

SEN

SUBSEA ENGINEERING NEWS

(with DEEPWATER INTERNATIONAL)



Bahr Essalam 2 Gathers Pace off Libya

From Amsterdam: ENI and Mellitah Oil and Gas will award a contract for the gas gathering system for the **Bahr Essalam phase 2** development in Block NC41 offshore Libya before year-end.

Phase 2 of the development, which is in 190 to 205 m of water 110km off Tripoli, will cover the delivery of gas output from two new wells from the C Central A area and 10 wells from the C East area to the existing *Sabratha* platform.

Gas and condensate production will be partially treated on the *Sabratha* platform and then sent onshore to the Mellitah plant for final treatment.

Current production from the Bahr Essalam Phase 1 project is running at 27.3 MMcm/d, while phase 2 is expected to add production of 12.6 MMcm/d. Total cost of the overall project is put at \$2 billion.

Mellitah chairman Abulfattah Shagan told the Offshore Energy Conference in Amsterdam, "We have already awarded a \$330 million contract for a subsea production system to OneSubsea and we are now working on the EPIC [engineering, procurement, installation and construction] contract for gas gathering.

"We have had some issues with this and it has been delayed but it is still under commercial negotiation with vendors."

He said that despite difficult operating conditions in Libya and problems obtaining visas to travel, technical negotiations with suppliers had taken place in Malta.

The contract to be awarded will encompass detail design, procurement, construction, fabrication and installation of gas gathering lines.

This includes all mechanical, coating, painting, insulation, cathodic protection, load out, transportation, laying/trenching/installation, pre-commissioning, commissioning, and assistance during start up.

Development of the Eastern area covers a total of 10 wells divided into two cluster manifolds, ECE and MCE, with five wells each.

These will be connected to existing risers and J-tubes on the *Sabratha* platform. ECE will be a 13.2 km tieback and MCE 9.6 km.

A new cluster in C Central Area a for two wells will be tied back 10.7km to *Sabratha*, while a third well will be tied back 5 km to a dedicated pre-installed in-line tee.

Subsea facilities in this area include a pipeline end manifold collecting production from wells CC-16 and CC-17, subsea Xmas trees for the wells, a subsea production control system, an 8-in. 10.7 km production line and a control umbilical. The wells were drilled earlier this year by the *Enasco 5004*.

In the C East area new subsea facilities include an end cluster manifold collecting production from five wells, CE01, CE07, CE08, CE09 and CE10.

Another manifold will be installed at the Mid C East cluster for the other five wells, CE02, CE03, CE04, CE05 AND CE06.

The 10 subsea Xmas trees will be installed, along with a subsea production control system, an electro-hydraulic control umbilical to deliver power and chemicals to the subsea system.

A 13.2 km 20-in. production line and an 8-in. production test line will connect the mid C East cluster manifold to the platform.

Earlier this year Eni also made a 'significant' gas and condensate discovery in the Bahr Essalam South exploration prospect in Area D offshore Libya.

The find was made 22km from the producing Bahr Essalam field and will also be tied back to the infrastructure there.

The discovery was made through the B1-16/4 well, drilled at a water depth of 150 m, which encountered gas and condensates in the Metlaoui Formation of Eocene age.

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FLOATERS

SBM FEEDs on Browse Turret



The *Browse* Turret will be larger than *Prelude*'s.

From *Australia (LB)*: SBM Offshore has been awarded the FEED contract for the large-scale turret mooring systems associated with Woodside Petroleum's proposed **Browse** (SEN, 32/14) floating LNG (FLNG) development off Western Australia.

The contract awarded by Technip covers all the FEED elements of the project's turret work.

SBM said the three turrets were expected to be designed similar to and slightly larger in size than the Shell **Prelude** (32/11) FLNG turret that it was awarded in 2011 and whose last module was recently successfully delivered from the construction yard in Dubai.

"The Browse project will incorporate the lessons learned by Shell, Technip Samsung Consortium and SBM Offshore in the design and construction of Shell's Prelude FLNG project in order to maximise efficiencies in replicating the Prelude FLNG solutions for the three Browse FLNG facilities," SBM said.

The Woodside-led Browse project, which counts Shell, BP, Japan Australia LNG and PetroChina as its partners, is located 425 km north of Broome in Western Australia and is earmarked to produce 12 million tonnes per annum of gas.

The project's reference case is based on three FLNG facilities to develop the **Brecknock**, **Calliance** and **Torosa** fields in the Browse Basin. The development remains subject to a final investment decision in second-half 2016.

Libra Shows More to Petrobras

From *Houston (BN)*: Petrobras has touted results from the fourth well drilled in the highly anticipated **Libra** (SEN, 32/10) presalt area of the Santos Basin off Brazil.

The well, 3-BRSA-1310-RJS in the central portion of the block, "identified the presence of hydrocarbons in a low-porosity reservoir."

Petrobras said it provided important data for appraising the mammoth 2013 discovery.

The Libra consortium—operator Petrobras (40%), Shell (20%), Total (20%), CNPC (10%) and PPSA (10%, contract manager)—is drilling two other wells, one in the northwest part of the block that found oil in carbonate reservoirs and a second in the north where drilling has just begun.

The consortium already has hired an FPSO vessel with a capacity of 50 Mbbbl/d and 4 MMcm/d for extended well tests.

The consortium is tendering for another FPSO vessel with capacity of 180 Mbbbl/d and 12 MMcm/d for the Libra production pilot project.

Petrobras also announced a \$2 billion deal with Industrial and Commercial Bank of China (ICBC) to sell and lease back for 10 years two existing platforms, *P-52* and *P-57*.

The deal is part of the cooperation agreement between Petrobras and ICBC that was entered into during the visit of the Chinese prime minister Li Keqiang to Brazil in May.

Old news but in case you hadn't heard, Brazil's recent oil licensing round was a flop. The National Petroleum Agency sold 37 blocks onshore. There weren't even any bids offshore.

There were 266 tracts on offer. Petrobras didn't bid for the first time ever, impressing investors with its financial caution but disappointing potential partners in bidding.

International oil majors Statoil, Shell and Total, often partnered with Petrobras in the past, also didn't bid. Experts cited the depressed world price of oil and the political turmoil in Brazil arising from the Carwash corruption scandal surrounding Petrobras.

Fast-track FPSO Eyed for Guyana



Guyana could soon have its first FPSO development.

From *Houston (BN)*: Excitement is building around Exxon Mobil's Liza discovery off Guyana, the country's first oil find.

Last May, Exxon Mobil reported that its **Liza-1** (SEN, 32/5) well found 90 m of high-quality oil-bearing sandstone, and estimates of oil in place and/or recoverable have been high.

Now ExxonMobil is considering a fast-track development of Liza, taking an approach that's more like Petrobras than Exxon Mobil, as Wood Mackenzie analyst Julie Wilson puts it.

