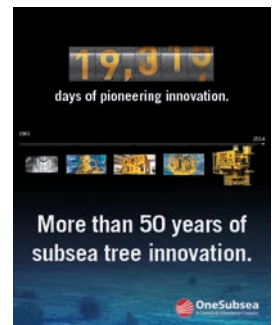


SEN

SUBSEA ENGINEERING NEWS

(with DEEPWATER INTERNATIONAL)



SUBSEA UNDER PRESSURE

From UTC-2015 Bergen: It was a bit gloomy here last week. Against a backdrop of leaden skies and news that Statoil was cutting another 2,000 jobs, the subsea industry really did feel ‘under pressure,’ the theme of this year’s Underwater Technology Conference.

Two years ago delegates were discussing the problem of attracting and retaining talent in the subsea industry.

Fast forward 24 months and with the current oil price crisis, that really is no longer an issue. Now it’s all about... wait for it...cutting costs, standardisation and collaboration.

And Per Arne Nilsen, Total’s head of subsea technology, warned during a panel session on costs that there could be worse to come. ‘I have seen a number of crises but this one looks more like the perfect storm than anything I’ve seen before,’ he said.

Helge Haldorsen, 2015 president of SPE International and director general of Statoil Mexico, described the current situation in his keynote address in the Griegshallen as a ‘Rhapsody in C.’

‘Costs are too high, the complexity of developments has gone up, the competitiveness of the industry is eroding, communities wherever we are expect more, climate change is here as is the crashing oil price and for many companies, cashflow after dividend is negative,’ he said.

He said the industry had to work smarter, faster, deeper, more sustainably and in a way that gives a good return. ‘That is the job in front of us.’

Haldorsen suggested the NCS should look at what has been happening in the UK sector in the wake of the Wood report. ‘Operators must collaborate much more and share more helicopters, supply boats and bases to cut costs and do it together.

‘When you ask should I compete or collaborate, pick the one with the most value,’ he added.

Nilsen bemoaned the lack of standardisation that was driving up costs. ‘Every time we have a new project it is a bespoke design. We like to bash ourselves these days to show that we are serious and changing, so if you look

at Total and our history, we have been very good at one thing, and that is never repeating anything twice.’

He said the industry needs to be better at using lessons learned and repeating them. He also suggested that the many layers in the subsea supply chain added to costs.

‘In a heated market, every single element of the supply chain would like to have its little share of the easy market, which doesn’t necessarily result in margins you would like to have. Local content is also a challenge for us operating in certain parts of the world in terms of costs.’

He said the subsea industry has created an ‘extremely inefficient’ business over the last 10-15 years with negative productivity. ‘If you look at a Xmas tree today compared to a Xmas tree 10 years ago it’s the same. It has got some more whistles and bells but today we spend three times the man hours to engineer and manufacture it compared to 10 years ago, for no obvious reason. We need to increase efficiency.’

Rasmus Sunde, ceo of Forsys Subsea said that over the last 20 years the cost of subsea hardware has tripled while delivery time has doubled.

‘The cost increase is being driven by poor execution, greater complexity in fields, deeper waters, hpht and the variety of specs. There are two other root causes – optimisation and supply companies coming in too late to projects.’

He said the challenge was that subsea hardware only represents 10% of the cost of a conventional offshore development, so this is not the only part of the industry that needs to work with the customers to drive costs down.

Roald Sirevaag, Statoil’s veep for subsea and diving, called for greater cooperation on trees. ‘We are operating with non-standard specifications. For five inch deepwater trees we asked for four completely different solutions doing exactly the same job. I think we should agree on one type of tree.’

And he also suggested there was a herd like mentality in the industry. ‘We behave like sheep. When everybody buys, we buy, and when everybody stops buying we stop buying.’

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CONFERENCE NOTES

SUBSEA FACTORY NEAR

From *UTC-2015 Bergen*: Statoil is within touching distance of realising the dream of completing its first 'subsea factory' as work on the offshore Norway Åsgard and Gullfaks (SEN 32/2) subsea gas compression projects pushes ahead.

Margareth Øvrum, Statoil's executive vice president for technology told delegates at UTC that Åsgard will start up in Q3 this year and Gullfaks in Q4.

She said, 'We are doing installation work on the two projects at the moment. On Åsgard nine of the 11 modules on the first compressor train are now installed. The installation work has been carried out by the *North Sea Giant* vessel.

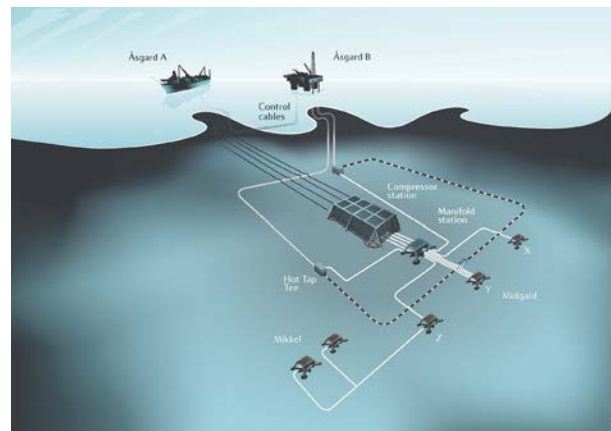
'The inlet cooler modules were installed last week. The inlet cooler together with the frame is 388t and the lift was done by a special handling unit. Åsgard subsea gas compression with its two trains, separators, mixers, pumps, spoolers and compressors is for all practical matters our first subsea factory in place.'

The Åsgard project, is expected to add 282mmboe, the equivalent of developing a small to medium sized field on the Norwegian Continental Shelf.

'We have qualified 43 different technologies in this project and that is amazing,' Øvrum added.

Meanwhile, she said installation of the two subsea wet gas compressors and cooler modules on the Gullfaks field has also begun.

'On Gullfaks we will increase recovery by 22mmboe and I think the combination of large gas fields and long tiebacks of subsea wells will create large demand going



Åsgard subsea compression layout

forward for subsea gas compression. We are looking for more implementation opportunities.'

More than 50% of Statoil's equity production comes from subsea and the company currently has 540 subsea wells in operation.

Øvrum added, 'Subsea gas compression is no doubt a crucial technology and a key delivery to our mission of the subsea factory. With subsea compression we now have all the vital elements for a subsea factory in place.

'We can control the production flow, we can separate oil gas and water on the sea floor and we can inject water back. We still need to further develop and refine several elements, for instance extended reach power supply and much better oil and water separation.'



Shell's Draugen platform

Shell will start up its two mudline pumps to boost output from the offshore Norway Draugen (30/12) field next year.

The two pumps weigh 90t with the complete unit hitting the scales at 240t. Jan-Olav Hallset, Shell Norway's team lead for SURF controls and distribution, said, 'It

is not only a pump but quite a complex system, which makes it more challenging. We will start it up next year. We have installed the manifold already and we will install the power module in 2016 and hook it up.'

He said the umbilical termination heads are much bigger and more complicated than standard. 'The net value for Shell is that this will double production and we can also start the wells without gas lift which is an operational advantage. It is going to be exciting for us next year.'

