

## Clariant Sees Growing Need For Chemicals Offshore Brazil

Switzerland-based chemical giant Clariant is eyeing Brazil to expand its business in the country's offshore segment. The company recently launched Phasetreat Wet Technology, a molecule developed by Clariant's research center in Brazil that reduces up to 75% of the volume of chemicals required for the separation of fluids in oil and gas E&P activities. The technology aims to ensure logistic gains and reduce exposure to operational risks.

Large presalt discoveries offshore Brazil have put the country in the world's oil and gas spotlight in the last 10 years, sparking investment from major oil companies wanting to expand their portfolios.

"This is why Clariant has invested in research and development of solutions and lower environmental impact to meet the growing challenges in deep water and especially in the presalt fields," said Carlos Tooge, vice president of the company's Latin America oil and mining services business unit. Clariant has been operating in the Brazilian oil and gas market for nearly 50 years, he added.

Tooge pointed out that there is a growing demand for chemical specialties for the Brazilian oil and gas sector due to the discoveries made in the last decade and the projects designed for the development of the Brazilian presalt oil fields.



Clariant's Phasetreat Wet Technology is used for separation of fluids in oil and gas E&P activities. (Source: Shutterstock.com)

"The intensification of the exploratory campaigns in the new concessions acquired over the last two years as well as the increase of hydrocarbons output will demand a large volume of chemical solutions to optimize and make these activities safer and more profitable," Tooge said. "That is why Brazil is a strategic market for Clariant."

Tooge is optimistic about the opportunities in Brazil over the next few years, mainly because the country is opening up its oil and gas sector and attracting big investments from several independent oil companies.

"The Brazilian oil and gas market is changing," he said. "This new model of different operators with

demands and investments will boost the market in the near future."

Brazil, the largest oil-producing country in Latin America, has capacity for growing E&P activities due to the potential reserves of the presalt and new frontiers.

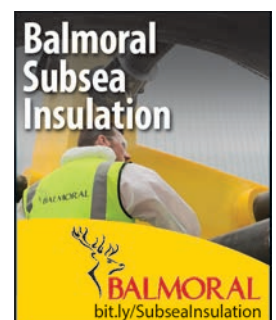
"Clariant is prepared to follow the growth of the oil industry with products and services for exploration and production activities," Tooge said. "Our portfolio ranges from exploration additives (drilling, cementing, completion and stimulation), solutions for upstream operations (control of bacteria contamination, corrosion and emulsion control, effluent treatment), specific services and products for pro-

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duction at low temperatures, deepwater and presalt, heavy oil, as well as high temperatures and pressures.”

Clariant’s performance in Latin America represents an important area for the company’s international oil and gas activities, according to Tooge.

“In addition, the synergy offered by our production facilities in Latin America, as well as our R&D centers, makes it possible to meet the demand for chemical solutions to the challenges of the oil and gas industry in other regions of the globe,” he said.

Tooge explained that expertise applied by Clariant in other regions around the world can help to develop subsea activities in Brazil.

“Clariant Oil Services has R&D centers and regional offices strategically located in the Americas, Europe, Africa, Asia and Oceania. Clariant believes that the expertise accumulated in other countries adds up to an important competitive advantage,” he said.

### New Chemical Solution

Launched during Rio Oil & Gas 2018 in late September, Phasetreat Wet Technology is among the latest chemical solutions for oil and gas activities.

The development of Phasetreat Wet Technology included several steps taken over the last three years with the objective of creating solutions capable of optimizing

the chemical supply chain in the face of the logistical challenges of offshore oil production.

“Several scenarios were observed. The use of seawater as part of the implementation strategy presented significant results: laboratory tests showed a reduction of up to 75% when compared to current solutions,” Tooge said.

The technology consists of combining a more effective product with a newly designed application, using seawater, produced water or industrial water as a vehicle. The water-chemical mixture is applied to the separator vessel, with high efficiency in the dispersion of the final solution.

Tooge explained that Phasetreat Wet Technology is highly effective in the separation of water and oil during oil production, allowing optimization of the footprint in addition to reducing load and back load operations.

“Logistic gains represent an important differential in the face of the challenges of offshore operations in Brazil, especially the large distances (more than 300 km) of the presalt fields in relation to the coast,” Tooge said.

“Phasetreat Wet technology is a breakthrough in terms of formulation and application. With the reduction of volume and the use of a nonflammable alternative, this technology represents environmental, economic and operational gains, reducing logistics costs, products storage at the point of application and packaging for offshore activities,” he said.

—Brunno Braga

## DEVELOPMENT

### Fabrication Starts For Tyra Redevelopment Project In North Sea

The Total-operated, \$3.4 billion Tyra redevelopment project offshore Denmark in the North Sea is progressing as planned, with the latest milestone being the start of fabrication.

McDermott International Inc., which landed the engineering, procurement, construction and onshore commissioning contract for the project, said Oct. 16 that it held a first steel-cutting ceremony at its fabrication yard in Batam, Indonesia. The Houston-based company will fabricate and assemble two work packages for Total. The packages include seven topside structures, six connecting bridges and six jacket extensions, weighing a combined 36,300 tons, the company said in a news release.

“As the project continues to progress with the completion of engineering, we are moving ahead with fabrication in full compliance with the stringent technical requirements for the North Sea in Denmark,” said Tareq Kawash, McDermott’s senior vice president for Europe, Africa, Russia and Caspian, in the release. “We expect to meet the final time line for the two work packages scheduled for delivery in early 2020 and 2021.”

