



Left to right, **ROSS DORNAN**, OGUK; **ROBIN ALLAN**, Premier Oil; **CHRIS AYRES**, OPEX Group; **ANDY HESSELL**, Kellas Midstream; **FIONA MCKIE**, Wood; and **DEIRDRE MICHIE**, OGUK

North Sea welcomes road map to net-zero oil and gas

ERIKKA ASKELAND, Contributing Editor

The oil and gas industry has welcomed a roadmap, which will see the North Sea support aims for the UK to become a net zero carbon economy by 2050—and by 2045 in Scotland.

SPE Offshore Europe 2019 hosted a breakfast event for the launch of Roadmap to 2035: A Blueprint for net-zero, which sets out how the North Sea industry can support net-zero ambitions while also ensuring the security of the UK's energy supply.

Ross Dornan, market intelligence manager for Oil and Gas UK (OGUK), the trade body which produced the plan, said the oil and gas industry will play a key role in the delivery of net-zero carbon by maintaining focus on cost efficiencies and cutting its own carbon footprint.

Discussing the launch of OGUK's annual economic report, which featured the roadmap, he insisted that a net-zero carbon UK would still need to maximise economic recovery of hydrocarbons from the North Sea, as indigenous supply would still be required to meet demand even into 2050. He said, "One of the things that is crucial to emphasise is maximising economic recovery can be compatible with the drive to net zero."

Task ahead. Operators will be required to aggressively reduce the carbon intensity of offshore operations. Dornan said North Sea oil and gas produces 24,000 per 1 MMBbl of oil produced and that this would need to be reduced to 4,000 tonnes per million barrels to meet target—an 85% reduction. Dornan said, "Make no mistake that is a huge challenge for industry."

To do this, operators would urgently have to adopt electrification of platforms, as well as look to reduce or eradicate flaring. Robin Allan, director of North Sea and Exploration for Premier Oil, highlighted that his firm has been publishing emissions data for many years, and has designed its Tolmount gas field in the Southern North Sea to have amongst the lowest emissions in the UK Continental Shelf (UKCS). The project was sanctioned last year and is expected to produce first gas end of next year.

Fiona McKie, senior vice president of Wood, said, "We have to collectively get behind this roadmap. It is great to have the road map there with tangible goals. It is a fabulous day for the industry to see it published in that way. Allan said, "The roadmap makes it very clear that UK demand for oil and gas and exceeds our ability to

supply it. There will be a domestic industry for a very long time. But it also sets up need for supply chain, in particular, to look beyond the UK and use it as a springboard for exports. It is reassuring for to know that we have plenty of long-term careers ahead of us, and it is important we take it to the world and export it."

Fixing perceptions. Chris Ayres, COO for OPEX Group, said, "We need to get really good at telling stories. We have relied on the oil and gas industry, and there is inertia there that has traditionally affected people. "We need to become great story tellers to talk about exciting things we have done and the challenges we have faced."

Andy Hessell, managing director of Kellas Midstream, said: "The Roadmap is a good balance between the different facets of our industry—as well as outlining the challenges and opportunities. Somebody said to me yesterday that 2035 is not very far off in the future—15 years is not very far away. So we need to be acting now, we can't wait for it to happen." Whether it is energy transition or any of the other opportunities, we need to be acting now." •

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SCHEDULE OF SESSIONS AND SPECIAL EVENTS

THURSDAY, SEPTEMBER 5, 2019

- 10:00-12:00 **Commercial Models for Decommissioning**
- Discussion of decommissioning models that define the interaction between the oil and gas supply chain and operators.
 - **Session Chair:** John Warrender, Decom North Sea
 - Presentations by Bureau Veritas, Heerema Marine Contractors, Maersk Decom, Oceaneering International and Well-Safe Solutions
- 10:00-12:00 **Standardisation—Why can't we be like other sectors?**
- What can our industry learn from the aviation/automotive sectors to become more standardised, with higher efficiency and reduced costs?
 - **Session Managers:** Gordon Ballard, IOGP; and David Stewart, Wood
 - Presentations by BAE Systems, IOGP and Jaguar Land Rover
- 10:00-12:00 **Transformative Technologies to Lower Carbon Footprint**
- Review of UN goals to promote prosperity while protecting the planet.
 - **Session Managers/Moderators:** Phil Kirk, Chrysaor; and Gordon Ballard, IOGP
 - Presentations by Equinor, IOGP, OGCI, Pale Blue Dot Energy and Shell
- 10:00-12:00 **Field Development (WA&D)**
- Discussion of challenges of safe, economic well abandonment and decommissioning in the North Sea.
 - **Chairpersons:** Annabel Green, Tendeka; and Colin McKinnon, Wood
 - Presentations by Aker Solutions, OGTC, TGT Oilfield Services and the University of Aberdeen
- 10:00-12:00 **Smarter and More Effective Field Development I**
- Discussion of technologically progressive solutions and alternative approaches, designed to deliver cost-effective project management.
 - **Chairpersons:** Lucy Brown, Schneider Electric; and Geoff Gough, INEOS
 - Presentations by Bridge Petroleum, Schlumberger, Shell, TAQA, Total E&P, TRACS International and Weatherford
- 14:30-16:30 **Decommissioning—Foresight Future of the Sea**
- Understanding the impact of a changing marine environment brings opportunities to develop and stimulate economic growth.
 - **Session Chairpersons:** Karen Seath, SUT Decommissioning; and Steve Hall, SUT
 - Presentations by Aberdeen University, Ardent Global, MASTS, Offshore Simulator Centre, SAMS, Subsea 7, SUT and Waves Group
- 14:30-16:30 **Automation**
- A discussion of the benefits of automation and the industry's efforts to incorporate new processes into the workflow.
 - **Session manager/moderator:** David Reid, NOV; and Leigh-Ann Russell, BP
 - Presentations by BP, Equinor, NOV, Oddfjell and Shell
- 14:30-16:30 **Unlocking a Low-Carbon Future**
- A discussion of enabling the energy transition and decarbonizing the E&P industry.
 - **Session Managers/Moderators:** Sian Lloyd-Rees, Aker Solutions; and Martin White, Halliburton
 - Presentations by Aker Solutions, Shell and TNO
- 14:30-16:30 **Subsea—Application of Robotic Discovery in Operations**
- This session explores advances in robotics to support a safer way of operating in the subsea environment.
 - **Chairpersons:** Rebecca Allison, OGTC; and Drummond Lawson, Subsea Technologies
 - Presentations by BP, EC-OG, Technical University of Berlin, ThyssenKrupp, TUV SUD and University of Rostock
- 14:30-16:30 **Smarter and More Effective Field Development II**
- This session will showcase efficient field development using innovative downhole or subsurface technologies to enhance drilling performance.
 - **Chairpersons:** Lucy Brown, Schneider Electric; and Geoff Gough, INEOS
 - Presentations by AkerBP, BHGE, DuPont, Ithaca Energy, JAGTECH, OMV, OPECS, Packers Plus, Schlumberger, Shell and University of Stavanger

Airborne Oil & Gas secures TCP flowlines contract with supermajor in West Africa



FIG. 1. TCP flowlines, similar to those shown here, will be headed to Africa for a supermajor. Image: Airborne Oil & Gas.

Airborne Oil & Gas B.V. has been awarded a large contract from a supermajor through Oceaneering International Inc. to supply Thermoplastic Composite Pipe (TCP) flowlines for deployment in West Africa, FIG. 1. It is believed to be the first TCP solution of this type utilised in the region and should save the operator up to 40% on installation costs.

The contract builds on a long-standing relationship between Airborne and the E&P business on the qualification and deployment of TCP, and marks a significant milestone in supplying TCP for permanent subsea applications.

Contract specifics. TCP is a non-metallic, composite pipe that delivers high levels of corrosion and fatigue resistance and, therefore, a significantly extended service life. Under the contract in West Africa, Airborne will provide the superma-

major with a 4-km, 7.1-in. ID, 160-bar design pressure TCP flowline for water injection. This replaces existing corroded flowlines in the field.

Airborne CCO Airborne Martin van Onna said, "This is an important milestone in our company's history, as we believe it to be the first TCP flowline to be installed in West Africa, marking the breakthrough of TCP technology in the subsea market in this region. From now on, any asset director, country manager, buyer or engineer can simply choose a 'no corrosion' solution to be manufactured, installed and deployed quickly and cost-effectively."

TCP's total installed cost has proven to offer significant benefits to an operator's pipeline replacement projects, particularly for water injection lines that often suffer from corrosion. Airborne Oil & Gas is exhibiting at SPE Offshore Europe 2019, and can be located at stand 1AA70. ●

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PUBLISHER

Andy McDowell

OFFSHORE EUROPE CONTACTS

Gavin Watson
Jackie Robinson

EDITOR

Kurt Abraham

CONTRIBUTING EDITORS

Ian Lewis
Craig Guthrie
Erikka Askeland

PHOTOGRAPHER

Michal Wachucik

EDITORIAL PRODUCTION MANAGER

Angela Bathe Dietrich

ASST. EDITORIAL PRODUCTION MANAGER

Lindsey Craun Sönmez

ARTIST/ILLUSTRATOR

David Weeks

ADVERTISING PRODUCTION MANAGER

Cheryl Willis

World Oil

www.WorldOil.com

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Offshore digitalization facing a reality check

CRAIG GUTHRIE, Contributing Editor

Digitalization solutions being developed for offshore platforms are proving to be costly failures, because they are not designed to be compatible with long-established work processes and tough environmental conditions, attendees heard on Wednesday at SPE Offshore Europe 2019.

The industry's focus on attention-grabbing virtual reality and augmented reality tech for offshore projects can often be a distraction from the need for practical solutions that ensure easily accessible data on more rugged hardware, according to experts from IIoT platform firm Cognite and from oil exploration and development company AkerBP.

"There is a gap between the theory of

digitalisation and the reality. It's all very exciting to see VR glasses for example, but none of these solutions are operationalized at large scale offshore today", said Mari Sofie Korslund, manager of customer success at Cognite. "It is easy to discuss in offices, but in actual practice, the implementation needs to be ready for an environment that is tough, loud and messy."

Aksel Giset, senior process engineer at Aker BP, said that for a year, the company has been studying how software and data analytics can improve its work processes as part of a focus on digitalization initiatives in its different business units. "We knew that we were good at producing oil and gas but not good at data analytics, so we

established a partnership with Cognite".

Since then, Aker BP has been working with Cognite to develop technology to optimize operations, with visualizations, machine learning, automation, and preventive maintenance. The firm has said that by using Cognite, Aker BP aims to drive down OpEx and CapEx, reduce downtime, and increase safety and security through data-driven optimizations.

Focus on end users. Korslund explained that the goal of digitalisation is often to free up offshore workers time, so they can be released from mundane tasks and focus on jobs that demand more creative skillsets, as well as enable workers to access a myriad of data systems. However, currently developers are not taking the time to see first-hand the actual environment they are designing digital solutions for.

She said that as a result, solutions that placed innovation above operationalization are being created that are often not fit for purpose. "Data needs to be presented in a way that it can ultimately help humans and increase productivity-and safety-of those working offshore".

Giset said that a practical connection needs to be established between real work processes and software solutions. "If you look at the reality, what we do currently offshore, there is a lot of paper-based work, and handshakes between systems. There are some digital solutions system available, such as for work orders, but you still have to do manual checks".

Real-world pain points. Korslund said it was important to reiterate the need to involve the end-users in the design process, not towards the end of the pro-

cess but in fact from the very beginning. "We are in continuous dialogue with our end-users. And the reason for this is to ensure that we are solving the actual problems that they have".

Those experts' views on a disconnect between concepts of digitalization and the realities in the field reflects a trend emerging at the conference. "The most senior levels talk about digital technology as a 'strategic priority.' There's an awful lot of work that's gone into identifying use cases, identifying processes and workflows where digital technology, including artificial intelligence, will make a difference," said Martin Kelly, vice president, head of corporate analysis, Wood Mackenzie.

"But is there that growing disconnect between the executive management and employees in terms of this digital transformation. There's plenty of talk from the top. But our results are proving harder to come by."

