yard,

> Celebrating its 30th year in operation in 2014, the pioneering company has witnessed incredible growth over recent years, which stems from its expert personnel, fast response to customer demand, keen eye for finding new markets, and ability to produce high-quality bespoke products on time

ample headroom and three large access doors. Moving to these larger premises in 2011 to gain additional space for R&D and custom build projects, the company was also able to take on contracts for larger helium tanks. On top of this, the company has well equipped repair/refurbishment facilities to ensure all types of cryogenic storage vessels are returned to 'as new' condition', and also provides customers with instructor-led Gas Safety Training and on-site advisory surveys in association with Gas Safe Consultants. Due to the level of demand for its products, and Wessington Cryogenics' own drive for continued product enhancement; the factory was filled within the first 12 months. The first quarter of 2015 will see a significant investment in new robot technology to boost productivity and increase capacity in rolling, cutting and welding tanks, which will support future growth.

Alongside its core interest in establishing a strong foothold in the LNG market, Wessington Cryogenics has also successfully diversified and

developed a presence in the chemical and acid tanks market. New products such as the ten feet ASME certified acid tank (available with a variety of linings), 500 USG and 1000 USG chemical tanks, have been well received in the market. There are now plans to add to the range with a 20-feet/20,000 litre acid tank, a 4000 litre chemical tank and a Helifuel tank.

Looking ahead Paul concludes: "Putting customers at the heart of product development and proving an agile responsiveness to market need whilst promising excellent product quality is key to our future growth and sustainability. There is a wealth of opportunities open to us which should provide ample excitement and challenge for the next 30 years." OSG

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