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Comparing Records Can Reveal Aging Subsea Equipment Condition



Revisting post-installation inspection records can offer insights into the present condition of pipelines being considered for life extension. (Source: ABS; photo by NickEyes/Shutterstock.com)

Operators of aging subsea assets have a unique opportunity during the next decade to extend the operating lives of what will prove to be some of the most robust equip-

ment ever built to extract offshore hydrocarbons. In the late 1990s, when this generation of equipment was installed, uncertainty about its performance in a deepsea environment produced 20-year designs that were based on conservative assumptions about how conditions would affect corrosion, motion and fatigue. Generally, this is good news for life extension.

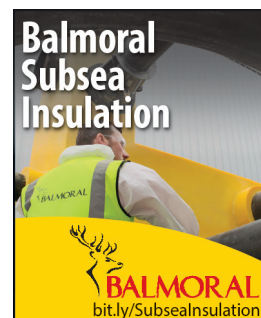
The benefit of subsea field experience has since refined those views; for example, less conservative assumptions have led to new equipment designs being more narrowly defined and cost-effective. It also has offered more visibility of the potential for fatigue and corrosion in equipment that operators have historically struggled to inspect, such as manifolds, subsea pipe-

lines, steel catenary risers, umbilicals and flexibles.

While it remains impractical to pull those components to the surface for a thorough inspection—and often too

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costly or risky to pig subsea pipelines—advances in technology, data science and operating experience now offer better insight into the condition of “uninspectable” equipment.

Inspection Life Cycle

During the life of a field, assets undergo an inspection-review cycle: design, fabrication, installation and preliminary inspection. Later in the field's life, it is important to establish an initial starting point, which entails a reassessment of the design and whether it was installed as planned.

Comparing the post-installation inspection to the asset's current condition can reveal if it and its environment have behaved as expected.

For example, a good place to start a riser inspection is with the top hangoff region of the platform for unusual wear and tear. Cleaning the marine life of the flex joint, for example, will reveal its condition.

It is critical to look through the water column, especially for external damage. Are the strakes, orbs or bearings still there? Because strakes limit vortex-induced motion (and therefore the stresses that cause fatigue) caused by ocean currents, they are a key way to assess an asset's remaining life.

A similar close inspection of pipelines will reveal the rate of anode consumption, which are critical points for corrosion. The state of the anodes offers insights about whether overall cathodic performance is meeting design expectations. While internal pipe inspections are not always possible, external assessments can reveal a lot, beyond obvious external damage. The position of the pipe as compared to where it was originally installed can reveal operational behaviors. Most sections of pipe lie on the seabed, where movement leaves traces, which may have exceeded original expectations. Excessive movement raises the potential for fatigue.

Pipes move, so it is important to determine whether any obstructions have prevented movement. If, for example, the pipe is where it was originally installed, then something may be limiting its motion.

It also is critically important to monitor the location of pipe spans against their original placement. High currents shift the seabed, prompting pipes to settle on a terrain's high spots or bring the lower sections to the seabed ground. This can compromise support for the span, or lengthen it, with the obvious implications for fatigue life.

Comparing the post-installation inspection records against the asset's current condition can reveal if it and its environment have behaved as expected.

Data Gathering

The offshore industry has entered the era of “smart” operations, but most data generated from normal onsite operations are not gathered specifically to measure the life of the equipment. However, data derived from production, metocean and external events still hold insights into the life cycle of the asset.

Production data, for example, reveal whether the vol-

ume, pressure and temperature—as well as crude characteristics such as sweet versus sour, water content, H_2S and CO_2 —met the expectations of the original design. If the original assumptions on water, corrosive fluids or chemical inhibitors differ from expectations, then the potential for a corrosion problem escalates.

Production data also record how many startups and shutdowns a well has undergone. For the manifolds and pipes on the seabed, post-production assumptions are that a relatively constant temperature will be maintained. Stop and start cycles raise and lower temperatures, even with insulated pipe, causing materials to expand and contract.

Unlike on drawings, where pipelines often are represented as straight lines, on the seabed they often are curved in three dimensions. When wells go into production, they heat up and the curves push out; when they are shut off, temperature falls and they pull back.

Evidence of this can be seen on the seabed, and the movement and frequency of these cycles may have impacted fatigue. Production data should be compared to the original design assumptions.

Records of environmental conditions offer insights into the risk of fatigue. If the asset is located next to metocean buoys or other recording devices, good data are available. But if not, then environmental performance is recorded on most platforms and should be reviewed.