Giset said the best path forward was to reverse the typical design cycle for offshore technology projects, with the operationalization coming ahead of the innovation. "We need to examine first the daily tasks, and by analyzing that look for the pain points for data operations. This goes hand-in-hand with our 'lean' strategy." He said that there is a potential for "huge savings" in terms of routine mundane inspection operations offshore, if new systems can turn the design process on its head, and focus on the user first.

"This may not create immediate value, but the working day for the offshore worker is much better. They start having more time, and complete tasks more efficiently while reducing errors. If you have happy users, you have a happy life." •



AKSEL GISET (left), senior process engineer at Aker BP, and MARI SOFIE KORSLUND, manager of customer success at Cognite

SMD unveils green, high-capability ROV technology

SMD

This week, SMD is unveiling its electric Work Class ROV at SPE Offshore Europe 2019. The new Quantum/EV ROV (FIG. 1) introduces electric-drive technology to the subsea sector in an optimised, modular package that brings Work Class ROV performance and capability to a new level. The high-capability

Quantum/EV is SMD's environmentally responsible solution, designed around five key principles, covering performance, reliability, flexibility, ease-of-use and compact form factor.

Innovative features. The prototype, showcased at OE19, is equipped

with a range of cutting-edge technologies, including a completely new 25-kW high-power electric thrust system, a new long-distance DC transmission solution, and a locally managed DC power system. Quantum/EV has a 20% increase in performance and is reportedly twice as efficient, when compared to current Work Class ROVs. The new platform also features advanced flight processing for super stability, battery compatibility for tetherless operations, and it is future-proofed to accept AI command technology.

SMD has been subjecting the newly developed technologies and the new vehicle to a thorough testing programme that will continue over the coming months. First deliveries are expected to begin in nine to 12 months.

Giving customers what they need. Mark Collins, SMD's Director for Remote and Autonomous Technologies, has been involved throughout the development process. "We have been listening to what our customers and the industry want and, using our extensive real-world and sometimes painful experience, we've developed a new product range which has their needs at its very core. We have really focused on developing a tool that can be relied upon to take operational efficiency to a new level that's easy to own and use. The technology will sup-

port our clients' ambitions and is suitable for traditional vessel, unmanned vessel and resident applications. One of the novel things about the EV technology is its modular flexibility. We've created future-ready, component-based, modular architecture, which can be extrapolated for different uses; easily transferred for use in AUVs and USVs."

Commenting on the launch of this new EV technology, Stephen Wilson, SMD's Innovation Manager, added, "We have been developing electric motors and ROV thrusters for over 20 years. As specialists in high-power motor drive technology, our parent company, CRRC Tec, has given us access to high-power systems technology that would be otherwise inaccessible to the subsea sector. All of this, combined with financial support from our parent and Innovate UK, has put us in a unique position to bring a world class electric ROV system to the market."

As the subsea group of CRRC Times Electric, SMD is an advanced global supplier of subsea remotely operated and autonomous power and control solutions. Operating across a number of technology areas, SMD specialises in work class ROVs, subsea trenching, submerged mining and vessel deck equipment, as well as providing a range of subsea components through the highly successful Curvetech™ brand. •



FIG. 1. The new Quantum/EV ROV features a completely new 25-kW high-power electric thrust system. Image: SMD.



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HUBER+SUHNER set to future-proof the offshore industry

At SPE Offshore Europe 2019, HUBER+SUHNER is presenting the benefits of its innovative RADOX® OFL solution to address current offshore industry requirements. The solution reduces weight by up to 60% and space by up to 70%, enabling reliable connections in the most demanding environment and space-restricted conditions.

With extensive offshore experience, the RADOX® OFL cable by HUBER+SUHNER has been designed to offer greater flexibility and reliability to keep up with ever-increasing demands for durability, performance and environment in oil and gas applications, compared to traditional solutions. The innovative compact design can cope with a smaller bend radius to save space by up to 70% and weight by up to 60%, and further to reduce costs and installation time. RADOX® OFL is ideal for monitoring and control, as well as sensor applications on offshore platforms.

Second-gen cable. Additionally, HUBER+SUHNER will present the second generation of the RADOX® 125 cable, the only offshore cable that fulfils the highest safety standards: CPR (Construction Products Regulation) and DNV. Like its predecessor, it is robust and resistant to chemicals, fire and extreme temperatures. “Our RADOX® technology allows customers to reap the benefits at the same cost price, giving us a competitive edge that cannot be found anywhere else on the market,” said Barry Larcombe, Sales Director Low Frequency at HUBER+SUHNER UK.

Industrial and offshore facilities are often accessible only in difficult conditions, which means that their removal, adjustment or emergency maintenance requires an extreme level of resources and time. As pressure on the offshore industry mounts, the need for reliable solutions that meet strict safety requirements is critical. Proving its expertise in offshore solutions and the quality of its products, the RADOX® cables from HUBER+SUHNER have a lasting service life, much longer than conventional cables in the offshore industry and comply with EU building products directive.

Composition. RADOX® stands for “radiation X-linked” and describes the process of crosslinking thermoplastic polymers by means of electron beams. It possesses better abrasion resistance and provides greater cut resistance, compared to other technologies. Utilising the RADOX® cross-linked polymer jacket technology, the HUBER+SUHNER solution is proven to be resilient and robust to address the offshore market needs, including harsh environmental conditions

such as high temperatures, oil, chemicals, and UV radiation.

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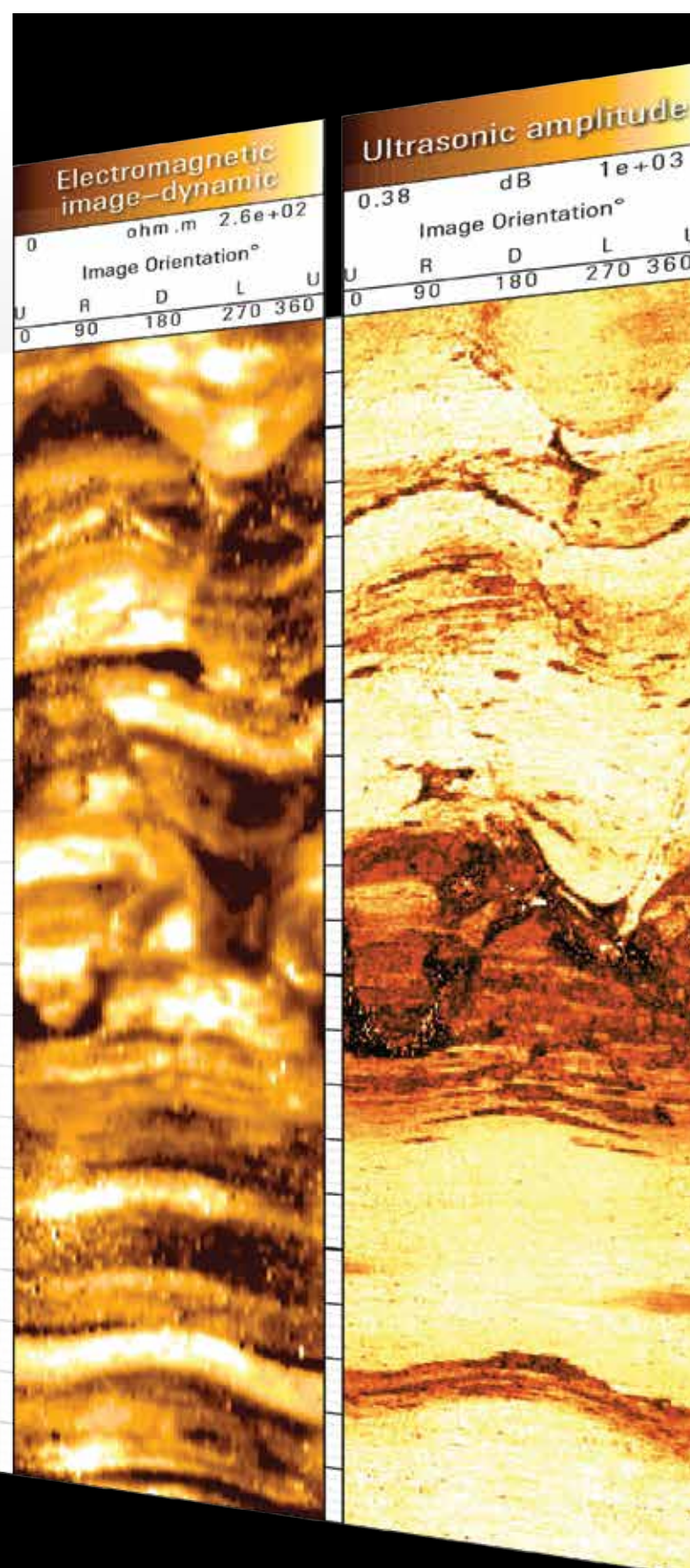
“Our technology is a game-changer for the industry, so there isn’t a better opportunity to showcase these products than at SPE Offshore Europe 2019,” added Larcombe. ●

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Decommissioning—the future is now

IAN LEWIS, Contributing Editor



ANDY SAMUEL



MARTHA VAZQUES

The UK offshore is set to account for around a third of all global decommissioning investment over the next decade, potentially allowing the sector to make a virtue out of necessity by developing first class, low-cost technology and practices that can be applied to maturing fields around the world. But there's plenty of work to be done, if that's going to happen, industry leaders told OE.

The sector has yet to settle on a model for the most effective decommissioning and panellists at the “Decommissioning—Now's the Time” session had varying views on which would dominate. “The first commercial corporate decision you need to think about as an organisation is

do you want to do no decommissioning, or do you want to do lots of decommissioning? Frankly, anything else is going to be a sub optimal strategy for your business,” Jon Clark EY's EMEA Oil & Gas Transactions Leader told delegates.

He believes that in ten years' time, there is a good chance that the bulk of North Sea decommissioning operations could be being handled by a very small number of specialist companies, with far less being carried out by the big operators. He said it was hard to see a future, where the industry didn't evolve into some sort of oligopoly, because once a company had gained the experience of doing one or two decommissioning proj-

ects, the experience would give it a massive advantage over rivals in bidding for ensuing work.

Andy Samuel, Chief Executive of the Oil and Gas Authority (OGA), said he hoped that specialists would emerge, but that the relatively slow pace of change in some other aspects of the North Sea oil industry organisation over recent decades suggested that the change may take longer. However, the industry is still making good progress in streamlining its activities and driving down costs, Samuel said. In 2017, it was estimated that decommissioning the UK Continental Shelf would cost just under \$60 billion overall, now the forecast is around \$50 billion. That's roughly halfway towards the industry target of cutting costs be more than 35%.

More gains needed. Making further efficiency gains will need to be driven by that concept much touted at OE 2019—greater collaboration. Pamela Lomoro, Decommissioning Project Manager at the Aberdeen-based Oil and Gas Technology Centre, said it was seeking to hook up the decommissioning industry with other sectors that had valuable experience of decommissioning, notably the nuclear industry. She also said the OGTC was receiving interest from professionals elsewhere in the world, such as Norway and Malaysian, who were eager to collaborate on decommissioning technology.

Martha Vazques, Associate Director, Upstream Oil & Gas at Boston Consulting Group, also said the North Sea may be able to take lessons from the nuclear industry, notably in the U.S., where it had proved possible for specialist decommissioning companies to develop a business

model that could make billions of dollars of revenues out of a process usually considered to involve billions in liabilities. This has been achieved, in part, due to an ability to carry out accelerated decommissioning and also to adopt a fleet management approach covering several plants, rather than operating on a project-by-project basis, as had traditionally been the case, she said.

One company making the early running in terms of building North Sea decommissioning skills is CNR International (CNRI), which has already carried out plugging and abandonment on two of its fields, Murchison and Ninian Northern. Murchison's disposal was completed in 2018, 38 years after it was installed. Ninian Northern's topsides were separated from the jacket this year, with the topsides due for removal in 2020.

Caroline Lawford, Decommissioning Project Lead at CNRI, said that despite the tough-sounding pitch of selling oil and gas decommissioning to recruits from a new generation of engineers and scientists, CNRI had been successful by creating a tight team that were involved in a diverse range of activities—and by making decommissioning “fun.”