The possible plan: Take a smallish, used FPSO vessel from an existing field, do some modifications, moor it at Liza and start producing by 2018.

Then, if appraisals are strong and development unfolds favourably, use the cash flow from the first FPSO production to help fund the project, eventually bringing in a larger, perhaps purpose-built FPSO for the long term.

It appears to be an example of even the biggest and most conservative of the international oil companies thinking "outside the box" to improve field economics in a world of \$50 oil.

The five big FPSO companies already are bidding on the pre-FEED Exxon Mobil tender.

A Guyanan energy official has estimated Liza at 700 MMbbl, although it is not clear whether he means oil in place or oil that's recoverable.

WoodMac's own estimate is 250 MMbbl to 350 MMbbl recoverable.

It's very early post-discovery for planning of Liza to be so far advanced, and Exxon Mobil might in the end choose a different approach, such as a semisubmersible floating production system.

Or, as happened with the only previous discovery in the area, Shell's **Zaedyus** in French Guiana in 2011, appraisals may disappoint.

Shell, in fact, sold out of its Liza partnership in 2014, and Exxon Mobil is now partnered with Hess (30%) and Nexen (25%).

Liza-1, drilled to 5,433 m in 1,743 m of water, is Exxon Mobil's first well on the 6.6-million acre Stabroek Block, and it is an Upper Cretaceous fan discovery. The site is about 210 km offshore of Guyana.

WoodMac expects several other Upper Cretaceous fan prospects to be drilled in coming months. Ranger, which is a different geology, also is on tap.

To date, Guyana has been pretty much a dry hole for explorers, and being next door to Venezuela has had its drawbacks, as in Venezuela's seizure in 2013 of a survey vessel for allegedly violating a disputed boundary zone.

Now, maybe sharing some of the troubled South American oil giant's geology will start to pay off for tiny Guyana.

FLOATER BRIEFS

Nigeria's Addax Petroleum has extended the contract for the *Adoon* (31/15) FPSO by three years to October 2018. The deal is worth \$129 million.

The *Adoon* has been operating on the **Antan** Field in Nigeria throughout the contract period.

Alam Maritim Resources will carry out the final positioning and mooring system hookup on Petronas' *PFLNG 1* (32/14) floating LNG project.

The award is a follow on from a \$13 million deal Alam won in June for flexible riser installation, precommission-

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ing and commissioning of pipeline, pipeline ends terminal and risers for the project.

The 365-m-long *PFLNG 1* facility will be moored 180 km offshore Bintulu, Sarawak, operating in waters 200 m deep and designed to last up to 20 years.

DNV GL has secured a contract to provide in-service verification and classification services to a range of facilities at the **Ichthys** (32/14) LNG project in Australia.

The primary scope of work includes in-service verification of the Ichthys facilities; the central processing facility (CPF), the FPSO vessel, subsea production system, gas export pipeline, onshore combined cycle power plant and onshore LNG plant. DNV GL also will provide in-service classification of the CPF and FPSO hulls.

Technip has scooped a deal from JX Nippon Oil and Gas Exploration for three flexible pipelines for the **Layang** (31/20) Field FPSO development in Block SK10 offshore Sarawak, Malaysia in a water depth of 85 m.

The contract covers the engineering, procurement, fabrication, installation and commissioning of two production risers and flowlines and one gas export riser and flowline, connecting shallow-water platforms to an FPSO vessel.

The vessel, the former *Deep Producer 1*, is undergoing conversion at TH Heavy Engineering. It will handle condensate from the field at about 7,000 bbl/d. The field was discovered in 1990.

Installation of the flexible pipes will be carried out with Technip's multipurpose vessel, the *Deep Orient*, and the project is scheduled to be completed in second-half 2016.

The flexible flowlines will be produced in Asiaflex Products, Technip's manufacturing facility in Tanjung Langsat, Johor, Malaysia.

KK Lim, president of Technip in Asia Pacific, said, "This demonstrates the competitiveness of our flexible pipe technology for shallow-water developments and the advantages of our unique subsea integrated approach as a one-stop solution for cost-effective field developments."

AEG Power Solutions will provide power solutions for Dalian's new type *BT-4000* semisubmersible drilling platform. The platform is designed to drill for presalt oil off Brazil.

Flintstone Technology's pull-through mooring connector system has been deployed on two FPSO vessels in the U.K. North Sea.

The pull-through connector system provides a method of simple connection and disconnection for mooring lines to midwater buoys or floating facilities.

It was recently selected for use and successfully installed in the U.K. North Sea on the **Kraken** (32/11) oil field, one of the region's largest current developments and the high-profile **Mariner** (32/14) Field, both east of Shetland.

Flintstone said it can reduce makeup time by more than 80% compared to traditional methods, saving up to five days on vessel hire and installation time with improved safety and the avoidance of complex rigging.

"We saw the need within the industry for a robust, simple and easy-to-use mooring system for deployment where disconnection of the vessel was not essential and set to work developing it. The system had to comply with new classification rules and be particularly rugged in a highly demanding load spectrum," said Flintstone Managing Director Andrew Clayson.

DEVELOPMENT

Gullfaks Getting up to Speed

From Amsterdam: The newly started subsea wet gas compressors on Statoil's **Gullfaks** (SEN, 32/10) Field in the Norwegian Sea are running at 6,000 cu. m of gas per hour.

Arne Birger Olsen, OneSubsea's director of sales for the European region, told delegates at the Offshore Energy Conference in Amsterdam that they would eventually increase capacity to 8,000 cu. m per hour.

He said the advantage of a wet gas compressor is that it does not require gas and liquid separation before compression, thereby simplifying the system considerably and requiring smaller modules and a simpler structure on the seabed.

Statoil started up subsea dry gas compression in mid-September on the Åsgard Field.

Olsen said, "The complete Gullfaks module weighs 1,000 mt, which is one-fifth the weight of the Åsgard system. Åsgard is bigger and heavier because it needs upstream separation scrubbers. We don't need that.

"These are very lightweight modules and for maintenance purposes you can use light vessels of opportunity. None of the retrieval items here are more than 60 or 70 tonnes. They can easily be handled by normal intervention vessels."

The Gullfaks kit consists of a 420-mt protective structure, a compressor station with two 5-MW compressors totalling 650 mt and all equipment needed for power supply and system control on the platform.

The unique technology is designed to increase recovery by 22 MMboe and extend plateau production by about two years from the Gullfaks South Brent reservoir.

"Subsea processing is about operating safely with any combination of liquid and gas. We have true wet gas technology that can handle any slugging issues that will come into the compressor," Olsen said.

The compressor has been developed in close cooperation with Statoil and Shell.



Gullfaks subsea compression has started.

Olsen added, “The compressor section is very compact. It holds two shafts [and] 21 stages of impellers along the axis.