Analytical Advances

Assessments of a system's life have been greatly enhanced by the emergence of new analytical tools. Typically, operators have used “response amplitude models” to estimate the reactive behavior of a waterborne asset in the original design. With historical operating data available, it is possible to build a time-domain model using performance data. The result may or may not support life-extension goals, but it will provide a better picture of the asset's consumed/remaining life. The same can be extracted from metocean with regard to vessel direction, and therefore actual versus estimated stress forces.

If necessary, fatigue testing of similar equipment can offer useful performance analyses. The original design projections for fatigue should have been based on the best available curves; current curves may indicate a change. The curves themselves may not have changed, but industry performance may suggest a more appropriate curve for the specific location or asset design.

For the present class of offshore assets under lifecycle review, the original designs were probably based on working-stress analyses. For life-extension purposes, better insights would be derived from load-factor resistance analyses, which focus more on equipment performance (i.e., how much it can take) to determine how much it may have left.

The new analysis should include any full-scale testing results that may have been done. The operator should review the reports from the factory acceptance testing and site integration testing that were done before installing the equipment. Lastly, the asset's photographic history

often is overlooked when assessing its present condition; pictures and videos taken during or post-installation may offer insights into how it was behaving.

With the benefit of 20 years of operational data at hand, a recalculation of the expectations for the design will help to determine what was likely to have been consumed and

to more accurately forecast future conditions. This reevaluation may or may not support life extension goals, but it will likely give owners a better life extension understanding of the present condition of the equipment that is notoriously hard to inspect.

—John Upchurch, ABS

DEVELOPMENT

Pertamina Plans To Drill 118 Wells In Aging Mahakam

PT Pertamina Hulu Mahakam (PHM), a subsidiary of Indonesia's state-run Pertamina, has lined up a plan to drill as many as 118 development wells during 2019 in the aging Mahakam Block off Indonesia's Makassar Strait to maintain oil and gas production levels.

PHM General Manager John Anis said the company would hire five rigs to drill the proposed wells in the Tambora, Tunu, Peciko, Sisi Nubi and South Mahakam gas fields along with the Bekapai and Handil oil fields in Mahakam concession, which has entered Phase IV (a natural decline in production).

The new drilling campaign, according to the official, aims to boost oil and gas production levels from the Mahakam asset to about 50,000 bbl/d and 1,200 MMscf/d from 2020, up from 40,000 bbl/d and 830 MMscf/d in 2018.

"We expect positive results. We try our best," he recently told the House of Representatives Commission VII, a parliamentary committee on energy and mining, in Jakarta.

The development plan includes launching reworks in 132 wells and repairs in 5,623 wells in seven oil and gas fields in the Mahakam concession. The operator has earmarked \$1.8 billion for development and rehabilitation works in the Mahakam asset for 2019.

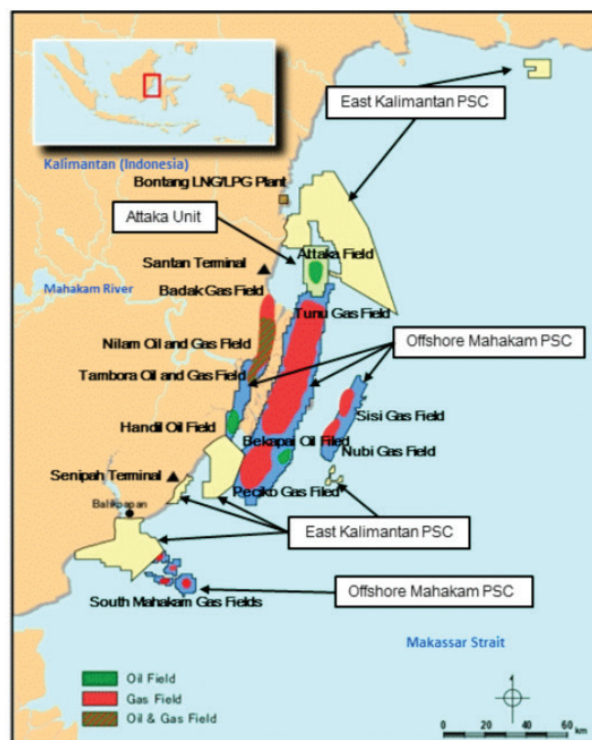
PHM drilled 63 wells in the offshore concession in 2018 that are expected to marginally increase gas production from the current year. It is said that the oil and gas production from the Mahakam asset could reach 24,000 bbl/d and 900 MMscf/d by year-end 2019.