Hallset also said Shell is looking at further development and increasing the reliability of the esp pumps, as well as making interventions on the BC-10 field offshore Brazil.

And on the Stones (32/2) hpht field in 2,900m in the GoM, Shell is hoping to soon qualify the artificial lift system for start-up in 2019.

Hallset added, 'Without the pump for artificial lift we wouldn't get anything out of the field. The pump is a high-boost single phase and it has quite a significant design pressure of over 1,000 bars. We have tried to qualify this pump system in preparation for the decision on going further with the Stones system. It is quite a step up

in depth from Draugen.’

He told SEN ‘good news’ was expected shortly – watch this space.

Siemens Subsea is collaborating with four of the biggest oil companies, including Statoil, to qualify a full subsea power distribution system.

The main qualification tests are expected to be completed this year, with the final test in water happening in 2016, Bjorn Rasch, the company’s head of subsea power said.

He highlighted standalone variable subsea speed drives directly fed from topside switchgear to enable subsea boosting on brownfield projects.

‘Power is one of the last building blocks for the subsea factory,’ he said.

Mike Garding, ceo of OneSubsea, highlighted the success of a fast-track trees programme, developed several years ago to meet the requirements for a flexible well solution with reduced lead time and reduced capex.

‘The uptake of this solution has been particularly successful in the Gulf of Mexico and we’re expanding this to other regions globally. The pre-engineering components provide a common tree core that can then be configured with key components.’

He said the fast-track programme, compared with conventional, lead to delivery times being shortened by six months and costs coming in 20-30% lower.

He said, ‘This is a successful example of standardisation of design and manufacturing processes. Bespoke engineering and man hour costs are down. The re-use of proven solutions reduces risk, costs and lead times.’

Total will start up its subsea multiphase pumping system for the *Girassol* Resources Initiatives (GirRI) project offshore Angola in the next few weeks.

The multiphase pump system, which has been installed in Block 17 in 1,350m, will boost the rates from two production flow loops.

OneSubsea (Framo) has provided a complete system of topside power and control and two subsea pump modules. The pump system is based on the latest development of the helico-axial technology, capable of a record differential pressure of up to 120 bar.

DNV GL explored the viability of moving offshore oil and gas processing subsea, including the techno-economics of an ‘all subsea’ solution.

Tore Kuhnle, senior researcher at DNV GL, said, ‘The industry has moved from ‘breaking boundaries’ to ‘cost cutting’ in recent years. In that respect, it is reassuring to see that subsea processing is both enabling and enhancing technology for brownfield applications.’

He said that even though brownfields will continue to drive subsea processing development, possibilities for greenfield applications have also been identified.

‘We see that the technology has matured considerably for limited-depth and limited-range applications. With our short-term focus, we see the completely submerged alternative more as a mature-area, midsize oilfield solution, rather than an extreme deepwater, long-range problem-solver.’

Helge Haldorsen, director general of Statoil Mexico, encouraged companies to get involved in the bidding rounds in Mexico.

He highlighted three very oily regions with 28bn bbl mean risked recoverable reserves and pointed out that on the Mexican side of the GoM only 35 wells have been drilled compared to 3,000 on the US side.

The culmination of round one takes place on July 15 when winners of 48 blocks will be announced.

He also suggested that a Norway Mexico technology co-operation agreement might be known as Nor-Taco!

DEVELOPMENT

NSRI AIMS TO SWIM IN ‘SMALL POOLS’

From Newcastle (SH): The UK’s subsea sector is targeting the development of the 287 ‘small pools’ of hydrocarbons on the UK Continental Shelf (UKCS) as a means of maximising the recovery of oil and gas left in the sector and also to trigger technology innovation and development.

Gordon Drummond, project director at the National Subsea Research Initiative (NSRI), told delegates at the Subsea North East conference here, that this is one of the group’s goals, which could help sustain the UK subsea industry as ‘the best in the world’, while he recognised the stiff competition coming from Brazil and Norway.

Drummond said subsea tiebacks got the UK subsea industry to where it is today and saw the pursuit of small pools as ‘the next step’. He defined ‘small pools’ as reservoirs of 3-15mboe, adding that to achieve production from these assets the industry must create new technol-

ogy. He said he was confident such new products could give operators a cost reduction of around 20% – which is another target for the NSRI.

Centrica and EnQuest are acting as technology champions for this ‘small pool’ push.

NSRI is going to hold workshops in Aberdeen, Newcastle and London to pursue such projects.

‘Small pools are a positive story about chasing new reserves and not the start of the decommissioning process for the UK,’ Drummond said.

Paddy O’Brien, chief executive of the Industry Technology Facilitator (ITF), added that the Centrica and EnQuest backed technology project is looking to develop either 10mboe of gas or 30mboe of oil for less than £100mn.

‘How technology can reduce costs will figure highly in the current climate,’ O’Brien said.

The ITF head and others here called for more collaboration on technology development. However, he did note that this is a very competitive business and finding a balance is vital.

‘There is a time to compete and there is a time to collaborate. Technology must play its part in helping us solve our current problems,’ he added.

Jeremy Cutler, Total E&P UK’s head of Technology Innovation, said his company’s target for small pools in the UK is to develop 15mmboe of oil or gas for less than £150mn.

Total has three main UK technology foci: long distance subsea tiebacks (small pools); effective drilling and completions (lower costs/increase productivity); and intelligent operating and maintenance (including the use of robotics for unmanned platforms). Other include: subsurface imaging; decommissioning and onshore shale gas, Cutler added.

New centres

Newcastle University and its industry partners report that the Neptune National Centre for Subsea & Offshore Engineering is due to open its doors in January 2016.

Nick Wright, Pro Vice Chancellor for Research & Innovation at the university, said there is also the Neptune Hyperbaric Testing Centre being developed in collaboration with BEL Valves.

‘The Neptune Centre will be the first of its kind in the UK, bringing together industry and academia to create a world-class engineering research facility,’ said Wright.

The centre is being developed at the Shepherd Offshore-owned Neptune Energy Park. Wright added that the university also has a research vessel and shore station at nearby Blyth and is developing a new digital technology centre at cost of £100m in the heart of Newcastle, next to Newcastle United Football Club’s stadium.

THUNDER HORSE SOUTH GROWS

From Houston (BN): In the Gulf of Mexico, companies continue to file incremental or long term plans for government approval rather than announcing big projects, a reflection of the offshore slowdown due to the oil-price decline.

BP has won approval of a supplemental development plan for *Thunder Horse South* (SEN 32/4). The expansion plan calls for three more wells targeting API 28.6-degree oil and a replacement manifold with associated piles, pipelines, jumpers, plets and sleds. The site is in 1,900m in Mississippi Canyon block 822, about 251km southeast of New Orleans.

The work is slated to begin in February 2016 and continue through May 2017. The pipelines involved are 10-11-inch and stretch 3.4km to link the new wells to the fpu in MC 778. BP operates with 75% interest. XOM owns the rest.



The *Thunder Horse* platform

Freeport McMoRan has won conditional approval of a supplemental exploration plan for its 100%-owned

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Dorado (31/22) project in 1,100m in Viosca Knoll block 915, about 226km east-southeast of New Orleans.

