

Rowan Drilling jackup targeted for deep drilling

THE MINERALS MANAGEMENT Service (MMS) is offering an incentive to operators in the form of royalty relief to drill for and produce deep gas reserves in shallow waters of the Gulf of Mexico.

The royalty suspension applies to the first 20 bcf of gas produced from 15,000 ft or greater vertical depth from wells drilled in 199 meters (656 ft) or less.

Thus, the primary goal of the royalty suspension is to increase the volume of gas production from the Outer Continental Shelf (OCS) from 2001, when the deep gas initiative was implemented, through 2006. The deep gas initiative is designed to slow the rate of decline in OCS gas production through 2006-2007.

The MMS has offered deep gas royalty

pumping capacity and better solids control equipment than is typically found on a jackup.

Three mud pumps also found on new, larger jackups require more engine horsepower. Top drive drilling systems require additional power to accommodate the torque and drag. Larger and deeper wells require additional bulk storage and liquid mud capacity.

A few drilling contractors, Chiles Offshore and Rowan Drilling, in particular, have and will be building jackups aimed at the deep drilling market.

Chiles Offshore has six ultra-premium class jackups with one more under construction.

"We have had some great success in drilling these wells off Texas and Mobile Bay in record time," said **Bill Chiles**, President and CEO of Chiles Offshore.

"We have drilled wells around 22,000 ft deep. There are some wells that are being planned for 30,000 ft that will be drilled later this year."

Rowan has a new design dubbed the Tarzan Class that is smaller than its Gorilla Class units but compares favorably to the Gorilla.

Rowan's rig design evolution has been aimed at developing rigs that can drill deeper and in high pressure high temperature areas.

"We see the industry and especially the independents doing a lot of drilling in the shallow water Gulf in response to the deep gas initiative," said **Paul Kelly**, Senior Vice President, Special Projects for Rowan Drilling.

"What we have done with the Tarzan Class," Mr Kelly continued, "is design a rig that has many of the features of our harsh environment jackups, the Gorilla Class, but in a less expensive and smaller rig that is built for shallower water operations."

Numerous deep wells have been drilled with existing rigs, but those were frontier drilling from a technical standpoint.

"What we are trying to do is develop a new technical standard that will keep the cost of those wells reasonable and give the operators the well control capa-

Rowan Drilling's Tarzan Class vs Gorilla Class

	Tarzan	Gorilla
Engine Horsepower	10,200	7,170
Mud Pumps	3x3,000	3x1,600
Pump Rate	1,764 gpm @ 7,500 psi	1,332 gpm @ 7,500 psi
	3,132 gpm @ 4,431 psi	2,157 gpm @ 4,431 psi
Drawworks Horsepower	3,000	3,000
Skid off Capability	Yes	No
Designed Well Depth	30,000 ft	30,000 ft
Variable Load	3 MM lbs	5.2 MM lbs (Gorilla IV)
Weight (Kips)	13,000	43,000
Deck Area	20,000 sq ft	43,000 sq ft
Length Overall	216 ft	297 ft
Leg Length	360 ft	605 ft
Water depth	250	450
Total Kilowatts	8,400	6,300
Cost	\$95 MM	\$240 MM (Gorilla VII)

Essentially, the deep gas initiative was implemented as an incentive to produce those particular reserves while deepwater gas is being developed.

The MMS is depending on the huge infrastructure in shallower water to bring the deep gas reserves into production quickly.

There is also a limitation on the price of natural gas. According to the terms, in any calendar year during which the average of the closing prices for the nearby delivery month on the NYMEX exceeds \$5 per million Btu, the leaseholder must pay royalty on production that otherwise would receive royalty suspension. This threshold price was recently raised from \$3.50 per million Btu when the royalty suspension was initially implemented.

The MMS said gas that potentially could be produced from the development of the largest undeveloped Gulf of Mexico deepwater fields, Alaska and Canada is not expected to contribute significant enough increases in gas production to meet US demand until after 2006.

relief since the OCS Lease Sale #178 in March 2001. Additionally, the MMS is considering various options for offering incentives to explore and produce deep gas from OCS blocks leased in previous sales.

This is a sore point with operators that hold deepwater blocks. There has been no mention of considering extending deepwater royalty relief to previously leased deepwater blocks.

The royalty suspension volumes for deep gas production are intended to help offset the high cost and high risk associated with deep wells.

According to the MMS, the royalty value of 20 bcf of gas at 1/6 royalty and \$3.50 per MMBtu is approximately \$11.7 million.

That value, the MMS says, represents the low end of the estimated \$9-\$23 million to drill a deep well on the OCS.

PURPOSE BUILT RIGS

Deep wells, whether gas or oil, usually are high temperature high pressure (HTHP) wells that require increased

bility they need," Mr Kelly added.

Rowan's board of directors approved the construction of the first Tarzan Class rig, to be named Scooter Yeargin for the company's long-time vice president for drilling operations.

Final detail designs are being worked out but construction is expected to begin this summer at Rowan's LeTourneau yard in Vicksburg, Miss. Delivery is expected about 18 months later.

Rowan also investigated the possibility of upgrading an existing rig as well as a new design and new construction.

"What we found was that the modifications would be quite substantial in terms of cost," Mr Kelly said.

"We felt the costs were high enough to tip us in favor of starting fresh with a completely new rig."

The Scooter Yeargin is estimated to cost \$95 million. That compares with about \$240 million for the newer Gorilla Class units.

As illustrated in the table, the Scooter Yeargin, while significantly smaller than a Gorilla Class in size, compares favorably to the Gorilla.

The Scooter Yeargin will be rated to drill in 250 ft of water compared with the later Gorilla rigs that are designed for 450 ft of water but could likely work in 550 ft of water in the Gulf of Mexico with additional rounds of legs, according to Mr Kelly.

The rig will have more than 40% more total horsepower than a Gorilla Class unit, larger mud pumps with higher pumping capability, and higher electricity generating capability.

The rig will also feature a skid-off drilling substructure when operating over platforms.

While targeted primarily for the Gulf of Mexico, the Scooter Yeargin is not limited to that area. There may be opportunities elsewhere as companies utilize new seismic technology to look deeper into geological structures.

New sophisticated seismic technology could breathe new life into existing infrastructure in the Gulf of Mexico.

A large number of platforms are scheduled for abandonment in coming years.

However, if operators find new geological structures near those platforms the infrastructure will be helpful to both drilling and production.

Jackups can cantilever over the platforms or, in the case of the Scooter Yeargin, skid-off the rig substructure, so additional drilling can be made easier.

Bob Meize, Offshore Division Drilling Manager for Anadarko Petroleum Corp.,

during IADC's Gulf of Mexico conference last December, echoed those thoughts.

"We believe there is still great potential to find significant reserves by targeting deeper horizons, and by leveraging the infrastructure we already have in place in maturing fields," Mr Meize said.

"This helps us get those new reserves on production more quickly and at a considerably lower cost." ■