She said the exciting engineering and technological developments involved had proved appealing to the teams CNRI had been working with. But she said it was just as important to ensure the teams were diverse, enjoyed their work and engaged with each other, whether they were on the rig or in the office. “Striving for continuous improvement, always moving forward with what you're trying to do—I think that that really adds to the fun element,” she said. ●

DNV GL offers new way of delivering risk analysis in the “digital twin”

ERIKKA ASKELAND, Contributing Editor

Uniting dynamic risk models and digital twin technology will transform safety and risk assessment in the oil and gas industry, DNV GL has said. The firm, which provides certification as well as

technical assurance and software, unveiled its Probabilistic Digital Twin (PDT) model. It combines risk analysis to systems that offer operators and contractors virtual copies of specific physical assets.

The design. DNV has designed the probabilistic risk assessment “layer” to be bolted on to the variety of digital twin technologies currently used or being developed in the market. Dr. Andreas Hafver, senior research and DNV GL, said risk models tend to exist separately from operations. He said: “In the past, risk assessments have usually been performed manually and based on generic data from similar assets to make assumptions about what could happen.

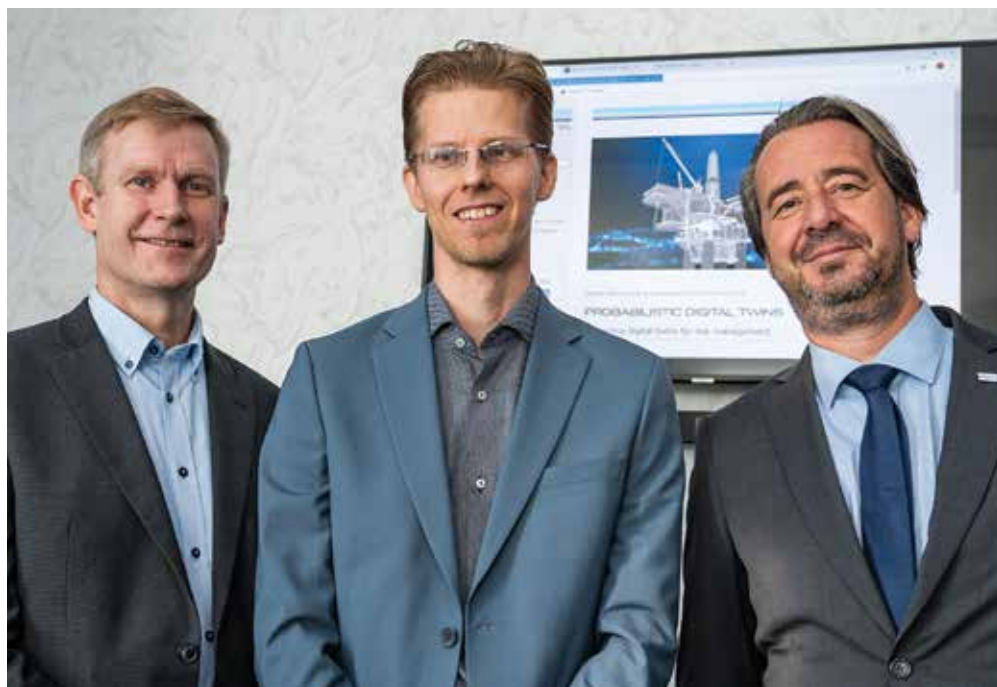
“Digital twin technology can enable you to simulate under real conditions, based on the condition of assets. Combine that with a probabilistic risk model, we can provide support to operators in day to day operations. We can update risk assessments continuously using PDT, which is a record of actual conditions of the asset, and we can simulate scenarios. Moreover, we can deliver results of assessment integrated into PDT. Because the point of the digital twin is to be one point of access for all information. That can also include the risk information we provide.”

Saving costs. Having information provided through PDT also saves cost, as better and up-to-date risk information

can significantly reduce downtime. He added: “You could potentially save a lot of money.”

Franke Nørre Pedersen, programme director oil and gas at DNV GL's group technology and research unit, said the technology was being used now to offer PDT services on offshore choke valves. He ultimately envisages that various PDT systems will be integrated to work together. “You can't think about one digital twin that rules them all. We don't believe we will see that. We will see twins communicating with different twins in a system.

“DNV GL is prepared for a future where our clients will have digital twins of all their assets, having encouraged their use in multiple industries,” he continued. “Many of our clients are building and maintain digital twins of their assets. The PDT allows us and our clients to take advantage of all the information such twins contain to improve risk assessments. The PDT is not an alternative, but an evolution of the digital twin—expanding it into the risk analysis space. It is a new way of delivering risk analysis—continuously and in a digital format, adding more value in day-to-day decision-making.” ●



Left to right, **FRANK BØRRE PEDERSEN**, V.P., Programme Director, Oil & Gas; **ANDREAS HAFVER**, Senior Research Scientist; and **LARS SØRUM**, Director of Digital Innovation; all of DNV GL

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Inflow control for Troll

TENDEKA

In June, independent global completions service company, Tendeka announced it had secured the world's largest sand and inflow control contract for Troll field on the Norwegian Continental shelf (NCS), **FIG. 1**. The major, four-year exclusive contract with Equinor will see the Aberdeen-headquartered company deliver and install up to 100,000 m, annually, of its sand screens and FloSure auton-



FIG. 1. Tendeka has secured the world's largest sand and inflow control contract for Troll field on the Norwegian Continental Shelf. Photo: Harald Petterson, Equinor.



FIG. 2. Karianne Amundsen, Scandinavia Area Manager, Tendeka

omous inflow control devices (AICDs) for sand-face completions.

An initial contract between the two companies for Tendeka to provide screens and ICD/AICDs was signed in 2012, with a further two extensions later agreed. The new agreement offers five additional two-year extension periods. Since Tendeka first deployed FloSure technology in Troll field during 2013, the field-adjustable production optimisation technology has been enhanced for use in new and retrofit applications across five continents. These range from marginal heavy oil developments in Canada to new field developments across Asia and gas cap expansions in the mature North Sea basin.

"The Troll field represents the backbone of Norwegian oil and gas production," said Karianne Amundsen (**FIG. 2**), Scandinavia Area Manager with Tendeka. "As this is overlaid by a thick gas cap, the aim is to maximize oil production, using our FloSure AICDs and thereby eliminate the associated problems of too much gas production, which could potentially render the well inoperable."

As a large subsea development, which started oil production in 1995, Troll's multilateral, horizontal wells are drilled with total reservoir length, between 3 and 5 km within the thin oil column (Halvorsen, et al, 2016). By postponing gas breakthrough and then choking production after breakthrough, the use of AICDs will allow greater oil recovery. Currently, more than 50 wells on Troll are equipped with the technology.

Prior to the contract award, Tendeka worked closely with the Norwegian operator to further develop the FloSure rate-controlled production (RCP) AICD, delivering improvements in overall performance and gas control.

Simple design, optimum performance. AICDs comprise only three components: valve body, nozzle and disc, and are small enough to be installed

within standard passive ICD housings. Importantly, the size of the nozzle on the device is interchangeable at the rig, based on drilling results. Deployed as part of the lower completion, using zonal isolation packers to divide the reservoir into compartments, the AICD can be integrated with sand control screens for soft formations.

"It's an incredibly versatile technology," explained Amundsen. "Knowing how to apply the technology correctly by quantifying the value and optimizing the design is crucial. We've developed our own modelling software to be able to predict the performance of the AICDs in any application. This is where our expertise is second to none."

On Troll, all new wells are infill wells that are drilled in between branches of older or abandoned wells. They intersect areas of varying oil column thickness. Here, wells need to be drilled with care to avoid early gas breakthrough and sand production to surface.

The depth of the oil/water contact in these longer, horizontal multilateral wells varies, as do the reservoir properties. Therefore, the wells are completed with stand-alone sand screens and inflow control devices to monitor flowing and shut-in pressure for the individual branches.

When gas or water flows through the AICD valve at the same drawdown, the velocity of the water and gas will increase, reducing the dynamic pressure. To restrict the flowrate of low-viscosity fluids, this action will levitate the disk toward the inlet to choke the flow. AICD technology is fundamental for continuing oil production on profitable margins and, as such, significant mechanical design modifications have been implemented for improved completion integration, robustness and longevity.

New and retrofit applications. FloSure AICDs have been deployed successfully in light and heavy oil wells

to overcome water or gas breakthrough and ensure uniform production longevity. For example, it has been successfully implemented as a pilot project in horizontal wells at Jasmine and Ban Yen fields, in the Gulf of Thailand, to reduce gas breakthrough. The AICD well has now been producing for more than one year and at significantly lower gas-to-oil ratios than previously (Triandi, et al, 2018).

In Canada, the design resulted in an overall increase in oil production of 150% to 250%, with water production reduced 40% to 50%. This led to an improved return on investment of more than 250% per well, with a far lower risk of water problems, compared to the previous solutions applied (Moradi, et al, 2018).

Several wells have been completed recently with AICDs for a major operator in the Middle East. The AICD completion has reduced the water cut of the wells to below 50% for AICD wells, compared to 90% in the analogue wells, limiting the water production from the fractures. Several other new AICD wells are being planned in the Middle East. Following successful installation in pilot wells, retrofitting existing completions with AICDs is now a common practice for some operators.

Tendeka has, so far, employed more than 35,000 FloSure AICD valves in over 210 wells worldwide. As seen at Troll and other developments, the implementation of AICDs has not added complexity or HSE risks to the completion and production of these wells. It has clearly shown to significantly increase oil production, extend well life, and ultimately lead to greater oil recovery in a wide range of environments and applications.

To find out more, please visit: www.tendeka.com. In addition, Annabel Green, Tendeka CTO, will be chairing the technical session on Field Development (Well Abandonment and Decommissioning) today, Thursday, 5 September, 10.00 – 12.00, in Room 4. ●

TECHNIPFMC AWARDED SIGNIFICANT EPCI CONTRACT FROM NEPTUNE ENERGY

TechnipFMC recently was awarded a significant integrated Engineering, Procurement, Construction and Installation (iEPCI™) contract from Neptune Energy for the Seagull field development project, in the Central North Sea. This contract is the second call-off under the recently announced five-year strategic global alliance agreement between TechnipFMC and Neptune Energy.

TechnipFMC will manufacture, deliver and install subsea equipment, including production and water wash pipelines, umbilicals, subsea structures and control systems.

Arnaud Piéton, President, Subsea, at TechnipFMC, commented, "We are delighted to partner again with Neptune Energy. Our alliance clearly demonstrates the importance and value of early engagement and collaboration, as well as our ability to offer clients a full suite of services and global experience. We look forward to expanding our working relationship through the development of fields, such as Seagull.

As architects of our clients' projects, and through the adoption of collaborative working methods, we can bring more efficient, repeatable solutions to our clients that increase value, and reduce engineering interfaces and time to market."

Seagull field characteristics. Neptune Energy operates the Seagull discovery, together with joint venture partners BP and Japex. Seagull is an HPHT oil field, in a water depth of about 90 m. Comprising four subsea production wells, a new 5-km pipe-in-pipe production line, and a 17-km control umbilical, Seagull outputs will travel via the Heron pipeline system to the BP-operated ETAP development and on through the Forties pipeline system to Grangemouth, UK. ●



ARNAUD PIÉTON,
President, Subsea,
TechnipFMC

New industry tool to improve recovery from existing North Sea fields

OIL AND GAS UK

A new tool aimed at providing operators and licensees with a framework to re-evaluate methods to improve recovery from existing North Sea oil and gas assets was launched recently on the OGUK website. Developed through industry collaboration, the tool provides a detailed process for identifying opportunities to learn from industry-leading practice.

Background. The Reserves Progression Task Group, supporting the Oil and Gas Authority's (OGA's) Asset Stewardship Task Force, created the Reserves Progression self-verification checklist tool to promote good practice, and information-sharing. Using it will help operators improve overall recovery rates and extend the productive life of the UK Continental Shelf (UKCS). This industry group was convened by the Asset Stewardship Task Force in 2018 after being tasked with creating this tool, which seeks to enable operators to reflect on their contingent reserves.

The Asset Stewardship Task Force is an industry group, supported by the OGA, whose role it is to improve project and producing asset stewardship on the UKCS, to deliver efficient reserves recovery and leverage lessons from other high hazard industries. The Reserves Progression Task Group comprised leading industry professionals from Apache, BP, Chevron, Ithaca, Premier Oil (FIG. 1), OGUK and OGA.