Gas supplies from the Mahatma fields are crucial to operating the Bontang LNG plant, which has a capacity of 22.5 million tons per annum, in East Kalimantan.

Operational Problems

After acquiring operatorship from Total E&P Indonesia in January 2018, PHM has struggled to maintain production levels from aging oil and gas fields in the Mahakam asset, where the first hydrocarbon discovery was made in 1972.

The operator drilled less than the targeted 69 wells and



(Source: INPEX Corp.)

shut down some of the new wells before reaching the targeted depth in 2018 due to the technical problems.

Anis acknowledged that reaching production of 1,200 MMscf/d from the Mahakam Block is not an easy task, considering the geophysical complexities of its aging oil and gas fields.

PHM is looking to drill various types of wells based on function, architecture, completion type, lifting mechanism and wellhead-tree technology to increase production levels in the concession, which is known to be a complex geophysical zone for hydrocarbons.

About 30% of the more than 2,000 total wells drilled in the concession are 20 years old.



PHM also is weighing an option to rope in the former operator, Total, to get the expertise it developed to produce hydrocarbons from the aging fields.

During the operatorship, Total, along with partner INPEX Corp., adopted different methods to tackle the mature field challenges in Mahakam on a field basis due to the uniqueness of every field. Production from the Tunu Field, according to the operator, was revived through lowering network pressure, lighter well architecture and lowering well spacing to re-access disconnected reservoirs. The Handil and Bekapai fields were reactivated through measures like pressure maintenance and intensive drilling.

The average gas production from the Mahakam fields stood at 1,286 MMscf/d before the French major's exit.

New Discovery

In addition to development drilling, PHM continues to seek new oil and gas reserves through exploration activities. PHM President Bambang Manumayoso said the operator discovered new hydrocarbon reserves in the Mahakam concession that could contain up to 70.8 Bcm (2.5 Tcf) of gas.

Even after that amount of gas is extracted, the Mahakam concession has the potential to produce hydrocarbons for more than four decades. The concession is estimated to contain proven reserves of 139 Bcm (4.9 Tcf) of gas, 57 MMbbl of oil and 45 MMbbl of condensate, as of Jan. 1, 2016.

—Ravi Prasad

DEVELOPMENT BRIEFS

Vietnam's Ca Tam Oil Field Starts Production

Vietsovetro, a Vietnam-Russia oil joint venture, has started crude oil production at the Ca Tam Field offshore southern Vietnam, Vietnamese state oil firm PetroVietnam said Jan. 28.

IP from Ca Tam, jointly developed by Vietsovetro, PetroVietnam Exploration Production Corp. and Bitexco Group, is 1,630 tonnes per day, PetroVietnam said in a statement.

The field in Block 09-3/12, 160 km (100 miles) southeast of Vietnam, is hooked up to the facilities in the nearby Block 09-1, which houses the country's largest oil field Bach Ho, PetroVietnam said.

Ca Tam is the first new field to be brought into production in Vietnam in years after a 2014 plunge in oil prices slashed exploration. The startup is significant as declining production from the country's key fields has left it struggling to maintain oil and gas output.

PetroVietnam, formally known as Vietnam Oil and Gas Group, said earlier in January that tension in the South China Sea will continue to weigh on its offshore operations this year, adding that Ca Tam is one of the two offshore fields it expected to start commercial production this year.

PetroVietnam owns 51% in Vietsovetro, while Russia's Zarubezhneft owns the rest.

McDermott Bags Subsea Tieback Contract From LLOG

McDermott International Inc. was awarded a sizeable contract award on Jan. 28 by LLOG Exploration Co. LLC for deepwater subsea pipeline tiebacks and structures from the Stonefly development to the Ram Powell platform, located about 225 km (140 miles) southeast of New Orleans in the Gulf of Mexico.

The scope of work includes project management, installation engineering, subsea structure and spoolbase

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stalk fabrication, and subsea installation of the subsea infrastructure to support a two-well subsea tieback from the Stonefly development site to the Ram Powell platform via a 18,288-m (60,000-ft), 6-in. pipeline at water depths ranging from 1,005 m to 1,249 m (3,300 ft to 4,100 ft). McDermott also will design, fabricate and install a steel catenary riser, a pipeline end manifold and two in-line sleds.

The Stonefly development includes the Viosca Knoll 999 area where McDermott is scheduled to use its 50-acre spoolbase in Gulfport, Miss., for fabrication and reeled solutions. McDermott is scheduled to install the subsea tiebacks and structures using its *North Ocean 105* vessel in the third quarter. Structure design and installation engineering began in January in McDermott's Houston office.

