

VectorZIEL Rotary Steerable System

Precise directional control capabilities demonstrated by successfully drilling an 1,800m S-profile section in a single run.

Technology

NOV's VectorZIEL™ automated rotary steerable system (RSS) provides precise trajectory control using near bit measurements combined with a unique steering control system. With an integrated pulser, the VectorZIEL is the only RSS tool that provides near-bit MWD surveys together with continuous directional and gamma ray measurements. VectorZIEL is available to independent directional drillers and operators worldwide.

Challenge

The VectorZIEL 800 RSS was deployed to drill an onshore well in Mexico. The directional profile was a planned as an “S” type well with vertical kick off, followed by a 2.5°/30-m build section, 33° tangent and then a 1.5°/30-m drop section. These wells were previously drilled using steerable motor BHAs, but this required significant slide times to maintain the desired trajectory in the soft formation.

Results

The VectorZIEL 800 RSS demonstrated exceptional control during all directional phases; kick-off, build, tangent and drop. The well plan was successfully delivered despite the high ROP, resulting in a significant reduction in drilling time compared to previous well. The 1,800m section was drilled in less than 40 drilling hours.

Drilling Hours	39.6
Circulating Hours	57.5
Depth In (m)	152
Depth Out (m)	1,938
ROP (m/hr)	60
Flowrate (gpm)	660
Mud Type	OBM
MW (gm/cm ³)	1.3
WOB (T)	10