Earlier in October, Royal Boskalis Westminster NV said it won a subsea engineering, procurement, fabrication and installation for the project. Its work will include providing a “range of specialist subsea contracting activities for relocating and connecting subsea pipelines as well as the



The redevelopment plan includes a new processing platform and accommodation platform for Tyra East (shown here) and Tyra West. (Source: Maersk Oil)

installation of manifolds, vertical platform production risers and umbilicals,” according to a news release.

The field, which comprises the Tyra East and Tyra West centers tied into the Tyra Southeast, Harald, Valdemar, Svend and Roar unmanned satellites, will see infrastructure improvements that include a new processing platform and a new accommodation platform on Tyra East and Tyra West; a 10-m (33-ft) extension of jackets on the four well-head platforms and two riser platforms; and new topsides.

The project is expected to expand the life of the field, discovered in 1968 with first production in 1984, by at least another 25 years. Through the years, subsidence of the chalk reservoir has taken a toll on the field, causing its platforms to sink by about 5 m (16 ft) over the last 30 years, according to the previous operator, Maersk, which said this has reduced the gap between the sea and platform decks at the field.

Expectations are for the redeveloped field to deliver about 60,000 boe/d.

A final investment decision for the project was reached in December 2017, about three months after Total agreed to buy Maersk Oil. The \$7.45 billion deal closed in the first quarter this year.

In a post on Total's website, Michael Borrell, senior vice president, North Sea and Russia, E&P, spoke about the

importance of the Denmark area to the company. Total plans to increase its interest in the Danish Underground Consortium—the partnership between Total, Shell, Nordsøfonden and Chevron that operates 15 offshore fields—by acquiring Chevron's 12% interest. The move would increase Total's stake to 43%.

"The transaction allows us to increase our share in the Tyra redevelopment project. It is this complex project that will set us up for the decades ahead offshore Denmark," Borrell said.

"Through the integration of Maersk Oil into Total and the teams we set up in Copenhagen, we made a long-term commitment to Denmark, [and] with our new investment, we are demonstrating that commitment and our confidence in the value it provides," Borrell added.

—Staff Reports

## DEVELOPMENT BRIEFS

### Wintershall Struggles To Boost Output From Norway's Maria Field

German oil firm Wintershall's flagship project in Norway—the Maria oil and gas field—is not meeting output expectations due to water injection issues, the company said on Oct. 15.

The field, which started nine months ahead of schedule at year-end 2017, was welcomed by the Norwegian government as an innovative project to squeeze more barrels from Norway's continental shelf.

But 10 months after the startup, Maria's output has not lived up to expectations.

"The production performance of the Maria Field does not yet fully meet our expectations," Wintershall said in an email to Reuters. The company did not give details of these expectations.

Wintershall said the reason for this could be a limitation in the connectivity between the water injection and oil production layers in the reservoir.

"Some testing and investigations will be performed to obtain more information and to define the way forward," Wintershall said in the email.

The company, which injects water to keep the pressure in the reservoir some 3,800 m (12,467 ft) deep, said it was too early to say whether it would have to revise estimates for the field's recoverable reserves, which currently stand at about 180 MMboe.

Spirit Energy, which has a 20% stake in the field, said on its website that at peak production Maria was expected to add about 8,300 boe/d net to Spirit Energy's output. That would put Maria's expected gross peak production at more than 41,500 boe/d, according to Reuters' calculations.

The latest data from the Norwegian Petroleum Directorate showed the Maria Field produced 23,400 boe/d in July.

Wintershall has 50% stake in Maria's license, and Norway's state-owned Petoro holds the remaining 30%.

### Aker BP To Buy Equinor Gas, Condensate Discovery For \$250 Million

Aker BP has agreed to buy Equinor's 77.8% stake in Norway's King Lear gas and condensate discovery for \$250 million in cash, the two companies said Oct. 15.

The North Sea discovery has estimated reserves of 77 MMboe, and by connecting it to existing production facilities at the Ula Field, Aker BP expects the acquisition to add more than 100 MMbbl in total.

"This [tie-in] will improve the capacity utilization at the Ula facilities and provide significant additional volumes of injection gas to support increased oil recovery," the company said.

State-controlled Equinor said the stake sale was part of a process to streamline its Norwegian portfolio.

"By doing so we unlock capital for investment in projects that offer higher returns for Equinor," said Jez Averty, Equinor's senior vice president for operations in the southern North Sea.

The remaining 22.2% stake in King Lear is held by Total. The transaction is subject to approval by Norwegian authorities.

### Norway Turns On Onshore Power For Johan Sverdrup

The Equinor-operated Johan Sverdrup Field in the North Sea marked a milestone when power from shore was offi-





The Norwegian Minister of Petroleum and Energy, Kjell-Børge Freiberg, officially opened the power-from-shore solution to Johan Sverdrup. (Source: Ole Jørgen Bratland/Equinor)

cially switched on about a year before production startup, the company said in a news release Oct. 9.

The power-from-shore solution is expected to provide the field with electricity for more than 50 years, according to Equinor, which called the field one of the most carbon-efficient fields worldwide given its electric power. Equinor said power from shore to Johan Sverdrup will help reduce emissions by an estimated 460,000 tonnes of CO<sub>2</sub> per year.

Johan Sverdrup will be developed in two phases. In Phase 1 the power-from-shore solution has a capacity of 100 MW, based on a production capacity of up to 440,000 bbl/d, Equinor said. In Phase 2, with startup expected in the fourth quarter of 2022, the power from shore capacity will be expanded with 200 MW, giving a total capacity of 300 MW.

Several suppliers have been involved in the power project. These include ABB, Aibel, Aker Solutions, Samsung Heavy Industries and NKT.