Fulfilling the need. Task group Co-Chair Katy Heidenreich, said, "Current data shows there are over 2 Bboe in near-field opportunities that could potentially be unlocked through the promotion of good practice and innovation. Many of these opportunities may be marginal, technically difficult and geologically complex. This tool gives industry a consistent, integrated and systematic approach to progressing these resources and reserves. Improving our stewardship of these assets and collectively finding ways to increase the UKCS recovery factor from 43% means there's an opportunity to add many millions of extra barrels of vital production using our existing infrastructure."

In addition, fellow Co-Chair Tony McGarva commented, "Companies can use the Reserves Progression checklist to identify, review and re-evaluate the potential opportunities for increasing oil and gas recovery in all aspects of their activities, including reservoir management, and well and production systems, and reassess where processes could be refined to unlock otherwise undeveloped reserves. With industry experts collaborating to develop this tool, it's designed to be easily incorporated into current processes, thus helping to drive continuous improvement in performance."

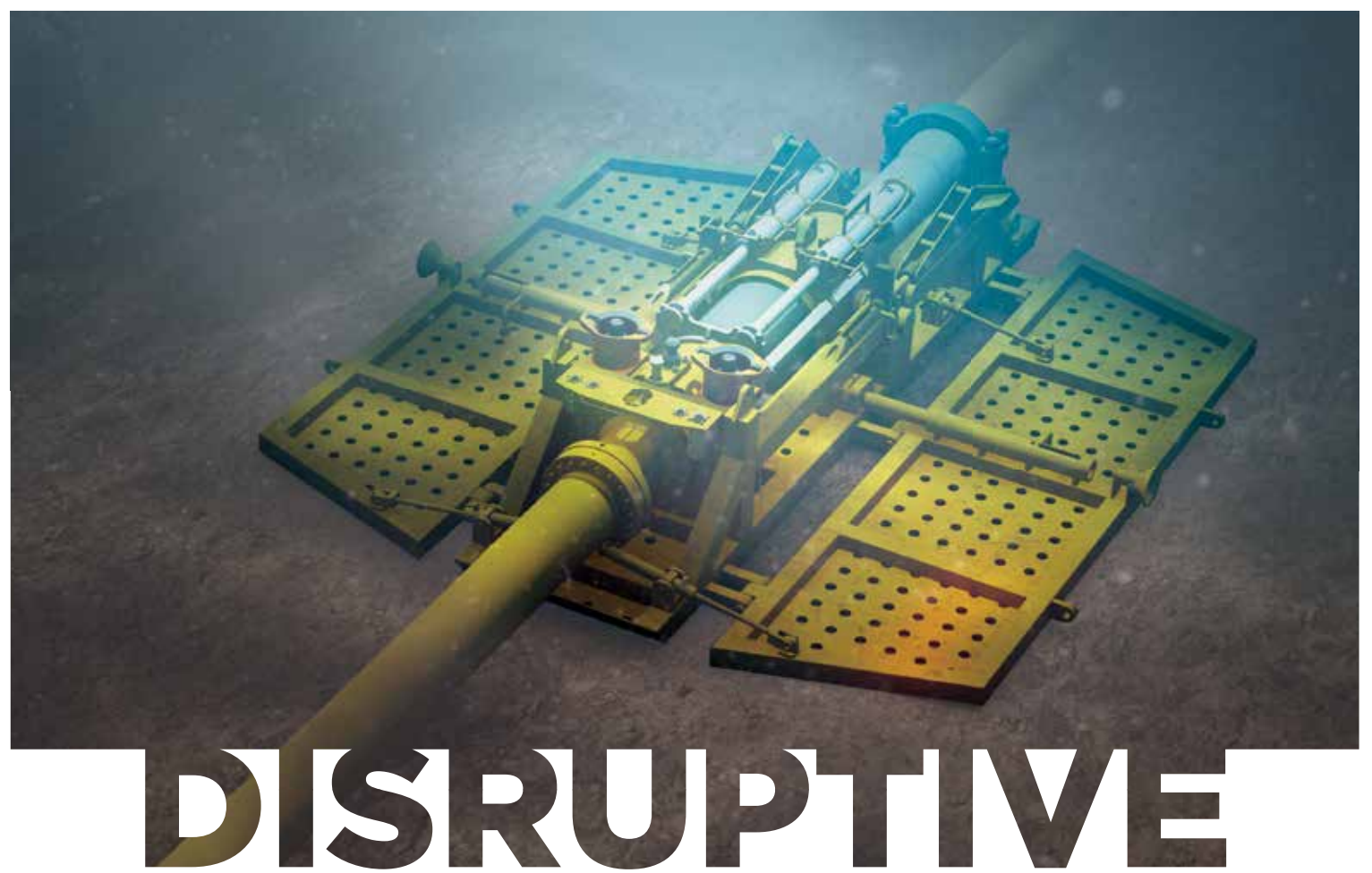
Scott Robertson, co-chair of the Asset Stewardship Taskforce and Area Manager, Central North Sea for the Oil & Gas Authority, noted that "the OGA has previously highlighted the 2-Bboe resource prize that exists within existing producing fields, and I'm delighted that a small group of experts, in progressing

resource opportunities, has combined their experience to develop this self-assessment tool. The tool incorporates good practices and leading behaviours, and operators will be able to use it to determine whether their organisations, processes and procedures are set up to deliver oil and gas opportunities consistent with those operators who already do it well."

The OGUK Reserves Progression self-verification checklist comes in the form of an Excel workbook and is accompanied by a Communications Pack, which explains the context, definitions and references, and includes instructions for use. Instructions for use are also contained in the workbook. ●



FIG. 1. Premier Oil, which operates the *BW Catcher* FPSO at the Catcher area of fields on the UKCS, was one of several operators and organisations that contributed executives to the Reserves Progression Task Group.



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Wiping away rig-time cost and risk during P&A

CORETRAX

Eliminating the need for costly equipment or hazardous manual handling, Coretrax, the wellbore clean-up and abandonment specialist, has seen the deployment of its drill pipe cleaning tool, the CX-Ball, exceed more than 2,000 global sales within five years.

For abandonment campaigns in the Gulf of Mexico, Far East and the North Sea, this has saved more than 11 days, equivalent to US\$2.5 million of rig-time cost and associated risk, since the product was launched in 2014. This is based on an average time saving of 8 min. per ball, which in total has saved 278 hrs of rig-time, equivalent to 11.58 days.

Marginal gains. After cementing is

complete, foam wiper balls are used to avoid potential residual cement, fluids or debris, setting and building up on the internal diameter of the pipe. If there are remnants left over, such as hardened cement, this can become dislodged during future operations and potentially cause contamination or a blockage in the drilling string, requiring complex and costly efforts to remedy.

Traditionally, competently loading and deploying large, 7-in. foam wiper balls into the 3-in. restrictive tool joint is challenging. While there is equipment available to compress and insert the ball, this is expensive and time-consuming to set up and deploy, and is therefore not widely used. Instead, personnel often

struggle to force the balls into the tool joint by hand, meaning greater risks associated with manual handling and machinery.

Made from natural rubber, the CX-Ball (FIG. 1) on the other hand, is simply encased in a dissolvable material that allows it to temporarily restrict its shape when deployed by the launch tube directly into the drill pipe. On contact with water, the ball expands and returns to its original shape. The high parting stretch ratio of the ball allows it to pass through small restrictions undamaged, as it is pumped downhole.

“The CX-Ball essentially embodies the concept of marginal gains,” said John Fraser (FIG. 2), global business

development director with Coretrax. “The simplicity of the tool allows easy and quick deployment and reduced time in the ‘red zone.’ While this doesn’t initially suggest big time-savings, over multiple applications in a campaign, significant financial, safety and rig-time savings can be achieved.”

As a high-risk area, the “red zone” of the rig floor should only be entered by personnel when required. As the time taken to deploy the CX-Ball is far less than traditional methods, on average 8 min. per ball, its use cuts time and reduces harmful exposure to well fluids in the zone.

Proficient P&A. On removing the cap from the recycled plastic launch tube, it is placed into the box connection of the pipe, and the plunger is depressed to release the ball easily and without intervention. The tube can then be discarded into the recyclables skip offshore.

In one North Sea campaign for a major operator, it has been used consistently for the last 74 well abandonments, saving approximately 57.6 hrs of rig time alone. In another long-standing plugging and abandonment (P&A) operation, 180 CX-Balls were deployed across 17 wells alongside use of the company’s bridge plugs, brushes and drop drift cleaner, to deliver an integrated technology approach to totally overcome the challenges of difficult drill pipe cleaning. This resulted in 24 hrs of rig time saved.

The global success of the patented product is down to its simplicity, speed of use, safety and sustainability benefits. ●



FIG. 1. Coretrax CX-Ball drill pipe cleaning tool.



FIG. 2. John Fraser, global business development director, Coretrax.

IDS unveils new suite of drilling equipment

Aberdeen-based Innovative Drilling Systems Ltd (IDS) was established to leverage years of experience for the development of a new-generation of patented, high-quality rotary drilling equipment. The IDS team has been working on mechanical and hydrodynamic hole cleaning for over 20 years.

IDS is introducing a new suite of drilling equipment designed to improve rotary drilling performance. The first of the new tools, The Remover (FIG. 1), will focus on hole cleaning, with unique features that include complete wellbore cuttings removal, designed with a thorough understanding of rotary drilling and existing technology.

Hole cleaning is, of course, a key performance issue for the drilling process.

The Remover is a true axial pump for cuttings removal—charged and enhanced by hydrodynamics. Cuttings are picked up the from the low side of the hole by direct scooping during rotation. IDS commissioned Aberdeen University to undertake a Computational Fluid Dynamic (CFD) study of this new tool. The study concerned the particle distribu-

tion in the fluid, and the dynamic of fluid flow in the borehole.

CFD was employed to study the flow field in the annulus. Software was used for this purpose, which provides an unstructured finite volume formulation. This means that complex geometries can be handled, using unstructured grids and the underlying numerical method is conservative, which is important in fluid flow analysis. The cuttings are modelled as dispersed spherical solids, moving as a second fluid phase—this is a novel, unique approach.

Study findings. This study showed that the addition of an innovative cuttings remover section to the drillstring can significantly improve cuttings transport. Specific features incorporated in the current design uniquely enhance hydrodynamic capabilities of The Remover. The team at Aberdeen University concluded that The Remover proves to be effective in a wide range of mud flowrates and rotation speeds, even when set at low levels.

IDS has further new tools at the design and patent stage, including an update to the Spiral Drill Collar. ●



FIG. 1. The Remover tool from Innovative Drilling Systems. Image: IDS.

EMERSON HELPS INDUSTRY ENABLE DIGITAL TRANSFORMATION WITH NEW CYBERSECURITY LAB

Emerson recently opened its newest cybersecurity lab to help manufacturers confidently adopt digital transformation strategies, while protecting the integrity of their plant operations, networks, systems and data. The facility (FIG. 1), part of Emerson’s larger global cybersecurity network, reinforces a commitment to offer the most advanced automation solutions to its customers worldwide.

The new center, staffed by a team of cybersecurity experts in Pune, India, Maharashtra, builds on existing capabilities and further strengthens Emerson’s technology portfolio to support the highest levels of product security across the development lifecycle. The Pune lab will focus on defining security requirements, designing threat

models and security walkthroughs, maintaining security practices and simulating cyber attacks in industrial environments, to identify and address potential vulnerabilities.

“Cybersecurity is frequently cited by customers as a top consideration for Industrial Internet of Things adoption,” said Lal Karsanbhai, executive president of Emerson’s Automation Solutions business. “Emerson’s investment in a broad portfolio of technologies and services is helping global leaders accelerate their digital transformation with confidence.”

The latest addition to Emerson’s global network of cybersecurity facilities is located at the Emerson Innovation Center in Pune, which houses 900 employees focused on innovating for the future and coordinating training for development engineers.