The plan calls for drilling, completing, testing, flaring and installing subsea wellheads at three wells between July 2015 and September 2017. The project expects API 35.4-degree oil.

Regulators have conditionally approved Eni's initial exploration plan for the *Goodfellow* prospect in Keathley Canyon block 129.

The plan calls for drilling and completion of seven wells targeting API 38-degree oil in 1,575m to 1,800m about 380km south-southwest of New Orleans. Eni operates with 25.67% interest. Total and Samson each own about a quarter of the project, Cobalt a fifth.

Murphy has received a conditional green light for its initial exploration plan for its *Slider* prospect in Desoto Canyon 448 and 492.

The plan calls for three wells aiming for API 31-degree oil in 2,500m about 296km southeast of New Orleans. Murphy and Stone are 50-50 partners with Murphy operating.

Regulators have okayed Stone's initial development plan for its 100%-owned *Amethyst* prospect in Missis-

sippi Canyon 26 in 340m about 172km southeast of New Orleans. The plan, two years in the works, calls for a single well tied back via 8.6km 5-inch pipeline to Stone's *Pompano* platform in Viosca Knoll 989.

LLOG remains one of the most active operators in the GOM, winning approval of an initial exploration plan for an unnamed prospect in 596m in Green Canyon 39 about 224km south of New Orleans.

The plan calls for three wells targeting API 23.7-degree oil, with drilling and completion work stretching from late this year into mid-2018. LLOG operates with 35% interest, Red Willow and Ridgewood own about 31% each and Houston Energy owns about 3%.

LLOG also received conditional approval of an initial exploration plan for the oddly named *LaFemme/Blue Wing Olive* prospect in Mississippi Canyon 427 and 471.

The plan identifies seven well locations – five in MC 427 and two in MC 471. The project in 1,760m about 228km southeast of New Orleans anticipates API 32-degree oil. LLOG owns MC 427. LLOG operates MC 471 with 50%.

Partners are Red Willow (17.86%), Houston Energy (14.28%), Ridgewood and ILX (8.92% each).

LAGGAN-TORMORE COSTS RISE AGAIN

Petrofac has been hit by yet more cost over-runs on the *Laggan-Tormore* (SEN 32/2) project north-west of Shetland.

The contractor said that construction activities on the onshore gas plant project are substantially complete, with planned welding activities more than 99% complete and more than 99% of electrical, instrumentation and telecommunications (EIT) cabling laid.

But it said direct construction man hours are higher than previously expected due to additional completion and pre-commissioning-related activities.

'The costs of the additional direct construction man hours, along with the associated indirect, sub-contractor and material costs, are expected to result in incremental costs to complete of approximately £30 million,' it added.

Petrofac said that together with the incremental costs announced in April 2015 of around £130mn and the recognition of a deferred tax asset in respect of tax losses on the project of approximately £20mn, this brings the loss in the year to date to around £140mn.

'Our remaining operational focus is on the final completion and pre-commissioning-related activities such as piping system testing, EIT terminations and the close-out of punch-list items to enable the delivery of first gas from the plant in Q3 2015.'

Laggan-Tormore is a significant new frontier hub for Total and DONG (80% and 20% stakes respectively) – who are investing an estimated \$5.5bn on the project – in an area (Blocks 206/2 and 205/5a) where previously there was no infrastructure.

The field lies in 600m of water approximately 140 km northwest of the Shetland Islands and was originally due on-stream before the end of 2014.

It is being developed as a long subsea tie-back to the new gas processing terminal (Shetland Gas Plant) being built at Sullom Voe. Laggan-Tormore holds an estimated 4bn bbls of mainly gas-condensate reserves.

Meanwhile, Petrofac said it was continuing to make progress on the *Greater Stella Area* (31/21) development in the UK North Sea, with first production still expected mid-2016.

Work is ongoing on the *FPF1* floating production facility, with sailaway of the *FPF1* scheduled for the first quarter of 2016.

Petrofac also said its Offshore Projects & Operations business unit has secured contract renewals for operations and maintenance work worth approximately \$400mn on the UKCS.

The largest of these awards is for the provision of operations and maintenance teams for CNR International across its North Sea assets – the three platforms in the *Ninian* complex; *Murchison*; and *Tiffany* – for the next five years.

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ALL SYSTEMS GO ON JOHAN SVERDRUP

Norway's parliament approved the plan for development and operation (PDO) of the *Johan Sverdrup* (SEN 32/6) field on 18 June.

Gassco will now take over as operator for the 156km gas transport system from the Johan Sverdrup field in the Norwegian North Sea when it becomes operational.

Running from the field's riser platform, the 18-inch pipeline will be tied into the Statpipe rich gas system on the seabed west of Karmøy. That will allow its gas to flow to the Kårstø process plant north of Stavanger.

The new pipeline's capacity will exceed Johan Sverdrup's own requirements, creating opportunities for additional gas exports from the Utsira High area.

Johan Sverdrup is due to come on stream in December 2019, and is expected to produce for 50 years.



Johan Sverdrup field layout

Meanwhile, Statoil has awarded two contracts worth \$557mn to Odfjell Drilling for drilling on the field.

The rig contract includes the charter of the *Deepsea Atlantic* rig for three years, starting from March 2016. In addition there are six 6-months options. The *Deepsea Atlantic* will drill a minimum 13 pilot wells on the field prior to production start in late 2019.

The fixed drilling rig for the Johan Sverdrup field will be built by Aibel together with Nymo in Grimstad and National Oilwell in Kristiansand. In February 2015 Odfjell Drilling was awarded a contract by Aibel for engineering support for the construction of the drilling platform.

The contract is an extension of the contract for drilling on fixed installations awarded in 2012, vesting the responsibility for the *Grane*, *Visund*, *Heimdal*, *Njord*, *Snorre A/B* and *Sleipner* installations in Odfjell Drilling.

DEVELOPMENT BRIEFS

BP said the new West of Shetland **CLAIR RIDGE** (SEN 31/3) platform's quarters and utilities (QU) topside modules have been safely installed.

The QU platform comprises three modules – the quarters and utilities integrated deck (QUID) which has a lift weight of 9,400t; the power generation (GM) module which has a lift weight of 4,550t; and the living quarters (LQ) module which has a lift weight of 2,210t. They were safely lifted onto the pre-installed jackets by the *Heerema Thialf* heavy lift vessel.

Clair Ridge is a multi-billion dollar investment in the second phase of development on the Clair field which lies 75km to the west of the Shetland Islands.

The project comprises two new bridge-linked platforms and new pipeline infrastructure to connect storage and redelivery facilities on Shetland. The next major milestone will be the installation of the production and drilling (DP) platform topside modules, scheduled for summer 2016, with production expected to commence in late 2017.

Expro has been awarded new contracts in Africa from Tullow Oil worth more than \$100mn over three years.

Expro will work across Tullow Oil's assets in Ghana, including the **JUBILEE** (31/23) field and the *Tweneboa-Enyenna-Ntomme* (TEN) (31/23) project.

Following on from Expro's phase one contract for Jubilee, involving more than 10 completions, the company has been awarded continued services for phase 1a. This covers completions on new wells for Jubilee, as well as interventions and remedial work.