**KBR Secures FEED Contract For BP’s Tortue**

BP has selected the U.K. subsidiary of KBR Inc. to carry out FEED work for Phase 1 of the Tortue Field Hub/

Terminal development on the maritime border between Senegal and Mauritania, according to a news release.

The company will provide management of the quarters and utilities, including telecoms systems FEED and provision of supplemental services (system engineering, interface oversight, technology planning, support and verification) of the hub/terminal for the project.

The FEED work will take place through year-end 2018 to support the final investment decision, KBR said.

In addition, the contract contains a mechanism to allow transition of the contract to an engineering, procurement and construction management contract at a later date, KBR said.

**Equinor’s Martin Linge Field Costs Rise Again, Startup Delayed**

Norway has again revised up the estimated cost of developing the Martin Linge oil and gas field, which Equinor bought from Total in 2017, with the startup delayed until 2020, according to the fiscal budget.

The North Sea field is now expected to cost \$5.7 billion to develop, up from the \$4.9 billion estimated last year, and 59% more than originally seen in 2012.

The field’s startup also has been pushed back to first-quarter 2020 from first-half 2019, the budget showed.

Equinor became the operator of the field in 2017 after buying a 51% stake from Total for \$1.45 billion.

Equinor confirmed the startup delay in a separate statement and said the cost increase was based on its assessment of the remaining work.

Despite the increase, the company said it had managed to cut costs for its combined developments on the Norwegian Continental Shelf by \$3.6 billion compared with original estimates.

Equinor has reduced costs at its Johan Sverdrup Phase 1 development by 30% alone to \$10.4 billion, the company said. Norway’s fiscal budget showed the Phase 1 cost estimate reduced to \$12.4 billion from \$15 billion in 2015.

Tubular Bells  
First Oil  
November  
2014





Lucius First Oil  
January 2015





Jack/St. Malo  
First Oil  
December  
2014



Three  
Successful  
Startups,  
One Common  
Denominator

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Leader in Topsides Design

The two estimates are far apart because the budget and company treat exchange rate effects differently.

The budget estimate also included costs for permanent reservoir monitoring and a polymer injection project at Johan Sverdrup, which the company included in capital spending for the Johan Sverdrup Phase 2 project, Equinor said.

The overall cost reductions were mainly due to increased drilling efficiency, simplification and smooth project implementation, Margareth Oevrum, Equinor's executive vice president for technology, projects and drilling, said in the statement.

As of Sept. 1, there were 18 field developments on the Norwegian Continental Shelf, with approval pending for another three projects, the budget showed.

### Subsea 7 Lands Work In GoM, Offshore Ghana

Subsea 7 has added to its workload for the Shell-operated Vito Field development in the U.S. Gulf of Mexico (GoM), having recently received a contract for transportation and installation of pipelines.

According to a news release, Enbridge Offshore Facilities awarded the contract—valued at less than \$50 million—that entails transporting and installing 80 km (50 miles) of 18-in. oil export pipelines, 27 km (17 miles) of 10-in. gas export pipelines and 5 km (3 miles) of associated steel catenary risers and pipeline end terminations.

Subsea 7 is providing project management, engineering, procurement and installation services for the project.

In addition, Tullow Ghana Ltd. has awarded a consortium comprising Subsea 7 Volta Contractors and NOV Oil & Gas Services Ghana Ltd. an engineering, procurement, construction and installation (EPCI) contract for work at the Jubilee Field offshore Ghana.

Subsea 7's scope of work includes installing the buoy turret loading (BTL) system from APL, a group within NOV Completion & Production Solutions. This includes the associated suction piles and EPCI activities, including two offloading lines for the BTL and the additional hangoff platform and skid for the FPSO.

A significant part of the fabrication will be completed locally in Ghana, and the offshore installation will take place in 2020, Subsea 7 said.

### BMT Wins Marine Monitoring Contract with BP

BMT has won a contract to provide multiple marine monitoring systems for BP's Mad Dog Phase 2 semisubmersible floating production facility in the U.S. Gulf of Mexico, a news release said.

The company said it will install its Integrated Marine Monitoring System, which comprises several sub systems relating to environmental monitoring and facility response, with a goal of providing real-time data to offshore operators and collecting detailed datasets.

BMT said its Independent Remote Monitoring System will provide additional monitoring capability, particularly during evacuation due to hurricanes, and continuously transmit data and imagery back to stakeholders onshore.

### Aker Solutions Wins Order for Libra's Mero Field Offshore Brazil

Aker Solutions has signed a contract with Petrobras to provide a subsea production system (SPS) and related services for the Mero 1 project, which is part of the Mero Field presalt development offshore Brazil, a news release said.

The SPS will consist of 12 vertical subsea trees designed for Brazil's presalt, four subsea distribution units, three topside master control stations for the FPSO and spare parts, Aker Solutions said in the release. The SPS will be hooked up to the *Guanabara* FPSO, which is set to go onstream in 2021.

The order also includes installation and commissioning support services.

Aker Solutions' subsea manufacturing facility in São José dos Pinhais and its subsea services base in Rio das Ostras will carry out the work. Work has started and deliveries are scheduled for 2020. Installations are scheduled between 2020 and 2023.

The ultradeepwater Mero Field is located in the northwestern area of the original Libra Block. First oil was produced in November 2017. Petrobras is the operator of the consortium developing the Libra area. Shell, Total, CNPC and CNOOC Ltd. are partners. Pre-Sal Petróleo S.A. manages the production-sharing contract.

