

High-tech 'cyber' drill rig makes presence felt in Mozambique bush

In stark contrast to its rugged surroundings in the Temane bush and not far from the picturesque Mozambican coastal town of Vilanculos, one of the highest-technology drill rigs yet to be deployed in Africa rises out of the orange-brown earth and towers over the surrounding bush.

The rig – known as SMP-105 and part of French drilling specialist Société de Maintenance Petroliere's (SMP's) rig fleet – is also the most sophisticated ever contracted by energy and chemicals group Sasol, which is further developing the hydrocarbon resources for which the Southern African country is becoming increasingly renowned.

Sasol drilling operations manager Hector Magagule has worked with such equipment before during his in-field training in Oman some ten years ago. However, he tells Engineering News Online that the group's previous campaigns in Mozambique, which took place between 2003 and 2011, all relied on older-generation mechanical rigs, which did not have the intelligence or power of SMP-105.

Manufactured in Houston, Texas, by engineering group Jelec, the rig is large, standing at just over 34-m tall, with a power rating of 2 000 hp. However, it is made to a modular design, which makes its assembly less daunting and physically demanding than that of a traditional rig. "It's like assembling Lego," Magagule quips.

But the rig's true sophistication lies in the level of automation and remote control that has been integrated into the design, elevating SMP-105 to the level of a so-called "cyber rig".

Drilling operation takes place in a gaming-type environment, with the operator, who sits in an air-conditioned control room, using a joystick and touch-screen technology to perform vertical and horizontal drilling tasks deep below surface. [...]

The rig is also continually collecting data as drilling advances, which will be used to guide the way Sasol and its contractors approach the remaining wells that will be drilled as part of the development of gas reserves in Temane and Pande, and oil prospects in Inhassoro.

Positioned on a 100m-by-100m well-pad cut into the bush, the rig also incorporates an automated pipe-handling and racking system, while the rig floor is equipped with a spill-containment system that collects any leaked drilling fluid and returns it to the fluid tanks. "Therefore, the rig is not only more powerful and versatile in the types of drilling it can perform, but it is also far safer to operate and more environmentally friendly," Magagule enthuses.

[...] Magagule tells Engineering News Online that the first well has been completed and that its performance was in line with expectations, before the field development team temporarily suspended gas flow and moved on to the next drill site, which is in close proximity to the CPF and 26 km from the initial site.[...]

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