



DeepDrill™ High-Performance Water-Based Drilling Fluid System Cuts Drilling Time and Reduces Environmental Footprint, offshore Australia

The introductory use of a water-based fluid for the first time in Australia reduced operations time from spud to TD by two days.

CHALLENGE	SOLUTION	RESULT
<ul style="list-style-type: none">Utilize a WBM system that had never been used before in this region of Australia to save time and money over SBM systems	<ul style="list-style-type: none">Newpark's DeepDrill, a water-based system successfully tested over a several-month period	<ul style="list-style-type: none">Spud-to-TD time reduced by two days, resulting in fastest time for this operator, as well as cost savings over SBM

OVERVIEW

An Australian operator was considering the use of DeepDrill™ high-performance water-based drilling fluid system for their upcoming exploration well, to be drilled off the North-West Shelf of Western Australia.

Although some offset wells in the area had been drilled using potassium chloride/glycol fluid, the default fluid system in this area had traditionally been synthetic-based fluid (SBM).

For this well, the operator was determined to drill with a water-based fluid (WBM), partly with a view to reducing costs, but also to mitigate the environmental footprint associated with using SBM.



The Newpark Fluids Systems facility in Dampier, Western Australia



CHALLENGE

The justification process for using a WBM system was extremely detailed and took several months to complete in order to satisfy the operator's field team and management. Because the DeepDrill system had never been run in Australia, an extensive testing program was implemented before the operator agreed to use it.

The intensive testing included the following procedures:

- X-Ray Diffraction Analysis conducted on rock samples from an offset well with the testing completed by the Newpark Technology Center in Katy and base formulation sent to Newpark Australia.
- Multiple formulations tested for contamination, static age, cuttings recovery and dispersion tests over a five-month period at the Newpark Australia facility.
- Specialized high-temperature high-pressure rheometer testing with a Fann iX77P instrument, at Newpark Australia facility.
- Cement compatibility testing and elastomer conducted by third party operators.

SOLUTION AND RESULTS

Following the successful testing and review period, the DeepDrill high-performance water-based drilling fluid system was approved for use.

The pilot hole was spudded and drilled to Total Depth (TD) over a ten-day period, making it one of the fastest that the operator had ever drilled in the area.

The 8½" hole section was drilled using the DeepDrill system and TD was reached in 43 hours without issue, which is also one of the fastest hole sections the operator has drilled – even out-performing some of their SBM sections on previous wells.

The Muderong & Forriester formations encountered in this section were drilled without any issues.

These formations have caused problems in the past for operators drilling with a WBM. Muderong is reactive and extremely vulnerable to wellbore stability problems, while Forriester is a very dispersive formation.

This 8½" hole section has been compared to a very similar offset well which was drilled with a KCl/Glycol WBM system, and the results show that the DeepDrill section outperformed that system by two days.

The operator was delighted with the performance of the DeepDrill system.