—Staff & Reuters Reports

## EXPLORATION BRIEFS

### TGS, Spectrum Expand Santos Basin Multiclient 3-D Survey

TGS and Spectrum have joined forces and expanded the Santos 3-D program to 15,000 sq km (5,791 sq miles) over the prospective southern Santos Basin offshore Brazil, the companies said on Oct. 16.

TGS and Spectrum will be equal partners with data processing and imaging to be performed by TGS. The survey covers an area south of the high-profile discoveries of the Santos Basin and the recent sought-after blocks offered in Rounds 2, 3, 4, 5 and 15.

"The two companies will be working together to unlock the southern Santos Basin for exploration," said Spectrum CEO Rune Eng. "The Santos Basin is one of the hottest exploration basins in the world with a high potential for further discoveries in deep water."

### Novatek Discovers New Gas Field At Ob Bay

Pao Novatek, a Russian natural gas-focused independent, said on Oct. 11 that its subsidiary OOO Arctic LNG 3 has confirmed a new natural gas and gas condensate field in

the North-Obskiy license area in shallow-water Ob Bay offshore northern Russia.

News of the North-Obskoye Field discovery was announced after testing of the first exploration well in the license area. Novatek said the field has estimated reserves of more than 320 Bcm (11.3 Tcf) of natural gas under Russian reserve classification, and its total resources at the drilled well area are estimated at more than 900 Bcm (31.7 Tcf) of natural gas.

“The discovery of significant hydrocarbon reserves at the North-Obskoye Field is an important starting point for one of our future LNG projects in the Arctic region,” according to Leonid Mikhelson, chairman of Novatek’s management board. “Under the Russian reserve classification, the North-Obskoye Field will be included into the ‘unique’ category in terms of reserves size. The favorable geographical location of the field, its huge resource base and our accumulated LNG experience are important prerequisites to successfully implement this new LNG project.”

Estimates will be submitted to the Russian State Reserves commission for confirmation in November, Novatek said in the release.

### **Kosmos Energy Abandons Well Offshore Suriname, Plans More Tests In Region**

Oil and gas company Kosmos Energy said on Oct. 10 that it was abandoning an offshore well in Suriname after it failed to find oil, the second well plugged in the region in recent months, but it added that it plans to continue testing in the basin due to its potential.

The company also said it expects to generate substantial free cash flow in 2018, allowing it to initiate a dividend in the first quarter of 2019.

Kosmos said it encountered a high-quality reservoir at the Pontoenoe-1 exploration well in Block 42 offshore Suriname, but the primary exploration objective proved to be water bearing and did not find commercial hydrocarbons.

“We are in the early stages of exploring the emerging Suriname-Guyana basin... We believe there is significant remaining potential in Block 42,” Kosmos CEO Andrew Inglis said, adding that the company’s current plan was to test the next prospect in 2020.

The NYSE-listed company holds rights in Block 42 under a production-sharing contract with the Suriname government-owned Staatsolie Maatschappij Suriname NV.

### **TGS, Schlumberger Partner For Multi-client Nodal Seismic Project In GoM**

TGS and Schlumberger have teamed up for a new multi-client nodal seismic project in the U.S. Gulf of Mexico (GoM), according to a news release.

Called Amendment, the project will comprise acquisition of a 2,350-sq-km (907-sq-mile) multi-client seismic survey in the Mississippi Canyon and Atwater Valley protraction areas of the GoM. In the news release, Schlumberger said the area includes open acreage, existing producing assets and new discoveries.

“E&P companies are showing increased interest in the benefits of nodal seismic data to overcome imaging challenges in this region,” TGS CEO Kristian Johansen said in the release. “In the Amendment project, TGS and Schlumberger will reimage underlying WAZ [wide-azimuth] seismic data to provide modern, high-quality nodal seismic data to our clients.”

The companies plan to use Fairfield Geotechnologies 4C nodal acquisition technology to acquire the seismic data, while TGS and Schlumberger will apply their full azimuth processing expertise, the news release said.

“This unique dataset will provide a step change in illuminating complex subsurface structures and help E&P companies to maximize the value of their producing assets and rejuvenate their exploration portfolios,” said Maurice Nessim, president of WesternGeco, a Schlumberger company. “This highly integrated project will combine well log data, high-quality orthogonal WAZ and new nodal measurements to provide foundations for the first industry-funded regional nodal survey in the deepwater Gulf of Mexico.”

Operations are scheduled to begin in the fourth quarter this year with final data delivered to customers in the first quarter of 2020, according to the release. The survey is supported by industry prefunding.

### **Azinam Abandons Namibia Offshore Well**

Azinam, financially backed by private-equity firm Seacrest Capital, will plug and abandon its Prospect S well in petroleum exploration license (PEL) 71 offshore Namibia, the company said Oct. 11.

“The anticipated stacked target reservoirs were penetrated, and the well encountered wet gas shows, indicating the presence of hydrocarbons in the system. Commercial hydrocarbons were not encountered,” Azinam said.

PEL 71 is owned by Chariot Oil & Gas (65%), Azinam (20%), NAMCOR (10%) and Ignitus Oil & Gas (5%).

In September Tullow Oil, which is a partner in another Azinam well in Namibia, said it would abandon its first well in the country, but data gathered in the project indicated Tullow might strike lucky in another attempt.

—Staff & Reuters Reports

## **TECHNOLOGY BRIEFS**

### **Oceaneering Unveils New Cloud-based Corrosion Monitoring System**

On Sept. 28 Oceaneering International Inc. revealed a new interactive cloud-based corrosion and erosion analysis system for inspection requirements called TRND.