Expro said a number of its products and services will be used, including large bore subsea completion landing strings, subsea exploration and appraisal landing strings,

high flow rate surface well testing and sampling services. The TEN project will also see Expro provide subsea completion work in all planned wells.

Anadarko's 80,000 b/d **HEIDELBERG** truss spar has begun its journey from Ingleside, Texas, to Green Canyon block 860 in the deepwater Gulf of Mexico.

FMC Technologies will supply subsea production systems for well clusters 3-5 of the **SHAH DENIZ** (31/14) Stage 2 project in the Caspian Sea off Azerbaijan in a deal worth \$297mn.

Another \$66mn contract for the second of three batches of subsea production trees and ancillary equipment required



The Shah Deniz platform

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for the full field development was awarded to OneSubsea. Delivery will take place from 2016 to 2021.

From Houston (BN): **GULF ISLAND** has received a Letter of Intent for the fabrication of six jacket/piles and deck sections for an un-named U.S. customer.

This is welcome news for a Gulf Coast-based company that in its first-quarter conference call talked of sluggish offshore demand and emphasised its work on wind farms off the U.S. East Coast.

Ocean Installer has won its first deal under a framework agreement with ExxonMobil for subsea installation work at the **BALDER** (32/6) field off Norway.

Ocean Installer will carry out fabrication and installation of an electrical distribution unit mud mat as well as transport and installation of flexible jumpers and hydraulic and electrical flying leads as part of subsea well tie-back and engineering work.

The workscope also includes irm and roV services. Ocean Installer intends to use chartered vessel *Normand Mermaid* to carry out the work which is due to begin in July.

The contract carries an option for similar work in the second quarter of 2016.

The Economic Community of West African States (Ecowas) and Penspen have cemented a contract for a feasibility study examining the current **WEST AFRICAN GAS PIPELINE** (WAGP) system performance and its possible future network extension to other Ecowas states.

The work will look at how WAGP has performed since its completion in 2010 and what measures need to be taken to optimise its operation.

WAGP at present runs from Nigeria to Benin, Togo and Ghana a total distance of 678km with 569km offshore.

DEEPOCEAN has been awarded an irm contract by BG Group. The five year contract covers all roV based IMR work for BG Group on UK and Norwegian subsea assets.

DeepOcean will use vessels from its North Sea based fleet for work under this contract.

Wood Group has been awarded a contract by Saudi Aramco for greenfield and brownfield engineering services, procurement, and construction management support for new facilities in the **ARABIAN GULF**.

The six-year contract, which includes options for two three-year renewals, includes the establishment of an offshore engineering centre of excellence in Al Khobar, Saudi Arabia.

Work will be performed by Wood Group Mustang in the US. In-kingdom work scope will be executed by Saudi Arabian joint venture, Mustang-HDP, and is expected to employ up to 300 people.

IRM specialist Harkand has begun decommissioning work on the UK North Sea **LEADON** field for Maersk Oil.

Earlier this year, Harkand secured a multi-million pound 12-month frame agreement with Maersk Oil

in the region for the provision of its two dive support vessels (DSVs), the *Harkand Da Vinci* and *Harkand Atlantis*.

This new award will see Harkand deliver project management for Maersk's drill rig programme for subsea well plug and abandonment.

The scope of work which is being undertaken by the *Harkand Atlantis* includes barrier testing at 13 trees, removal of production and gas lift spools at trees and tow-head ends along with power and control jumpers and mattress recovery. The work also involves flooding and disconnection of a 4-inch gas import flowline.

David Kerr, managing director of Harkand Europe said the company hoped to secure more decom work on the estimated 500 – 690 facilities reaching the end of their operational life in the North Sea over the next three decades.

Norway's Westcon has been awarded a contract from Subsea 7 to deliver three riser bases with associated protection structures to be used on the Total-operated **MARTIN LINGE** (32/2) field off Norway.

Westcon said the Subsea 7 agreement is a large contract for its subsea department, securing work for 40-50 people through to March next year.

Wood Group Kenny (WGK) has won a contract to support the Kebabangan Petroleum Operating Company (KPOC) in pipeline engineering and flow assurance engineering studies for the **KAMANSU EAST** (KME) field offshore Sabah, Malaysia.

The scope of work will include concept select studies and definition engineering on subsea heating options, thus preventing hydrates, for the 30km gas pipeline which runs from the KME field in 750m of water to their new shelf edge *Kebabangan* platform.

The pipeline heating technology could be the first application for deepwater gas development in Malaysia.

The KME field and *Kebabangan Northern Hub Project* are part of the Kebabangan Cluster, which is owned by Petronas Carigali (40%), ConocoPhillips (30%) and Shell (30%).

KPOC is a joint venture company which was established to act as the cluster operator. The first gas from the field is expected to be required in the early 2020's.

Wood Group has also agreed a \$250mn deal with Antin Infrastructure Partners to provide operating services for **CATS** (Central Area Transmission System) in the UK North Sea for up to 10 years.

Wood Group PSN (WGPSN) will act as the duty holder of the CATS terminal and pipeline and will have day-to-day responsibility for operations. A dedicated Wood Group Kenny (WGK) team based in Glasgow will be integrated into the operating services team to provide pipeline management expertise.

CATS transports gas through 404km of pipeline from the Central North Sea to its terminal in Teesside in the UK where it is then processed on behalf of major North Sea gas producers.

The system currently serves 34 producing fields with a high portion of contracted revenues. In 2013, CATS accounted for the transportation of 13% of UK domestic gas production.

Ezra Holdings' subsea services division, EMAS AMC, has clinched several global contracts, including one for rigid pipelay on Apache's **AVIAT** (32/4) field development in the UK North Sea.

The subsea scope on Aviat includes project management, detailed engineering, procurement, and installation of 23.2km of rigid pipelines and 24km of umbilical via reel, flexible riser, spools, and structures as well as pre-commissioning.

EMAS AMC will use its latest spoolbase on the west coast of Norway to fabricate the 24km rigid pipeline.

The project mix also includes engineering and offshore support work in West Africa for an oil major. Other subsea contract work includes ROV support services and high voltage alternate current (HVAC) pull-ins.

In addition, EMAS Energy together with EMAS AMC will deploy the *Lewek Centurion* to undertake work in Asia, which includes subsea pipeline free span work, well plug and abandonments, slickline and nitrogen operations, well stimulation and pipeline pre-commissioning work for a variety of oil majors and national oil companies.

Larsen and Toubro has landed a \$426.26mn epci contract for the **BASSEIN** development project offshore India from ONGC.

The workscope covers the provision of a new process platform, one nine-slot wellhead platform, topside modifications on existing platforms, associated subsea pipelines and one living quarter platform.

