

DEEPWATER

INTERNATIONAL

WORLDWIDE DEEP & ULTRA-DEEP E&P NEWS, TECHNOLOGY AND ANALYSIS

Rosebank pre-FEED looms west of Shetland

Chevron is preparing to issue a tender inquiry for pre-FEED studies on its deepwater **Rosebank Lochnagar** field in the Atlantic Frontier west of Shetland, with area-wide industry negotiations also apparently nearing fruition.

The US major is currently pushing on with a problematic appraisal of the **213/27-3 Rosebank North** well, on which drilling was recently suspended for two weeks due to technical weather-related problems with the riser system. Drilling is back underway using the *Stena Carron* drillship in a water depth of 3,800ft (1,158m), with the appraisal to provide crucial reservoir information for the planned harsh environment project. The well, originally planned to finish

by April, now looks set to be completed in May.

Chevron's tender plans will however continue in the meantime, with the operator set to invite bids to carry out conceptual studies into deep draft semisubmersible, FPSO and subsea development options for the field. A full FEED will not get underway until late 2010 or even into 2011, it is understood.

Partners in Rosebank include StatoilHydro, OMV and DONG. The discovery was made in 2004, with the original well hitting two reservoirs with total net oil pay of 169ft (52m). A production test in 2007 flowed 6,000 b/d of 37° API oil.

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ATP stalls second MinDOC facility

ATP has scrapped plans to install a second MinDOC production facility in its deepwater **Telemark Hub** area of the Gulf of Mexico, in a bid to cut costs and increase the economics of its first platform of the same design.

The US independent revealed it has revised its drilling and production program for **Atwater Valley Block 63**, which was to have been the location for the MinDOC II unit. The second facility, said ATP, has been postponed and "will be utilised at another ATP location in the future," although no specifics have yet been given.

AT 63 lies in the southern part of the Telemark Hub area and will now see a sub-sea well eventually tied back to the



MinDOC I facility (*ATP Titan*), which will move to AT 63 once it has produced the reserves from the **Mirage** and **Morgus** fields in the northern part of the area (**Mississippi Canyon Blocks 941** and **942** respectively). The revision, added ATP, will result in an increase in production rates through the platform in 2010 and 2011 and immediate cost savings.

The Telemark Hub project is moving towards first production by late this year or early 2010, with construction of the *ATP Titan* MinDOC floating drilling and production platform nearly complete.

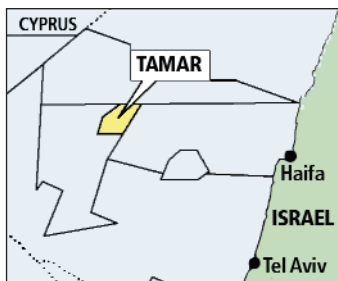
The facility is scheduled for sail-out and mooring mid-year. It has a design capacity of 25,000 b/d of oil,

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Noble's hub ambitions for 5 Tcf Israeli gas find

Noble Energy has upped its reserve estimates for its giant **Tamar** deepwater gas discovery offshore Egypt to 5 Tcf, and says the find is "clearly of a size for commercial development".

DI hears the US player is intent on firming up conceptual development schemes before the end of this year for the discovery, likely to focus around a floating production hub facility with pipelines to shore, while it



meanwhile carries out ongoing exploration and appraisal activity in the **Matan** licence.

The latest flow test on the **Tamar-1** discovery well, located in approximately 5,500ft (1,676m) of water, was performed over a limited 59ft (18m) section of the lowest reservoir and yielded a rate of 30 MMcf/d of natural gas. The flowrate was limited by the available testing equipment. Performance model-

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News in Brief

● Weatherford International has signed an agreement with India's Oil & Natural Gas Corporation (ONGC) outlining co-operation in a wide range of areas, according to the Indian state-owned operator. ONGC said it signed a memorandum of understanding with Weatherford earlier this month covering assistance in areas including deepwater exploration and production, as well as production enhancement and optimisation, reservoir management and optimisation and marginal field development.

● Norwegian oil service company PetroMena has agreed with Singapore's Jurong Shipyard to postpone a payment by 1 year of a US \$105m installment that was due on 31 January. PetroMena said it agreed with Jurong, owned by Sembcorp Marine, to postpone the installment for the *Petrorig 3* project until delivery of the rig, which is scheduled for January 2010. PetroMena said its subsidiary Petrorig 1 made a preliminary agreement with Lloyds on \$200m out of \$300m bank debt it needs to finance its first rig, *Petrorig 1*.

● PetroResources has made some investment into securing two blocks offshore Cyprus, one of which is a shallow water block and the other a deepwater block. "Active discussions" have been ongoing with relevant parties, according to parent company PetroProd Ltd. Technical review on the blocks is currently being carried out. To reflect the current market situation, investment in PetroResources has been written down by US \$3m. PetroProd's shareholding in PetroResources is 28.57%.

● The newbuilding AHTS *Sea Hawk 1* was originally scheduled for delivery from Jaya Shipbuilding and Engineering PTE Ltd, Singapore in January this year but due to a defect main gear-box and late delivery of replacements, it is now expected to be delivered in July 2009, according to Deep Sea Supply Plc.

● Consub Limited and g3baxi partnership limited (g3) have signed a frame agreement covering the provision of technical services for future selected projects. Frank Nunan, Managing Director of Consub, said: "Consub considers that both companies complement each other in terms of size, our core business strength and the experience of our personnel. With g3 we look forward to developing our respective portfolios of field conceptual studies, front end engineering and general technical assurance". Dave Bennett, Operations Director of g3, added: "We see significant mutual benefit to our respective companies in providing quality services to larger projects by combining the Process, Flow Assurance, Subsea and Pipelines engineering expertise of both organisations."

COMPANY NEWS

Deepwater 'least vulnerable' to cuts

Oceaneering International reported record fourth quarter and annual earnings for the periods ended 31 December, 2008 and says it believes the deepwater market remains the "least vulnerable" in terms of being exposed to customers' spending cuts at this time.

During the fourth quarter of 2008, on revenue of US \$525.7m, Oceaneering generated net income of \$51m, compared to equivalent figures of \$481.6m and \$45.5m in the Q4 2007 period. For the full year 2008, it reported net income of \$199.4m on revenue of nearly \$2 Bn, as opposed to \$180.4m on revenue of more than \$1.7 Bn in 2007.