The TRND system is a technological collaboration that combines Oceaneering’s expertise in developing a wide range of inspection technologies and tools with Ionix Advanced Technologies’ high-temperature HotSense platform and Inductosense

Ltd.'s battery-free Wireless and Non Destructive, or WAND, technology.

Within minutes of installation, operators can acquire quantitative wall thickness data, which may be remotely analyzed and reported through a cloud-based data management system. Measuring less than 1.2 kg total mass, the TRND system can be retrospectively installed and implemented within the harshest of environments and deployed anywhere, including elbows and via rope access.

The system's reduced profile enables retrofit installation to existing assets under insulation. This means that there is no disruption to weatherproofing, providing internal pipe corrosion/metal loss monitoring and integrity inspection services without the need to remove cladding, and therefore maintaining the integrity of corrosion under insulation defenses.

For hazardous environments, the TRND system offers intrinsically safe ultrasonic thickness measurements in Zone 0 explosive environments up to 350 C (660 F).

### Halliburton Sets Deepwater Liner Hanger Installations Record On Hess Stampede Project

Halliburton Co. announced last month that its XtremeGrip liner hangers have been installed to a depth of 9,426 m (30,924 ft) in the Gulf of Mexico's (GoM) Hess-operated Stampede deepwater development, setting a record depth for the XtremeGrip system. To facilitate the completions, Halliburton installed 37 XtremeGrip expandable liner hangers across seven wells to date, with no liner-top leaks or remedial work required.



The Halliburton XtremeGrip liner hangers are designed to mitigate risk and deliver reliable results in extreme environments. (Source: Halliburton)

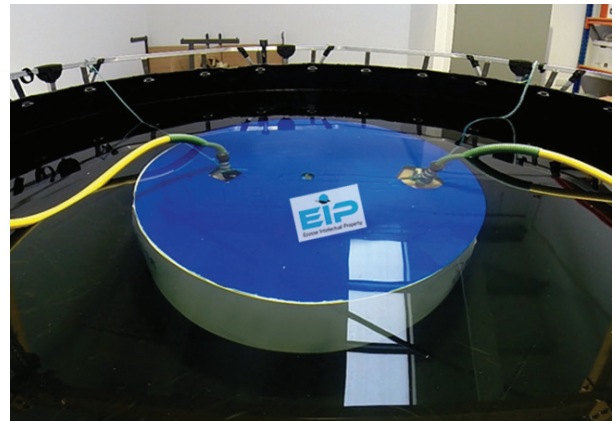
The challenge for Halliburton on the Stampede project was to isolate multiple hydrocarbon-bearing sands across the drilling and production liners with cement. The XtremeGrip system's unrestricted flow path prior to setting, and its ability to rotate while cementing, provided effective and reliable isolation without costly cement remediation.

Each Stampede well includes up to five XtremeGrip liner installations, making the consecutive liner runs a major part of the well construction process. The installations began with hanging a 13 7/8-in. drilling liner inside a 16-in. casing. The subsequent hangers support another drilling liner, followed by two production liners, through multiple reservoirs. Each well then had a production liner tied back with a scab liner for structural integrity.

The Stampede deepwater oil and gas development is located 185 km (115 miles) south of Fourchon, La., in the GoM (Green Canyon blocks 468, 511 and 512) in approximately 1,067 m (3,500 ft) of water, with a reservoir depth of 9,144 m (30,000 ft). Hess safely achieved first oil in January, just over three years after project sanction, despite the technical challenges faced by working with one of the most complex reservoirs in the Gulf.

### Tool Allows Accurate, Safe Subsea Lifting

EIP's Ambient Lifter allows accurate and safe subsea lifting either using low-cost vessels with no requirement for heave compensation, or using ROVs/AUVs.



The Ambient Lifter is designed for accurate and safe subsea lifting. (Source: Ecosse IP Ltd.)

Ambient Lifter can be used in a variety of industries including oil and gas, offshore wind and wave power, leading to significant project cost savings during construction, operations, and maintenance and decommissioning.

The system can be used to lift, lower or hover any subsea object, by controlling buoyancy and ballast in low-pressure pipes. It is an innovative and new way of lifting subsea assets faster and more cost effectively than ever before, bringing new confidence to subsea lifting challenges.

The technology drives significant cost savings for subsea installation—a small towing vessel can be used to float the structure to site and install it.

For decommissioning applications, the EIP Ambient Lifter can be used to float items, such as jacket sections from a decommissioning zone to shore behind small towing vessels, or lift decommissioning debris in the 500-m (1,640-ft) zone into subsea baskets, which can be recovered by anchor handler vessels.

Subsea lifting can be carried out using EIP's Ambient Lifter, which has recently completed successful harbor trials with the support of the Oil and Gas Technology Centre, lifting 5Te using a controlled buoyancy lifting solution.

Ambient Lifter's ROV version will lift 10Te without a lift vessel. This is significantly more cost effective than using surface lift vessels and can be operated in much wider weather windows and in challenging regions, such as West of Shetland. Ambient ROV is an ideal solution for construction of subsea

fields or for removal of decommissioning debris, for example. Ambient ROV trials will be completed later this year.

For heavy-lift vessels, Ambient's capacity is scalable, so can operate in the 100-500t range for removal of large subsea

templates, manifolds or foundations. Ambient Lifter offers a safe, robust and controllable subsea lifting solution, which can operate standalone or increase the capacity of small, low-cost lift vessels

—*Staff & Reuters Reports*

## VESSEL BRIEFS

### Hurricane FPSO Leaves Dubai After Upgrade With 'Fractured Basement' As Next Assignment

The *Aoka Mizu* FPSO, having undergone repair, upgrade and life extension works in a Dubai shipyard, is bound for Rotterdam for completion before its next assignment west of Scotland's Shetland Islands.



