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In September 2016, Stampede's topsides deck was successfully lifted onto the hull; since then, all the main modules have been lifted onto the two-deck structure, and integration is proceeding well.
Photos from Hess Corp.

Slow and steady wins the race

Hess is dedicated to bringing its Stampede project online on-time and on-budget, with safety being the key to success. Jerry Lee dives into the finer details of the project, slated for 2018.

The Hess-operated Stampede development project is one of the few mega projects in development in the US Gulf of Mexico (GoM), and according to Hess, it is one of the largest undeveloped fields in the GoM. The New York-headquartered firm aims to bring the field online by 2018, and to keep costs down while doing it.

With only one in five mega projects coming within 10% of budget and schedule, Stampede is on track to be one of them, despite the low oil price environment where value erosion is easy, but value creation is difficult to achieve, said Stephen Whitaker, project director-Stampede Development, Hess, at a luncheon hosted by the Marine Technology Society in Houston in back in August 2016.

The strategic imperative is, "Hess has a strong commitment to deliver top quartile performance in safety, quality, delivery and cost at the corporate level, and we embrace that commitment on the Stampede project," Whitaker said. "Safety and the environment is our first priority at Stampede and across Hess; if we deliver on safety and with quality, cost and delivery will be successful outcomes."

Stampede is a joint development of the Knotty Head and Pony fields, discovered in 2005 and 2006, respectively. Stampede, spanning Green Canyon blocks 468, 511 and 512, is 115mi south of Port Fourchon, Louisiana, in 3500ft water depth, and is estimated to hold 300-350 MMboe in gross recoverable resources in Miocene subsalt reservoirs.

"The Stampede reservoir structure lies at a depth of about 30,000ft with several pay intervals layered within a span of 3000ft at that depth," Whitaker noted. "It is one of the deepest developments with in-well gas-lift in the GoM."

The US$6.2 billion project was sanctioned in October 2014 by Hess (25%) and its co-owners Statoil (25%), Nexen (25%), and Union Oil Co. of California (25%), a Chevron subsidiary.

The plan

The subsea project will be developed around two six-slot drill centers, spaced about 1mi apart, which will utilize 15,000psi-rated enhanced vertical deepwater trees (from FMC Technologies), production manifolds and gas-lift distribution units. Production from each drill center will be tied back to the Stampede tension leg platform (TLP) using two piggable flowlines. From the TLP, gas will be exported to the Discovery pipeline system and oil will be exported to the Amberjack pipeline system through a 16mi pipeline owned and operated by Enbridge.

Drilling on the field began in Q1 2016 with Diamond Offshore Drilling's *Ocean BlackLion* drillship drilling the first of six production wells on the field. In total, 10 wells will be drilled on the field, which includes four injection wells. A second drillship, the *Ocean BlackRhino*, is expected to join in 2017.

The field production will be enhanced using in-well gas-lift, and reservoir pressure will be supported through high pressure water injection. The TLP has a capacity for 80 MMscf/d of gas-lift gas and 100,000 b/d of seawater injection.

Progress

The first major milestone for the project occurred in December 2015 with the installation of the 12, 400ft piles driven 375ft into the seabed on site by Heerema Marine Contractors (HMC), to which the TLP will be moored using 12 buoyancy

supported tendons.

Across the world, in South Korea, the Stampede TLP hull was being constructed by Samsung Heavy Industries (SHI). Hess worked with MODEC– contracted for engineering, procurement, and project management of the hull and mooring system – and SHI to fabricate the four giga blocks (4000-5000-ton each) that would comprise the TLP's hull. Over an 18-month period, the hull was fabricated, lifted, assembled, and mechanical activities completed. On 12 June 2016, the 300 ft x 300 ft, 22,000-ton assembled hull was transported by the *Dockwise Treasure* to Ingleside, Texas, a 54-day operation, where Kiewit Offshore Services (KOS) is constructing the TLP's topsides.