T. Jay Collins, President and Chief Executive Officer, said in some admirable straight-talking discussing the deteriorating macroeconomic environment: "These conditions are having a negative impact on oil and gas exploration and development spending plans and, consequently, our earnings prospects for 2009. We do not pretend to have a 'bulletproof' business strategy. It would, therefore, be presumptuous to claim we know the exact impact our cus-

tomers' spending cuts will have on demand for our services and products.

"However, we believe the deepwater market will be among the least vulnerable to these cuts. This belief is based on the inherent size and long-term nature of deepwater projects and our expectation that oil prices will inevitably rebound to a level that will make these projects more economical. While work on most authorised deepwater projects is likely to continue, the urgency to start new projects is in question."

Looking further ahead, he continued: "Looking longer term, our belief remains unchanged that the oil and gas industry will continue to invest in deepwater to counteract high existing reservoir depletion rates. Deepwater is one of the best frontiers for adding large hydrocarbon reserves with high production flow rates at relatively low per barrel finding and development costs. Therefore, we anticipate that demand for our deepwater services and products will remain promising for the next several years."

Global E&A plans bode well for Anadarko

Anadarko Petroleum's deepwater appraisal and development plans worldwide for 2009 remain amongst the most interesting of its peers, not only in the established zones off Brazil, West Africa and in the Gulf of Mexico but also in some of the more far-flung emerging frontiers.

The US independent is of course involved in one of the hottest hotspots internationally at present, being a major partner in the prolific Cretaceous trend offshore Ghana. Appraisal activities on the **Jubilee** field last year expanded the areal extent of the field to more than 7 miles from the northwest at the **Hyedua-2** appraisal well in the **Deepwater Tano** licence, which was confirmed in the fourth quarter, to the recently drilled **Mahogany-3** appraisal well to the southeast.

Further appraisal and development activity is expected to continue on the Jubilee field in 2009, and additional exploration is planned in the area, including the recently spud **Tweneboa** prospect, which has characteristics similar to Jubilee. Tweneboa is being drilled by the *Eirik Raude* semisub. Other prospects to be drilled in the vicinity this year are the **Teak** and **Onyina** probes.

Off Brazil, a multi-zone drillstem test is planned mid-2009 on the pre-salt **Wahoo** discovery in **Block BM-C-30** in the Campos Basin. The discovery well encountered at least 195ft (59m) of net pay and showed characteristics similar to the nearby giant **Jubarte** field. As well as the drillstem test, additional appraisal and exploration drilling is planned in and around the block throughout the remainder of this year. Anadarko holds a 30% interest in the block.

Planning is also underway for a pre-salt well on **BM-C-32** (Anadarko 35%) in the third quarter of this year to explore for a similar trend to Jubarte, which directly offsets **BM-C-30** and **BM-C-32**.

A well is currently being drilled by Transocean's *Deepwater Millennium* on the **Coalho** prospect in block **BM-ES-25** (Anadarko 40%), with results expected before the end of this quarter.

Other Brazil prospects to be drilled in the surrounding area include **Gouda** and **Itaipu**.

● **Liberia** - Anadarko initiated acquisition during the fourth quarter of 2008 of a 4,700sq km 3D seismic survey, the largest 3D-seismic survey in the company's history, off Liberia in **Blocks 15, 16** and **17**. Anadarko operates the blocks with a 40% working interest.

● **Sierra Leone** - an exploration well will be spudded targeting the **Venus-B1** prospect this year in **SL-6**, possibly as soon as the second quarter. Anadarko bought a 50% stake as operator in blocks **SL-6** and **SL-7** from Woodside and Repsol, who retained 25% each. These blocks cover an area of 10,567sq km in water depths ranging from 164-12,304ft (50- 3,750m).

● **China** - Anadarko and the Chinese National Offshore Oil Company (CNOOC) entered into a joint venture agreement on South China Sea **Contract Area 43/11** in the last quarter of 2008, which provides for CNOOC's participation during the exploration period. Preparations continue for drilling a 13,000ft (3,962m) exploration well this year, when a rig is available. Anadarko also acquired 260km of 2D seismic data, completing all planned 2D activity on the block.

Pride highlights resilience of deep rig segment

The ongoing process by Pride International to focus upon the deepwater rig market sector has seen the company report record results for the fourth quarter and full year 2008, with the contractor upbeat about its prospects moving forward.

For the three months ended 31 December, 2008 income from continuing operations, net of tax, totaled US \$197.4m compared to \$118m during the equivalent period in 2007. Fourth quarter 2008 revenues reached a record \$621.6m, improving 29% when compared to revenues of \$482.4m in Q4 2007.

For the year ended 31 December, 2008 income from continuing operations, net of tax, was a record \$666.4m compared to \$423.8m in 2007. Revenues hit \$2,310.4m for the year, increasing 18% from \$1,951.5m in 2007.

Capital expenditures in 2008 were \$984m, including \$637m associated with the construction of four deepwater drillships. Pride expects Capex in 2009 to total approximately \$1.1 Bn, including an estimated \$735m on the four drillships.

Louis A. Raspino, President and CEO, highlighted the company's expanding presence in the "resilient" deepwater drilling segment from both an asset and geographic standpoint, at a time when decreased customer demand is most evident in the jackup rig sector.

"As we commence 2009, we are entering an increasingly uncertain economic climate with markedly lower crude oil and natural gas prices causing many customers to reduce planned exploration and production spending during the year. As a result, offshore drilling activity is noticeably lower in many regions around the world. Decreased customer demand is most evident in the jackup rig sector, resulting in an increasing number of idle rigs while new, uncontracted capacity is being delivered. Overall, a more challenging near-to-intermediate-term dayrate environment is likely, especially for the jackup and midwater fleets, while the industry's deepwater fleet is expected to display more resilience due to longer term contract durations and strong geologic success over the past several years."

During the fourth quarter, the company reorganised its reportable segments to reflect the general asset class of its drilling rigs. It believes the change reflects how it manages its business. Pride's new reportable segments include Deepwater, which consists of its rigs capable of drilling in water depths greater than 4,500ft (1,372m), and Midwater, which consists of its semisub rigs capable of drilling in 4,500ft or less.

Revenues from Pride's fleet of 8 deepwater rigs were \$238m during Q408, compared to \$241.7m in the preceding

quarter, with average revenues per day of \$331,300 compared to \$333,600 over the comparative period. The slight decline in revenues was due primarily to out-of-service time on the semisub *Pride Carlos Walter* and a lower average dayrate on the semisub *Pride Rio de Janeiro* following the reassignment of the rig at a higher dayrate for a portion of Q308. Earnings from operations improved to \$136.5m in Q408 from \$127.9m in the preceding quarter.