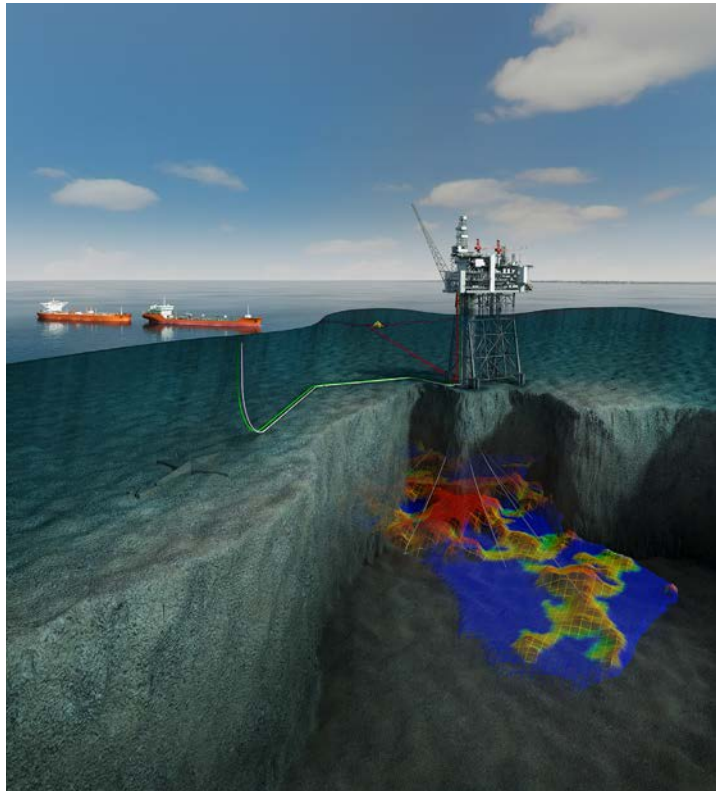
The project is part of ONGC's plan to extend the field life and increase recovery from the Bassein field, is targeted for completion in December 2017.

Antrim Energy has tapped Offshore Installation Services to permanently plug and abandon four suspended subsea wells in the UK central North Sea.

The contract includes the permanent abandonment of the three suspended wells on the **FYNE** Licence (P077, Block 21/28a) and the one suspended well on the *Erne* Licence (P1875, Block 21/29d). The contract is expected to be executed as part of a 10 well abandonment campaign including six Central North Sea wells from another operator.

Work is due to begin in July. The estimated cost for abandonment of Antrim's four wells is £4.75mn.

Statoil has awarded Tenaris a contract to supply casing, tubing and all related services for the UK North Sea **MARINER** (32/6) heavy oil project.



The planned *Mariner* development

Mariner is expected to be in production for at least 30 years, with start-up in 2017. The oil field consists of two reservoirs, Heimdal and Maureen, at depths of 1,227m and 1,492m.

The main Mariner platform will have one drilling rig and one well intervention and completion unit. In addition, a newly built jack-up rig will be located next to the Mariner installation, working through well slots on the platform for the first four years. Over the field's lifetime, as many as 130 well targets are planned.

TANZANIA, holder of East Africa's biggest natural-gas reserves after Mozambique, will decide on a \$15bn export plant in three years.

Construction of the 10mt/year lng plant would probably be complete around 2020, said Willington Hudson, a director at state-run Tanzania Petroleum Development Corp. BG Group and Statoil are still drilling the fields that would feed the plant, he said.

Fugro is providing wave measurements to support construction operations at an improved oil recovery (IOR) project on the Norwegian continental shelf.

The subsea infrastructure on the **ALVHEIM** (31/21) field (operated by Det norske oljeselskap) is being extended by offshore construction expert Technip and involves four areas that are being tied-in via subsea wells to improve oil production rates.

Technip's subsea operations – the installation and tie-in of spools and protection covers, along with a manifold – are being performed at depths of around 120-130m.

FLOATERS

LOOP CURRENTS BLAMED FOR *BIG FOOT* FAILURE

From Houston (BN): It seems likely that design and/or installation changes will emerge from Chevron's investigation into the *Big Foot* (SEN 32/6) setback in the Gulf of Mexico.

An update by Raymond James analysts after conversations with Chevron executives identifies strong loop currents as the likely cause of the failure of nine of 16 tendons that were to comprise the *Big Foot* tlp's four tension legs.

Chevron has said temporary buoyancy supporting the nine tendons failed, allowing them to drop to the 1.6km-deep seabed instead of floating at shallower depth within grapple reach of installation vessels.

In public statements, Chevron has said only that investigation of the failure continues, and the company has not publicly speculated on a cause. Loop currents have plagued the project for months, delaying sail-out from Kiewit's Ingleside, Texas, yard, for months and then delaying installation after sail-out.

Chevron has not updated the installation schedule other than to say this year is no longer possible. Interestingly, though, Chevron has begun calling its response involving five rovs and 10 vessels 'tendon recovery' and says those operations continue.

The tlp will be parked in a 'sheltered' location to await the next installation attempt. 'We are assessing options for a shore-based holding area for the tlp. However, that location has yet to be determined,' an emailed Chevron statement said.

Meanwhile, 'the tlp is positioned away from the incident site and is located out of strong currents,' Chevron said.

The Raymond James report by analyst Pavel Malchanov with research associate Rich Eychner accentuates the positive, 'Clearly there is no hope for a near-term fix. Management is still in the process of analysing what precisely happened, though volatile water currents are the 'prime suspect' (Raymond James' words).

'For now, their (Chevron's) main message is that *Big Foot*'s impact should not be exaggerated. This project was supposed to add 20-25mboe/d (net) to Chevron's 2017 output target of 3,100mboe/d, or only ~0.7% of the total pie. And despite this disappointment, Chevron is very committed to the deepwater GOM. In fact, the #1 current focus of the company's R&D programme is improving recovery in the Lower Tertiary trend. There is also receptiveness to entering the Mexican sector of the GOM, contingent on securing attractive fiscal terms,' the report said.

BROWSE FLNG DOMESTIC SUPPLY DEAL STRUCK

From Australia (LB): The Western Australian government has signed a Key Principles Agreement with the proponents of the *Browse* (SEN 32/5) flng project for the provision of domestic gas and to locate a supply chain in Western Australia.

It is the first time that the state's domestic gas reservation policy would be applied to an flng project, and while Premier and State Development Minister Colin Barnett said the agreement would deliver benefits to the state in terms of domestic gas and opportunities for local businesses and workers, some industry leaders lamented the idea of imposing additional cost and complexity to lng projects in Australia.

According to the government, the agreement is expected to raise more than \$1bn in royalties over the life of the project.

Under the agreement, the *Browse* Joint Venture partners, including operator Woodside Petroleum, Shell, BP,

Japan Australia LNG and PetroChina, have committed to reserve gas equivalent to 15% of production from the state's share of the Torosa reservoir, one of three gas fields that make up the project.

'The domestic gas obligation will coincide with first production from Torosa and amount to around 800 petajoules over the life of the project, helping to secure the state's energy future,' Barnett said.

In addition, the *Browse* Joint Venture has committed to the development of an integrated supply chain in Western Australia to provide port, marine, aviation, storage and transport services over the life of the project.

APPEA Western Region Chief Operating Officer Stedman Ellis said the decision to force projects to reserve gas for the state's domestic market amounted to a de facto tax.

'In what is now a new investment climate, the government should be looking to reduce the cost and regulatory burden

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on LNG projects if it wants to attract investment,' Ellis said.