The *Aoka Mizu* FPSO will be sent to the Greater Lancaster Area project in the Shetland Islands. (Source: Hurricane Energy)

Hurricane Energy will be using the vessel to extract "fractured basement" oil from the hard and brittle rock of the Greater Lancaster Area project, where first oil is expected in first-half 2019. Hurricane seeks to add net reserves of 750 MMbbl to its portfolio with Greater Lancaster combined with its Greater Warwick Area project.

"The passage (for the FPSO) is around six weeks with the potential for hookup and first oil before year-end [2018]," Royal Bank of Canada said in a note. "This is ahead of H1/19 [first-half 2019] guidance and our cash flow expectations."

No fractured basin fields are in production in Britain. In August Lundin Petroleum announced good productivity from a fractured reservoir in the Norwegian North Sea, but these fields are considered risky investments.

### McDermott Will Provide Vessels For Largest Indian Subsea Project

McDermott International Inc. will bring its fleet of pipelay and construction vessels to a subsea contract for India's Oil & Natural Gas Corp.'s (ONGC) largest deepwater project, the development of Block DWN-98/2 in the Krishna Godavari basin, the partners announced Oct. 3.

McDermott joins Baker Hughes, a GE company (BHGE), and L&T Hydrocarbon Engineering (LTHE), a subsidiary of Larsen & Toubro, to provide an integrated subsea package. The contract includes the supply of all subsea production systems (SPS), including 34 deepwater trees, and the installation of subsea umbilicals, risers and flowlines (SURF) at a water depth of between 300 m and 3,200 m (984 ft and 10,500 ft).

The group will reduce the number of interfaces across the project and aims to reduce complexity, drive speed and increase execution efficiency for ONGC. McDermott will transport and install SURF and SPS facilities using its engineering and other resources in Kuala Lumpur, Malaysia and Chennai, India as well as its installation assets Derrick Barge 30, Lay Vessel North Ocean 105 and Lay Vessel 108.

"The consortium will provide an integrated solution that not only takes full advantage of the international expertise brought by BHGE and McDermott but provides a key made-in-India element by LTHE that represents local capabilities as well," said Ian Prescott, McDermott's senior vice president for Asia-Pacific. The subsea award represents the largest single subsea contract awarded by ONGC. Delivery is scheduled for 2020 for the gas system and 2021 for the oil system.

### PLN Holds Tender For Five FSRU Projects

On Oct. 3 Indonesia's state-owned electricity company PLN called for tenders to build five floating storage and regasification units (FSRUs), hoping that the vessels could be completed between 2020 and 2021.

The process is at the final commercial proposal stage, said Chairani Rachmatullah, head of PLN's fuel and gas division, who said he expects the tender process to be completed early in 2019.

The five projects involved are Central Indonesia LNG project, Bangka Belitung-Pontianak LNG project, Krueng Raya-Nias LNG project, Maluku-Papua PLG project and the Gorontalo FSRU project.

The company expects the Krueng Raya-Nias LNG and the Gorontalo FSRU projects to be completed in 2020. The other three have completion dates in 2021.



### i-Tech Mini ROVs A Boost For Inspection Fleet

Subsea 7 has introduced a line of mini ROVs for smaller scopes of work in challenging environments.

“The introduction of mini ROVs into our portfolio enhances our rapid-response inspection capability and allows us to provide a more comprehensive UWILD [under water inspection(s) in lieu of dry-docking] offering,” said Neil Milne, vice president for the company’s i-Tech Services unit. “Furthermore, it provides clients with a reliable, cost-effective and safe alternative to traditional manned inspection or work-class ROV services.”

The mini ROVs are highly maneuverable, with a power-to-weight ratio enabling them to carry small tools and manipulators in strong currents. They can

be mobilized quickly from any platform, FPSO, barge or vessel.

—Staff & Reuters Reports



New mini ROVs are designed to enhance rapid-response inspection capability. (Source: Subsea 7)

