Independence Hub Opens New Frontier In A Booming Gulf Of Mexico

By Al Pickett
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While the offshore industry remains abuzz about the huge exploration upside of the Lower Tertiary oil trend in the ultradeepwater Gulf of Mexico, as well as the Miocene play in deep water and deep gas targets in shallower waters, the multifield, multioperator Independence Hub development project stole the show this summer in the Gulf.

Anadarko Petroleum Corporation and its partners brought the massive development on line ahead of schedule, flowing first gas in July—a mere 48 months after project conception. Opening a new frontier in the Eastern Gulf, Independence Hub establishes a number of water depth records for everything from the production platform to multizone intelligent completions and subsea wet gas meters. However, there is no doubt what impresses most about the project: Once operating at full capacity, Independence Hub will single-handedly increase total daily natural gas volumes produced in the Gulf by 10 percent.
Located in 8,000 feet of water on Mississippi Canyon Block 758, 123 miles southeast of Biloxi, Ms., the Independence Hub is the deepest production platform ever installed. It also is the world’s largest offshore natural gas production facility. The platform services 10 anchor fields in water depths between 8,000 and 9,000 feet.

“It is a big part of our volume in the Gulf,” says Darrell Hollek, vice president of Gulf of Mexico operations for Anadarko Petroleum Corp., which operates eight of the 10 fields. “We have better than 60 percent of the Hub’s total capacity, which is 1 billion cubic feet of natural gas a day.”

The project is a cooperative development under the umbrella of the Atwater Valley Producers Group, with Anadarko as operator. The 105-foot, deep-draft, semisubmersible platform with a two-level production deck platform is operated by Anadarko and owned 80 percent by Enterprise Products Partners LP, and 20 percent by Helix Energy Solutions. The Independence Trail Pipeline is 100 percent owned and operated by Enterprise.

The Independence Hub came on line July 19, and Hollek says it already is handling 350 million cubic feet of natural gas a day. Anadarko reported net volumes of 205 MMcf/d and 77,000 barrels of crude oil a day from the Gulf at the end of the second quarter, prior to the addition of the Independence Hub.

“There has been a lot of progress,” Hollek adds. “Seven wells are on line. There are 15 wells in the area. We are trying to commission the system and have everything flowing by the end of the year.”

The Independence Hub is one of eight Anadarko-operated facilities in the Gulf. Hollek says Anadarko has interest in 14 of the 15 wells surrounding the Independence Hub. Most are in 8,000 to 9,000 feet of water, including Anadarko’s Cheyenne No. 1 well, which at 9,000 feet of water is the deepest subsea well in the world.

Devon Energy Corp., which has reserved 6.5 percent of the Hub’s capacity, has working interest in two Anadarko-operated wells in the Merganser Field that are among the seven wells on line. The two Merganser wells are producing about 145 MMcf/d, according to Tony Vaughn, vice president and general manager for Devon’s Gulf division.

Deepwater Exploration
Anadarko has the largest deepwater lease position in the Gulf, according to Stuart Strife, vice president of Gulf of Mexico exploration for the company. He notes Anadarko holds an interest in 708 blocks and 4.1 million gross acres in the deepwater Gulf, stretching from Port Isabel near Brownsville, Tx., to the Independence Hub in the Eastern Gulf (Figure 1).

“We have been involved in a large number of discoveries since 2000 in the Miocene and Lower Tertiary,” Strife continues, adding the company expects more of the same in the coming year. “We have nine rigs under contract, all capable of drilling wells from 25,000 to 35,000 feet in 5,000 to 10,000 feet of water.”

Anadarko owns all or a portion of a number of fields discovered in the Eastern Gulf in the past six years, including the Atlas and Atlas NW (Lloyd Ridge Blocks 5/49/50), Jubilee (Atwater Valley Block 305/349 and Lloyd Ridge Blocks 265/309), Merganser (Atwater Valley Blocks 36/37), San Jacinto (DeSoto Canyon Blocks 618/619), Spiderman (DeSoto Canyon Blocks 620/621), Vortex (Atwater Valley Blocks 217/261 and Lloyd Ridge Blocks 177/221), Mondo NW (Lloyd Ridge Blocks 1/2) and Cheyenne (Lloyd Ridge Block 399). All are in 8,000-9,000 feet of water and tie back to Independence Hub.