Utilisation of the fleet was 98% in the fourth quarter, unchanged from the preceding quarter.

The company stated: "Although the urgency by some customers to contract deepwater rigs has diminished in early 2009, primarily due to the difficult global economic environment, which has contributed to the abrupt decline in crude oil prices since mid 2008, deepwater activity is expected to remain healthy. Customer interest in this attractive sector continues to be strong, especially in Brazil, West Africa and the US Gulf of Mexico, as well as in several emerging areas.

"The industry's most capable rigs, which are those able to address customer needs in greater than 7,000ft (2,134m) of water, are expected to remain fully utilised throughout 2009 and into the next decade as multi-year field development programs continue and customers continue successful exploration efforts. There is also an increasing focus by some customers on more challenging geologic structures, which are expected to require the advanced features of these rigs. The average contract time remaining on the industry's fleet of deepwater rigs capable of drilling in water depths over 7,000ft is approximately 4 years, inclusive of those units presently under construction and with contract awards, while rigs capable of drilling in water depths of 4,500ft to 7,000ft have an average contract length of approximately 2.5 years.

"Due to the multi-year contracts, some subletting of deepwater rig time is likely during 2009 as customers attempt to balance their rig needs. Currently, 96% of the company's deepwater rig days are committed to contracts in 2009, with 87% and 81% committed in 2010 and 2011, respectively."

Mr Raspino concluded: "Pride International is well-positioned to successfully operate in this more difficult offshore business climate. Our revenue backlog, currently \$8.6 Bn, excluding performance bonus opportunities, is expected to provide annual revenues of between \$1.5 and \$2 Bn for each of the next 4 years. In addition, our capital structure remains strong, and we have only nominal debt maturities of approximately \$30m in each of the next 3 years. With our business transformation nearly complete, we will continue positioning the company as a unique offshore drilling choice for investors with an increasing emphasis in deepwater."

Keppel FELS completes latest semisub

Keppel FELS has completed Transocean's *Development Driller III*, an ultra-deepwater drilling rig built to Keppel's proprietary DSSTM 51 semisubmersible design.

The rig is designed to drill wells as deep as 37,500ft (11,430m) and can operate in water depths of up to 7,500ft (2,286m), upgradeable to 40,000ft (12,192m) and 10,000ft (3,048m), respectively.

Designed by Keppel's Deepwater Technology Group in collaboration with Marine Structures Consultants of the Netherlands, units in the DSSTM Series boast several cost-efficient and distinctive safety features for rig operators, says Keppel. The DSSTM Series have a total payload of 13,500 tons, which the company adds reduces the need and costs of

transporting supplies to and from the rig considerably, and is especially valuable when operating in remote environments.

The rigs also have distinct 'double-skin' columns, which protect the critical equipment within from damage by external impact.

This latest unit is the third DSSTM unit to enter the market, and will be deployed first by customer BP in the US Gulf.

The *Development Driller III* has Transocean's proprietary dual-activity drilling technology onboard.

Including this latest unit, Keppel FELS has completed three of eight DSSTM Series semis ordered since the design's premiere in 2001.

Hardy and Reliance line up burst of East Indian action

Hardy Oil and Gas has outlined an extensive burst of exploration and appraisal activity in its deepwater project areas offshore India.

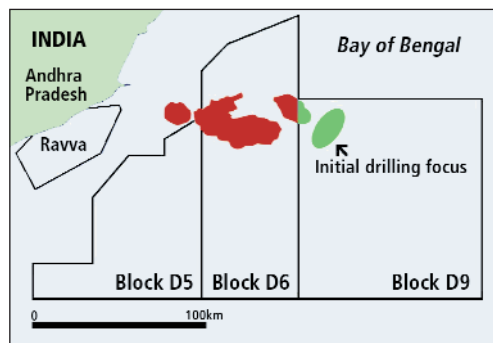
In the **D9** block, in which it holds a 10% stake, the UK independent estimates that an exploration well will begin drilling in the first half of this year. The company says the operator Reliance (90%) has advised that a first well in the ultra-deep block looks likely as the drillship *Deepwater Expedition* is currently engaged in development operations on an adjacent Reliance-operated block, **D6**, where 12 consecutive gas discoveries have been made.

D9 covers 11,605sq km in the Krishna Godavari Basin, with water depths ranging from 7,546-10,171ft (2,300-3,100m).

In the deepwater D3 block, also in the KG Basin, acquisition of an additional 1,180sq km of 3D seismic data is under-

way and expected to be completed in the first half of this year.

The operating committee has also approved an appraisal programme for the **Dhirubhai 39** and **41** gas discoveries in the block. The appraisal area comprises 750sq km covering a large portion of the north-west corner of the block. The programme provides for the initial undertaking of various geological, geophysical and development concept studies, following which two appraisal wells could be drilled prior to February 2011. The proposed appraisal programme will be submitted to the Government of India shortly,



for consideration by the joint venture management committee.

Up to four exploration wells will also be drilled in D3 during 2010, Hardy added. The company again holds a 10% stake as partner to Reliance (90%) in D3.

No Paus for thought by Newfield off Sarawak

Newfield Exploration is drilling its **Paus-1** deepwater exploration probe offshore Sarawak, Malaysia.

The wildcat in **Block 2C** is being drilled using the *Ocean Rover* semisubmersible rig, which spud the probe last month. Paus-1 is the second of a 2-well commitment in the block,

where the US independent holds a 40% operating interest. Its partners are Petronas Carigali (40%) and Mitsubishi (20%).

The first well in the block targeted the **Talang** prospect back in late 2006 and hit 60ft (18m) of non-commercial gas pay.

Newfield then farmed down 20% of its equity to Mitsubishi.

Chevron eyes Black Sea entrance

Chevron is set to join a growing band of majors exploring the potential of the Black Sea's deepwater zones, with an initial US \$500m deal in Turkey expected to be sealed by mid-2009.

The US major is eyeing deep blocks off western and central sections of the Black Sea coast, according to Yurdal Oztas, assistant general manager at state oil company TPAO, reported the state-run Anatolian news agency. "Our talks with Chevron have been positive, and we hope to reach the point of an agree-

ment by this summer," said Oztas said.