“The inner and the outer shaft are driven by two individual motors, one at the lower end and one at the upper end. The motors turn in a counter-rotating manner, which is why it is so compact. The motors are identical to what we have been using since the early 1990s on our multiphase and single phase subsea pumps.

“The motors, velocity, speed, connectors, penetrators, cables, topside drives, everything is really identical to the pump. The new thing here is the compressor section.”

The piping layout consists of the two compressors and

it also consists of two process coolers, which have been developed for Gullfaks.

“The main reason for the coolers is that the design temperature of the pipeline is lower than what you get when you compress fluids. You get a significant temperature increase so you have to cool the process to maintain the temperature,” Olsen said.

He said the two machines could be run in series or in parallel to achieve larger differential pressure.

Gullfaks has been in operation since the 1980s, and the aim of the project is to keep it running until 2030.

The Gullfaks licensees are Statoil (operator) (51%), Petoro (30%) and OMV (19%).

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Coelacanth Platform Ready to Rumble



Big Foot has returned to Kiewit's Ingleside, Texas, yard.

From *Houston (BN)*: Gulf Island Fabrication's Ingleside, Texas, yard has finished the 30,000-ton, 366-m tall platform for Walter Oil & Gas' **Coelacanth** project.

The platform, which will be the third tallest free-standing platform in the Gulf of Mexico, awaits towing to its installation site in Ewing Bank Block 834.

There, Walter will reenter and complete a 2010 discovery well and plans to drill five more 60-day to 90-day wells through 2017, according to the development plan filed with regulators in 2013.

That plan called for platform installation to take 45 days and to occur between Sept. 1 and Oct. 15, so the project is close to being on schedule.

By the way, it is named for a species of fish once thought extinct but later found alive, which is sort of like bottom-standing deepwater platforms, the offshore facil-

ity type superseded by floaters but being revived by Coelacanth.

In other construction news, Anadarko has installed the topsides on its **Heidelberg** (*SEN*, 32/11) spar. In an Oct. 5 posting on Facebook, the company announced Heerema's *Thialf*, the largest crane vessel in the world, lifted the 10,000-ton topsides onto the already-installed spar in 1,615 m in Green Canyon Block 859. The 80,000-bbl/d facility is expected to see first oil next year.

It is a twin of Anadarko's **Lucius** (32/9) facility, which has been producing in Keathley Canyon Block 875 since January of this year.

Meanwhile, Chevron's **Big Foot** (32/14) tension-leg platform is back in safe harbour where it was built, at Kiewit's Ingleside, Texas, yard. There it will await future marching orders after a failed installation attempt last May.

The facility had been moved into position for installation in 1,600 m in Walker Ridge Block 29 about 360 km south of New Orleans when crews found that nine of 16 preinstalled anchoring tendons had lost buoyancy. So the installation was aborted.

Not until recently did Chevron confirm what became obvious in the weeks after the failed installation try—Big Foot would have to go back to Kiewit Ingleside for safe-keeping pending the next attempt. Startup of the \$5 billion project, already late due to construction and installation delays, is not expected before sometime in 2016, if then.

Big Foot is a 2006 Miocene discovery and plans originally called for startup in mid-2014.

Dutch Need to Step on the Gas

From *Amsterdam*: The Netherlands will continue to be a key supplier of gas to the EU in coming years, but it must act fast to do so, delegates at the Offshore Energy Conference in Amsterdam were told.

The country is the largest gas producer in the EU and has the tenth largest gas field in the world at its disposal in the shape of **Groningen**, from where the majority of the country's production is sourced.

The Netherlands still has 883 Bcm of gas resources, of which 671 Bcm are contained at Groningen, 94 Bcm are onshore and 118 Bcm are offshore.

E&P activity continues to be strong and some 53 wells were drilled in 2014, of which 18 were exploration wells.

The International Energy Agency predicts European gas demand will increase to 445 Bcm in 2020 from 410 Bcm in 2014, although this is a decline from 529 Bcm in 2010.

Lucia van Guens, senior consultant petroleum geoservices at TNO, said the Netherlands is well placed to continue to supply some of this demand.

She said the country has made sustained use of its natural gas resources over the years and the Small Fields policy, which guarantees a buyer for gas produced from small fields, has been very successful.

Van Guens said, "There is still remaining exploration potential, although not that much. Time is running out and we have to go for the reserves very fast because of the ageing infrastructure.

“We have hundreds of other additional small fields, which also are producing gas. At the moment we are producing around 66 Bcm a year and national consumption is around 40 Bcm so obviously there is room for export, mainly to Belgium, Germany and Italy and a little bit to France and the U.K. as well.”

The Netherlands also is used as a gas import trade hub for supplies from Russia and Norway as well as LNG.

Van Guens said there are a lot of challenges for the Dutch E&P industry, which as well as the problem of ageing infrastructure is faced with the economic viability of small offshore fields and a lack of qualified people to operate the assets.

Income for the Dutch state also has seen an enormous drop from 2014 to 2015 because of a drop in production from Groningen, adding more impetus to the fight to keep production levels high.

Van Guens added, “Public acceptance is also important. Operating these days is different than it was in the last decade. Public acceptance is extremely important in this day and age. Getting public trust is a challenge.

“We need to be a force for good in the communities where operations take place. It took NAM 50 years to build trust in local communities in the North and in the rest of Europe.

“The Groningen Field is an uncertain territory as far as social licence to operate is concerned,” she said.

Butch Heads Subsea to Ula

Centrica Energy Norway and its partners will develop the **Butch** (SEN, 31/15) discovery in the Norwegian North Sea as a subsea tieback to BP’s **Ula** (32/9) Field.

Centrica said hydrocarbons from Butch will be transported to the Ula platform for processing.

Butch oil will be exported via the Ula oil export pipeline to **Ekofisk** (32/9) and onwards into Norpipe to the Teeside terminal in the U.K.

Produced gas from Butch will be injected into the Ula Field reservoir to boost oil recovery.

Centrica plans to bring the field onstream in 2019 with two production wells and one water injector. Discovered in 2011 by exploration well 8/10-4, Butch lies across two licences and is expected to remain in production for 12 years. Recoverable reserves are estimated at between 27 MMboe and 51 MMboe.

Development is proceeding even though wells last year on Butch East and Butch Southwest were both dry.

“This is an important milestone for the Butch development project. The subsea tie-in is an innovative solution reusing the **Oselvar** infrastructure at the Ula platform. The chosen concept secures a predictable, safe and cost-efficient delivery of the Butch development,” said Henning Eide, Butch development manager at Centrica Energy Norway.

Centrica and partners evaluated several options for the development of Butch including a subsea tieback to Ula or **Gyda**, or a standalone production jackup solution.

“The selected concept is an efficient solution that is seen as the best HSE concept, combined with robust economics. It also connects the field to a capable and experienced host operator,” Eide added.