The lump sum contract award will be reflected in McDermott's first-quarter 2019 backlog.

The Ram Powell tension-leg platform is located in 975 m (3,200 ft) of water in the Viosca Knoll Area.

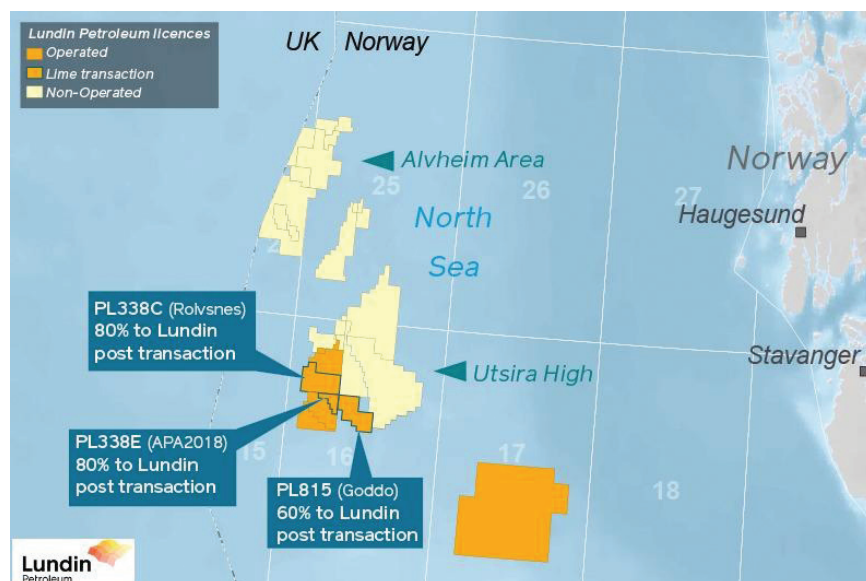
McDermott defines a sizeable contract as between \$1 million and \$50 million.

Lundin Petroleum Boosts Utsira High Position In Norwegian Continental Shelf

Lundin Petroleum AB acquired further interests in Norwegian Continental Shelf licenses as the Sweden-based E&P company works to consolidate one of its core positions in the region.

The company said Jan. 28 its subsidiary Lundin Norway AS entered an agreement with Lime Petroleum AS to acquire Lime Petroleum's entire Utsira High acreage position covering the Rolvsnes and Goddo basement area for roughly US\$45 million.

The acquisition takes Lundin Norway's working interest in the Rolvsnes oil discovery in PL338C and in the recently awarded adjacent license, PL338E1, to 80% from 50% and the Goddo prospect in PL815 to 60% from 40%.



(Source: Lundin Petroleum AB)

Alex Schneider, CEO and president of Lundin Petroleum, said the acquisition will consolidate Lundin's position in the proven weathered and fractured basement play on the Utsira High, which is close to the Edvard Grieg facilities.

The combined gross resource potential of the Rolvsnes and Goddo area is more than 250 MMboe, according to the Lundin press release.

Rolvsnes is located 3 km (1.86 miles) south of the Lundin Norway-operated Edvard Grieg platform on the Utsira High and has a gross estimated resource range of between 14 MMboe and 78 MMboe.

Following the successful appraisal well and production test in 2018, an extended well test is expected to be conducted at Rolvsnes in 2021 to better understand the long-term reservoir behavior. The production test in 2018 further de-risked the on trend Goddo basement prospect in adjacent PL815, on which an exploration well will be drilled this year.

The agreement with Lime Petroleum, which is a subsidiary of Rex International Holding Ltd., includes a cash payment of \$43 million plus a contingent payment of a further \$2 million. The transaction is effective from January.

BP Awards Offshore Trinidad Contract To McDermott

McDermott International Inc. on Jan. 24 said it has been awarded a significant contract award by BP Trinidad & Tobago LLC (bpTT) for the engineering, procurement and construction (EPC) of the Cassia Compression Platform, located 57 km (35 miles) southeast off the coast of Trinidad.

McDermott will provide EPC, hookup and commissioning of the 8,928-ton Cassia C topsides, a 3,747-ton jacket and a 793-ton bridge to link Cassia C with the existing Cassia B platform that currently sits in 68 m (223 ft) of water. The scope also includes brownfield modifications at Cassia B. The compression platform will

be fabricated and constructed at McDermott's fabrication facility in Altamira, Mexico—where another recently delivered project for bpTT's Angelin was fabricated. Trinidad Offshore Fabrication Co. (TOFCO), a fabricator in Trinidad, will fabricate the jacket and the bridge landing frame.