“Our customers are looking for a partner to help navigate the complex technology landscape, so they can design a secure and robust digital ecosystem for their operations,” Karsanbhai said. “This new center further extends our leadership in industrial transformation and enhances our ability to collaborate with customers on the critical element of cybersecurity, as they adopt the latest digital technologies to optimize performance.” ●



FIG. 1. Emerson’s new dedicated facility and team build on its cybersecurity expertise network, to help safeguard industrial infrastructure and reduce operational risk. Image: Emerson.

isol8 aims to reduce P&A costs with bonded-alloy well barriers

With more than £28 billion expected to be spent on well decommissioning across the United Kingdom Continental Shelf (UKCS), out of a total of £58 billion of UKCS field decommissioning expense, the opportunities that lie ahead for the supply chain are vast. UK businesses, in particular, are well-placed to service the industry, by building on the huge amount of operational and technical experience gleaned since oil was first discovered in the North Sea over 50 years ago.

Oil services start-up isol8 is one of those businesses that has its eye firmly fixed on the decommissioning market. The company, which is building a fully-functioning well intervention business in Aberdeen, believes its technology could deliver cost-savings for North Sea operators of up to £19.6 billion, a 70% plug & abandonment (P&A) time/cost reduction.

isol8 was established in 2017, and is headed up by Andrew Loudon, a former Schlumberger, Interwell and Helix-RDS manager, who spent half of his 28-year career overseeing well operations at BP and Marathon. Under Loudon's leadership, isol8 is set to undertake field trials in fourth-quarter 2019 for its bonded-alloy well barriers for the P&A market.

isol8's "Fusion" well P&A barrier forms part of a portfolio of wellbore "isol8tion" products being developed to address three principal markets: new well construction; well intervention; and well abandonment; all aimed at delivering a step-change

improvement in wellbore seal integrity.

isol8 is developing a range of bonded-alloy isolation products that create a true metallurgical bond with wellbore tubing and casings. By fusing an alloy seal with the tubing/casing, isol8 can deliver high-integrity barriers with superior life expectancy. isol8's Fusion barriers can save between 50% and 70% of a well's P&A costs by avoiding the need to recover the tubing, **FIG.1**.

isol8 was one of only 12 businesses to receive investments from Scottish Enterprise's Decommissioning Challenge Fund at the end of last year. Loudon said, "With North Sea assets approaching the end of their economic lives, decommissioning is becoming an increasingly important lifecycle conversation. It has triggered a demand for alternative barriers with an "eternal" life-expectancy, and has also prompted a call to "begin with the end in mind" for new well construction.

"We are already seeing a ramp-up in decommissioning activity, and our area of focus, well plugging and abandonment is crying out for innovation." According to the Oil & Gas Authority, the current rate of well abandonment has increased four-fold since 2016, and this is expected to continue for decades to come. P&A has been cited as making up half the decommissioning spend over the next decade.

Loudon continued, "Through our range of alloy-based products, our vision is to develop the highest-quality wellbore isolation solutions to drastically improve well

integrity, maximise economic recovery, significantly reduce well abandonment costs, and eliminate emissions." The Scottish government's Energy Strategy, launched last year, recognises that decommissioning offers significant economic opportunities and commits to enhance the capabilities and capacity in Scotland.

Loudon concluded, "We believe our innovative wellbore isolation technologies will help make Scotland the centre of excellence for this particular P&A method, generating more opportunities for support services from the local supply chain. By creatively challenging established technical, operational and commercial practices, we can really help our client base reduce costs, improve operational safety, and deliver zero-emission barriers." ●



ANDREW LOUDON, isol8



FIG. 1. isol8 Fusion well barrier. Image: isol8.

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RYSTAD ENERGY



New science optimizes P&A and fish recovery

RotoJar has developed a stuck object recovery tool, with the unique combination of strong tensile pull and high-frequency impact. Removing objects more efficiently than conventional tools, this new technology increases the likelihood of project success within the planned operating window and budget, **FIG. 1**.

The Scottish-based technology business is led by Dr. Peter Moyes, previously chairman and managing director at Xtreme Well Technology and Zeroth Technology. The company has been investing in the

research, development, engineering and product testing of the RotoJar tool since 2011. The company has received enquiries for field trials, and RotoJar aims to deliver a time- and cost-saving solution for object removal across decommissioning, drilling and fishing.

In the plug-and-abandonment sector, where casing removal challenges can drive onerous and weighty operational costs, RotoJar's ability to successfully remove more casing per deployment will be able to significantly reduce operational

time and costs. Well engineers looking to complete casing removal as quickly as possible, as part of the well abandonment process, will be able to use RotoJar as a casing removal tool in both typical and extended-reach wells.

The tool's constant tension on the casing, combined with its vibration technology, breaks bonds and reduces friction between the casing and the wellbore, and mobilises solids. This results in more casing being removed per deployment than conventional methods. RotoJar's unique operating method means that operators can infinitely vary the frequency and magnitude of the impact from the rig floor, making it a fully controllable process.

Better results. In drilling, speed and success of stuck pipe recovery is paramount. With its combination of strong tensile pull and targeted vibration, RotoJar is more likely to remove stuck pipe than a conventional jar and increase the likelihood of delivering wells on target and in budget. "RotoJar will provide operators and drilling contractors with the ultimate confidence that it will successfully recover the entire drill string should they encounter a stuck-pipe incident," says Dr. Moyes, who knows the challenges presented in the drilling environment.

RotoJar also enables quicker, more effective fishing operations. It has the

ability to fish in shallow or extended-reach wells, making it a far more flexible option for tool deployment. Not only is it able to provide a high-rate impact capability, RotoJar also can be used as a conventional jar, if deemed preferable at any time by the user. Adam Ubhi, RotoJar's technical director, says "RotoJar's ability to respond quickly to any unplanned stuck object scenario, due to its flexibility in deployment and the full round-the-clock backup service offered by the company, means that fishing becomes a far more successful process, bringing increased confidence to well engineers."

"The technology behind RotoJar uses the proven logic of combining a strong tensile pull and high-frequency impact. The unique impact generator developed by RotoJar means the tool can deliver impacts on objects up to 2,500 times faster than any other conventional technology. This is the secret behind RotoJar's ability to quickly reduce friction and binding forces to free the stuck object," Dr. Moyes concluded.

With a powerful combination of well engineering experience and technology development expertise, the RotoJar team is looking to transform the way stuck objects are removed, and make an impact on the sector's ability to act faster, become more effective in stuck-object removal operations and thus drive cost-savings. ●



FIG. 1. RotoJar can quickly reduce friction, to free a stuck object faster than conventional fishing tools.

ADNOC awards multi-billion-dollar contracts for wells and drilling via "smart procurement"

ADNOC

The Abu Dhabi National Oil Company (ADNOC) recently announced that it would award multi-billion-dollar contracts for procurement of casing and tubing, as it drives value through its "smart approach" to procurement, **FIG. 1**. The combined scope of the three contracts awarded is one of the world's largest

in this category, maximizing value for ADNOC across its drilling value chain and underpinning its strategy to deliver a more profitable upstream business.

Contract details. The contracts—which were awarded to Consolidated Suppliers Establishment, representing Tenaris S.A. (from Luxembourg); Abu Dhabi Oilfield Services Company, representing Vallourec S.A. (from France); and Habshan Trading Company, representing Marubeni Corporation (from Japan)—have a combined scope of AED 13.2 billion (\$3.6 billion) and the potential to achieve in-country value of over 50%. This includes more than AED 367 million (\$100 million) in foreign direct investment, over the next five years, to establish a state-of-the-art oil country tubular goods (OCTG) threading plant and repair center, and a training academy in Abu Dhabi to enhance local expertise and generate value for the UAE.

Under terms of the contracts, the three companies will supply a combined total of 1 million metric tons of casing and tubing—which, by comparison, is equivalent to the distance from Abu Dhabi to Houston—over five years, to support ADNOC's drilling activities.

Increased activity. The award marks the first in a series of drilling-related procurement expenditures, with an overall value of AED 55 billion (\$15 billion), that ADNOC plans to make

in the next five years. It is part of the firm's AED 486 billion five-year capital expenditure (CAPEX) approved by Abu Dhabi's Supreme Petroleum Council (SPC) during November 2018. The other procurement categories—excluding this award—are downhole completion equipment, wellheads, and Christmas trees, along with liner hangers, drilling fluids, directional drilling, cementing and wireline logging.

ADNOC Upstream Executive Director Abdulmunim Saif Al Kindy said, "The award of contracts with a combined scope that is one of the world's largest for tubing and casing follows a highly competitive bid process. It underscores ADNOC's optimization efforts to drive commerciality across our growing portfolio. In addition, it is testament to our targeted approach to engage with value-add partners to unlock value, as well as enhance the performance and returns on our assets and capital.

"These agreements," he continued, "will provide ADNOC with increased flexibility to proactively respond to the demands of the evolving energy landscape, as we ramp up our drilling activities and deliver our 2030 strategy. They will also generate substantial in-country value and provide attractive foreign direct investment opportunities for the private sector, further demonstrating ADNOC's commitment to creating sustainable value for the nation and its people, in line with the leadership's wise directives."

The contract awards followed a robust

tendering process that included a rigorous assessment of how much of the contract value would support the growth and diversification of the UAE's economy through ADNOC's In-Country Value Program, which is aimed at nurturing new local and international partnerships and business opportunities, catalyzing socio-economic growth and creating job opportunities for UAE nationals.

With more than AED 6.6 billion (\$1.8 billion) of value potential to flow back into the UAE's economy, the awards will give significant stimulus to the country's products and services and create additional skilled employment opportunities for UAE nationals.

Greater drilling. The combined scope of the awards is based on the forecasted requirement for casing and tubing across the ADNOC Group. The awards complement ADNOC's substantial upstream growth plans and drive to deliver integrated drilling services, as it plans to increase its conventional drilling 40% by 2025 and substantially ramp up the number of unconventional wells. This is part of its target to achieve oil production capacity of 4 MMbpd by the end of 2020, and 5 MMbpd by 2030.

As an integral part of its 2030 strategy, ADNOC is optimizing its procurement strategy to reflect market dynamics. This "smart approach" focuses on long-term contracts with a reduced number of suppliers that provide stable and reliable delivery at highly competitive rates. ●



FIG. 1. ADNOC is using a "smart approach" in contracting for billions of dollars of casing and tubing deliveries. Image: ADNOC.

Next-generation wellhead fatigue mitigation system to be deployed offshore New Zealand

TRENDSETTER VULCAN OFFSHORE

Trendsetter Vulcan Offshore (TVO), a developer of innovative solutions for the offshore industry, has contracted with independent oil and gas company Tamarind Resources to provide its next-generation Wellhead Fatigue Mitigation System (FIG. 1) for deployment offshore New Zealand. The new Wellhead Fatigue Mitigation System alleviates the impact of modern, large blowout preventers (BOPs) on legacy wellheads by arresting the motion of the BOP stack via four tethers, which are anchored to the seabed.

Tamarind's New Zealand operations include three oil reservoirs—Tui, Amokura, and Pateke—in the Tui Area oil field. They are located in the Taranaki basin, offshore the west coast of the North Island of New Zealand. Tamarind is the 100% owner and operator. Oil is produced from these reservoirs via subsea wells connected to the Umuroa FPSO vessel.

How it works. “TVO understands the challenges associated with wellhead fatigue and is constantly innovating to develop better solutions,” said TVO CEO Jim Maher. “This lighter and less-expensive tethered BOP enables reliable operations on new exploration wells, and simplifies re-entry and P&A on older wells. The recent successful deployment of our next-generation technology illustrates the value that TVO delivers through our commitment to continuing to improve our industry-leading technology.”

The tethered BOP system arrests the motion of the BOP stack above the wellhead, substantially reducing wellhead cyclic stresses and enhancing fatigue life. Depending on the specific riser and wellhead configuration, fatigue life has been improved by as much as 1,000 times the original unmitigated wellhead fatigue. An added benefit to the WFMS is the increased limits to the wellhead watch circle. Bending of the wellhead from lateral offset of the MODU due to drive off/drift off loads is reduced, enabling safer operations and decreasing position criticality. In shallow water, where watch circles can be restrictive, this allows for a larger watch circle and decreased reliance on the dynamic positioning station keeping performance.

Deployment scenario. The TVO system will be combined with a wireless monitoring system, based on Sonardyne's highly configurable, low-power Subsea Monitoring, Analysis and Reporting Technology (SMART). The complete system will be used to alleviate wellhead fatigue during a planned drilling program carried out by the COSL *Prospector* semisubmersible in the coming months at Tui oil field, in the Taranaki basin, offshore New Zealand. Sonardyne SMART ensures that operations are within fatigue safety limits by monitoring movement of the BOP and the bottom of the drilling riser, and providing *in situ* data processing capabilities to extract summary packets of information, such as minimum, maximum and standard deviations for accelerations and rotations in all axes.