## BUSINESS

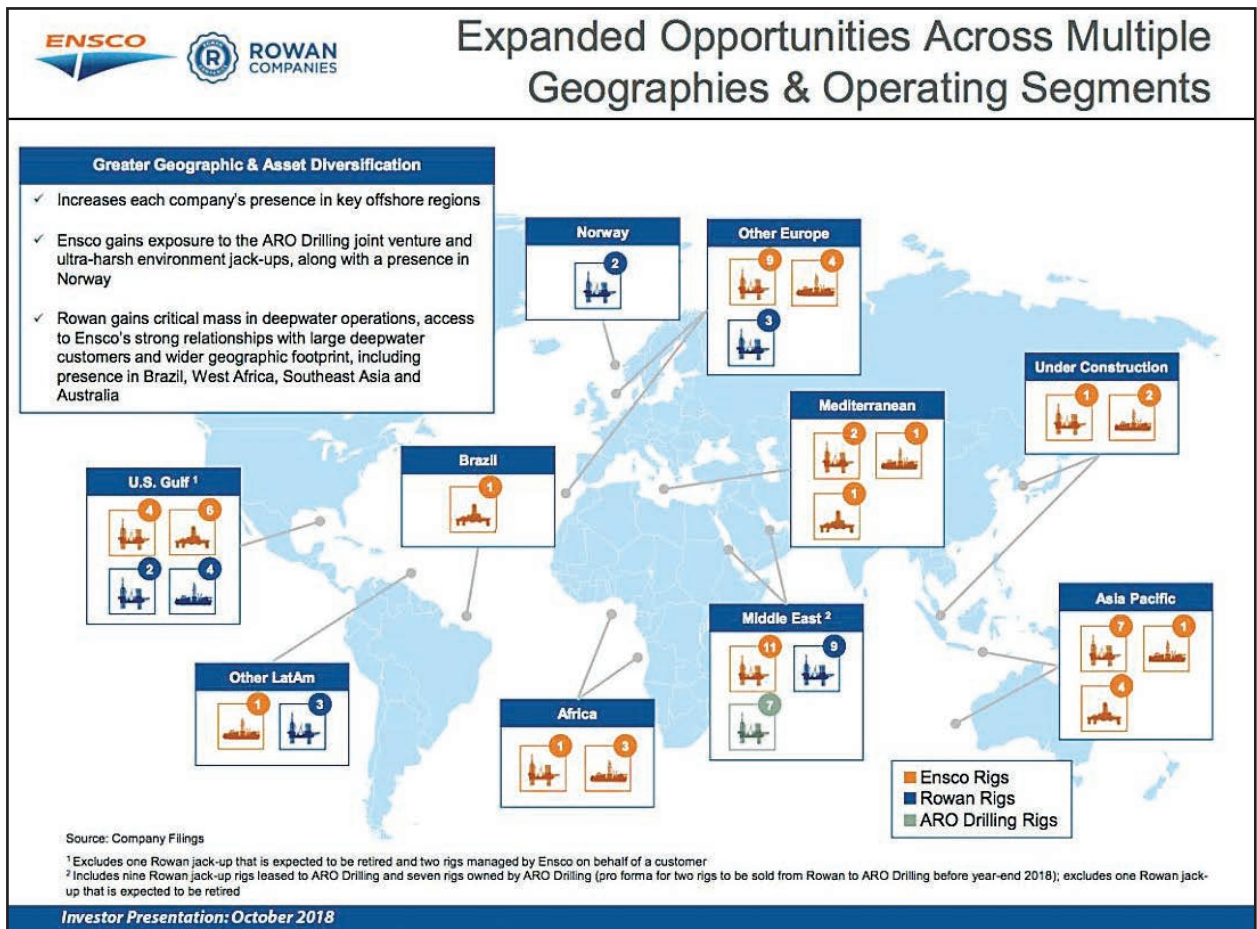
### Offshore Drillers Ensco, Rowan To Combine In \$2.4 Billion Merger

Offshore driller Ensco Plc said Oct. 8 it will buy out rival Rowan Cos. Plc in an all-stock acquisition worth about \$2.4 billion.

As part of the merger agreement, Rowan shareholders will receive 2.215 Ensco shares for each Rowan share, or

about 281 million Ensco shares, to own roughly 39.5% of the combined company. Ensco shareholders are expected to hold a roughly 60.5% stake.

The merger will result in a combined enterprise value of \$12 billion and annual cost synergies of about \$150



The merger of offshore drillers Ensco and Rowan will result in the world’s largest jackup contractor with a combined enterprise value of \$12 billion. (Source: company filings)

million, or roughly 7% of combined company's operating and general and administrative (G&A) expenses, according to Luke M. Lemoine, senior oilfield service analyst with Capital One Securities Inc.

"[It's] positive to see continued consolidation in the offshore drilling space," Lemoine said in a research note on Oct. 8.

Combined, EnSCO and Rowan's breadth will span six continents in nearly every major deepwater and shallow-water basin around the world, including the Gulf of Mexico, Brazil, West Africa, North Sea, Mediterranean, Middle East, Southeast Asia and Australia.

Pro forma, the combined company will own 82 rigs including 28 floaters, of which 25 are ultradeepwater, and 54 jackups with a combined backlog worth \$2.7 billion. This places the combined company second behind Transocean Ltd. in total floater fleet and "firmly as the largest worldwide jackup contractor," Lemoine said.

Analysts with Tudor, Pickering, Holt & Co. (TPH) viewed the merger as "a beautiful combination from a strategic perspective" with valuation as the firm's lone initial concern due to the lack of an equity premium to Rowan shareholders.

"Furthermore, EnSCO will now gain exposure to the ultraharsh jackup market [particularly in Norway], which is a market that is quickly beginning to tighten, and double down on its already robust market share position with Saudi Aramco via addition of Rowan's ARO Drilling joint venture [which will be a significant growth engine moving forward]," TPH analysts said in an Oct. 8 research note. An "added bonus is the fact that both companies are targeting roughly \$150 million of annualized cost synergies as a result of this deal, as this figure is well above Rowan's current G&A run-rate [about \$100 million per year]."

The synergies of the combined company are expected to be realized primarily from corporate and regional overlaps, supply chain efficiencies as well as the standardization of systems, policies and procedures across the combined organization, the companies said in a joint release.

Consolidation among drillers is paramount to a recovery in the market, according to Leslie Cook, principal analyst for Wood Mackenzie.

Cook believes the EnSCO-Rowan combination provides an "excellent value" for the shareholders of both companies, which have strong brand recognition in both the jackup and floater sectors.

"What makes a company like Rowan particularly interesting for EnSCO is the opportunity to further high-grade their growing portfolio with premium assets and expand their footprint in key markets, such as Middle East, Latin America, Europe and U.S. Gulf of Mexico," she said in a statement Oct. 8.

Combined, EnSCO and Rowan's floating rig fleet will consist of nearly 90% of generation VI and VII assets, Cook said. "These are the rigs that are most desired by operators globally, as they offer the best capabilities and flexibili-

ties for various deepwater drilling programs around the world," she noted.