Engineering services will be provided by McDermott's offices in Houston, Chennai and Dubai, with the project management team and procurement being performed from its office in Houston.

This EPC contract follows the completion of a detailed engineering and long lead procurement services contract McDermott completed for Cassia C

earlier this year as well as the completion of the EPC, installation and commissioning contract of the Angelin project for bpTT.

Cassia C is bpTT's third Cassia platform, handling gas coming from its operations in the prolific Columbus Basin. Cassia C will receive 1.2 Bscf/d of hydrocarbon gas through new piping from Cassia B across the bridge. The gas will be compressed in three gas turbine driven compressors and returned to Cassia B for export. Liquids from Cassia C and Cassia B will be combined and boosted for export.

McDermott defines a significant contract as \$250 million to \$500 million. The contract was awarded in two phases, with an initial booking in the fourth quarter of 2018 for early engineering and procurement work. The remainder of the award will be reflected in McDermott's first-quarter 2019 backlog.

Zama Well Offshore Mexico Shows More Potential For Oil

The second appraisal well in the Talos Energy-led Zama project offshore Mexico showed more potential for oil, raising hopes of a huge discovery.

Partners in the block, where Talos holds 35% interest, are Premier Oil (25%) and Sierra Oil and Gas (40%).

Premier Oil said net-to-gross ratio, which represents the volume of rock that is able to store hydrocarbons, came in at 73%, higher than pre-drill estimates and topped its first appraisal well's 63% ratio.

"This is an excellent start to the Block 7 Zama appraisal program in Mexico. It enhances our interpretation of the large Zama discovery and increases our confidence in our resource estimates," Premier's CEO Tony Durrant said.

Premier said the reservoir quality was similar to that at Zama-1 and in line with expectations.

BMO Capital Markets analyst David Round said the result was positive and that he expects this to "improve confidence around higher Zama volumes estimates."

However, the company said it did not hit oil in a deeper exploration prospect called Marte.

Premier said a secondary wellbore will be drilled away from the original hole of the Zama-2 appraisal well,

which was deepened to evaluate the high-risk Marte exploration prospect.

Talos Energy said on Jan. 23 that the initial phase of the appraisal program was completed about 28 days ahead of schedule and 25% below initially projected costs.

Helix Secures P&A Work In GoM

Helix Energy Solutions Group Inc. has acquired from Marathon Oil Corp. certain operating depths associated with the Droshky Prospect on Green Canyon Block 244 in the U.S. Gulf of Mexico (GoM) along with related infrastructure.

As part of the transaction, Helix will perform the required plug and abandonment (P&A) operations for which Marathon Oil will pay certain agreed upon amounts.

"This transaction represents the first instance of executing our strategy to secure utilization for our assets in nontraditional ways during this continuing challenging market period," said Helix CEO Owen Kratz. "We may see some production revenues from the acquired property; however, the principal driver for this transaction is asset utilization."

Total To Approve Nigeria's Ikike Project In Coming Months

French oil and energy group Total will formally approve a decision to proceed with the Ikike project in Nigeria in the coming months, CEO Patrick Pouyanne said.

"There is a huge potential in Nigeria. It is probably the most prolific country in West Africa in terms of oil and gas, and it is time to launch new projects, and we are working on many of them," Pouyanne told journalists on Jan. 21.

Pouyanne was speaking on the sidelines of a meeting of Nigerian and French businesses in Paris.

The Ikike Field is located in OML 99 offshore Nigeria.

Total is one of the strongest players in the African oil sector, holding the largest proven reserves on the continent among the world's top oil companies.

Earlier in January, Total started production at the Egina oil field off the coast of Nigeria.

—Staff & Reuters Reports

EXPLORATION

Total Plans Biggest Exploration Drive In Years

Total is launching its biggest exploration campaign in years as part of a turnaround plan that is ditching the company's focus on risky long shots in favor of areas known to contain commercial levels of oil or gas.

Kevin McLachlan, senior vice president for exploration told Reuters the French major aims to drill 23 wells this year in waters off Mauritania, Senegal, Namibia, South Africa, Guyana and Brazil.

While the company declined to say how many wells it drilled in 2018, McLachlan said 2019 would be Total's largest program in years. The 23 wells planned represent about a trebling of the levels of 2017 and 2016, and is higher even than the 20 drilled in 2013, before the oil price crash.

