

NANOSHIELD sealing polymer lower rig time and CO₂ emissions in depleted reservoir

CHALLENGES

- High risk of wellbore instability and fracture propagation due to extreme overbalance (850 psi) in a depleted reservoir
- Extreme bottomhole circulating temperatures (up to 165°F/74°C)
- Complex well path with 91° maximum inclination

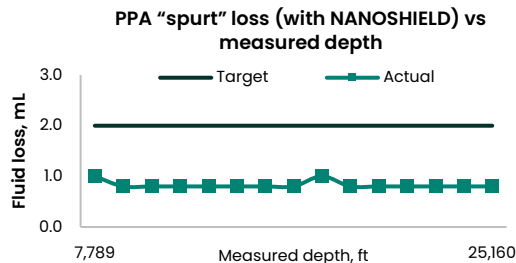
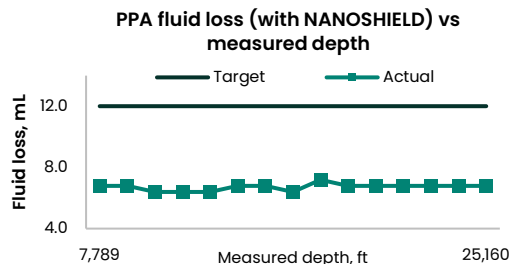
SOLUTION

The [NANOSHIELD™ wellbore sealing polymer](#) was deployed in a low-solids, non-dispersed mud system to:

- Provide effective sealing of the depleted reservoir
- Reduce fluid invasion
- Strengthen and stabilize the wellbore
- Minimize preparation time and material consumption
- Meet all key performance indicators
- Help lower coefficient of friction and torque values while drilling

RESULTS

- Reduced material consumption and associated costs in mixing drilling fluids
- Successfully met all KPIs for mud system delivery and performance
- Achieved ROP range of 250 to 560 ft/hr
- Helped deliver the field's longest run in a 24 hr period (7,501 ft /2286 m)
- Drilled to TD with a smooth profile and no downhole losses
- Saved 1.6 days in rig time vs. plan to reduce approximately 46,610 kg CO₂ eq emissions
- Avoided HSE issues and fluids-related NPT



A Permeability Plugging Apparatus (PPA) was used to conduct multiple filtration tests at 160°F (71°C) while drilling to TD. Results show that the NANOSHIELD polymer kept fluid and "spurt" losses well below the required limits.