According to TVO Vice President Kevin Chell, the new design addresses the need to access wells in cases where the wellhead was not designed to handle the loads and strain induced by modern, larger and heavier BOPs. “Using our tethering and monitoring system, operators are able to use their subsea infrastructure with confidence for longer, which means they can economically access more resources and extend the life of their fields,” he says.

Trendsetter Vulcan Offshore (TVO) is an innovative engineering company providing cutting edge solutions for today's offshore industry. TVO specializes in tackling tough challenges with cost-effective and robust solutions. ●

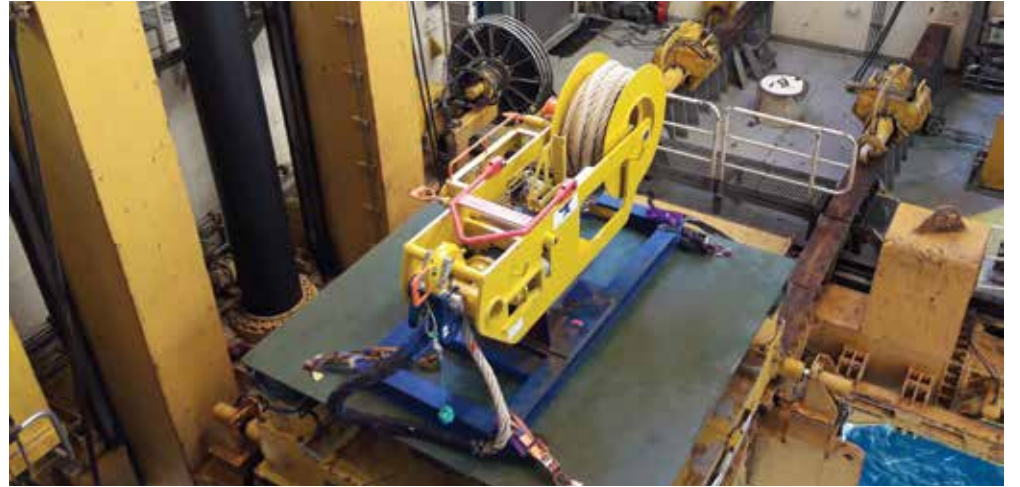


FIG. 1. A tensioner component of the TVO Wellhead Fatigue Mitigation System is shown in a moonpool, ready for installation. Image: Trendsetter Vulcan Offshore.

THURSDAY

TOMORROW'S CONFERENCE HIGHLIGHTS

KEYNOTE PROGRAMME SESSION: TRANSFORMATIVE TECHNOLOGIES TO LOWER CARBON FOOTPRINT (DECARBONISATION, CCS), 10AM-12PM, CONFERENCE ROOM 2A

JÉRÔME SCHMITT, Senior Vice President Innovation & Energy Efficiency at Total

SAM GOMERSALL, Pale Blue Dot Energy - Acorn CCUS Project

WENDY BROWN, IOGP

DR OWAIN TUCKER, Shell Global Deployment lead for CO2

STEINAR EIKAAS, Equinor - VP Low Carbon Solutions Equinor

UNLOCKING A LOW CARBON FUTURE - ENABLING THE ENERGY TRANSITION, 14:30-16:30, CONFERENCE ROOM 2A

SIAN LLOYD-REES, UK Country Manager, Aker Solutions

MARTIN WHITE, Vice President, Halliburton

JOANNA COLEMAN, Energy Transition Manager, Shell

RENE PETERS, Business Director - Gas Technology, TNO

RAGNHILD STOKHOLM, Head of Front End Brownfield & Low Carbon Lead, Aker Solutions

MARTYN TULLOCH, Independent Energy Consultant

AUTOMATION, 14:30-16:30, CONFERENCE ROOM 2B

DAVID REID, CMO, NOV

LEIGH-ANN RUSSELL, Head of Procurement & Supply Chain Management, BP

JON CRANE, VP Wells Digital Deployment, Shell

NASTASSJA HAGAN, Modernisation Lead, BP

HEGE KVERNELAND, CTO, NOV

SIMEN LIEUNGH, CEO, Oddfjell

GEIR TUNGESVIK, Head of Drilling, Equinor

DECOMMISSIONING IN THE CONTEXT OF 'FORESIGHT FUTURE OF THE SEA' 14:30-16:30, LATE LIFE & DECOMMISSIONING ZONE - EXHIBITION, HALL 1

KAREN SEATH, Marine Science Chair, SUT Decom & Wreck Removal Subcommittee

STEVE HALL, CEO, SUT

MOYA CRAWFORD, Chair, SUT International Salvage & Decom Committee

SALLY ROUSE, SAMS (Scottish Association for Marine Science) and MASTS (Marine Alliance for Science and Technology for Scotland) Oil & Gas Forum

ALISON BRAND, Aberdeen University & Manta Environmental

STUART MARTIN, Director - Business Development, Ardent Global

MARK LAWRENCE, Waves Group

JOEL MILLS, CEO, Offshore Simulator Centre

IAIN GARTSHORE, Decom Manager, Subsea 7

FRIDAY

TOMORROW'S CONFERENCE HIGHLIGHTS

INTEGRATED TECHNOLOGIES, 10AM-12PM, CONFERENCE ROOM 2A

COLETTE COHEN, CEO, OGTC

JIM LENTON, MD Integrated Solutions, Worley

ROB HOUSTON, Project General Manager, BP

MALCOM LEE, Group Head of Technology & Innovation, Babcocks

PETER PARRY, PARTNER, Bain and Co

JOHN SIMPSON, Head of Digital Construction, Robertson Group

SECURITY ISSUES IN THE DIGITAL WORLD, 10AM-12PM, CONFERENCE ROOM 2B

TROY STEWART, Global Service Manager, ABB

MARIO CHIOCK, Fellow for IT Security, Schlumberger

BEN DICKINSON, Global Cyber security Lead Oil, Gas & Chemicals, ABB

EMILIE HUDSON, Project Manager, BP

RAED SHAIKH, Division Head Information Security, Saudi Aramco

LATE LIFE MANAGEMENT OF SUBSEA SYSTEMS, 10AM-12PM, LATE LIFE & DECOMMISSIONING ZONE - EXHIBITION, HALL 1

NEIL GORDON, Subsea UK

PAUL SLORACH, EC-OG

JULIAN RICHARDS, 3D at Depth

MOYA CAHILL, PanGeo Subsea

ROMAIN CHAMBAULT, Director Europe - Oilfield Equipment, Baker Hughes GE

DALE MILLWARD, Technical Advisor, STATS Group

DONALD HORSFALL, Subsea Sales Manager, Expro

The Digital Twin: What it is and what it is not

ELGONDA LA GRANGE, DIRECTOR, Siemens Digital Solutions

One concept that has garnered significant attention across the oil and gas industry in recent years is the “digital twin.” However, there remains a great deal of confusion about what a digital twin is, and how it can be harnessed to add value to operations and facilities, FIG. 1. Some organizations use digital twin as a synonym for their 3D plant models, others, for their predictive maintenance

or simulation models. The bottom line is that the digital twin is all of these and more, and if operators don’t look at it holistically, they are likely to miss out on some of the benefits.

Defining the digital twin. A digital twin is a dynamic, cross-domain digital model that mirrors the performance and operation of a physical asset

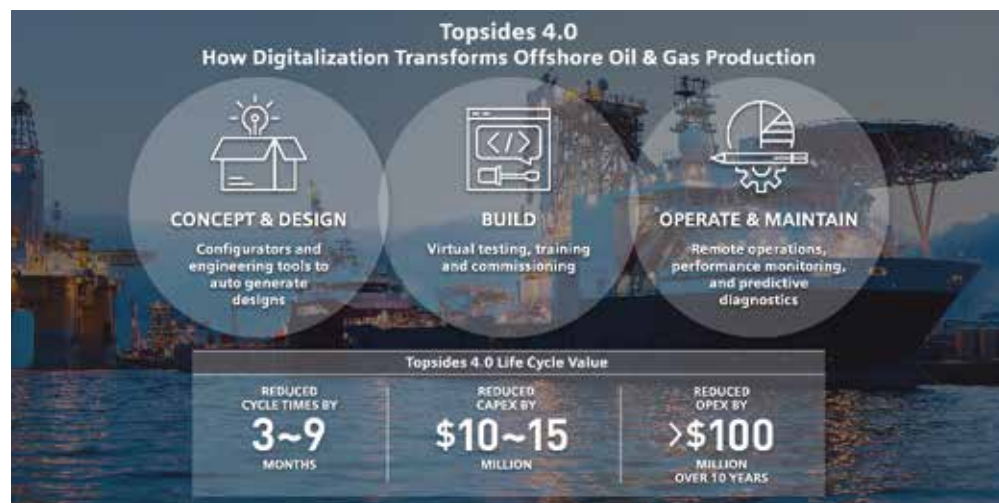


FIG. 1. Understanding the role of the digital twin. Image: Siemens Digital Solutions.



FIG. 2. Data capture capabilities of the digital twin. Image: Siemens Digital Solutions.

or process as it moves through the lifecycle – from design, engineering, construction, commissioning, and finally, into operation. The digital twin evolves to reflect changes in its physical counterpart, creating a closed loop of feedback in a virtual, single-source-of-truth environment. The value of the twin is derived from several different solutions, services and capabilities, including:

- An integrated data hub for all data — engineering, process, maintenance, etc.
- A 3D structural representation of the individual assets and of the overall facility
- A dynamic model of operational behavior
- Monitoring and analytic solutions
- Consistent role-based user interface
- Access to expert advice.

Just like the human body is more than a collection of individual organs, the digital twin is more than a collection of these stand-alone parts. The integration of data and interoperability between subsystems transforms it from a simple digital toolbox, into a living virtual copy of an asset or collection of assets. With the digital twin, companies are afforded key advantages that would otherwise not be possible, including the ability to run risk analyses, health assessments, and what-if scenarios on equipment in real time; the ability to train personnel in a 3D immersive environment; and the capability to detect faults early before control limits are reached.

Deriving value from the twin. A digital twin offers value throughout the entire lifecycle of an asset, from design through operations. During the design phase, the most significant benefit lies in reducing the project cycle time. This is achieved by streamlining project and construction management, and by getting to stable operations faster, through validation, testing and training in a virtual environment.

During operations, the biggest OPEX reductions are achieved by lowering manning levels at facilities. In the offshore envi-

ronment, these roles are relocated onshore, which results in significant cost-savings. To its fullest extent, this means normally unmanned operations of the facility, with intermittent maintenance campaigns, based on predictive diagnostics. This concept has proven safe and feasible on simple offshore platforms, such as production buoys, but the marine systems on FPSOs make this a more difficult target.

It is true that the intelligent digital twin, as described in this article, is not (yet) a standard deliverable on offshore oil and gas projects, FIG. 2. Because of this, its benefits cannot be calculated from past implementations. However, stand-alone components of the digital twin have been delivered over several years to the industry. The hypothesis is that the benefits of the intelligent digital twin can be extrapolated by looking at previous individual use cases.

For a mid-sized FPSO, for example, CAPEX savings are estimated at \$20 million, with OPEX savings of \$5 million to \$10 million per year, depending on the extent to which regulations and other factors dictate minimum manning levels.

Developing it as a standard project deliverable is an order of magnitude less expensive than retrofitting it to an existing facility. It is, therefore, critical that operators cascade the digital twin as a requirement to their engineering partners. We have seen this starting to happen at the equipment level, but operators should require the same for the facility as a whole.

Ultimately, if the twin is deployed as a standard deliverable during project execution, customers will recover more than the full investment through reduced risk and shorter project cycle times.

OE 2019 attendees interested in learning more about this topic are encouraged to attend the presentation of Paper #195790, “Developing a Digital Twin: The Roadmap for Oil and Gas Optimization,” which will take place today, at 2:30, in room 4 a/b. ●

ELGONDA LA GRANGE, Director, Siemens Digital Solutions

WEATHERFORD LAUNCHES SINGLE-TRIP OPEN-HOLE CEMENTING AND SIDETRACK SYSTEM



FIG. 1. The AlphaST single-trip, open-hole, cementing sidetrack system (top and bottom) saved one operator 29 hours of rig time and more than \$100,000 of operational expense.