The company's new game plan is to concentrate efforts on emerging and mature basins, which offer a greater



A vessel heads toward the Grondin platform off the Gabonese coast. (Source: Schaff Philippe/Total)

chance of exploration success. It is moving away from its higher-risk, higher-reward strategy of targeting “frontier” areas that have not been commercially exploited, an approach which yielded scant rewards and saw outlier Total fall behind rivals.

As a result, the proportion of its exploration capital the African-focused company is spending on for frontier areas has dropped to 15% from 40% five years ago. “We were spending a lot of money in the frontier,” said McLachlan, a Canadian geophysicist who joined Total in 2015 to lead the five-year revamp of its exploration strategy. “Now we want balance.”

Most of the wells it aims to drill this year will target known giant fields, he added.

Total has broken ranks with some rivals in recent years and largely ignored the rush to U.S. shale. It is looking to eke out conventional resources, particularly in Africa where it has the biggest industry presence. The strategy carries risks though and has left the company exposed to the kind of political instability that has deterred others.

McLachlan said Total’s exploration budget would remain broadly in line with 2018, when it was \$1.2 billion, and 2017, when it was \$1.1 billion. That is still less than half the level of 2014, when the price crash forced all majors to cut spending.

Lagging In Discoveries

Appraisals of discoveries in 2018 could offer signs that Total’s shift in exploration strategy is paying off. The company announced a 1 Tcf gas discovery off Shetland in the North Sea last year. Appraisals are ongoing for the Ballymore discovery in the Gulf of Mexico with Chevron, and Calypso in Cyprus with Eni.

A major discovery in 2019 could cement the turnaround after a drought between 2009 and 2014 when it spent billions in exploration with little barrels to show for it, while Eni, Exxon Mobil and BP racked up successes.

Yet there is still work to do in terms of converting exploration dollars into commercial success.

Energy consultancy Wood Mackenzie said Total had aggressively snapped up exploration blocks in 2017 and 2018, which took it to the top of the industry table with more than 189,000 sq km (72,973 sq miles) added since 2015—about 70,000 higher than its nearest competitor.

But in terms of discoveries since 2015, Total still lags some peers, said Wood Mackenzie analyst Andrew Latham.

“It is clearly behind Exxon Mobil. Exxon’s success in Guyana marks them out as industry leader,” said Latham, adding that Eni’s Zohr gas discovery in Egypt was the next top find.

“Thereafter, it is competing well with the other majors; it has been involved in a string of multi-hundred million barrel big new finds, whereas in the previous four years it would have been one of the weaker or weakest of the majors.”

As part of its turnaround plan, Total has created five regional exploration hubs with a concentration of geoscientists, instead of teams spread out in 38 countries.

A new, central 10-person leadership team reviews and chooses projects, compared with decisions being made locally before, while people with exploration track records have been placed in executive positions for the first time.

South Africa Results Expected ‘In Days’

Like some competitors, including Exxon and BP, Total is looking to deepwater exploration at a time when technological advances—particularly in 3-D digital seismic imaging—is aiding a comeback in that area following a decade when industry advances have been focused on onshore shale.

Of the 23 wells in Total’s drill program this year, it has already started work at the deepwater Brulpadda Field off South Africa. Two industry sources close to the project say the potential for a discovery is high and could signal a game changer not only for Total but also for the country.

“We are expecting the results in the coming days,” Total’s Chairman and CEO Patrick Pouyanne said.

While Total has said the field could hold between 500 MMboe and more than 1 Bboe, one of its partners in the project is more upbeat.

“The outlook for finding hydrocarbons is extremely high. The question is whether it is gas or oil, and whether it is a good-quality reservoir,” Keith Hill, CEO of Africa Oil Corp., a minority stakeholder in the field, told Reuters, adding that the field could hold between 1.5 Bbbl and to 3 Bbbl.

Other oil companies and South African authorities are likely to be watching closely.

“Any potential discovery will ultimately result in the attraction of other oil companies and the growing of the oil and exploration and production industry in South Africa,” said Viljoen Storm, acting chief executive of the country’s state-owned Petroleum Agency.

—Bate Felix and Wendell Roelf, Reuters

EXPLORATION BRIEFS

CNOOC, Total Make Gas Discovery At North Sea Glengorm Prospect

China's CNOOC and partners Total and Edison E&P SpA subsidiary Euroil have made a significant new gas discovery off the coast of Britain at the North Sea Glengorm prospect, with recoverable resources estimated at about 250 MMboe, the company said on Jan. 29.

Total said further drilling and testing would be carried out to appraise the resources and productivity of the reservoir.