Strife notes Anadarko has drilled 23 exploration wells in the deepwater Gulf of Mexico, resulting in 13 discoveries, since 2005. He says 90 percent of Anadarko’s leads and prospects are in the Miocene or Lower Tertiary plays. Technological advances have made the new developments in the ultradeepwater possible, he says.

“In the past 10 years, there have been key advances in computing power, the ability to handle complex data sets, and seismic acquisition and processing that help us to truly get an improved picture of the subsurface,” he contends. “Of course, another key is having a staff that understands how to interpret that data. That gives us an advantage with operational experience.”

Strife says that last year’s merger of Anadarko and Kerr-McGee put “a world-class organization in the Gulf.” He adds, “Each brought a lot to the table.”

Anadarko and its partners, including BP and Devon, have made dramatic discoveries in the Lower Tertiary, including the Kaskida project, which Strife says he believes will ultimately be brought on line.

“The Lower Tertiary discoveries are deep and a little unusual, but I am confident we will figure out how to commercialize them,” he says. “There is a large amount of oil in place. We are making progress. Ten years ago, we didn’t think we would be successful in the Miocene. After you make the initial discovery, it takes a few years. But our success rate is phenomenal. I suspect we won’t let the oil stay in place.”

It Takes Time
Indeed, patience is required when drilling in the Lower Tertiary. Devon’s Vaughn cites the company’s Cascade discovery as an example of the persistence needed when operating in the ultradeepwater. “We made the discovery in 2002. Since then, we have delineated Cascade with three additional penetrations,” he says.

Vaughn says Devon just sanctioned the Cascade project in August. “We are committed to this development, but the first production won’t come until 2010,” he continues. “It will take about eight years from the time of discovery, but that time will be reduced on future discoveries as we get more infrastructure in place.”
Devon, like Anadarko, is involved in a wide-ranging number of projects in the ultradeepwater all across the Gulf.

“We are delineating the Kaskida discovery,” says Vaughn, also noting Devon’s continuing progress in its Cascade, St. Malo, Mission Deep and Jack projects. He indicates the Cascade Field should be the first Lower Tertiary production out of the Wilcox formation, and says he expects production in the first half of 2010.

Devon brought the Ocean Endeavor rig into operation in the past year, according to Vaughn. He says it is one of two deepwater rigs that Devon has contracted to operate in the Gulf, each capable of drilling in 10,000 feet of water to depths greater than 35,000 feet.

“We are drilling the Chuck prospect in the Lower Tertiary in Walker Ridge Block 278,” Vaughn reports. “We hope it is a cousin of Jack or even more successful. It is in a good neighbor- hood. After Chuck, we will move the Ocean Endeavor over and drill the next Jack well. We need another well to help delineate the field. We expect to have positive results with Jack No. 3 and will be able to commit to the development project. With the huge capital costs in operating in the Lower Tertiary trend, you have to be thoughtful and disciplined before committing to development.”

Like its involvement in its other prospects such as Jack, St. Malo and Kaskida, Devon is partnering with other companies—ConocoPhillips, ExxonMobil and Maersk Oil, in this case—in drilling the first Chuck test, according to Vaughn.

“When it costs $90 million to $100 million to drill a well, all the players in the Gulf are spreading the risk,” he explains. “The chances of success in the Lower Tertiary are one in three.”

Devon, a leading player in the deepwater Gulf, had 26 successful high bids totaling more than $20 million in the Western Gulf of Mexico lease sale that was held Aug. 22. “That was a successful sale for Devon,” Vaughn says. “It was a practice run for the Central GOM lease sale in October, which will be a much larger sale.”

Major Acquisition

New Orleans-based McMoRan Exploration has long been a leading deep Shelf driller, but its Aug. 6 acquisition of Newfield Exploration Company’s Gulf of Mexico Shelf oil and gas properties drastically changed McMoRan’s portfolio. McMoRan purchased Newfield’s acreage and certain exploration rights for $1.08 billion in cash.

“It represents a significant change in the scope of our operations,” says Richard C. Adkerson, McMoRan’s co-chairman. “It is concentrated in the Central Gulf, an area which is a focus of our operation. It fits nicely with our exploration strategy. We bought the properties at a price that would provide an attractive rate of return with substantial cash flow. The properties have potential for exploitation and exploration. We now have 1.65 million gross acres of offshore leases, and we expect to produce 300 MMcfd from the new fields and our heritage properties.”

