

Nabors' Smart Products significantly reduce cycle time, improve ROP and tool face control in lateral section

Challenge

Drill a lateral section to Total Depth (TD) in one run while maintaining planned trajectory, reducing slide time, and consistently executing high quality slides with maximized ROP. A typical non-automated offset interval takes 41.5 hours, requires an average of 17 slides and averages 47 ft/hr while sliding.

Solution

Utilize the SmartNAV & SmartSLIDE systems for automated slide control and directional drilling guidance to improve slide drilling performance and directional control. Despite the increased wellbore friction due to tangent / curve section geometry, this combination of Nabors solutions delivered multiple performance improvements compared to the non-automated offsets.

Results

Drilled 8-¾" section to TD in 33 drilling hours (6.8hr sliding, 19hr rotating), for an 8.5 hour reduction versus the average non-automated offset.

Achieved an average slide rate* of 41.0 ft/hr versus 32.2 ft/hr for the average non-automated offset well.

Improved slide scores from 82% to 90% and achieved the highest percentage of toolface values within 20° of target.

Case Study Facts

LOCATION: Susquehanna County, PA

CUSTOMER: Confidential Operator

TIMEFRAME: N/A

CUSTOMER VALUE:

Successful use of the SmartSLIDE™ Automated Directional Steering Control System and the SmartNAV™ Directional Platform saved 8.5 hours of cycle time.

FOOTNOTES:

*Slide Rate (ft/hr) is defined as slide footage divided by rotate-to-rotate time (ROP inclusive of off-bottom pre- and post-slide time).

Sliding Performance KPIs

Figure 1, Table 1

Well Name	Cycle Time (hrs)	Slide Time (hrs)	Slide ROP (ft/hr)	Slide Score (%)	TF Control (% <20°)	# Slides	Slide Rate (ft/hr)
SmartSLIDE Well	33.0	6.8	51.0	90%	62%	16.0	41.0
Avg. Offset	41.5	8.3	47.0	82%	54%	17.0	32.2

The use of these products enabled the operator to drill the 8-3/4” section to TD at 13,186 ft MD, with improved sliding KPIs and reduced cycle time compared to the non-automated wells (see Table 1). Toolface control precision exceeded all offset wells (see Figure 1). Overall, the SmartSLIDE well had a 9% faster ROP compared to an average non-SmartSLIDE well.

Lateral Section Slide Delta TF

Figure 2