If it proceeds Chevron would join Petrobras of Brazil and US rival ExxonMobil in Turkey's Black Sea sector. Petrobras is investing \$400m and is due to kick off drilling this year in an area it believes could potentially contain up to 5 Bn bbl of oil.

In November last year, meanwhile, ExxonMobil and TPAO agreed to invest \$450m to begin exploring in the Black Sea at the end of this year (*see DI, 1 December 2008, page 4*).

Petrobras hints at oil potential in Iran's deep waters

Petrobras has hinted at discovering evidence of hydrocarbons in ultra-deepwater in the Persian Gulf offshore Iran, according to company officials.

Jorge Zelada, Petrobras' international area director, said the next step will not be decided until the company finishes its analysis, which will take two or three months.

Petrobras signed a contract in 2004 to develop exploration

projects in the Persian Gulf off Iran, and has so far invested US \$100m in the drilling of two wells, Zelada said. He added that the type of partnership that might be settled on with Iran has not yet been discussed and will only be determined if the discovery proves to be of commercial value. "We set a deal to do the drilling but we did not sit to discuss any other future steps," he said.

SeaBird up and flying on Agbami

SeaBird Exploration together with its local partner Sonar Limited has confirmed the execution of a Letter of Commitment with operator Star Deepwater Petroleum Limited, an affiliate of Chevron Nigeria Ltd., for the pre-survey design and subsequent acquisition of a large-scale ocean bottom node seismic program on the **Agbami** field offshore Nigeria.

The program is currently scheduled to mobilise immediately upon completion of a contract for BP on the **Atlantis** field in the deepwater GoM and will be conducted with the survey vessel *Hugin Explorer*, the source vessel *Kondor Explorer* and the proprietary CASE Abyss 4C autonomous seismic recording system technology.

The contract has an expected duration of between 6 to 9

months and is expected to yield revenues including mobilisation and demobilisation in excess of Seabird's previously published guidance rates for OBN surveys (*Hugin Explorer*) and source vessels (*Kondor Explorer*).

SeaBird CEO, Tim Isden, said: "This Letter of Commitment represents the third major recognition of SeaBird OBN operations from the oil majors in a short period of time since its introduction to the market. We see great potential for the future in reservoir imaging and 4C/4D applications, and strong industry support for our technology. This project represents another new milestone for our autonomous node acquisition system in ultra-deepwater and congested areas and we are very pleased with the potential to build backlog on the *Hugin Explorer* and *Kondor Explorer* to early 2010."

BW retains faith in robust fundamentals for FPSOs

The same words – ‘robust’ and ‘long-term’ – keep reappearing in companies’ financial results and outlooks this quarter, which should help to reassure nervous corporate executives during the first half of this year.

The latest user of these words is BW Offshore, which stated in its results that the turmoil in the financial markets and the lower oil price “could impact negatively on our business in the short term with cancellations or postponements of new field developments”.

But it continued: “However, we currently see a robust level of bidding activity similar to previous years. In this period of uncertainty, the company is fully financed at attractive terms and future cash flow is secured by long-term contracts with reputable clients. Beyond this immediate horizon, the Board of Directors of BW Offshore is of the view that the long-term fundamentals of our business remain sound. Underlying growth in energy demand combined with accelerating depletion of existing fields, will fuel increased demand for new oil and gas fields.

“Investments in new facilities by international and national oil companies will further support demand for the services provided by BW Offshore.”

The company’s financial results for 2008 were significantly influenced by several provisions, write-offs and impairment charges, it said, but it believes that some of these charges may be recovered.

Concerning some of its newly converted FPSOs, the *BW*

Cidade de São Vicente and *BW Pioneer* will start operations in 2009 and 2010 respectively. These vessels are expected to help contribute to a strong EBITDA growth for the Floating Production segment in 2009 and onwards, it added.

The ongoing conversions of the two FPSOs have continued “in line with our expectations,” it added. BW Offshore has been awarded major variation orders related to these conversion projects. Cash payments for the majority of the variation orders will be received this year.

Earlier this month *BW Cidade de São Vicente* set sail from Singapore for Brazilian waters, and is expected to arrive by the end of March on location at the giant **Tupi** field, where it will eventually start producing for Petrobras. The *BW Pioneer*, also destined for Petrobras on **Chinook Cascade** in the US Gulf, is currently approximately 60% complete with start up planned for the first quarter of 2010.

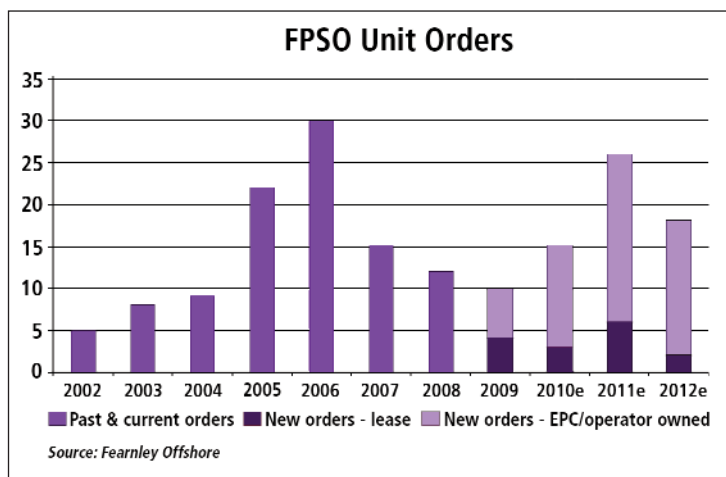
Other major projects, such as **Pazflor**, **Peregrino** and **Neptune**, are also progressing with no significant

deviations from the plans, said the company.

BW’s operating revenue for the fourth quarter of 2008 was US \$126.4m (\$116.8m in Q4 2007).

Over the next 12 months it expects to receive approximately \$150m from variation orders and milestone payments.

● The FPSO *BW Carmen* was in operation during the fourth quarter on a short term contract in the UK sector of the North Sea for StatoilHydro. It is now uncommitted and is being marketed for new contracts, says BW.



SEISMIC

TGS kicks off new Indonesian shoot

Acquisition of a new deepwater 2D survey offshore West Sumatra, Indonesia is underway by TGS-NOPEC Geophysical Company.

