

Operator Utilizes Star Shield® Technology To Stabilize The Wellbore, Eliminate Losses, Easily Meet Drilling Challenges, And Enhance Well Productivity

Australia

CHALLENGE:

- ▶ Directional well
- ▶ Depleted reservoir
- ▶ Drilling fluid invasion flushing hydrocarbons out of near formation

SOLUTION:

- ▶ 8-lb/bbl STAR SHIELD wellbore shielding
- ▶ Star Shield® wellbore shielding daily maintenance treatment plan based on Sand Bed Invasion Test

RESULT:

- ▶ Easy and effective deployment of Star Shield wellbore shielding with zero losses while drilling
- ▶ Tight filtercake with tight fluid loss
- ▶ No differential sticking

DRILLING FLUID AND SOLIDS CONTROL

- ▶ Polyamine Inhibitive WBM
- ▶ 9.3- to 9.9-lb/gal mud weight
- ▶ API 80 Shaker Screens



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OVERVIEW

An operator in South Australia was exploring options to economically drill the heavily underbalanced and depleted reservoirs in the Patchawarra Formation. Traditionally, these would be done with MPD which would require expensive surface equipment, thus making the wells sub-economical. Ideally, the wells could be drilled conventionally with a low-density, low-cost water-based drilling fluid system.

The objective was to design a drilling fluid that would significantly reduce the wellbore skin, so that connectivity to the reservoir was not hindered. However, the fluid system would also need to be non-invasive by creating an instant barrier to stop fluid invasion from flushing away any hydrocarbons near the wellbore, thus preserving producibility. Furthermore, any barrier at the formation wall would need to be easily and completely removable to allow production during the completion phase in the low-energy wells.

SOLUTION

Impact Fluid Solutions recommended the addition of 8-lb/bbl Star Shield® wellbore shielding material in the 6¾-in. production section. The product can be added to the existing drilling fluid system directly or bled over from a premix, greatly enhancing the fluid loss characteristics of the fluid.

RESULT

Star Shield® wellbore shielding® technology was added throughout the zone of interest. A Sand Bed Tester (SBT), supplied by Impact Fluid Solutions, was used by the field engineers to monitor the Star Shield technology application and adjust the product concentration to optimal levels. The interval was drilled at 25-m/hr ROP with no losses of any kind through to section TD.

API 80 screens were run on the shakers to maintain product in the system and the centrifuge was operating continuously to help reduce low-gravity solids which ranged from 2.8 to 4.85% at TD.