Weatherford has market-launched its AlphaST™ single-trip, open-hole, cementing sidetrack system, FIG. 1. This is a market-first capability to initiate sidetrack operations without the need for a cement plug. Designed to increase operator flexibility, eliminate multiple trips, and avoid costly cementing operations, AlphaST is the world’s only single-trip open-hole cementing and sidetrack system. For the driller, efficiency means kicking off as soon as you set the packer. Two mills on the BHA facilitate a quick departure from the old wellbore. The single-angle whipstock concave sets up a smooth transition into the sidetrack.

“For operators, AlphaST means you will never again need to sidetrack from a cement plug,” said Dean Bell, president, Well Construction, for Weatherford. “AlphaST enables operators to avoid the cost and time of setting a cement plug, waiting on cement, and time drilling. The bottom line is OpEx savings equal to days of rig time.”

For an operator in the Permian basin, previous sidetrack attempts with conventional cement plugs failed in the hard formation, requiring multiple trips in the hole and resulting in damaged directional BHAs. Weatherford re-entry experts reviewed the application and installed the AlphaST system. After landing at the required depth, the team set the inflatable production packer (IPP) to anchor the whipstock and drilled off the formation in a single trip, saving the operator 29 hours of rig time and more than \$100,000 of operational expense.

“AlphaST is another example of how Weatherford develops technologies that others don’t, so our customers can do what others can’t,” said Bell. “For more than four decades, Weatherford has led the industry’s re-entry market. With AlphaST, that legacy continues.” ●

Neil Saunders says operators' openness to new things is credit to North Sea

ERIKKA ASKELAND, Contributing Editor

Baker Hughes, a GE company, has set a target to be carbon neutral by 2050. The pledge fits in well with the themes being presented at SPE Offshore Europe 2019, which shows the oil and gas industry grappling with a need to meet climate change challenges.

With its new modular Aptara subsea system launch last year, and new approach to its business model dubbed Subsea Connect, BHGE is ready for to meet the challenges its customers also face in terms of keeping costs affordable.

The global company officially opened its transformed Centre of Excellence (CoE) facility in Montrose, home of the Aptara Design Centre, representing a £31 million investment to offer product innovation from design to delivery from one location servicing customers globally. Neil Saunders, president & CEO of BHGE's Oilfield Equipment division said Aptara is a product family "designed around the new constraints we have."

He said, "It is much more cost-effective products, smaller, lighter, designed for the life of the field. They are not only for mature basins, those products will be in greenfield applications in some of the larger basins."

He admits BHGE's technology deck may not be "super exciting": "But in terms of it playing a part that can deliver greater outcomes for our customers from overall

cost position and total cost of ownership, it is a totally exciting deck," he adds.

The new range encompasses oil and gas subsea requirements. He said, "We are in the reservoir, we have world class drilling technology, we have completion technology, well construction technology. We have subsea production technology—the subsea trees, controls, the manifolds. We can do and make the connections. We have flexible product lines—we also have our entire machinery process systems to get your thought to topside."

BHGE's approach marks a transformation in the subsea technology industry. He noted, "Subsea has gone from science, designing equipment that can operate at depth, pressure temperature and fixing some of those fundamental problems. Then I saw it go through a phase of very smart instrumentation to give us more information about what is happening. Longer offsets, some really core tech there."

Makes systems more reliable and more available. "Now if you are looking at my technology deck, we are simplifying. We are taking cost and weight out. We are making things much easier to live with, easier to own. We are standardising."

However, BHGE is open to the supply chain innovation in the UK and on show at

Offshore Europe. "We would never close that door," he said. "But we will test it harder, it has to be directly linked to customer challenge."

"It is only when you spend some time with UK customers that you realise how innovative the segment is, not only from

a technology standpoint but a commercial standpoint. "I work around the world. We see a lot of mature and immature basins. The longevity that is in this basin is borne out of openness that operators have to trying new things, different model and technologies. It is a credit to the region." ●



NEIL SAUNDERS, President and Chief Executive, BHGE's oilfield equipment

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Old assets, new tricks

IAN LEWIS, Contributing Editor

If assessing the potential life extension of oil and gas assets, such as offshore production facilities and terminals, heading towards the end of their lives sounds like something you can dawdle over, then Andy Hollins of engineering group ABB would beg to differ.

“It’s a flexible process, but one that must be done quickly. You need to do the study faster than the asset is rusting away, otherwise there’s no point in doing the study,” he told a busy Tuesday afternoon session on Late Life Operations in the Decom Theatre.

ABB advises purchasers of later-life assets by identifying the costs and resources required for an asset to function at a high level throughout a defined lifetime, which is typically 10 to 20 years, safely, reliably and usually on a tight budget.

The challenges. Late-life assets come with their own sets of challenges. They

are usually working well beyond their original design life; cessation of production dates keep moving; many assets have changed ownership several times, and, frequently, improved new technology is available, which needs to be integrated into an existing project.

These technologies include intelligent services, data gathering and interpretation, remote operation, and artificial intelligence. Such advances could make operating late-life assets a more autonomous process in the future. “We can now have assets that [potentially] can run themselves, which might be a slightly frightening thought, but I think that’s the way it’s going to go,” said Hollins.

A change in ownership can bring benefits and disadvantages, he explained. The new owner—which is often smaller than the firm from which it has made the acquisition—will have different objec-

tives and be subject to different constraints. It will take a longer-term view of the asset, including increasing life extension still further, if possible.

One example. As well as keeping costs down, the new owner needs to know the level of expenditure beyond normal maintenance necessary to safely run an asset. Hollins cited one example of a North Sea production facility, where ABB identified a spending schedule focused on the first five years of a planned 10-year schedule, peaking in year two.

“We ended up with five years of expenditure, though they would have loved us to do it three.” Hollins said, noting that it was usually too difficult logistically to cram all the work needed into the first couple of years.

Handling late-life assets also requires a different mindset from personnel working

on them, many of whom may have transferred over from the previous owners. They need to be able to adapt procedures to what is required by new owners with different objectives.

Another case. Hollins cited a second case of a terminal asset, acquired by new owners, whose pressure systems inspection made up a significant portion of maintenance expenditure, with around 60% of them subject to intrusive inspection. The old owners had adopted a highly prescriptive approach to inspection procedures, which absorbed time and money.

But ABB worked with the new owners to overhaul the process, applying the latest techniques. ABB found that large parts of the inspection schemes could be changed to non-intrusive, while inspection could become more targeted and inspection intervals could be increased for some vessels—though it also found some needed to be reduced.

The result of this streamlining process was that, while maintaining safety, costs were cut, equipment availability improved, and operations and maintenance personnel were freed up for other tasks.

While personnel need to learn new tricks, the continuity and experience they bring are also invaluable, Hollins told delegates. He said just chatting over a meal with experienced personnel can often yield valuable information. “Sometimes they’ve given up telling the old management how things could be improved, but with a new management, they give it another go,” he said. ●



ANDY HOLLINS of ABB

2019 HIGHLIGHTS

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ENGENIOUS ZONE - HALL 1 - NEW FOR 2019



After the success of ENGenious 2018, we are proud to introduce the ENGenious zone at OE. Tying in perfectly with OE’s 2019 focus on data analytics, machine learning and artificial intelligence, ‘ENGenious at



OE’ provides innovators with a platform to demonstrate their capabilities before ENGenious returns in 2020.

ENERGY TRANSITION HUB - HALL 1 - NEW FOR 2019

New for 2019 is the Energy Transition Hub, where operators, associations and technology companies will share insight’s over the course of the event. They will highlight the efforts they are making to prepare the oil & gas sector for transition to a lower carbon future, with less environmental impact.

STARTUP VILLAGE - HALL 1 - NEW FOR 2019



StartUp Village 2019

The StartUp Village is a new feature at OE19. It is a zone that will allow new UK and International start-up companies to showcase their

latest technologies, products and solutions launched, and make these innovations easy to find for our visitors.

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MICHAEL BORRELL CHAIR, SPE OFFSHORE EUROPE 2019



“SPE Offshore Europe 2019 will allow the industry to come together and discuss what really matters, it will be important to talk about keeping our costs low, pushing the boundaries of innovation and focusing on excellence in our operations”.

STEPHEN HOLTZ SPE OFFSHORE EUROPE 2019 TECHNICAL COMMITTEE CHAIR



The 70+ technical presentations will address key disciplines including Data Analytics, New Technology for Late Life Development, Subsea Technology, Process Safety Management plus many more.

LATE LIFE AND DECOMMISSIONING ZONE - HALL 1



Late Life & Decommissioning Zone

Our highly popular Late Life & Decommissioning Zone will return in 2019. This free-to-attend zone includes decommissioning technology and a conference theatre programme created with the industry’s key associations.

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AI being held back by poor data practice

CRAIG GUTHRIE, Contributing Editor

Greater adoption of AI and machine-learning solutions that could radically reduce costs while improving productivity, efficiency and safety are being held back by regressive attitudes to data storage, usage and sharing, experts said on Tuesday afternoon at SPE Offshore Europe 2019. These thoughts were expressed in Keynote Session 2 on Artificial Intelligence.

Ethical issues, safety concerns and competitive advantages are often assumed to be main factors limiting wider use of AI and AI-enabled robotics in areas such as maintenance and exploration, but actually the data that are needed for progress is lacking, the speakers maintained.

“Data management has historically been an afterthought in our sector, and it was almost even seen as an inconvenience,” said Martin Kelly, vice president, head of corporate analysis, Wood Mackenzie. “It has never been integrated and cleaned, and the lack of datasets is holding back AI. In order to scale machine learning, you need the data to be repeatable and usable to deploy at scale”.

He added that while the need for competitive advantages does limit disclosure, that actually, “we believe there are fewer implementations than would be expected, because the industry is finding this digital transformation at scale harder than they first thought.” He noted that if properly implemented, his consultancy estimated that digitalization could save the upstream industry \$75 billion annually.

At the session on AI, Alessio Bagnaresi, an AI sales lead from Microsoft, highlighted how BP was using the tech to more accurately predict reservoir levels. In a second use case, he showed how Microsoft has worked with Shell on closed-circuit camera footage and Internet of Things technology that is automatically identifying safety hazards at retail gas stations.

Data disconnect. But Bagnaresi said that for AI solutions to be implemented smoothly, there has to be buy-in from the very top tier of organisations. “The executives

need on fully on board,” said Bagnaresi. “They need to study the use cases, technical viabilities and the KPIs [key performance indicators] carefully—this enables them to unlock the data and combine them to drive intelligence”.

Alison Barnes, head of robotics at Woodside Energy, said her firm had been able to achieve this through a meticulous “digital handover,” while showcasing uses cases that outlined the steps needed to transform physical plant data into virtual simulations.

“It is often hard to deliver what is being envisioned,

because the technology needs to keep up. But at Woodside, we have seen a huge focus on data, and our digital handover is very good quality. It is very challenging with poor data.”

Chrysaor Chief Executive Phil Kirk said deeper cooperation between stakeholders was essential, if firms are to capitalize on the advantages offered by AI. “Sharing data and, of course, collaborating to make it useful—and then ultimately make prototyping smaller while scaling fast—are important takeaways from this.” ●



MARTIN KELLY, V.P. and Head of Corporate Analysis, Wood Mackenzie



ALISON BARNES, Head of Robotics, Woodside Energy

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Sembcorp Marine clinches S\$400 million in new contracts

SEMBCORP MARINE

Sembcorp Marine said that it has won a raft of new projects valued at S\$400 million that leverage the Group's wide-ranging engineering solutions for offshore gas and wind farm developments, as well as cruise ship upgrades. In these latest undertakings, Sembcorp Marine has teamed up with various repeat and new customers. The Group also succeeded in breaking into the highly competitive offshore wind sector in Taiwan.

FPSO conversion project. Sembcorp Marine Rigs & Floaters Pte. Ltd. has signed agreements with joint venture companies of Shapoorji Pallonji Oil and Gas Private Limited and Bumi Armada Berhad, to convert *Ariake*, a very large crude carrier (VLCC), into a floating production, storage and offloading (FPSO) unit for deployment off the east coast of India. The vessel will produce up to 90,000 bopd and have a 1.3-MMbbl storage capability.