The 9,550km multi-client shoot is designed to complement the existing Northwest Sumatra and Sunda seismic, bathymetric and coring data acquired as part of the expansive *TGS IndoDeep* program. The *IndoDeep* program, previously referred to as Indonesia Frontier Basin, was acquired and interpreted from 2006 to 2008. It includes 34,000km of 2D seismic, 400,000km of multi-beam bathymetric data and 1,200 cores samples covering approximately 1m sq km of Indonesia’s deepwater basins.

This integrated dataset continues to generate significant industry interest, says TGS.

The initial interpretation of the Northwest Sumatra and

Sunda IndoDeep programs has indicated that all the elements of a potential petroleum system are present in the new survey area. Supported by industry funding, the new project includes both long offset 2D seismic and gravity data acquired by the *MV Mezen*.

“When TGS initiated the *IndoDeep* program in 2006 the company was confident it would help rewrite the geology of Indonesia,” said Rod Starr, General Manager - Asia Pacific for TGS. He continued, “This new seismic program offshore Sumatra was identified by the *IndoDeep* program and we are excited to include additional data in the area in order to clarify the hydrocarbon potential.”

TGS plans to continue its expansion of the *IndoDeep* program, as well as grow its reach across Asia Pacific with all its products and services.

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Chevron decision on East Kalimantan project by year-end

A decision by US major Chevron on whether to move into the final design stage for its deepwater **Gehem** and **Gendalo** fields in the Makassar Strait offshore Indonesia will be made by the end of the year.

The large natural gas project in the deepwater Kutai Basin offshore East Kalimantan would be the deepest gas field development off Indonesia so far, in water depths ranging from 2,494-5,906ft (760-1,800m). The operator has previously estimated investments of up to US \$6 Bn will be required to develop the fields plus others such as **Ranggas**, **Maha** and **Gandang** in the same Production Sharing Contract areas of **Ganal** and **Rapak**.

According to Steve Green, Chevron's Managing Director of

its IndoAsia unit, the company will "entering front-end engineering and design likely early next year".

Green said it could then take up to 14 months to examine the bids before making a final investment decision, probably in 2011.

Chevron is by nature a cautious beast and few were surprised when it said last month that it was reviewing its business plans in Indonesia, while taking care to state that it remains committed to the country (*see DI, 26 January 2009, page 6*).

Green went on: "It's too early to speculate on the economics of the project until we nail down the design and cost."

The combined natural gas reserves in the area covered by the plan are estimated at more than 3 Tcf.

Pre-salt at 'low end' of cost scale

The costs for Petrobras to develop its pre-salt oilfields are at the "low end" of the scale for offshore deposits, according to its CEO Jose Sergio Gabrielli.

Developing the giant deepwater **Tupi** field is "viable" with oil averaging between \$35 and \$40 a barrel, he said. That is compared with the global offshore average of \$35 to \$85 a barrel, he added. "We have the physical and technical possibilities to deliver this oil at low cost," said Gabrielli.

Petrobras is pressuring suppliers to lower costs for equipment needed to develop the fields, Gabrielli said, which has been evidenced by the scrapping of recent tendering processes such as on its **Papa Terra** field (*see DI, 9 February 2009, page 1*).

"We don't want to kill our suppliers but we plan to squeeze them a lot," he said bluntly, in a manner which doesn't bode well for the international contracting community, many of whom will already feel their margins have been squeezed enough in recent years off Brazil.

● Other companies may delay plans to tap the pre-salt regions because the government has yet to decide if it will make changes to rules for exploration and production, Joao Carlos de Luca, President of the petroleum industry institute and head of Repsol YPF in Brazil, said at the same news event in Rio. A 15-month review of oil rules has made it hard for companies to plan future exploration and production activities, he said.

Sonardyne system chosen for Petrobras project in GoM

Sonardyne International has been chosen by BMT Scientific Marine Services Inc. to supply an integrated acoustic positioning and telemetry system for Petrobras America's ultra-deep **Cascade Chinook** project in the US Gulf.

The system forms part of an extensive life-of-field integrity monitoring system for five Free Standing Hybrid Risers (FSHRs). The Cascade Chinook development will of course see the first use of an FPSO (Floating Production, Storage and Offloading) system in the GoM. All the risers, umbilicals and monitoring system transceivers are integrated into a disconnectable turret buoy.

The acoustic instrumentation is configured to monitor the position of each riser tower and the turret buoy in relation to

the seabed. Integrated sensors will also monitor depth, temperature, inclination and sound speed. The integrated modem or telemetry functionality will also transfer the data from BMT's load and attitude monitoring system on each riser tower to the turret buoy at the central location.

The turret buoy is fitted with a number of transceivers to ensure a line of sight to each riser tower without obstruction by the risers or mooring lines. These transceivers are controlled by BMT's monitoring system in the FPSO's turret to acquire position, sensor and load monitoring data. In the event of a disconnection the system continues to record data, which can later be downloaded by the FPSO or another vessel.

Anadarko outlines deep spend plans

Deepwater projects remain at the fulcrum of Anadarko Petroleum's spending plans and ambitions for additional reserves potential for 2009, despite the corporation substantially cutting its total Capital Expenditure to between US \$4 Bn and \$4.5 Bn for the year.

The capital program allocates approximately 20% for exploration and appraisal activities and 20% for the company's 'mega-projects', including major ultra-deepwater developments as the **Jubilee** field offshore Ghana and the **Caesar/Tonga** complex in the Gulf of Mexico. By region, the Capex is split with 25% on international/frontier areas, 20% in the deepwater GoM, with 45% on the US onshore and 10% in the midstream.

Chairman and CEO Jim Hackett said the company's exploration program has been delivering "differentiating success, with some of the world's largest discoveries during the last two years. We have an abundance of high-quality projects worldwide, in areas where we can effectively apply our deepwater

skill sets and project-execution expertise. These include the **Jubilee** field development offshore Ghana and the **Caesar/Tonga** complex in the deepwater Gulf of Mexico."

Anadarko's exploration plans include 4-6 high-impact exploration/appraisal wells in the deepwater GoM and approximately 20 high-potential gross wells internationally, more than a dozen of which have resource targets of more than 100m boe per prospect.

On the development front, in addition to the mega-projects listed above, he also stressed that the recent major discovery at its **Wahoo** pre-salt prospect offshore Brazil and the **Heidelberg** and **Shenandoah** finds in the GoM (*see DI, 9 February 2009, page 4*) are also "expected to provide opportunities for future appraisal and development activities", mostly likely during the second half of this year.

Hackett also said the company plans to spud a probe in the GoM on its **Turtle Lake** prospect near Shenandoah later this year.