The hull arrived at Ingleside on 5 August 2016, for integration with the topsides. Front-end engineering and design for the topsides was performed by Wood Group Mustang, and includes a seawater injection module – being built by Cameron in New Iberia, Louisiana, and capable of treating 100,000 b/d of water; a water injection module- capable of injecting 100,000 b/d of water at 8500psig; a compression module, living quarters for 70 people, warehouses and workshops. Weighing in around 10,250-ton the all-electric topsides will have two decks and be about 200ft-wide and 250ft-long. Earlier in 2016, the main deck was successfully lifted onto the production deck, and since then, all the main modules have been lifted onto the two-deck structure. With the lifts complete, integration has commenced and the work is proceeding well, Hess says.

"All major lifts are now complete," said Greg Hill, president and chief operating officer, Hess, during a Q3 2016 earnings call.

The *Ocean BlackLion* has also safely finished drilling the field's first production well.

"The first well we took very carefully, very slowly, making sure we were able to create the right path for the oil coming back," Whitaker says. "We're spending a lot of time (6+ months) drilling these wells, and even with rig rates the way they are today, that's a significant amount of cash we're investing."

With drilling operations finished at the production well, the *Ocean BlackLion* has moved on to drill the field's first water injection well, but will return to the production well at a later date to perform completions operations, Whitaker says.

Work to be done

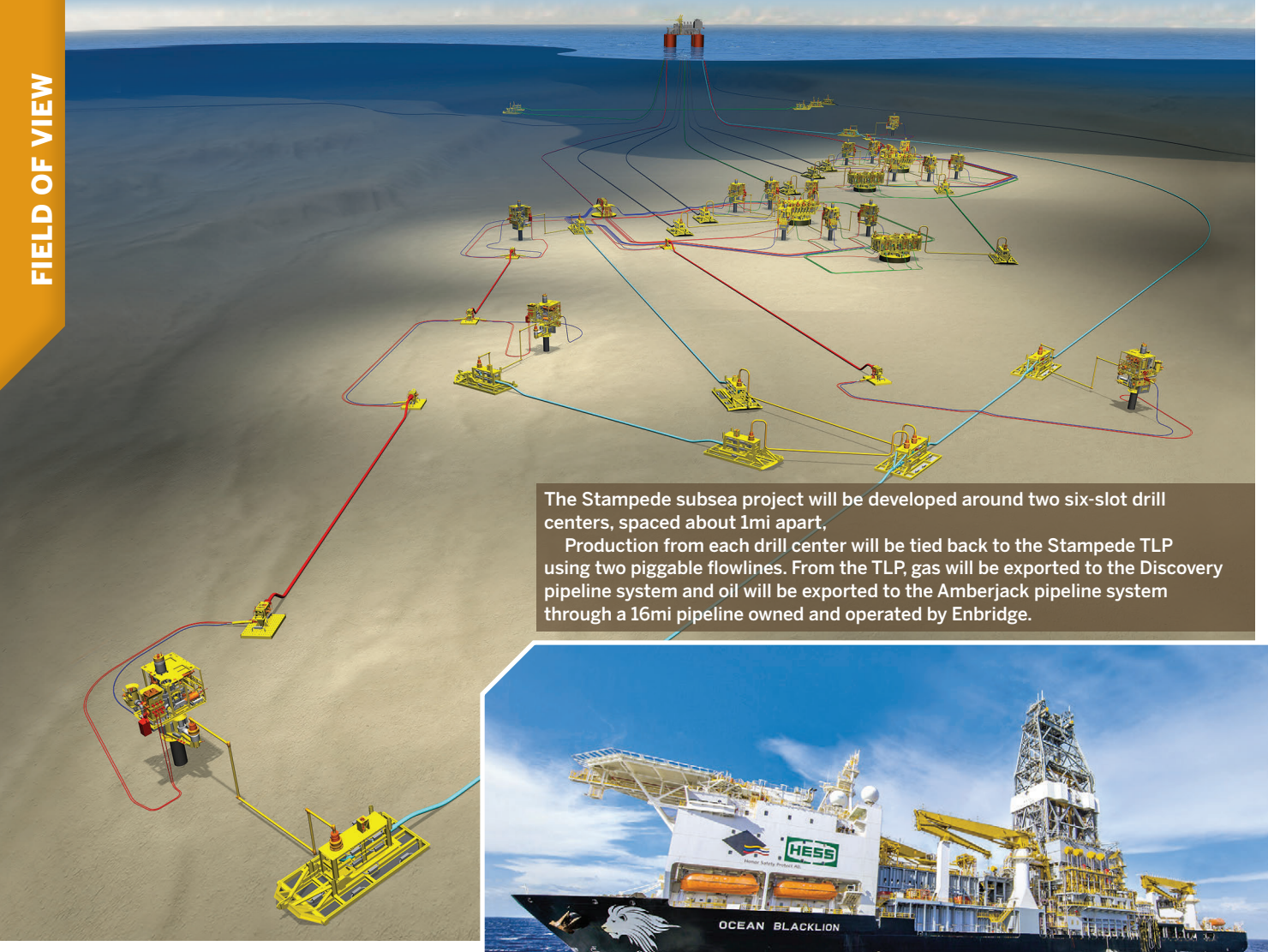
With the topsides set on the hull, the remaining work prior to first oil will involve installing the subsea pipelines and associated architecture, installation of the facility, and commissioning.