"Glengorm is another great success for Total in the North Sea, with results at the top end of expectations and a high condensate yield in addition to the gas," Kevin McLachlan, Total's senior vice president for exploration, said in a statement.

The discovery is near existing infrastructure operated by Total and offers tieback possibilities, such as the Elgin-Franklin platform and the Culzean project, scheduled to start production this year, the company said.

It also presents upside potential with several other prospects identified on the same block, Total added.

Britain's Oil and Gas Authority welcomed the discovery as it underlined the area's potential.

"Our official estimate is that there still remains between 10 [billion] and 20 billion barrels plus to be recovered, so there is every chance of yet more significant finds, provided industry can increase exploration drilling," said Andy Samuel, CEO of the Oil & Gas Authority.

Kevin Swann, senior analyst at Wood Mackenzie, said at 250 MMboe, Glengorm was the largest gas discovery in the U.K. since Culzean in 2008.

"This was third time lucky for CNOOC at Glengorm. Technical problems saw it try to fail to drill the prospect twice in 2017, so persistence has paid off. This is a good start to what could prove to be a pivotal year for U.K. exploration with several high impact wells in the plan," Swann said.

Total holds a 25% working interest in Glengorm.

China's CNOOC Petroleum Europe Ltd., a wholly owned subsidiary of CNOOC Ltd., holds a 50% stake and is the operator, while Euroil holds 25%.

BHP: Trion Appraisal Well Hits Oil In GoM

BHP Billiton said Jan. 22 the Trion-2DEL appraisal well, the first well drilled by an international operator in deep water offshore Mexico, struck oil.

The well, located in Block AE-0093 in the Gulf of Mexico (GoM), was spudded on Nov. 15 in a water depth of 2,379 m (7,805 ft). BHP said a downdip sidetrack is being drilled to further appraise the field.

The Trion Field is in the Perdido Fold Belt area in the deepwater GoM.

BHP is the operator and holds a 60% interest. Mexico's state-owned Pemex holds the remaining interest.

CGG Survey Supports Gabon's 12th Offshore Licensing Round

Building on the success of its 25,000-sq-km (9,652-sq-mile) 3-D BroadSeis survey, which led to the recent Boudji-1 and Ivela-1 oil discoveries, CGG is extending its Gabon multiclient data footprint with a 9,800-km (6,089-mile) long-offset 2-D seismic survey in an unexplored deepwater area of the South Basin.

A subset of the data over the offered license blocks will be available in advance of Gabon's 12th offshore licensing round planned for June 2019.

The new 2-D data will help define the full extent of existing and new plays in the region. It also will aid in understanding the thickness variations in the sediment overburden for source rock and maturity analysis. CGG's advanced broadband processing workflow will increase the resolution and improve the characterization of the turbidite systems that represent potential exploration targets.

The low frequencies delivered will provide deep penetration to enhance understanding of the nature of the deep crust. New insights from this survey will expand and update CGG's current JumpStart integrated geoscience package.

"This survey marks a continuation of our long-term successful partnership with the Gabonese Republic's Ministry of Petroleum and Hydrocarbons to support and promote the potential of Gabon's deep waters," CGG CEO Sophie Zurquiyah said.

—Staff & Reuters Reports

TECHNOLOGY BRIEFS

SMD Shanghai Delivers Quantum WROV

Soil Machine Dynamics Ltd. (SMD) said SMD Shanghai, SMD's Chinese entity, has completed the manufacture and commissioning of a Quantum MkIII work class ROV (WROV) at its facility in Lingang, Shanghai. This is the first WROV to be built at the facility since its opening in 2018.

The Quantum WROV is billed as the largest heavy-duty WROV in SMD's range. (Source: Soil Machine Dynamics Ltd.)



SMD Shanghai's facility is home to a 3,700-sq.-m workshop with an in-house training facility featuring an ROV training simulator and 405-cu.-m test tank. Having this capability in-house means that SMD Shanghai is able offer a full solution from sales support to training and aftercare.

The Quantum WROV is billed as the largest heavy-duty WROV in SMD's range. It offers a solution for off-shore tasks where high-thruster performance and tooling power are required. Generous chassis space means that the system is versatile to allowing for upgrades and additional equipment to suit the customers' requirements.

MDL Deploys 150Te Tensioner In Nigeria

Maritime Developments' newest and largest pipelay tensioner, the MDL TTS-4/375 Series Tensioner, is rated for a safe working load of 150-ton line pull and was used for installation of oil offloading lines offshore Nigeria.