Centrica Energy Norway is operator of the licence with 40% alongside partners Suncor Energy (30%), Faroe Petroleum (15%) and Tullow Oil (15%).

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DEVELOPMENT BRIEFS

Going back to the future, Statoil has fired up two new giant compressors on the **Troll A** platform offshore Norway to help increase gas recovery by 83 Bcm.

The compressors ensure export capacity from the Troll Field of 120 MMcm/d, or 30 Bcm/year, equivalent to the consumption of 10 million households in Europe.

The compressors will help keep Troll going until 2063. They are operated by land-based power from Kollsnes west of Bergen, ensuring zero emissions of carbon dioxide and nitrogen oxides from the platform.



Saipem has won an engineering, procurement, construction and installation (EPCI) contract from Saudi Aramco for offshore structures including an observation platform, well-head production deck module, auxiliary platforms, 20-in. internally clad flowline and composite power cable. Offshore installation activities will be performed offshore Saudi Arabia.

The Italian engineering giant also has landed an EPCI contract from Eni for the Block 15/06 - **East Hub** (SEN, 32/14) development project, located about 350 km northwest of Luanda, Angola.

The scope of works includes the provision of five flexible risers and 20 km of rigid flowlines as well as installing subsea umbilicals, risers and flowlines facilities that include umbilical sections, rigid spools, well jumpers and 14 pipeline end terminations to be fabricated in Angola. The project will be completed by year-end 2016.

Fugro's *Atlantis Dweller* is carrying out an external inspection of the offshore section of the Blue Stream pipeline system in the Black Sea.

Fugro is carrying out the inspection after being awarded a contract by Blue Stream Pipeline Co. to provide survey support vessels and associated survey services for the 2015 external pipeline inspection for the offshore, shore approach and dry-section components of the Blue Stream pipeline system.

The two 24-in. gas export pipelines, E1 and W2, run from the Beregovaya gas compression station in Russia's Arkhipo-Osipovka, 378 km across the Black Sea, with a maximum water depth of about 2,150 m, to the Durusu inlet terminal 64 km from Samsun in Turkey.

The infield work in both areas has been completed and the reporting stage is underway.

The *Seven Borealis* will work on the East Nile Delta project.

Subsea 7 has won what it calls a "sizeable" contract from Pharaonic Petroleum for the development of the **East Nile Delta Phase 3 Project (30/24)** off Egypt.

The project scope includes installation, engineering, procurement and fabrication of rigid spools and installation of pipeline, umbilical and subsea structures to develop the resources from two wells including 8 km of umbilicals and pipeline. The development will be at depths of about 80 m to 90 m. Fabrication of spools will be carried out at Petrojet's yard in Egypt.

Offshore installation is scheduled to begin in fourth-quarter 2015 using the Subsea 7 vessels *Rockwater 2* and *Seven Borealis*.

Gilles Lafaye, Subsea 7's vice president Africa, said, "Subsea 7 is pleased to once again provide services for the **Taurt** and **Ha'py** field developments. This important award recognises our technical expertise and strong track record of good execution for Pharaonic Petroleum Co. and reinforces our presence in Egypt."

OneSubsea is supplying wet gas meters and a high-integrity pressure protection system for the four-well development.

Archer has picked up a three-year contract with two times two-year extension options, for the provision of platform drilling services for Talisman Sinopec Energy UK.

The contract, which will begin in November, will see Archer provide onshore rig operations, maintenance and HSEQ management, and offshore operations and maintenance supervision on the *Claymore*, *Clyde*, *Fulmar*, *Piper B*, *Saltire* and *Tartan* platforms.

Following the award of this contract, Archer will operate 38 platforms in the North Sea, Greece and Brazil.

Statoil has awarded Aibel in Norway the \$73 million contract to build the converter station at Haugsneset, which will supply land-based power to the **Johan Sverdrup (32/13)** Field.

This is a contract covering engineering, procurement and construction site work, building of a converter station and installation of converter equipment.

The contract also includes trenching and laying of two sets of 300kV alternating-current cables from Kårstø to Haugsneset for both phases of the field development.

EXPLORATION

Arctic Lease Sales Canned



Arctic lease sales have been frozen out.

From *Houston (BN)*: In another setback for U.S. Arctic offshore exploration, the Department of Interior is cancelling two potential lease sales that were part of the 2012 to 2017 leasing programme.

Affected are Sale 237 in 2016 in the Chukchi Sea and Sale 242 in 2017 in the Beaufort Sea.

The Bureau of Ocean Energy Management had issued calls for tract nominations for both sales but received none for the Chukchi and only one for the Beaufort.

Interior Secretary Sally Jewell cited as reasons the amount of Arctic acreage already under lease and the lack of industry interest with oil at \$50 or less.

In a related action, the Bureau of Safety and Environmental Enforcement (BSEE) rejected requests from Shell and Statoil to extend the terms of their leases, which expire in 2017 in the Beaufort and 2020 in the Chukchi.

BSEE said neither company met the requirement of having a “reasonable schedule” of work in place that could lead to exploration of their leases.

The decisions followed Shell’s announcement that its **Burger J (SEN, 32/14)** well in the Chukchi, drilled this summer, was a disappointment and the company is dropping Arctic exploration for the foreseeable future.

FAR Eyes Senegal Hub

FAR and its Senegal joint-venture partners Cairn Energy, ConocoPhillips and Petrosen are looking to book more resources to create a hub development in the **SNE (SEN, 32/11)** Field off Senegal.

The consortium has taken the Ocean Rig *Athena* drillship for a drilling programme in the coming weeks.

The drillship is currently in Angola and FAR expects it will shortly begin mobilisation to Senegal.

The firm drilling programme covers three wells including two appraisal wells on the **SNE-1** oil discovery that will include a coring and testing programme, plus one shelf exploration well.

This drilling, logging, coring and testing programme is expected to be completed by mid-2016.

The first two wells (SNE-2 and SNE-3) will be drilled to appraise the SNE Field and are aimed at progressing

towards proving the threshold economic field size, which FAR estimates is in the order of 200 MMbbl for a foundation project.

The third well (BEL-1) in the drilling programme will be the first exploration well to be drilled in the blocks following the discoveries in the **FAN-1** and SNE-1 wells.

This well will be aimed at building the resource base within tieback range of a possible future hub development over the SNE Field.

It will be drilled into the Bellatrix prospect which has been mapped by FAR to contain 168 MMbbl of oil on a gross, unrisks, prospective resource basis with 25 MMbbl net to FAR.

The Senegal JV comprises FAR (15%), Cairn Energy (operator) 40%, ConocoPhillips (35%) and Petrosen (10%).

EXPLORATION NOTES

From Houston (BN): In the Gulf of Mexico, Shell has won conditional approval of an initial exploration plan for its **Whale** prospect near the **Perdido** (*SEN, 32/14*) hub.

