

Receipt of the web-exclusive animation mentioned in the May/June edition of *Drilling Contractor* has been delayed and DC regrets the inconvenience.

# Efficiency, size at heart of new Rapid Rig

## Automated pipe handling, A/C motors featured on National Oilwell Varco's new land rigs

By Linda Hsieh, Associate Editor

**IN EARLY 2005**, National Oilwell Varco took note of the considerable increase in land drilling operations that targeted shallow to moderate depths of 6,000 ft to 10,000 ft, particularly in the United States and Canada.

These types of short drilling programs mean the rigs likely will need to be moved frequently from location to location, said **Jason Whyte**, Manager of Engineering and Technology Coordination for National Oilwell Varco.

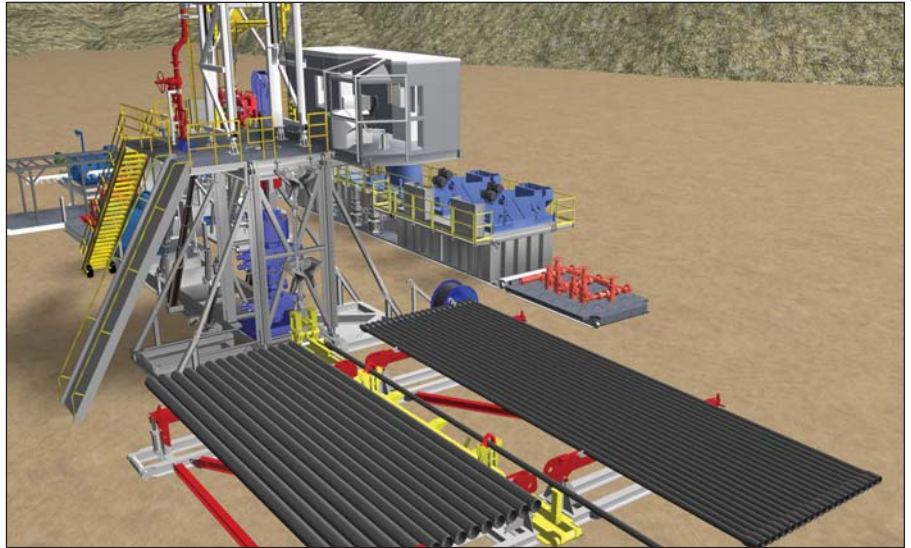
"So we decided to develop a rig — the Rapid Rig — that could be rigged up and down quickly and moved in as few transport loads as possible while still being able to operate very efficiently," he said.

In spring last year, the company began laying out new design concepts for the rig structure, mast, substructure and the pipe handling system, with the goal of building a small and efficient rig.

Then came a 6-month development process where multiple concepts were presented to potential customers who operate in the targeted market.

"We showed about a dozen different concepts and asked for their feedback. Then we took that feedback and made improvements. It was important for us to take the time to work with our customers so we understood what they wanted in this rig," Mr Whyte said.

The 2 main features of the Rapid Rig are its automated pipe handling system and the A/C motors. Mechanized pipe handling yields multiple benefits, Mr Whyte said. First, it allows the rig to be small, in keeping with the company's goal of making the rig easy to move. Second, it's simple and fast, because the automation improves the efficiency of handling multiple pieces of pipe. Third, it makes for an overall safer rig by reducing the number of necessary workers.



Computer renderings demonstrate the concept of National Oilwell Varco's Rapid Rig, debuting this month. The rig was designed to be small and easy to move, making it suitable for drilling programs with shallow to moderate depths of 6,000 to 10,000 ft.



"A 3-man crew can handle the entire rig operation," he pointed out. "Add that to the fact that there is no manual intervention whatsoever with this pipe-handling system, and we've got a much safer rig."

The Rapid Rig also is entirely driven by A/C motors, compared with typical rigs that use a mixture of A/C and D/C power. "The A/C motors allow for different components of the rig, such as the drawworks, the topdrive and the mud pumps, to be small. It also allows for precise and efficient control of all equipment, because everything's being handled remotely from the driller's control cabin," he said.

"Additionally, by eliminating some of the hydraulics typically seen on a rig, the Rapid Rig is more environmentally friendly," Mr Whyte added.

### MAKING A PROTOTYPE

In September 2005, engineering groups at National Oilwell Varco began designing a prototype. Rig components are being completed everywhere from Canada and Europe to within the United States. The company will assemble the first rig in Houston and plans to make its first public showcase at the Offshore Technology Conference during the first week of May.

"We've been introducing it on a limited basis and have received very positive responses. Many of these potential customers are the same ones who offered feedback during our development process, so we know this rig fits our customers' needs," Mr Whyte said.

The first Rapid Rigs will be commercially available by late May, with subsequent rigs becoming available by this fall.

Online only: For an animation demonstrating the designs behind the Rapid Rig, log on to DRILLING CONTRACTOR's Web site at [http://www.iadc.org/drilling\\_contractor.htm](http://www.iadc.org/drilling_contractor.htm).