The acquired properties include 124 fields on 148 offshore blocks that produced 260 MMcfd of natural gas equivalents in the second quarter of 2007, according to a McMoRan news release. The company estimated proved reserves as of July 1 for these properties at 232 Bcfe, with 70 percent of that natural gas.

McMoRan also acquired a 50 percent interest in Newfield’s nonproducing exploration leases on the Shelf and certain of Newfield’s interests in all the leases associated with its Treasure Island prospect inventory in the ultradeepwater.

“The Gulf Coast off South Louisiana continues to be our focus,” Adkerson says. “We believe the future of natural gas long term is positive. We are very optimistic about the nation’s need for natural gas.”

McMoRan announced its Flatrock discovery at the same time that it acquired Newfield’s properties. “It is an exciting development,” Adkerson comments. He says the well is being drilled in 10 feet of water to a depth of 19,000 feet in the South Marsh Island Block 212 offshore Louisiana. McMoRan listed the gross unrisksed potential of the Flatrock discovery at 400 Bcfe prior to drilling the discovery well.

“There are a number of wells still to be drilled,” Adkerson adds, “and there are multiple sands. It is a large feature.”

He says McMoRan encountered 260 feet net of pay in eight zones in the Flatrock, in the Rob-L and Operc sections of the Miocene, according to logs. Adkerson says drilling continues to evaluate deeper Operc objectives and the company is permitting three additional offset locations. He adds that production will go online quickly to the nearby Tiger Shoal Hub.

McMoRan’s Cottonwood in Vermillion Block 31, begun in March, was drilled in 15 feet of water to a proposed total depth of 21,000 feet and encountered 43 feet net of pay in the Rob-L section of the Miocene, Adkerson reports. Drilling continues to evaluate deeper objectives. The Cottonwood discovery was reported to have a gross unrisksed potential of 400 Bcfe prior to drilling.

Drilling On The Shelf

L. Dale Woody III, who began his new job as president of Medco Energi US LLC in September, offers a unique perspective about his company, which is the U.S. subsidiary of PT MedcoEnergi Internasional TBK, Indonesia’s largest independent oil company.

“It is interesting,” he laughs. “I am working international at
home. Our parent company sees the United States as a growth platform. There is a lot of opportunity on the Shelf. There is still a lot to be done in shallow water in and around older fields, especially with new data.”

While the deepwater Lower Tertiary and Miocene may be the sexy highly publicized plays at the moment, Woody is happy the larger companies have turned their attention away from the Shelf.

“Let them go,” Woody counters. “I am glad they are out of there. We think there is a lot to be done on the Shelf. You know the old saying, ‘the best place to find oil is in an oil field’. It is true. In an existing oil field, you already know you have a source, traps and migration. New technology has allowed us to shoot new 3-D surveys, so we can look at data differently. A lot of stuff on the Shelf is interesting for a company our size.”

Medco Energi, whose U.S. headquarters are in Lafayette, La., has announced three gas discoveries in the Gulf this year. The Mustang Island Block 758 No. 1 well and the Brazos Block 437 No. 1 well are both in federal waters 75 miles southwest of Galveston, Tx.

The Mustang Island discovery was drilled to 9,200 feet depth and showed 47 feet of natural gas pay with four horizons between 8,200 and 8,900 feet. Woody says it will be completed as a dual. “We are waiting on a flowline,” he adds.

The Brazos 437 No. 1 well encountered an estimated 55 feet of net natural gas pay from multiple zones in the middle Miocene Rob-L and Rob-M series sands.

Medco also participated in the West Delta Block 52 No. 1 well that encountered 17 feet net natural gas pay, according to Woody, in the Cris-K2 sand. The discovery is located in Louisiana state waters 75 miles southeast of New Orleans.

Woody, who says Medco has gross production of 10 MMcf natural gas and 750 bbl crude oil on an average day, says the Brazos and Mustang Island wells will add 15 MMcf/d and are expected to go on line in October and November. He estimates the West Delta discovery will add as much as 3 MMcf/d and hopefully will be brought on line in early November.

Woody reiterates that Medco’s Indonesian parent company “uses us as a growth platform.” He calls Medco a “good news story” as an “experienced, knowledgeable foreign company

sees the United States as growth potential.