"We look to limit the amount of work we take offshore, so most of the work will involve hooking up and pre-commissioning the flowlines and export pipelines, as well as overall commissioning of the facility," Whitaker adds.

In 2014, Subsea 7 was selected to install flowlines, steel catenary risers (SCRs), umbilicals, jumpers and associated subsea architecture for Stampede. The *Seven Oceans* pipelay vessel and the *Seven Pacific* construction/flex-lay vessel will handle the majority of the installation work.

The vessels will have to lay and install PLETs (pipeline end terminations), manifolds, distribution units, jumpers and flying leads, together with flowlines and SCRs (supplied by Vallourec), and umbilicals and umbilical distribution hardware (delivered by Oceaneering). This follows the installation of the oil export line and SCR by Enbridge using

In February 2016, massive columns known as giga blocks used for the construction of the TLP hull, were lifted into the offshore floating dock at SHI on Geoje Island, Korea. Over an 18-month period, the hull was fabricated, lifted, assembled, and mechanical activities completed.



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Diamond Offshore Drilling's *Ocean BlackLion* at work on the Hess-operated Stampede oil and gas development in the Gulf of Mexico, located 115mi south of Fourchon, Louisiana, in Green Canyon blocks 468, 511, and 512. Drilling began in Q1 2016. In total, 10 wells will be drilled on the field, which includes four injection wells. The *Ocean BlackLion* is one of two drillships planned for the field.

Allseas' *Audacia* pipelay vessel.

When it is ready, HMC's *Aegir* heavy lift vessel will install the field's TLP. But first, the buoy supported tendons will need to be installed on the piles.

"The TLP will then be towed out to the lease, ballasted down over the tendons and connected to them," Whitaker says. "This operation is highly weather dependent."

After the TLP is connected to the piles, the SCRs will be picked up by the *Aegir* and connected to the TLP followed by the installation of the tie-in spools and dynamic umbilicals, thus connecting the TLP to the drill centers.

When the *Ocean BlackRhino* begins its contract in 2017, it will join the *Ocean BlackLion* and begin drilling the first well on the north drill center, which will be the field's second production well. Also on the list, the sister ships will take on "some of the deepest wells in the world," which [Hess] will be executing over the next couple of years, Whitaker says.

"After first oil, we will have to drill and complete the remaining wells and commission the water injection system," Whitaker says. "The completions for both production and injection wells will be multi-zone intelligent well completions."

On track

The Stampede development project is currently on-track and Hess intends to keep it that way, by staying engaged with the contractors and co-owners as the project progresses and challenges arise, the firm says.

"As we move the project offshore, the impact of the weather, in particular loop currents and storms next year, cannot be ignored," Whitaker says. "Chevron and Statoil are co-owners on Big Foot as well as Stampede, so we're taking their learnings from Big Foot and applying them. That's a combination of our handling the tendons, and, operationally, having plans ready should there be problems going forward."

The Stampede TLP is on schedule to come online in 2018. Stampede is expected to produce about 60,000 boe/d gross. Designed with an export capacity of 80,000 b/d and 40 MMcf/d, peak production is expected to range 60,000-70,000 b/d, this extra capacity combined with the spare SCR porches leaves room for future wells or tie-ins.

Hess says it remains committed to delivering on safety, quality, delivery and cost on a corporate level, and it applies this to Stampede. "Safety is key," Whitaker says. "A safe project is a good project." OE