The plan calls for five wells to be drilled in Alaminos Canyon blocks 772 and 815 in waters 2,684 m to 2,768 m, about 620 km southwest of New Orleans. The site is about 230 km east-southeast of Brownsville, Texas.

The schedule has the first well spudding next month and taking 200 days to complete. The other four wells are to be drilled at the rate of one a year through 2020.

The oil targeted is described as 39.1 °API.

Shell's filing with regulators describes Whale as structurally updip from the nearby **Tobago** and **Silvertip** fields, which produce through Perdido.

Silvertip is 1.5 km to the southwest, Tobago—the sub-sea host through which Whale would be linked to Perdido—is 2.4 km to the southwest.

Shell Canada is readying the *Stena IceMAX* to drill the **Cheshire** deepwater prospect offshore Nova Scotia after winning an “operations authorization” from the Canada-Nova Scotia Offshore Petroleum Board (C-NSOPB).

The Cheshire well is the first of two that Shell plans to drill in the Shelburne Basin about 250 km south of Halifax.

Before spudding Cheshire, Shell must receive a separate “approval to drill a well” (ADW), but that final clearance is expected within a few days. A separate ADW will be required before drilling the second prospect, **Monterey Jack**.

Shell's application was delayed by the C-NSOPB's demands for faster well control in the event of a blowout. Shell originally proposed to have a capping stack on site within 21 days of a blowout. Now, Shell says it can have a capping stack there within 12 to 13 days, and it will deploy a second one as backup. Waters are 1,500 m to 3,500 m in the Shelburne Basin.

Shell plans to drill seven wells in four years in two campaigns ending in 2019. Total expected cost is \$1 billion. Partners are Conoco (30%) and Suncor (20%).

Cuba plans to drill exploratory deepwater wells in the Gulf of Mexico by year-end 2016 or beginning of 2017 despite current low oil prices, officials from the state oil monopoly said.

Cuba-Petroleo will drill exploratory wells as deep as 7,000 m in waters of up to 3,000 m in production-sharing contracts with Venezuelan state oil company PDVSA and Angola's Sonangol.

Russia's Lukoil has hit pay in the **Lira-1X** exploration well in the Trident Block (EX-30) in the Black Sea off Romania.

According to preliminary results of the analysis of drilling data and geophysical exploration, the Lira-1X well

hit a productive interval with an effective gas-saturated thickness of 46 m.

Lukoil said that according to seismic data, the area of the gas field could be up to 39 sq km, with reserves of more than 30 Bcm of gas.

Lukoil said, “The success of the Lira-1X well will reduce the risk for further exploration on a series of prospective sites with significant potential reserves, located both close to the Lira structure and in other parts of the block.”

The programme of future works planned for 2016 includes drilling an exploration well at Lira and the reprocessing of seismic data to confirm the size of the discovery and precise assessment of its potential hydro-carbon reserves.

Wood Mackenzie said recently that recent discoveries in the Black Sea mean that Romania could bring 630 MMcf/d onstream in the early 2020s. Exxon Mobil and Eni also are active in the region.

Partner Falkland Oil and Gas said it has encountered oil and gas shows while drilling through the main target horizon in the Noble-operated 53/02-01 **Humpback** (32/11) exploration well off the Falkland Islands.

Falkland said progress on the well has been slower than anticipated because a sidetrack was required at 4,360 m for mechanical reasons. The well has now been drilled to a depth of 4,718 m.

A number of sandstone intervals in the Lower Cretaceous (APX-200) were encountered between 4,642 m and 4,704 m and oil and gas shows were recorded while drilling through this section.

The well will now be deepened to evaluate additional targets below the APX-200 sandstone.

Eni, which recently made a major discovery with its **Zohr** (32/14) exploration well off Egypt, has been awarded two new exploration licences in the Mediterranean Sea: **North El Hammad** and **North Ras El Esh**.

Eni has been awarded a 37.5% participating interest and operatorship in North El Hammad, where it partners with BP (37.5%) and Total (25%) and has a 50% participating interest in North Ras El Esh, where it partners with BP (50%), who will act as operator.

The two blocks, which will be managed by Eni's subsidiary IEOC, are in the shallow waters of the Mediterranean Sea, facing the Nile Delta and located southwest of the Tamsah area and west of the Baltim area, where Eni operates existing fields and production facilities.

Eni said, “These two new concession agreements follow the recent award of the deepwater Karawan and North Leil blocks, strengthening Eni's presence in Egypt, a country of historic and strategic importance for the company, and further relaunching its exploration activities after the recent and important successes of **Nidoco NW** and **Zohr**.”

From *Houston (BN)*: Shell has won conditional approval of its initial exploration plan for the company's **Leesburg** prospect in Mississippi Canyon blocks 432, 475 and 476.

If successful, the exploration is a likely candidate for hubbing at **Appomattox (32/14)**, which is already in the development stages with FMC Technologies, who was recently awarded a hardware contract for the project.

The Leesburg plan calls for seven wells to be drilled at the rate of one a year out to 2022, with the first targeted for spudding in January 2016.

Oil targeted is described in the application as 39.6 °API. The wells are in about 2,010 m about 240 km southeast of New Orleans.

Meanwhile, off the northern coast of South America, a report not independently confirmed by *SEN* stated the energy ministry of Trinidad and Tobago is preparing a new offering of licences both offshore and onshore.



A discovery would be tied back to Edvard Grieg.

Lundin Petroleum is looking for more resources to make its proposed **Luno (32/11)** subsea development off Norway more attractive.

The company has spun the bit in exploration well 16/1-25 S on the **Rolvnes** prospect in PL338C.

The well is located about 6 km south of the **Edvard Grieg (32/11)** Field in the Norwegian North Sea.

Well 16/1-25 S will explore the Rolvsnes area, located between the Edvard Grieg Field and the **Luno II** discovery.

The main objective of well 16/1-25 S is to test the hydrocarbon potential in thin Jurassic/Cretaceous sandstone reservoir overlying porous fractured basement.

Lundin estimates the Rolvsnes prospect to contain gross unrisks prospective resources of 107 MMboe.

The planned total depth is about 2,275 m below mean sea level, and the well will be drilled with the semisubmersible *Bredford Dolphin*. The drilling operation is expected to take about 45 days.

Genel Energy will spin the bit in the **Aigle** prospect well in the CI-508 licence offshore Côte d'Ivoire towards year-end 2015.

The well, which is targeting significant oil prospectivity in stacked Cretaceous reservoirs, will take about 50 days to complete at an estimated future cost of \$10 million net to Genel, which owns a 24% stake.

Dolphin Geophysical has been selected as the first shortlisted contractor for a major seismic project offshore India. Dolphin has confirmed the availability of two of its high-end vessels for about nine months to commence project startup in fourth-quarter 2015.

Not really oil and gas related but still in the subsea space, Ashtead Technology has been supporting attempts to explore the wreckage of the *USS Macon*, the U.S. Navy's last flying airship.