The system was mobilized from MDL Peterhead facility in four modules onto trucks for transport to port, where it was reassembled off critical path before being lifted onto a cargo vessel in a single lift.



The MDL TTS-4/375 Series Tensioner is rated for safe working load of 150-ton line pull. (Source: Maritime Developments)

Once at the project mobilization port in Lagos, it was then lifted from the cargo vessel directly onto the project vessel and installed onto the client's HLS ramp, also manufactured bespoke by MDL in Peterhead.

The C500 Surface will be specifically targeted at the autonomous surface vehicles market, the company added.

The 150Te system joined the company's unique 4-track tensioner range in 2018, shortly after the delivery of a 110Te unit.

Despite the increase in size and pulling capabilities, all tensioners retain the key features of the company's MDL TTS-4

design, including Failsafe Grip System, self-centering alignment, Profinet architecture and road-transportability.

For the 110Te and 150Te units specifically, these systems can replace the need for a dual-tensioner solution to perform any installation above 50Te line pull and 4.1 track contact length.

Use of a single unit decreases the footprint of the equipment on board and the associated engineering costs, and it also reduces the safety hazards associated with running two systems in tandem and can reduce operating personnel on board the installation.

Altus Intervention Invests In 'MultiSIM' Smart Technology

Altus Intervention UK said Jan. 14 that it is investing in a new training simulator to boost the safety and competency of its personnel in the field.



The MultiSIM realistically mirrors well intervention operations. (Source: Drilling Systems)

The new MultiSIM portable well intervention simulator developed by advanced simulator manufacturer, Drilling Systems, will be installed at Altus Intervention's U.K. facilities in Portlethen, close to Aberdeen. It will be used to train Altus Intervention's more than 300 offshore personnel in multiple well intervention operations including coiled tubing and wireline.

The MultiSIM realistically mirrors well intervention operations and gives individuals the opportunity to practice scenarios they may not have encountered during normal operations. This allows Altus Intervention to close gaps in individual competency and build confidence, which in turn improves safety and efficiencies.

—Staff Reports

VESSEL BRIEFS

Aberdeen Firm Launches Digital ROV Marketplace

Aberdeen, Scotland-based ROVHUB has launched the first online marketplace for ROVs, the company said in January.

Founder David Gault, a 30-year industry veteran, said he developed ROVHUB after seeing ROVs lying idle during the 2014 oil and gas downturn.

"The oil and gas market is picking up but there is still spare ROV capacity," he said. "ROVHUB can flag

up alternative opportunities for owners outside their core regions and in other sectors such as renewables and aquaculture.”

Gault added that the service makes other industries aware of oil- and gas-focused ROVs that might be available for their work.

ROVHUB took two years to develop and boasts thousands of ROVs and hundreds of ROV companies in its database. Gault considers it a component of a digital trend in the marine and offshore industries.

“Adoption of digital technologies is gathering pace in the oil and gas industry,” he said. “It’s not just about cost-cutting; it’s also about automating manual processes to free up resources that can be used more effectively elsewhere, and it’s creating opportunities by doing things differently.”

Agreement Made For Exxon Mobil Investment In German FSRU

Exxon Mobil Corp. will purchase a substantial share of the regasification capacity of an floating storage and regasification unit (FSRU) facility, a German utility said on Jan. 25.

“The heads of agreement (a nonbinding draft) is an important step toward the realization of the Wilhelmshaven FSRU project,” said Keith Martin, Uniper’s chief commercial officer.

The vessel is considered an important link for LNG exporters like the U.S. and Qatar to deliver the product to

Germany and ultimately other European markets. It also will help Germany to diversify its gas sources away from Russia, Norway and the Netherlands.

When it begins operations in the second half of 2022, Germany’s first LNG terminal will have a capacity of 10 Bcf/year.

Uniper said negotiations would continue with Exxon Mobil to reach binding agreements.

DOF Subsea To Support FPSO Work In Malaysia

DOF Subsea has landed the contract for services to position and moor Yinson Energy’s FPSP *Helang* on the Layang Field in Sarawak, Malaysia.

DOF Subsea will use the 109.5-m *Skandi Hercules*, built in 2010, for the project scheduled for completion in the third quarter.

Helang was upgraded last year at Huarun Dadong Dockyard Co. in China. The work included installing a new turret supplied by London Marine Consultants, moonpool reinforcement, flare tower fabrication and installation, tank ladder fabrication and installation, helideck platform fabrication and installation, cabin upgrades, life extension of steel renewal, and tank coating.

The contract encompasses project management, engineering, towing and mooring services.

—Staff Reports

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