'Instead, it continues to do the very opposite by imposing a gas reservation policy that simultaneously acts as a tax on gas production and a subsidy on gas consumption.'

Meanwhile, Woodside said it had received retention lease renewal offers for petroleum retention leases

WA-28-R, WA-29-R, WA-30-R, WA-31-R, WA-32-R, TR/5 and R2, from the Commonwealth-Western Australia Offshore Petroleum Joint Authority and the WA Minister for Mines and Petroleum.

The company has 30 days to accept the retention lease renewal offers.

FLOATER BRIEFS

From Australia (LB): AWE is seeing production success at its New Zealand operations, with oil output from the **TUI** (SEN 32/2) field increasing.

AWE's joint venture partner, New Zealand Oil & Gas, advised that 604,736 bbl of oil from the Tui field, offshore Taranaki, had been lifted and shipped last week.

The volume reflects increased production from Tui resulting from the Pateke-4H field coming into production in April.

The Tui area oil fields comprises the Tui, *Amokura* and *Pateke* fields which are located approximately 50km off the coast of Taranaki, New Zealand, in PMP 38158. Production from each field is fed into the Tui field gathering system and then into the *Umuro* fpso.

AWE (57.5%) operates for New Zealand Oil & Gas (27.5%) and Pan Pacific Petroleum (15%).

Rystad Energy said its latest research indicates that 88 floaters will have to be taken out of the market between 2015 and 2017, making it the largest ever retirement cycle in the history of offshore drilling.

These retirements are a consequence of demand reduction from 262 units in 2014 to an expected 220 units in 2016 as a result of lower activity from E&P companies and despite the oil price stabilizing around \$65/bbl over the past quarter. However, between 2015-2017, the floater market awaits an influx of 64 new units.

Rystad Energy analyst Joachim Bjørni said, 'Over the last six months we have seen rig owners responding to the poor market outlook by retiring floating units to balance supply and demand.

This will lead to 49 units in 2015 only, bringing it to record high levels in one year. The last time we saw a similar number of retirements was after the oil crisis in 1985.'

Rig owners have to retire an additional 36 units in 2016 to balance the floater demand. With demand expected to increase again in 2017, Rystad Energy estimates only a few additional units to be retired to balance the market.

ABB will supply electrical and automation systems to Eni's **ARMADA OLOMBENDO** fpso destined for the *Cabaça North* and *Cabaça Southeast* fields in deep water off Angola.

It won the order from Malaysia's Bumi Armada Berhad, which is building the fpso by reconfiguring the former *Armada Ali* supertanker (now renamed the *Armada Olombendo*), which has a storage capacity of 1.8mmbbls. Eni is chartering the vessel.

The Cabaça North and Cabaça Southeast fields lie about 350km northeast of Luanda, and will produce up to 80,000 b/d of oil by the end of 2016.



88 floaters are due to be retired by 2018



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ABB will deliver complete e-house solutions – which house medium voltage and low voltage switchgear – and systems for integrated electrical distribution, control, safety and power management.

This order is the fourth collaboration between ABB and Bumi Armada. Past projects include a modular e-house package for fpos operating off India's west coast, the *Kraken* oil field in the UK North Sea and a complete automation package for an fpos operating in the *Balnaves* oil field off western Australia.

McDermott International has landed a lump sum contract from LLOG Exploration Offshore for work on the **OTIS** development in the US Gulf of Mexico.

The Otis field, located in Block Mississippi Canyon 79, will be developed as a subsea tieback to the *Delta House* fpos in 1,159m.

The contract scope includes project management; engineering, fabrication and installation of a 22,875m insulated rigid flowline and insulated steel catenary riser (SCR) with associated plet and jumper; and pre-commissioning.

McDermott's Houston office will perform the overall project management and engineering. The flowline and SCR are scheduled to be assembled and fabricated at McDermott's new spoolbase facility in Gulfport, Mississippi.

Offshore installation is scheduled to be completed in early 2016 by McDermott deepwater rigid reel *Lay Vessel 105* (LV 105).

Cobalt International Energy said it expects to achieve formal sanction by the end of 2015 for its **CAMEIA** (31/22) fpos development project in block 21 offshore Angola.

The *Cameia 4* well is currently being drilled, and development drilling will likely continue until early 2016. Cobalt anticipates start-up in 2018.

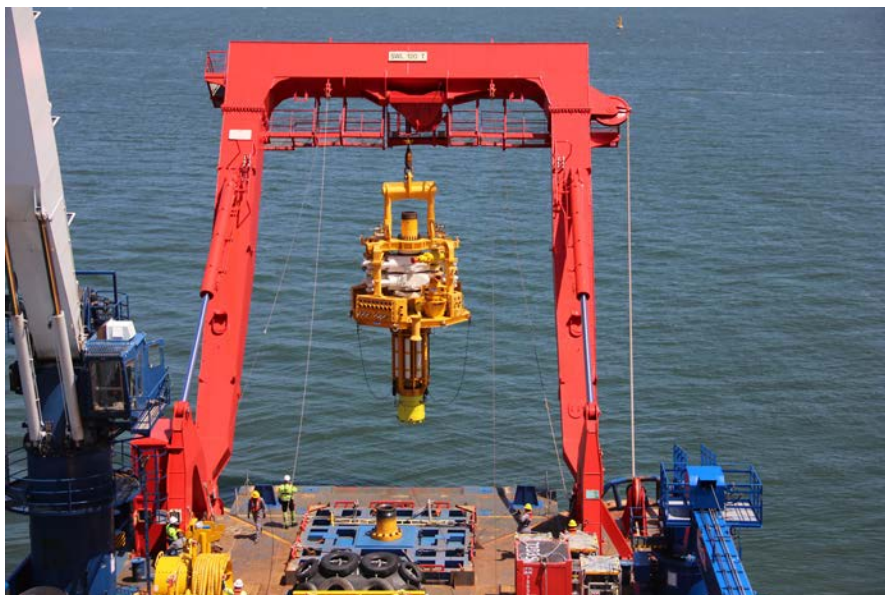
The company is in the process of optimising the *Cameia* production facility and subsea infrastructure design and costs to take advantage of favourable prices in the current market downturn.

Its current fpos design is a nominal 75,000-b/d facility, with a likely production capacity of more than 80,000 b/d early in the field's life. Cobalt re-affirms that the project economics remain sound.

Erin Energy has kicked off production from the **OYO-7** well in OML 120 offshore Nigeria.

Oyo-7 was drilled to a total depth of about 2,438m and was completed horizontally in the Pliocene formation. The well is located in about 300m and is producing into the *Armada Perdana* fpos. The well is expected to produce about 7,000 b/d following optimisation of choke size.

EXPLORATION NOTES



The Arctic capping stack

From *Houston (BN)*: Shell continues to advance its plan for a summer Arctic drilling campaign with support operations based in Washington's Puget Sound.

The semisub *Polar Pioneer* is en-route from Seattle as far as Dutch Harbor, in Alaska's Aleutian Islands, and the drillship *Noble Discoverer* has been cleared to move in the

same direction from Everett, Washington.