Designed for long-range scouting, the airship crashed off the coast of California during a storm in 1935 when it was returning to the

Moffett Federal Airfield following a successful exercise over the Channel Islands off Southern California.

The tragic incident led to the death of two crew members and ended the Navy's quest to use airships as long-range scouts for the fleet.

Ashtead provided subsea inspection equipment to study the wreckage and carry out an in-depth corrosion analysis on the aircraft to monitor deterioration. The inspection showed the wreck is corroding faster than expected.

VESSELS

Battle Lines Drawn Over *JSD 6000*

The *JSD 6000* vessel has been cancelled.

Petrofac's decision to pull the plug on a contract with Shanghai Zhenhua Heavy Industry (ZPMC) in China for the construction of its *JSD 6000* (*SEN*, 30/21) deep-water multipurpose offshore vessel has opened up a can of worms.

Petrofac said it was cancelling the deal for what had been touted as the Rolls Royce of construction vessels because of issues with ZPMC's performance in respect of the construction of the vessel.

CEO Ayman Asfari said, "It is regrettable that it has become necessary for us to take this decision, and the board is now reviewing its options."

ZPMC responded by saying that it will "actively take all legal measures to defend its legitimate rights and interests and will pursue the liability borne by Petrofac."

ZPMC added, "Analysts believe that the true reason of more and more contract termination arising is mainly caused by low oil and gas price, which has led to an off-shore global market downturn."

Petrofac took the decision to enter the deepwater installation market back in 2013. It was due to spend about \$0.8 billion on the *JSD 6000* vessel, which is due for delivery in 2018.

The *JSD 6000*, like two other recent top-of-the-range vessels, Subsea 7's *Borealis* and Heerema's *Aegir*, is based on an Ulstein/Sea of Solutions SOC5000 design but is bigger and with more bells and whistles than the earlier versions.

A note from analyst Investec Securities said the decision to call off the contract would bring the company full circle, back to its roots as an onshore, MENA-focussed engineering and construction contractor.

It also will be popular with investors, many of whom had been worried about Petrofac's ability to compete with its single vessel vs. the multivessel fleets of the Big 3 players: Saipem, Technip and Subsea 7.

Investec said, "Reviewing its options" could mean Petrofac moves the hull construction contract to another shipyard; puts the equipment into storage and revisits the hull construction at a later date; or cancels the vessel entirely and tries to sell the equipment. "We suspect it will plump for option 3," Investec said.

It added, "We understand that PFC [Petrofac] has spent about \$300 million to date and has another \$100 million of commitments, mainly on equipment. Not much physical work has been done on the hull at the ZPMC shipyard (another \$250 million)."

A long drawn-out legal battle looks likely to ensue.

VESSEL BRIEFS

Newbuild flexible lay and construction vessel, *Skandi Africa*, has joined Technip's fleet.

The ship, owned by DOF Subsea, has now begun her five-year charter commitment working on global projects for the company.

Built by Vard Soeviknes in Norway, the DP3 vessel is specially designed to operate in harsh environments. She has a length of 160.9 m, a breadth of 32 m and is equipped with a 900-mt active-heave compensated crane and 650-mt tiltable lay system, which can operate in water depths up to 3,000 m.

EMAS Offshore has won a contract in West Africa to provide sea transportation services for an oil major.

Over in Asia, EMAS Offshore will provide an independent oil company with one anchor-handling tug and supply. The scope of work includes transportation of person-

nel, materials and supplies. The average duration for the contracts, which are worth \$33 million, is about 2.4 years.

Captain Adarash Kumar, EMAS Offshore's CEO, said, "We continue to focus our efforts in West Africa, where we have sustained our win momentum whilst building our track record and growth across Asia. Our strategy to focus our bidding activities in West Africa will allow us to increase penetration in this market whilst maintaining dominance in Asia amidst this muted oil and gas environment."

From Houston (BN): Work stopped aboard the *Pacific Santa Ana* in the Gulf of Mexico while investigators sought the cause of an accident that killed a worker on Oct. 20. The ultradeepwater drillship was working for Chevron in Keathley Canyon Block 96 when the tragedy happened. Pacific Drilling said there were no other injuries and no environmental impact.

KC 96 is one of the northwest Keathley Canyon tracts in which Chevron, BP and ConocoPhillips are partnering to economically develop Lower Tertiary prospects in the vicinity of Chevron's **Guadalupe** discovery and BP's **Tiber** discovery.

Prosafe said its fleet utilisation rate hit 81% in third-quarter 2015.

Regalia, *Safe Bristolia*, *Safe Concordia* and *Safe Boreas* were fully contracted in the North Sea during the quarter.

Safe Regency, *Safe Lancia*, *Safe Hibernia* and *Safe Britannia* were fully contracted in Mexico throughout the quarter, but Prosafe has been told by Pemex that payment terms will be up to 180 days until further notice from September 2015.

Safe Caledonia commenced on contract in the UKCS early July 2015.

Safe Astoria completed her contract at the Malampaya facility with Shell Philippines in early September and was on transit dayrate until mid-September. *Safe Astoria* is now located in Batam, Indonesia, undergoing minor works.

TECHNOLOGY

Sercel Releases Acoustic Positioning System

CGG said that its Sercel unit has released an acoustic positioning solution for seabed seismic acquisition.

GeoTag can be used to accurately position all types of ocean-bottom cable (OBC), ocean-bottom node and transition zone cable systems for seabed seismic surveys in water depths down to 500 m.

The system operates with the smallest acoustic positioning transponder available on the market. The transponders are attached to the seabed seismic equipment and interrogated by a vessel-based transceiver. The transponders also

can be stored on a reel and deployed mechanically when used with OBC systems.

GeoTag is fully scalable for use on small to large seabed crews deploying up to 10,000 acoustic positioning devices, the company said.

Pascal Rouiller, Sercel CEO, said, "This new product capitalises on our proven experience in acoustic positioning. It answers the need in the industry for more accurate positioning of seabed seismic equipment, particularly for 4-D operations."

POLICY

ABS Looks to Korea on Standardisation



Hyundai Heavy Industries has joined the JIP

Classification specialist ABS has entered into a memorandum of understanding with a group of Korean companies to develop new offshore design standards.

ABS is teaming up with Hyundai Heavy Industries (HHI), Daewoo Shipbuilding and Marine Engineering (DSME) and Samsung Heavy Industries (SHI) to establish a joint-industry project (JIP) with leading operators, drilling contractors and engineering companies to develop new international design standards for offshore oil and gas projects.

The objective of the JIP is to establish new global design standardisation procedures based on relevant industry

standards, international regulations and class requirements across the offshore industry.

ABS will lead the standardisation process to verify technical compatibility of the developed standards, conduct safety and risk assessments, and provide a gap analysis report.