Rosebank pre-FEED looms west of Shetland

Continued from page 1 Crucially, *DI* also hears that Chevron and BP have both expressed firm interest in Total's proposed but as yet still not formally sanctioned plans to develop its nearby **Laggan Tormore** fields in the area via a 120km subsea-to-shore project (see *DI*, 3 November 2008, page 1).

A UK Energy Ministry spokesman told *DI*: "We understand that the owners in the Rosebank and Lochnagar prospects (operated by Chevron) and the **Clair** field owners (operated by BP) have expressed interest in the Laggan/Tormore proposals and that Total expect to build extra capacity for third parties into their proposals for gas transportation from a Laggan and Tormore development."

Both Chevron and BP are members of the UK Government and industry 'West of Shetland Task Force', along with Total, DONG Energy and ExxonMobil.

Total's Laggan Tormore fields were cornerstone developments in Task Force studies carried out over the last couple of years. The French operator is already well underway with preliminary engineering studies for the development of

these fields, which the Energy Ministry spokesman added "could lead to sanction in September".

Laggan Tormore is expected to flow approximately 90,000 boe/d once onstream around 2012/13, with the field partners including ENI, DONG and Chevron. The project would also involve the building of a new pipeline from Sullom Voe on the Shetland Islands to St Fergus in Scotland.

It is expected that Total's current studies will allow for additional capacity in the new gas infrastructure beyond that required for Laggan and Tormore alone, the ministry spokesman also confirmed. The French operator has consistently stated that an area-wide development of the west of Shetland sector is the sensible way forward.

On the exploration front, Chevron says that after the appraisal on Rosebank is completed by May, a further well will be drilled on the Hess-operated **Cambo** prospect in the same area before the *Stena Carron* leaves to drill in Canadian waters for Chevron between August and January. It will then return to the UK for Chevron in the first quarter of 2010.

ATP stalls second MinDOC facility

Continued from page 1 60 MMcf/d of gas and an estimated lifespan of 50 years.

In the northern part of the Telemark Hub area, the initial drilling of three wells was carried out in the third quarter of last year at Mirage and Morgus. All three were drilled to a depth of approximately 5,900ft (1,798m) and 22-inch casing set.

The *ATP Titan* will be moored initially at Mirage/Morgus to complete the drilling of the three wells to the targeted total vertical depths of 14,600-17,250ft (4,450-5,258m) and to serve as the production platform for the life of the reserves.

ATP has a 100% WI and is the operator of the Telemark Hub.

● During January the Discovery Pipeline was restored to service enabling ATP to resume production from its deepwater **Gomez Hub** in **MC 711**. Additionally, the **MC 711-8ST2** well has reached total depth, successfully encountering targeted reservoirs and is undergoing completion operations. Production is expected before the end of the first quarter of this year. ATP has a 100% WI and is operator of Gomez.

ATP currently has plans for Capex of between US \$300-500m during 2009. It also added that it is "actively pursuing" the sale of partial interests in selected assets and, if successful, will further reduce its debt and potentially revise its development plans and budgets during the year.

Noble's hub ambitions for 5 Tcf Israeli gas find

Continued from page 1 ling indicates the well can be ultimately completed to achieve a production rate of more than 150 MMcf/d, says Noble.

The well itself was drilled to a total depth of 16,076ft (4,900m) and encountered more than 460ft (140m) of net pay in three high-quality reservoirs (see *DI*, 26 January 2009, page 4), making it Noble's largest ever discovery.

The pre-drill gross mean resource potential for Tamar was originally estimated at 3.1 Tcf. After analysis of all the post-drill and production test data, the estimated gross mean resource potential has been increased to 5 Tcf.

Noble and its partners will keep the *Atwood Hunter* semi-sub rig offshore Israel for two additional wells.

Subsequent to operations on Tamar-1, the rig will head for the **Dalit** exploration prospect in the **Michal** licence. Dalit has a pre-drill gross mean resource of about 700 Bcf of natural gas with an approximate 40% chance of success. Located in 4,500ft (1,372m) of water, the well has a proposed total depth of 12,500ft (3,810m).

Immediately after Dalit, the rig will relocate to Tamar where it will drill an appraisal well to further define the structure.

Charles D. Davidson, Noble's Chairman, President and CEO, said, "The test results from the Tamar well confirm our initial analysis that the discovered reservoirs are very high

quality. This discovery is clearly of a size for commercial development. We hope to extend the success in Israel by testing Dalit, our second prospect which is already covered by 3D.

"Discussions with our various partners are currently ongoing with plans to potentially conduct new seismic over our additional leads on other licenses in the area. Each incremental piece of information gathered is critically important as we continue to learn more about the potential of the Tamar discovery and this highly under-explored region. The implications of this discovery to Israel, Noble Energy, and our partners cannot be overstated, and we all have committed significant resources to better understand its scale and scope."

Noble operates both the Matan and Michal licenses with a 36% working interest. Other interest owners are Isramco Negev 2 (28.75%), Delek Drilling (15.625%), Avner Oil Exploration (15.625%) and Dor Gas Exploration (4%).

● Noble's capital investment program for 2009 has been established at US \$1.6 Bn. Development spending will focus on international and deepwater Gulf of Mexico assets as well as certain higher return opportunities onshore in the United States. The exploration budget will center on the significant resource potential in Israel, West Africa and the deepwater GoM. International expenditures are estimated to represent 30% of the total capital program.

Subsea to underpin FMC's performance in 2009

The thriving subsea sector is expected to help bolster FMC Technologies during 2009 when it expects its other business sectors to decline.

According to the contractor's Chairman and Chief Executive Officer, Peter Kinnear: "We enter 2009 in the midst of an uncertain macroeconomic environment but with a solid base for future business. We expect the strength of our subsea backlog will help offset declines in our other businesses in 2009."

His optimism appears to be based on a solid footing, with the company for example reporting record subsea systems revenue during the fourth quarter of US \$788m, up 15% from the prior-year quarter.

FMC's overall Q4 2008 revenue was \$1.2 Bn, up 13% on a year earlier, with Q408 operating profit increasing 39% in its Energy Production Systems segment and up 4% in its Energy Processing Systems segment compared to Q407.

Acergy reaffirms confidence in medium-term future

Acergy has reaffirmed its confidence in the "robust" medium and long-term fundamentals of its business but says that current economic conditions have created a "more challenging short-term market and reduced near-term visibility".