Shell has successfully tested a blowout-control capping stack for federal regulators overseeing the plan to drill two wells at the **BURGER** prospect in the Chukchi Sea. Shell also has obtained more of the permits it needs.

One new permit allows it to dispose of waste from the two drilling rigs, another to 'incidentally harass' or 'take' (bureaucratese for affecting behaviour or accidentally killing) dolphins, porpoises, whales, seals, and sea lions. (It is illustrative of the regulatory maze that must be negotiated that Shell still awaits a permit from

another agency to 'incidentally harass' polar bears, walrus, sea otters and birds.)

Meanwhile, protests continue, and opponents pursue every legal avenue to stop the planned drilling. Among recent headlines: Jane Fonda ('expertise' based on starring in a movie about nuclear disaster) calls Arctic drilling 'obscene.'

Dolphin Group has initiated a 3-D SHarp broadband multi-client survey covering about 15,000 sq km on Australia's **NORTHWEST SHELF**.

In cooperation with TGS and supported by major oil companies, Dolphin mobilised its high capacity 3-D *Sanco Swift* vessel to acquire the North Carnarvon Basin survey covering both newly awarded licensed and open acreage.

Prior to this survey Dolphin, in collaboration with TGS, said it will complete Phase 1 of approximately 2,500 sq km of the Monuments MC 3-D survey with the same vessel. This is due to be completed about 25 June.

Lundin Petroleum has spudded two appraisal wells and one exploration well offshore Norway.

The second **ALTA** appraisal well 7220/11-3 in PL609 has a planned total depth of 2,071m and will be drilled using the *Island Innovator* semisub.

The *Edvard Grieg* appraisal well 16/1-23 S, located in PL338 in the southeastern part of the Edvard Grieg field, will test the upside reserve potential in the field, which is estimated to be up to 50mmboc. Planned total depth for this well, which will be drilled using the

Rowan Viking, is 2,201m.

In the southern North Sea, the *Zeppelin* exploration well 10/4-1 in PL734 will be drilled using the *Borgland Dolphin*.

Lundin estimates the Zeppelin prospect to have the potential to contain unrisked, gross prospective resources of 152mmboc.

Premier Oil is working towards an H1 2016 spud date for its **BAGPUSS** exploration well, located in Block 13/24c of the UK North Sea.

A semisubmersible rig will be used and options to contract the rig are under evaluation to optimise costs, Premier said.

Faroe Petroleum has kicked off the follow-up drilling programme to the significant **PIL/BUE** 2014 discoveries in the PL586 licence in the Norwegian Sea with the spudding of exploration well 6406/12-4S (Faroe 25%) on the *Boomerang* prospect.

And the Shell-operated exploration well to test the *Por-trush* prospect in the PL793 licence, in which Faroe has a 20% stake, has been added to the expected programme for Q3 2015.

VESSELS

TRANSOCEAN DELAYS DRILLSHIP DELIVERIES

The delivery dates of two ultra-deepwater newbuild drillships have been delayed by two years, Transocean said in its latest monthly fleet update summary.

They will be delivered in Q2 2019 and Q2 2020, respectively, the company added.

The delivery dates were delayed after the company amended its construction contracts with Sembcorp Marine's subsidiary, Jurong Shipyard.

The *GSF Monarch* and *Transocean Spitsbergen* are idle. The *Spitsbergen's* well programme concluded 45 days early due to efficient rig performance; under the contract, the company is paid if there is early termination, Transocean added. The *GSF C.R. Luigs* is stacked, having previously been idle.

Transocean also said that *Transocean Andaman's* offshore Thailand contract was extended for one year; the *Deepwater Champion* received a three-month contract extension for work in the U.S. Gulf of Mexico; *GSF Galaxy II* received a one-well contract extension in the U.K. North Sea; and the *Sedco Express* received a 45-day contract offshore Nigeria.



Transocean Spitsbergen

The total value of new contracts since the last report is about \$109mn.

GSF Celtic Sea and *Transocean Amirante* are held for sale. Switzerland-based Transocean plans to scrap 20 floaters, and will recycle *Amirante* and either sell or recycle *Celtic Sea*.

VESSEL BRIEFS

Statoil has cancelled its contract for the **COSL PIONEER** rig some 13 months before the expiry date of August 2016.

COSL Pioneer has been suspended since 8 October 2014 and Statoil said it has not managed to find alternative activity for the rig during the intervening period.

Supply chain senior veep Jon Arnt Jacobsen, said, 'COSL Pioneer and its crew have demonstrated a good safety culture and delivered efficient drilling operations to Statoil. Cancellation is a consequence of overcapacity in the rig portfolio.'

Harkand has kicked off work for Premier Oil supporting the operator's activities on the **SOLAN** (32/6) field development, West of Shetland.

The multi-purpose service vessel the *Siem Spearfish*, which is on long-term charter to Harkand, arrived in Newcastle earlier this month to begin mobilisation for the campaign which will see it perform walk-to-work duties for the ongoing commissioning work on site.

Dolphin Drilling has altered the terms of its contract with Total

for the **BORGSTEN DOLPHIN** tender support vessel.

The \$141mn extension covers a revised contract period commencing 1 October 2015 and continuing to 31 January 2018, subject to certain early termination rights from end 2016.

Canyon Offshore has mobilised two new UHD-III rovs to its **GRAND CANYON II** vessel for subsea field work.

The *Grand Canyon II* is designed to perform a broad range of subsea operations, with DP3-class station keeping for work in severe weather conditions. It features a 250t heave compensated crane, facilities to launch port and starboard side rovs simultaneously. The vessel's first project was for survey and trenching work in the UK.

The UHD-IIIs were utilised continuously for a four week period, with only one hour of maintenance time.

Dolphin said its newly delivered high-capacity 3D seismic vessel, **POLAR EMPRESS**, is in full production, towing 14 streamers on the Maud Extension multi-client survey in the Barents Sea.

The vessel has a capacity to operate up to 22 seismic streamers.

TECHNOLOGY

PLEXUS GETS TO GRIPS WITH PYTHON

Plexus Holdings is set to unveil its new POS-GRIP *Python Subsea Wellhead* during the SPE Offshore Europe conference in September.

The new Python Subsea Wellhead, previously referred to as the HGSS Wellhead, has been designed to address key technical issues and requirements highlighted by regulators following the Gulf of Mexico incident in April 2010.

The Python Subsea Wellhead has been under development since 2011 within a Joint Industry Project supported by major oil and gas operators and service company consulting partners, including BG, Royal Dutch Shell, Wintershall, Maersk, Total, Tullow Oil, Eni, Senergy, and Oil States Industries.

Plexus said, 'In terms of Python's development, Plexus has recently achieved several additional technical milestones in the qualification and testing of the new system,

and will have a full prototype system on display at SPE Offshore Europe in Aberdeen in September 2015.'

Plexus' CEO Ben Van Bilderbeek said, 'The Python Subsea Wellhead system is designed to deliver true and verifiable metal to metal sealing capability in ultra-deep water, and is also aimed at simplifying installation procedures to such an extent that numerous installation trips are eliminated to render the system effective cost negative.'

At the launch, Plexus said it expects to be able to announce further details of the enhanced safety and cost saving features of the Python Subsea Wellhead, as well as positive results of qualification testing, to standards which significantly exceed conventional industry requirements.