In a first step to convene the JIP and discuss ways to develop criteria to help shipbuilders and designers improve design and construction efficiencies and manage project costs, ABS hosted a two-day workshop in mid-October with representatives from HHI, DSME, SHI, Korea Offshore & Shipbuilding Association and KOMERI with participating operators, contractors and engineering companies based in Houston.

"ABS is ready to work with industry stakeholders towards standardising offshore designs to improve quality, safety and efficiency in design, construction and project execution," said Dr. Hoseong Lee, ABS vice president of global Korea business development and the ABS Korea Energy Technology Center, who is leading the JIP effort.

"We believe material, equipment and design standardisation among shipbuilders and designers, particularly on complex offshore structures, has significant potential to improve overall construction economics and enhance safety."

BUSINESS

FMC Hit But Cautiously Optimistic



The Bonga West development requires 50 subsea trees.

From *Houston (BN)*: FMC Technologies Chairman and CEO John Grempe has expressed cautious optimism about deepwater subsea markets despite the current world oil price slump.

Grempe told analysts in a third-quarter earnings call that the company is very encouraged by industry response to its joint venture (JV) with Technip, dubbed Forsys.

Forsys has picked up two integrated front-end engineering studies.

Grempe said even national oil companies (NOC), along with independent oil companies and independents, have expressed interest in the JV's goal: early involvement of vendors in field planning to maximise opportunities for equipment standardisation and cost savings.

"We believe this is the beginning of an industrywide change in approach to developing deepwater projects," Grempe said.

Still, he said the level of activity in the near term depends greatly on operator capital budgets, which don't come out until next quarter.

He noted the biggest opportunity is **Bonga West**, nearly 50 trees offshore Nigeria, but cautioned it is a Shell partnership with the Nigerian NOC and both those companies face uncertainties.

Nevertheless, Grempe said the industry remains committed to deep subsea oilfield development long term, and he said the current bias away from exploration and towards development of existing discoveries favours FMC, particularly its new boosting business, which recently won the award to replace existing systems at **BC-10** off Brazil.

As for Brazil's current scandal-plagued industry, Grempe said the company's record-breaking award of subsea trees and manifolds nearly three years ago remains intact, just stretched out into 2019.

Slower deliveries actually helps FMC avoid expansion to accomplish contract fulfillment, Grempe said.

FMC Technologies reported third-quarter 2015 revenue of \$1.5 billion, down 22% from the prior-year quarter, primarily due to the continued decline in the North American land market.

Revenue included \$1 billion in subsea technologies orders. Backlog was \$5 billion, including subsea technologies backlog of \$4.3 billion.

Aker Solutions Teams up with MAN

In a further move in the brave new world of collaboration and cooperation, Aker Solutions and MAN Diesel & Turbo have agreed to form an alliance to develop the next generation in subsea compression systems.

The two companies said they will build on their experience and cooperation from the successful delivery of the world's first full-scale subsea gas compression system at the **Åsgard** (*SEN 32/13*) Field off Norway.

A key objective of the partnership is to develop new, cost-effective technology for high-capacity subsea compression systems that can be used at even the smallest oil and gas fields.

Alan Brunnen, head of Aker Solutions' subsea business, said, "Åsgard was a game changer that moved compressors from platforms to the seafloor to improve recovery rates, reduce costs and enhance safety.

"We're taking the technology further to provide compression systems that are smaller, lighter and cheaper without compromising on effectiveness."

The alliance combines Aker Solutions' capabilities in subsea processing, compression systems, controls, systems and interventions with MAN Diesel & Turbo's leading turbomachinery technology and its extensive gas compression expertise.

Aker Solutions delivered the subsea compression system at Åsgard, which came onstream on Sept. 17 to enable the recovery of an additional 306 MMboe from the Statoil-operated field.

MAN Diesel & Turbo, a sub-supplier to the project, is the first turbomachinery manufacturer to have developed a centrifugal compressor installed on the seafloor. This technology has undergone an extensive qualification programme and was successfully tested for the Åsgard project.

"Our strong cooperation over several years ensures our ability to focus on what is truly important, delivering the safest, most reliable and cost-efficient technology possible for developments of all sizes," said Mathias Scherer, senior vice president sales and contracts at MAN Diesel & Turbo.

Woodside Boosts Production

From Australia (LB): Woodside Petroleum's Pluto LNG project has proved to be a bright spot in the company's third-quarter results, underpinning a boost in production volumes, which helped to offset the impact of lower oil prices on revenue.

The Perth-headquartered company produced 25.3 MMboe for the three months to the end of September, representing a 25.9% rise on the result achieved in the June quarter.

Woodside attributed the improved result to higher LNG and associated condensate volumes at Pluto of 1.15 million tonnes, following the completion of a major turnaround in the second quarter and higher oil volumes from **Vincent**, following a full quarter of production from the Phase IV infill well.

Higher production contributed to a 23.6% increase in sales volumes, while sales revenue jumped 20.9% from the June quarter to \$1.09 billion. Revenue, however, was down 44.6% year-on-year due to lower realised oil prices.

During the July-Sept. quarter, Woodside approved the FEED phase for its **Greater Enfield Development** (32/14) in the Carnarvon Basin off Northwestern Australia.

This was followed by the awarding of key contracts for subsea hardware, FPSO modifications engineering and procurement, shipyard support and geophysical and geo-technical surveys.

The proposed development is targeting a final investment decision in second-half 2016.

Over at the Greater Western Flank Phase 1 project, subsea installation and pipeline precommissioning activities were completed and commissioning activities commenced to enable project startup.

Woodside said the project remains on budget with first gas expected ahead of schedule in late 2015.

The company also completed initial resource evaluation for the Pyxis-1 gas discovery, located in production licence WA-34-L, resulting in the addition of 68 MMboe of 2C net contingent recoverable resources.

Woodside has revised its full-year production target guidance from 86 MMboe to 94 MMboe to 88 MMboe to 93 MMboe. The upwards narrowing of the production range is a result of Pluto's strong performance and delays with its Canadian pipeline gas.

Schlumberger Takes a Hit

More job cuts, restructuring and further challenges are in store for Schlumberger as the world's largest oilfield services company looks to cope with global pricing pressure, less drilling activity and continued cuts in E&P spending.

The company said third-quarter 2015 revenue fell by 34% to about \$8.5 billion compared to the same time last year as its customers reduced spending and sought discounts due to lower commodity prices affecting their bottom lines.

The decline was the highest in North America, where shale operators are slowing production amid the worldwide supply glut, with revenue at \$2.3 billion (a 47% drop).

Performance in international markets also fell—27% to about \$6.1 billion. Revenue from Mexico dropped to an eight-year low, exploration slowed and rigs demobilised in Sub-Saharan Africa and projects were delayed or cancelled in the North Sea.