The subsea major says it expects to see "short-term volatility but we remain encouraged by the ongoing discussions with clients in West Africa and other parts of the world".

The company reported strong figures for the fourth quarter of 2008 and the full year, with revenue from continuing operations for the fiscal year 2008 increasing 5% to US \$2.52 Bn, up from the previous year's figure of \$2.4 Bn. Net income from continuing operations for the year more than doubled to \$329.7m (\$128.8m in 2007).

The fourth quarter 2008 figures were down on the equivalent quarter in 2007, however, with revenue from continuing operations of \$568m (\$692m in Q407). The company says the figure reflects strong SURF and IMR activity levels in the North and Norwegian Seas, higher SURF activity levels in Brazil and Asia Pacific, offset by lower activity levels in West Africa, due to planned drydocks, particularly for the *Acergy Polaris* vessel during the third and fourth quarters.

...and Technip forecasts strong rebound in activity

Technip is forecasting stable to moderate growth in its subsea unit in 2009, with the likelihood of a "strong rebound in activity" in the medium term, according to its boss Thierry Pilenko.

The French contractor reported a rise in full-year net profit to Euros 448m (US \$564.1m) in 2008 from Euros 126.3m the prior year. Revenue for its subsea business increased by 8.5% in 2008 to Euros 2.7 Bn, and it expects an operating margin of between 16-18% for the subsea unit this year.

Technip's full-year backlog stands at Euros 7.2 Bn, including Euros 3.5 Bn for the subsea segment, with the full year figure down on the 2007 amount of Euros 9.4 Bn. The current backlog includes long-term large-scale projects such as **Pazflor** and **Block 31** off Angola, and **Cascade Chinook** in the Gulf of Mexico. The main contract that came into force during the fourth quarter was the installation contract awarded by Aker Installation Floating Production, worth approximately Euros 140m, for phases 2 of the **MA-D6** oil field development operated by Reliance Industries offshore India.

Mr Pilenko continued: "Major subsea project achievements in 2008 include **Agbami** in Nigeria, **Canapu** in Brazil and **MA-D6** in India. In Offshore, the **Perdido Spar** was delivered

Significantly FMC also completed the key acquisition of a 45% interest in the leading Remotely Operated Vehicle specialist Schilling Robotics in December, which is also likely to boost the company's subsea and deepwater activity going forward.

For the full year 2008 FMC's revenue was \$4.6 Bn, up 25% from the 2007 figure, with the growth led by subsea systems revenue which increased 32% to \$3 Bn. Energy Production Systems' operating profit increased 46% and Energy Processing Systems' operating profit increased 16% over the prior year.

Full-year subsea system orders were \$2.1 Bn. Backlog for Energy Production Systems was \$3.3 Bn and included \$3 Bn in subsea backlog at the end of the fourth quarter.

Capital expenditures during the fourth quarter totaled \$47.2m, down from \$73.2m in the prior-year quarter due to lower spending on subsea capacity additions and light well intervention assets.

Net income from continuing operations in Q408 was \$90m (\$7m in Q407).

Acergy's backlog as at 30 November, 2008 was approximately \$2.5 Bn, of which \$1.4 Bn is expected to be executed in fiscal year 2009.

Items of note in the fourth quarter included lower revenue from its African segment of \$207.7m (Q4 2007: \$434.1m) due to the planned dry-docks on the *Acergy Polaris*, *Acergy Legend* and *Acergy Hawk* and some operational rescheduling on projects. Good progress was made on **EPC2B**, **Block 15** and **Agbami** during the quarter, it said.

In South America, revenue for the quarter was up at \$90.9m (Q4 2007: \$62.2m) driven by strong revenue contribution from the **Frade** project. The three ships on long-term service agreements to Petrobras achieved full utilisation outside of planned dry-docks, it added.

Acergy also stated that the fiscal year 2008 was a year of an "unusually high level of planned dry docks" with nine vessels undertaking dry docks, including *Acergy Polaris*, which completed a major 7-month dry dock, including an extensive upgrade and life enhancement programme. It successfully recommenced operations post year-end.

in the Gulf of Mexico and the *P-51* platform was completed in Brazil."

He also commented that the recent downturn in energy demand and the uncertainty over commodity prices and project costs is affecting the entire supply chain, with some deferrals of new and early-stage projects. But he added that projects in the procurement or construction phase continue to advance.

Discussing the economic climate, he stated: "However challenging, this environment will give Technip opportunities to differentiate itself... Our vertical integration in Subsea gives us more control of our supply chain and cost structure; Our continuous investments in R&D are enabling us to develop cost effective and cutting-edge solutions.

"In the medium term, we believe that the current delays in investments combined with natural production declines from existing reservoirs will create the conditions for a strong rebound in activity. This is why, whilst we will be closely monitoring the evolution of our backlog and reducing our costs, we will at the same time continue our key investments in R&D and in our major Capex program to strengthen our technology leadership and expand our fleet and manufacturing capacity."

Roncador Module III deal for FMC

FMC Technologies has received a US \$75m award from Petrobras to engineer and manufacture four subsea manifolds and controls for the Brazilian major's **Roncador Module III** project.

This project will also incorporate FMC's All-Electric technology in Brazilian waters. The company's scope of supply consists of two, 6-slot subsea manifolds to distribute gas lift injection to 12 wells. These manifolds will also contain 12 subsea control modules that will provide electro-hydraulic functions to operate the manifolds and subsea trees.

The company will also supply two additional manifolds for

water injection that will utilise FMC's proprietary All-Electric actuators for the operation of the chokes. The equipment will be engineered and manufactured at the contractor's facility in Rio de Janeiro with deliveries expected to start in 2010.

"We are pleased that a leading operator, Petrobras, recognises the value of our All-Electric technology and our subsea systems," said John Grempe, Executive Vice President of FMC Technologies. "We have manufactured systems for Petrobras' Roncador field since 1999, and to date we have supplied all three existing subsea manifolds as well as related controls and equipment."

\$80m awards boost for Trico

Trico Marine Services has confirmed new contract awards and extensions of certain existing contracts representing more than US \$80m in value.

All of the contracts were with its subsea services company, DeepOcean AS, or its subsea protection company, CTC Marine. Over the last two months, multiple contracts representing approximately \$53m in value were awarded to DeepOcean involving inspection, maintenance and repair (IMR) and survey work.