Plexus anticipates the Python Subsea Wellhead will be ready for offshore deployment in a trial well during 2016.

BUSINESS

WINTERSHALL SELLS NORWAY STAKES

Wintershall is shuffling the pack off Norway, selling off a 15% stake in its *Maria* (SEN 32/6) development as well as stakes in four non-operated fields.

The company is hiving off stakes in *Knarr* (20%), *Veslefrikk* (4.5%), *Ivar Aasen* (6.4615%) and *Yme* (10%) - to Tellus Petroleum, a subsidiary of Sequa Petroleum.

The company is also reducing its stake in its operated

Maria development by 15% to 35% and has gained Tellus Petroleum as a further partner to develop the field, for which the PDO was recently submitted.

The package Wintershall is selling to Tellus Petroleum also includes equity stakes in seven exploration licences in the vicinity of the Knarr, Maria and Ivar Aasen fields and in the Barents Sea, as well as ownership interests in

the Utsira High gas pipeline (3.88%), the *Edvard Grieg* oil pipeline (2.58%) and the Knarr gas pipeline (20%).

The price of the deal is \$602mn, of which \$40mn is subject to the Maria field development being approved by the Norwegian Ministry of Petroleum and Energy.

In addition, Tellus Petroleum will make a further payment of up to \$100mn depending on the development of the oil price in the period from 2016 to 2019.

‘We continue our strategy to grow at the source,’

said Martin Bachmann, member of the board of executive directors of Wintershall and responsible for exploration and production in Europe. ‘With this transaction we are selling shares in non-operated fields at a competitive price and reducing our investment obligations.’

The sale does not affect Wintershall’s production targets. The company aims to continue raising the production of oil and gas to 190mmboe by 2018.

BUSINESS BRIEFS

From Australia (LB): **MEO** Australia has signed an agreement with Brooke Dockyard & Engineering Work Corporation which will see the pair bid on oil and gas exploration and development opportunities in Malaysia.

Under the agreement, MEO will provide technical assistance and opportunity evaluation assistance to Sarawak-based Brooke.

In return, Brooke will fund the evaluation activities and the exploration component of joint bids for successfully screened opportunities that satisfy the criteria of both companies.

For the initial opportunity to be considered under the agreement, Brooke will have a 75% participating interest and MEO 25%.

MEO will be free carried for evaluation activities and exploration of any captured opportunities. MEO said Brooke would bring strong local Malaysian content to MEO having access to local fabrication and construction capability, for both onshore and offshore facilities.

UNIQUE GROUP is looking to double its global subsea and offshore business by 2019 through capital investment, acquisitions and expansion into key markets.

With a current turnover in excess of \$100mn, the company has restructured its worldwide organisation into five new business units.

The first expansion into new sectors is the launch of Unique Group’s range of technically advanced products for dive support vessels (DSVs), the result of three years of research and development and significant investment by the group.

The business has made three senior appointments to oversee the expansion in key growth areas. Within Unique Group, Mike Jessop has been promoted to global head of diving. The group has also recruited leading figures from within the industry: Andy Doggett, former manager of Teledyne CDL has been brought in to head up the new survey equipment division; and Steve McMillan, former head of diving at McDermott, has been appointed as global HSE & projects director.

TULLOW OIL has settled its capital gains tax (CGT) dispute with the government of Uganda and the Uganda Revenue Authority (URA) with regard

to its farm-downs to CNOOC and Total in 2012, Tullow said.

Following discussions with the Ugandan government and the URA, Tullow has agreed to pay \$250mn in full and final settlement of its CGT liability. This sum comprises \$142mn that Tullow paid in 2012 and \$108mn to be paid in three equal instalments of \$36mn.

The first of these was paid upon settlement and the remainder will be paid in 2016 and 2017.

J2 SUBSEA has opened a new subsea tooling facility at sister Acteon company, Seatronics’, subsea electronics location in Houston.

The new facility marks the next stage in J2 Subsea’s global expansion plan. North American customers can now access a comprehensive suite of subsea equipment for diver and roV applications.

GE OIL & GAS has officially opened its new Innovation Centre in Newcastle, UK.

The centre will focus on R&D activity for the next generation of flexible pipelines for ultra-deepwater, hpht reservoirs. It combines existing GE Oil & Gas testing equipment alongside new investments in a single site, enhancing the business’ already rigorous testing and qualification operations.

R&D teams are already involved in a number of projects at the centre, looking at extending the water depth capability of GE’s large bore risers, and qualifying a new polymer grade for hpht markets.

RED7MARINE, a service provider for offshore oil and gas, marine renewables, subsea engineering and marine civil engineering, has become another victim of the oil price crisis after going into administration, with 47 jobs lost.

Administrators from Ernst & Young (EY) have been appointed at Red7Marine Group Ltd, Red7Marine Ltd and Red7Marine Offshore Ltd.

This comes just a few months after the company boosted its subsea services by investment in diving support vessel *Red7Alliance*, followed by the expansion of its roV fleet with eight observation class rovs.

AKER SOLUTIONS’ Front End Spectrum unit and Baker Hughes’ Reservoir Development Services group

are teaming up to provide customers with development concept studies that address the entire value chain - from reservoir understanding and well design to subsea and topsides facilities, including flow assurance and risk management.

The new agreement comes after Aker Solutions and Baker Hughes in 2014 formed the Subsea Production Alliance to develop solutions that will boost output, increase recovery rates and reduce costs at subsea fields.

The **IMCA** (International Marine Contractors Association) is on the hunt for a ceo and a technical director.

Check the IMCA website at www.imca-int.com/ vacancies for more details. Applications for both roles close on 6 July 2015.

IMCA is the international trade association representing companies and organisations engaged in delivering offshore, marine and underwater solutions, and has over a thousand members in more than 60 countries.

SEN would like to note the passing of **Tony Cousins** who had been battling cancer for some time.

Cousins was part of the four-man team, along with David Pridden, Bob Chambers and Graham Day, who formed Mentor Engineering Consultants in 1987 which engineered the subsea system for BP's *Foinaven* development, the UK's first deepwater project in the mid 90's.

He had earlier worked at Kongsberg Subsea Developments after having been at National Oilwell. Cousins later joined forces with Bob Eden of Capcis at The Rawwater Engineering Co which did early work on subsea raw water injection.

Lundin Petroleum's board of directors has named **Alex Schneider** as the company's next president and CEO.

The decision followed **Ashley Heppenstall's** decision to step down from the position with the company. Heppenstall, who has served as president and CEO since 2002, will remain on the company's board.

Schneider has been executive vice president and COO of Lundin Petroleum since inception in 2001 and has in particular been instrumental in growing Lundin Petroleum's business in Norway over the last 11 years.

Nick Walker, who recently joined the company as senior vice president development and operations, will assume the role of COO. The changes will become effective from 1 October.

Norway's 4Subsea has appointed **Peter Jenkins**, one of the founders of the company, as new ceo. He replaces **Henning Christensen**, also one of the founders.

4Subsea specialises in technology and solutions for production riser systems and subsea well systems, including monitoring solutions.



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