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Automated Sliding: Efficiencies Achieved in the Next Stage of Drilling Automation

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Abstract

In the current drilling climate, efficiency is king: do more with less. This motivation drives disruptive technological innovations in automation of the drilling process. Drilling automation can contribute to this efficiency specifically by automating the sliding process. The paper discusses a case history involving one operator's deployment and results of an automated sliding system.

The goal for automating the sliding process was to reduce personnel on location, drive consistency, increase wellbore quality, and shift the focus from an ROP-focused mindset. The operator had initially used bit guidance software for approximately one year, which was a significant backbone component of the automated sliding system. The automated sliding software was installed and tested on the rig, and then deployed on a six-well pad for initial observation and analysis.

After deployment, the automated sliding system successfully completed slides in all four surface sections on the pad. The first complete well on the pad, drilled to total depth, successfully completed slides in the vertical, curve and lateral sections. The rate of automated sliding exceeded initial goals, and the rig proceeded to drill several more wells at near-100% utilization rates. The automated decision-making system compiled detailed drilling set points and specifications used to form the most consistent and efficient method to drill the well, formation by formation. The total number of third party directional drillers was reduced, increasing overall safety and lowering costs.

Automating the sliding process, with this degree of accuracy and lack of human intervention through automated decision-making, represents a significant step change in the drilling industry milestones on the road to full automation. Best practices regarding adoption and deployment of automation technology will contribute to ensuring success in the ever-increasing field of drilling automation.