These included StatoilHydro securing the *Edda Fonn* for all of 2009 to conduct annual inspections of their production platforms in the North Sea; StatoilHydro to also use the *Edda Freya* for four months of survey work commencing on 1 April, 2009, with options for additional duration depending on the workscope; The *Edda Freya* will also be used for survey work in Gibraltar for Enagas. DeepOcean will perform a survey of

gas pipelines from Spain to Morocco; and *Deep Endeavour* was secured for 6 months of IMR work through June 2009, with one of the main contractors to Pemex.

In addition, CTC Marine recently secured the following contract extension and awards representing approximately \$31m in value. Bluewhale Offshore Engineering Technology extended its contract until August 2009, under which CTC Marine will complete workscope including, but not limited to, diving support work, installation, trenching and burial as well as riser installation services; Trident Australasia recently awarded CTC Marine a contract commencing in March 2009 for the **Longtom** project, covering the installation and trenching of over 20km of umbilical in addition to installation of spools and deployment of protection structures; and a contract award for installation of telecom cables commencing in 2010.

MARKET REPORTS

\$80 Bn 5-year spend forecast for subsea

The latest Subsea Market Update 2009/13 from analysts Infield Systems is forecasting total global subsea sector expenditure will top US \$80 Bn, while also interestingly highlighting the observation that larger floater projects may be more viable in the current economic downturn than smaller single-well tiebacks.

The new Fifth Edition of the report covers subsea equipment, and drilling and completion, with the total spend figure well up on the \$46 Bn amount for the previous 5 years.

A total of 3,222 trees are expected to be started up within the next 5 years, with the biggest players said to be Petrobras (374), Shell (244), Total (237), Chevron (236), BP (229), ExxonMobil (215) and StatoilHydro (194).

Infield comments that the volume of subsea trees installed is viewed as a barometer for the health of the offshore industry, and is a particularly important indicator for the Subsea Umbilical Riser & Flowline (SURF) construction and installation markets.

"Over the past 5 years we have witnessed the rapid expansion of subsea trees installed and the majority of this activity is linked to the growth of the deepwater oil and gas industry. The global industry continues to face a combination of declining shallow water production, falling reserves in place and poor shallow water prospectivity. Deepwater offered a new exploration and production frontier and has seen projects which have been developed through stable oil prices.

"Here, stable refers to prices remaining consistently above

\$30 a barrel. The next couple of years are expected to see a plateau of activity levels as constraints within the market are realised. This has been expected even before the banking crisis and oil price decline as capacity constraints within the supply chain and rapid inflation has caused operators to prioritise the most profitable projects.

"Now with limited access to financing and a lower price outlook there are questions regarding the viability of future projects. It is smaller single well tie-backs that can have sanction rates up to \$65 a barrel whereas larger floating projects can be sanctioned at as little as \$23 a barrel. We feel that the smaller projects in Europe and in Southeast Asia are most at risk and could see potential delays and cancellations."

The report also highlights the majority of future subsea projects that are to be developed by major oil companies and the larger partially state owned companies of StatoilHydro and Petrobras.

"We expect that the financing issues and the returns required on investments to be lower for their projects rather than those of private equity companies, private-equity backed companies or energy trading companies. The planning required for investment over the long term has to be completed on the expectations of lower oil price scenarios.

"The future for the subsea industry is still expected to be very strong with a variety of water depths, project sizes and locations expected over the next 5 years."

For more detail go to www.infield.com

Calendar

2009

FEBRUARY

24-27

14th Asia Oil Week
Orchard Hotel, Singapore
www.petro21.com

MARCH

24-27

15th Latin Oil Week
Latin Upstream
Rio, Brazil
www.petro21.com/events/

26-27

Deep Water India
New Delhi, India
www.energywise.nl

31-2 April

MCE Deepwater Development
Copenhagen, Denmark
www.mcedd.com

MAY

4-7

OTC
Houston, USA
www.otcnet.org/2009

JUNE

16-19

Brasil Offshore
Macaé, RJ, Brazil
www.brasiloffshore.com

OCTOBER

6-7

Deepwater International
Forum 2009
London, UK
Email: DeepForum@
thomasenergypub.com

ASSET MARKET

Kosmos mulls stellar sale of Jubilee stake

A stake in one of the largest discoveries in recent years could be up for grabs, with Kosmos Energy LLC apparently considering farming out its interest in the massive **Jubilee** oilfield offshore Ghana.

With the continuing tight credit markets and the current low oil price hurting smaller oil company players, Kosmos may need to divest some or its entire stake in the 1.2 Bn boe deepwater field off West Africa. The Dallas-based outfit has appointed advisers to handle the potential sale of its interests in two blocks that span the field, with the value of the stakes put at up to US \$3 Bn.

Amongst those reported to be interested are Chevron, ExxonMobil, Eni, ONGC Videsh and China's CNOOC, but that list is

likely to grow if the sale plans firm up. However operator Tullow Oil and Anadarko Petroleum do of course hold pre-emption rights and may well take them.

"Our sense is that Kosmos doesn't really want to sell, but may feel it has no option given where oil prices are right now. It wants to know the valuation that the market is putting on the Jubilee asset," said one official at one of the companies considering a bid.

First oil from Jubilee is set for the second half of 2010 via an early phase floating production system. Kosmos operates the **West Cape Three Points** block with a 30.875% stake and has an 18% stake in the adjacent **Deepwater Tano** block. The field straddles both blocks in the Gulf of Guinea.

Confusion over Indian ambitions for Nigerian duo

Confusion surrounds a potential deal between the Nigerian government and India's ONGC Videsh over two deepwater oil blocks currently back up for grabs.

An Indian delegation is expected this week in Abuja for a meeting with senior Nigerian oil officials with a view to trying to seal a deal for the two blocks. However they are currently under an apparent deadline to try and get approval for any agreed deal from the Indian government before 6 March.

The blocks, **321** and **323**, were originally set to go to ONGC Videsh in 2005 before a change of heart by the Nigerian government saw it award the blocks to the Korean

National Oil Corp. However that deal then fell through, with ONGC now back in pole position to take a 60% stake in the blocks.

But if the likely payment of up to US \$289m can't be made or agreed to before the 6 March deadline imposed upon ONGC Videsh by its own government, then all bets may be off.

The two blocks have estimated recoverable reserves of up to 2 Bn bbl each. The other 40% in the blocks has apparently already been snapped up by two foreign firms (Equator Exploration of the UK and Nigeria's Owel E&P) with their payments of \$194m having already been made, it is understood.



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