“The fourth quarter looks challenging and visibility has dropped in the past month or two. We will start to see the winter slowdown in the Northern Hemisphere. We'll also see further budget cuts in several of the key offshore markets such as Sub-Saharan Africa, Brazil and the Far East,” Schlumberger CEO Paal Kibsgaard said.

Norway Takeovers Loom

Consolidation is the watchword among Norway's E&P players, with a couple of takeovers in the offing.

DEA Deutsche Erdoel has taken over E.ON's Norwegian oil and gas business in a \$1.6 billion deal, doubling its current production in Norway to 75,000 boe/d.

DEA said the acquisition also provides access to promising growth options through material development and exploration.

The deal covers stakes in 43 licences and adds production of about 45,000 boe/d through working interests in three producing oil and gas fields, namely **Skarv** (28.1%), **Njord** (30%) and **Hyme** (17.5%). DEA also will acquire interests in additional developments and discoveries, including **Snilehorn**, **Snadd** and **Fogelberg** as well as a broad portfolio of exploration licences on the Norwegian Continental Shelf.

Lord Browne, chairman of the supervisory board of DEA Deutsche Erdoel, said, "This acquisition is the first step in DEA's new growth strategy. DEA has access to substantial financial resources, and I expect the company to make further investments in the Norwegian Continental Shelf as well as in its other core areas."

Meanwhile, Det norske oljeselskap has struck a deal to buy Svenska Petroleum Exploration for \$75 million.

Svenska has 15 employees in Norway, all of whom will be transferred to Det norske.

Svenska holds 13 licences in Norway, including the **Krafla/Askja** (25%), **Garantiana** (20%), **Frigg Gamma Delta** (40%) and **Fulla/Lille-Frigg** (25%) discoveries in the North Sea.

In addition, the company holds four exploration licenses in the Norwegian Sea.

Potential investment decisions on the Krafla/Askja and Garantiana discoveries are expected near 2018.

Karl Johnny Hersvik, CEO of Det norske, said, "This transaction states our ambition of growth on the Norwegian Continental Shelf and is a solid contribution to building Det norske as an independent E&P company. This increases our ownership in attractive discoveries with resource upside potential and is a logical bolt-on acquisition for Det norske, given the overlap in our asset portfolios.

"The acquisition fits very well in our existing portfolio as investments decisions on these new developments will occur after startup of **Ivar Aasen** (*SEN*, 32/13), and the majority of the capex will thus be funded by Johan Sverdrup cash flow."

BUSINESS BRIEFS



The Clipper South topsides being installed.

Chemicals' producer INEOS has taken an interesting turn and agreed to acquire a portfolio of natural gas assets in the North Sea from a U.K. subsidiary of DEA Deutsche Erdoel, which is part of the LetterOne Group owned by Russian oligarch Mikhail Fridman.

LetterOne had been ordered to sell the assets by the U.K. government, which was concerned that sanctions imposed on Russia in the wake of the conflict in Ukraine could affect Fridman's businesses.

INEOS Upstream will acquire gas fields, including the **Breagh** (32/8) and **Clipper South** fields in the Southern North Sea, which are well positioned close to INEOS' sites in the Northeast and Scotland. The annual production from these fields account for 8% of the U.K.'s annual gas production.

INEOS is a new entrant to the North Sea. However, the company has extensive experience in operating

chemical plants of similar complexity to these offshore platforms.

The company operates Scotland's largest manufacturing complex at Grangemouth, which is the only refining/petrochemicals complex directly attached to the North Sea.

Ocean Installer has landed a regional framework agreement with BP for subsea work in the Gulf of Mexico (GoM) region.

The three-year deal covers subsea fabrication, transportation and installation of offshore facilities as well as hookup and commissioning.

Specific work scopes will be carried out under individual call-off contracts, and no firm work is currently committed under the agreement.

"We have successfully executed work for BP in the GoM during the last couple of years, and we are happy to see the relationship manifest itself in such an agreement. Now our focus is to win call-off work within this framework," said Mike Newbury, president of Ocean Installer in the U.S.

Total has sold a further stake in the **Gina Krog** (32/13) Field off Norway as it looks to lighten its commitments in the country.

The French major agreed to a \$172 million deal to sell a 15% stake in the field to Tellus Petroleum, a subsidiary of Sequa Petroleum.

Arnaud Breuillac, Total's president E&P, said, "As a result of a full comparative review of our global asset portfolio and in particular of our vast portfolio of opportunities in Norway, we have decided to further divest our participation in this project after the initial sale of an 8% interest in 2014. This sale is in line with our willingness to optimise

the group's allocation of capital." Sanctioned in 2013, the Gina Krog project is expected to start up in 2017.

Upon completion of the sale, Total will retain a 15% interest in Gina Krog alongside Statoil (58.7%, operator), Tellus Petroleum (15%), PGNiG Upstream International (8%) and Det norske oljeselskap (3.3%).

Matt Kirk has joined Wood Group Kenny as vice president of operations, bolstering the regional leadership team in the Americas.

With 17 years' experience in the oil and gas sector, Kirk joins Wood Group Kenny from Xodus Subsea where he was managing director. He moved from the U.K. to Houston in 2010 to set up Xodus Group's operations in the U.S. and subsequently spent four years as Americas regional director for the company.

Dutch thermoplastic composite pipe maker **Airborne Oil & Gas** (AOG) is expanding.

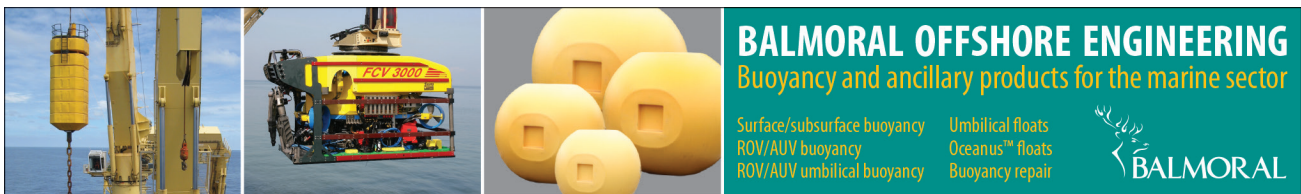
The IJmuiden-based company will be opening an office in Houston before year-end and in Kuala Lumpur, Malaysia early next year, the company's Development Manager Bart Steuten told *SEN*. Plans to take on the Brazilian market are also in the offing.

AOG has a unique technology for the production of thermoplastic composite pipes for a variety of offshore oil and gas applications.

Interest in the company is growing and Evonik has just taken a minority stake in AOG. The investment was made jointly with HPE Growth Capital and Shell Technology Ventures.

AOG's thermoplastic composite pipes dispense with steel entirely and are therefore not susceptible to corrosion. They have extremely high mechanical stability but are also flexible.

As an added advantage, they are lightweight and can be fabricated in lengths of up to 10 km, which means that AOG's pipes can be installed relatively simply and cost effectively.



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