The combined company will be led by Tom Burke, who is currently president and CEO of Rowan. EnSCO President and CEO Carl Trowell will serve as the combined company's executive chairman. Jon Baksht will continue in his current role at EnSCO as senior vice president and CFO of the combined company.

The combined company's board of directors will include Trowell and Burke, plus five additional members from EnSCO's current board and four additional members from Rowan's current board.

Burke said the combination will position the company to meet increasing demand for technologically advanced drilling rigs as the offshore sector recovers.

"By merging our high-quality rig fleets and infrastructure covering the world's most prolific offshore basins, we increase our scale while maintaining a shared focus on high-specification assets that will include ultradeepwater drillships and versatile semisubmersibles as well as harsh environment and modern jackups," he said in a statement. "Rowan shareholders also benefit from the addition of significant backlog and substantial scale in ultradeepwater operations."

Trowell said the combination will create an "industry leader in offshore drilling across all water depths."

"Through this combination, EnSCO shareholders will uniquely benefit from Rowan's strategic joint venture with Saudi Aramco, ARO Drilling, while all stakeholders will share in meaningful cost savings and even greater upside to improving market conditions as the industry recovery continues gaining momentum," he said in a statement.

The combined company's balance sheet is expected to have liquidity of about \$3.9 billion, including \$1.9 billion of cash and short-term investments. The planned combination is expected to be accretive to cash flow per share annually for the combined entity beginning in 2020.

The company will remain headquartered in London with senior executive officers to be located in London and Houston.

The transaction agreement was unanimously approved by each company's board of directors. The Saudi Aramco partner to the ARO Drilling joint venture has consented to the combination between Rowan and EnSCO as well.

The companies said they anticipate closing the transaction during first-half 2019, subject to approval by the shareholders of EnSCO and Rowan, regulatory authorities and other customary closing conditions.

Morgan Stanley & Co. LLC is lead financial adviser to EnSCO. HSBC Securities (USA) Inc. and Citigroup Global Markets Inc. also provided financial advice to EnSCO. EnSCO's legal advisers are Gibson, Dunn & Crutcher LLP and Slaughter and May. The financial adviser for Rowan is Goldman Sachs & Co. LLC, and its legal advisers are Kirkland & Ellis LLP and Latham & Watkins LLP.

—Emily Patsy

## BUSINESS BRIEFS

**Australia's Tap Oil Names Chris Newton As Chairman**

Chris Newton has been appointed chairman of Tap Oil Ltd., effective immediately, the Perth-based company said Oct. 15.

Newton is a geology graduate from the University of Durham, England, and also holds a graduate diploma in applied finance and investment from the Securities Institute of Australia. He has had a 40-year career in oil and gas covering the spectrum of the industry—from E&P, development and petroleum economics to strategic planning, business development and senior leadership.

Newton has spent more than 25 years in senior resource industry roles in Southeast Asia, including as managing director of Fletcher Challenge in Brunei and of Shell Deepwater Borneo; president of Santos' Indonesian operations; and CEO of Jakarta-listed oil and gas company EMP. In 2010 he co-founded Singapore-based Risco Energy and successfully drove Risco's operations and business development functions.

Newton was an active director of the Indonesian Petroleum Association between 2003 to 2008, including serving as president from 2004 to 2007. He is a nonexecutive director of Lion Energy Ltd. and remains the oil and gas adviser to Castle Asia Group and Northern Oil & Gas Australia.

Tap is an E&P company headquartered in Western Australia with production and cash flow from the Manora Oil Field in the Gulf of Thailand and an Australian exploration portfolio.

**Woodside Aims To Sign Off On Browse Gas Project In 2020**

Woodside Petroleum Ltd. on Oct. 18 said it was aiming to bring forward the target date for approving the mam-

moth Browse gas project off northwest Australia by a year to 2020, with the \$15 billion cost estimate potentially being pared.

Woodside, operator and top stakeholder in Browse, expects the earlier final investment decision thanks to recent progress on technical contracts and commercial agreements for processing gas from the project, Woodside CFO Sherry Duhe said.

"It is something that technically we're quite confident about at this point. And the progress that we're making, in particular on getting very imminently to sign the preliminary agreements, is also supporting that as well," Duhe told Reuters.

Woodside is driving Browse and the \$11 billion Scarborough project, also off northwestern Australia, looking to capitalize on an LNG supply gap expected to open up in the early 2020s.

"It's really about us having the confidence to proceed and knowing that the market is there," Duhe said in an interview after the company released its quarterly production report.

Browse, the biggest undeveloped gas resource off northwestern Australia, has been stuck on the drawing board for years as plans for onshore and floating LNG developments estimated at up to \$45 billion were scrapped.

The development cost has been slashed as Browse will now feed the existing North West Shelf LNG plant, rather than requiring a new plant to be built. And contractors have indicated there might be opportunities to trim the estimated \$15 billion cost of the project, Duhe said.

Royal Dutch Shell, BP and PetroChina, along with Japan's Mitsubishi Corp. and Mitsui & Co., are Woodside's partners in Browse.

—Staff & Reuters Reports

**UPCOMING**

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**Subsea Engineering News (ISSN 0266-2205)** is published twice monthly by Hart Energy Publishing LLP, Houston TX, USA. Telephone: +1 713 260 6400; Email: [sen@hartenergy.com](mailto:sen@hartenergy.com) or [custserv@hartenergy.com](mailto:custserv@hartenergy.com); Website: [www.epmag.com/subsea-engineering](http://www.epmag.com/subsea-engineering); Email for subscriptions: [mpigozzi@hartenergy.com](mailto:mpigozzi@hartenergy.com).

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