“That says everything,” he continues. “They continue to fund drilling and acquisitions. Our goal near-term is to work properties that have been bypassed—in-field drilling opportunities and new fault block tests. We may also have a chance to do some step-out drilling as we reprocess or acquire new data. We are looking to add an acquisition or two, based on existing production.”

Wooddy says Medco is also reactivating a waterflood in the Main Pass Field.

“It was previously a surface injection,” he explains. “We recompleted the injector and are producing water out of a zone above the pay zone and then let it drift down with gravity.”

Unique Strategy

“LLOG is very excited about the short-term and long-term future of the Gulf,” exhorts Kevin P. Guilbeau, executive vice president and chief operating officer for Covington, La.-based LLOG Exploration Offshore Inc. “There are good opportunities across the spectrum.”

As varied as different operators’ strategies are in the Gulf, perhaps none is more unusual than the business plan employed by LLOG.

Guilbeau describes his company’s strategy as “discover, develop and divest.” He says LLOG is very aggressive in discovery and putting wells on production as the operator. Then, three to five years later, it sells its properties and starts the process all over again.

“Since 1998 we have sold 98 properties in 17 transactions for $1.7 billion,” he says. “We have been very successful, and we plan to keep doing it. LLOG started in South Louisiana, then moved to the Shelf. About four years ago we moved into the shallow parts of the deep water. Over the past five years, LLOG has drilled 126 wells with a 74 percent success rate.”

Guilbeau says LLOG owns 120 Outer Continental Shelf blocks—35 in deep water and 89 blocks on the Shelf. LLOG spent $9.4 million on three successful high bids in the August Western Gulf lease sale. He adds that LLOG is producing about 150 MMcf/d, of which 35 percent is crude oil.

First production from LLOG’s 2006 discovery of the West Cameron Block 31 No. 1 well was achieved on April 29. The well flowed at 10.5 MMcf of gas and 200 barrels of oil a day. He says the company plans an additional field development well for later this year.

“LLOG is unique in that it sells the majority of its properties,” Guilbeau explains. “We sell and then reinvest in exploration. We are really just now starting to accept requests for interviews. We have flown under the radar screen for a long time, but we are alive and well in the Gulf. We are very active and very bullish on the Gulf of Mexico.”

Prospect Generation

Focus Exploration LLC, had eight high bids totaling $1.74 million in the August Western GOM lease sale. If it is awarded all eight blocks, it will have an interest in 90 offshore properties (Figure 2), but one won’t see Focus Exploration’s name as the operator when these projects are drilled.

Focus Chief Executive Officer Don Crider and President Mike Scherrer say their company already is recognized as a premier generation company in the Gulf, even though it has been in business for only four years.
Crider states that in terms of the volume, variety and quality of prospects generated and sold, Focus has performed at a consistent high level. He says Focus works deep water through shallow and deep Shelf trends building their prospects, and the company offers the complete package from "soup to nuts" with respect to the integrated disciplines of geology, geophysics, engineering and land.

"We do everything except serve as the drilling operator," he explains. "On prospects we sell, we retain compensation that gives us a piece of successful wells. We make sure our clients receive high quality, risk-reduced prospects. We are not selling pie-in-the-sky prospects. We have the ability to evaluate a lot of ground quickly. The methodology we use to accurately reduce risk quickly is our strength."

Scherrer reports that Focus has accumulated an 85 percent success rate on exploration wells, having made 17 discoveries Gulfwide since 2003.

Thanks to improvements in technology, he says, prospects that once were considered high risk may now be lower risk. Focus Exploration’s staff includes industry recognized oil and gas finders who are professionals with 25-30 years of experience in the Gulf, he notes.

"We keep a collection of prospects in storage that are very low risk but are only 4 Bcf-5 Bcf," Crider continues. "When gas is $20, we will pull them out. But we are making a living now with $5-$7 gas and $50-$80 oil, polishing off things we have known about for years. Costs have more than doubled, but the product price has tripled or quadrupled. There are plenty of opportunities in the Gulf in the foreseeable future, both standard plays and the deep Shelf/deepwater plays, which are typically higher risk/higher reward plays that many of our clients are looking for. Things are going great for us. We are building and selling good prospects, and people are calling us requesting opportunities to buy.

"We have a very optimistic vision for our future. We know the ground, we have the expertise and all of us at Focus are living the dream we have had for many years of building good prospects and reaping the rewards for doing so."