The project includes hull repairs and upgrading, as well as fabrication of at least three topside modules that Sembcorp Marine will install on the vessel. The work will be done at its flagship Tuas Boulevard Yard, with delivery scheduled in the second half of 2021.

"We are excited to work with Shapoorji Pallonji and Bumi Armada on the *Ariake* FPSO conversion, which will enhance Sembcorp Marine's visibility in the Indian offshore oil and gas sector," said William Gu, Sembcorp Marine's head of Rigs & Floaters.

FSRU and FSU conversions, and FSRU upgrading works.

Sembcorp Marine Repairs & Upgrades Pte. Ltd. has added three new gas projects to its portfolio. These include conversion of LNG tanker *Dwiputra* (FIG. 1) into a 125,000-cbm floating storage and regasification unit (FSRU) for a joint venture between Mitsui O.S.K. Lines, Ltd (MOL) and Karpower International B.V.; conversion of NYK Line's former gas carrier *LNG Flora* into a 127,000-cbm floating storage unit (FSU) for Gasfin Development S.A.; and upgrading facilities on the 173,400-cbm FSRU *BW Magna* for BW LNG Pte Ltd.

All three projects will be completed at Sembcorp Marine Admiralty Yard, for delivery between the end of this year and February 2020.

Jacket foundations fabrication for Formosa 2 offshore wind farm.

Sembcorp Marine Offshore Platforms Pte. Ltd. has landed a contract with Jan De

Nul n.v. to fabricate 15 jacket foundations for the Formosa 2 offshore wind farm. Located 4 km offshore Miaoli County in the Taiwan Strait, the 376-MW Formosa 2 facility will be Taiwan's largest offshore wind farm, generating sufficient electricity for over 380,000 households when it starts operation in late 2021.

"The partnership with Jan De Nul on Formosa 2 represents our first exploit in the highly competitive Taiwanese offshore wind sector," said Samuel Wong, Sembcorp Marine's head of Offshore Platforms. "This is an important opportunity to extend our engineering solutions into the Asian offshore renewable energy markets." Sembcorp Marine will deliver the Formosa 2 jacket foundations to Jan De Nul by December 2020.

Commenting on Sembcorp Marine's latest project wins, President & CEO Wong Weng Sun said, "Despite the challenging market conditions, we have been steadfastly pursuing the available pockets of opportunities. I am very pleased that our teams have translated several of these opportunities into new contracts. As we respond to current market enquiries and customer requirements, Sembcorp Marine will continue to innovate and improve our capabilities, so that we can sustain our long-term competitiveness by having the best solutions for the evolving global offshore, marine and energy industries."

The above-mentioned contracts are not expected to have any material impact on the net tangible assets and earnings per share of Sembcorp Marine for the year ending Dec 31, 2019. ●



FIG. 1. LNG tanker *Dwiputra*, currently undergoing conversion into an FSRU at Sembcorp Marine.

ODE opens Aberdeen office amid key contract wins worth £20 million

ODE

Fully integrated independent operations and engineering services company ODE has opened an office in Aberdeen after a number of key contract wins worth around £20 million in the Southern North Sea (SNS). ODE's new office in The Exchange, Market Street, will be used to facilitate further expansion of its Operations and Engineering offering, providing technical and operational support to a number of companies with operations in the North Sea.

ODE has been providing a range of services, including engineering and asset management, to oil and gas and renewables companies around the world for more than 40 years. The company has built a team of experts, who provide effective asset management and brownfield engineering—leading to improved financial performance—to the SNS.

ODE is a top performer, when it comes to maintaining assets with industry-leading KPI performance, including virtually zero maintenance backlog, very high production availability, and a proven track record in planning and proactively managing work on behalf of clients. This service will now be provided from the new office in the North-east of Scotland, with key support from its Great Yarmouth and Wimbledon operations.

Personnel moves. As well as the contract wins, the company has appointed Michele Eaves as Regional Projects and Engineering Director, and Andrew D Ferguson as Regional Operations Director. With more than 75 years' experience between them, they bring an expert knowledge of the oil and gas market, brownfield

engineering and asset management to the Aberdeen base. They have both held a number of senior positions in the oil and gas industry, with Ferguson's most recent role being V.P. of operations for a major service company, while Eaves moves from an E&P company, where she was head of Brownfield Engineering Projects. Gerry Miller, director of Business Development, will help develop the Aberdeen office with Ferguson and Eaves. Miller joined ODE in 2018 and has more than 30 years' experience in the oil and gas industry, with 20 years in business development, many of those within the Granite City.

The Aberdeen office will have the capacity to grow a staff of 20 in its initial months, with significant growth expected thereafter, as ODE continues its commitment to innovation and expansion. ODE Director Paul Chilvers said, "This investment into Aberdeen follows on from our success with operations support and brownfield engineering in the Southern North Sea, and builds on our long history of supporting assets in that region. It also builds on ODE's offering and approach to duty holdership, focused on efficiency and bespoke integration with clients, which is

important to the market as the North Sea matures and meets its cost challenge."

Peter Godfrey, ODE Group CEO, said, "The new office and clients create an excellent platform for our growth within the asset management division, oil and gas sector, and northern North Sea. These contracts will create opportunities for long-term strategic partnerships, and we are eager to work with companies, who strive towards innovation, flexibility, and intelligent solutions, much like ourselves. Being the most agile, experienced and focused player, we bring a new, more efficient, offering to the market, ensuring the most economical way of achieving reduced costs."

As well as establishing its presence in Aberdeen with an office, ODE is exhibiting at SPE Offshore Europe 2019 this week on stand 1P71, and will be demonstrating its services along with its team. The move is part of ODE's aim to expand its products and services suite and to be the most readily available, comprehensive, reliable, technologically advanced global provider of engineering, support and management services in the upstream oil and gas and renewables industry. ●



ODE Group CEO PETER GODFREY

SCENES FROM OFFSHORE EUROPE 2019



The Artificial Intelligence panel has a lively discussion.



Attendees stream into P&J Live for Day 2 of SPE Offshore Europe 2019.



An attendee records a technology explanation at the Vallourec stand.



The breakfast panel was ready to answer questions about OGUK's Economic Report.



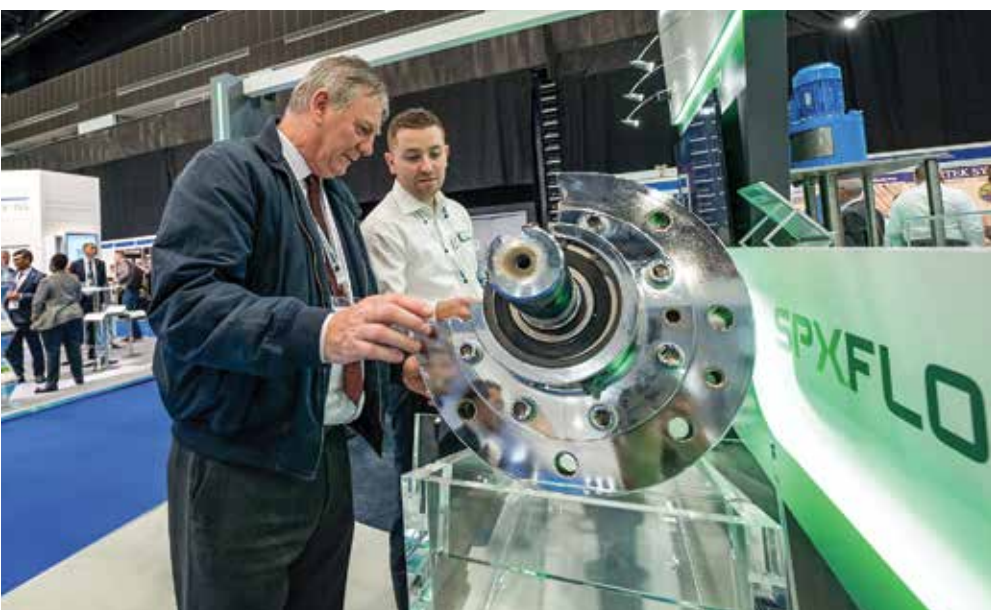
Live demonstrations give attendees extra information.



Keeping a Scottish tradition alive on the show floor.



Another Scottish tradition, golf, draws a steady stream of players.

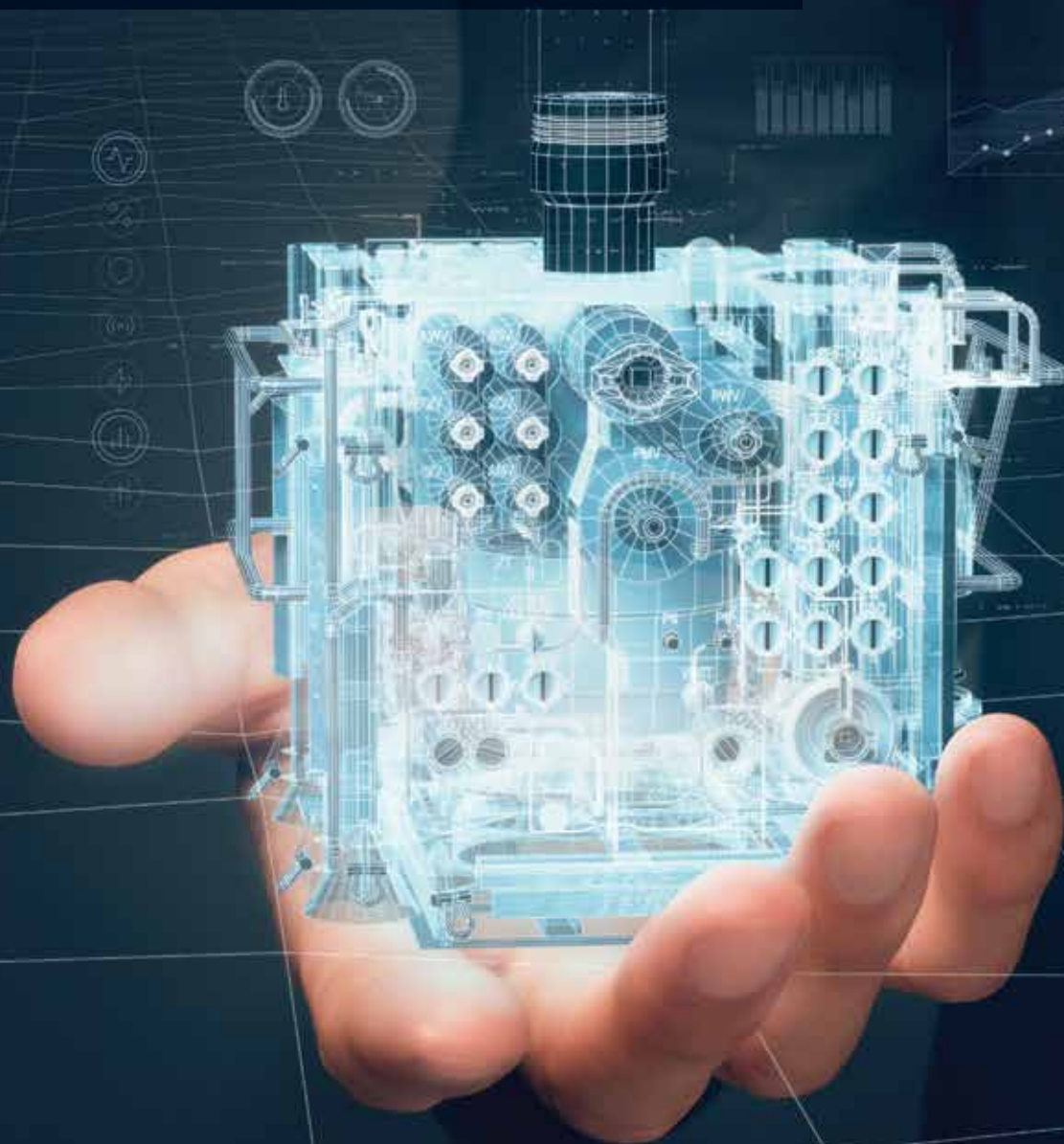


Paying attention to details at the SPXFlo stand.



Two exhibitors prepare for Day 2 of the show.

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