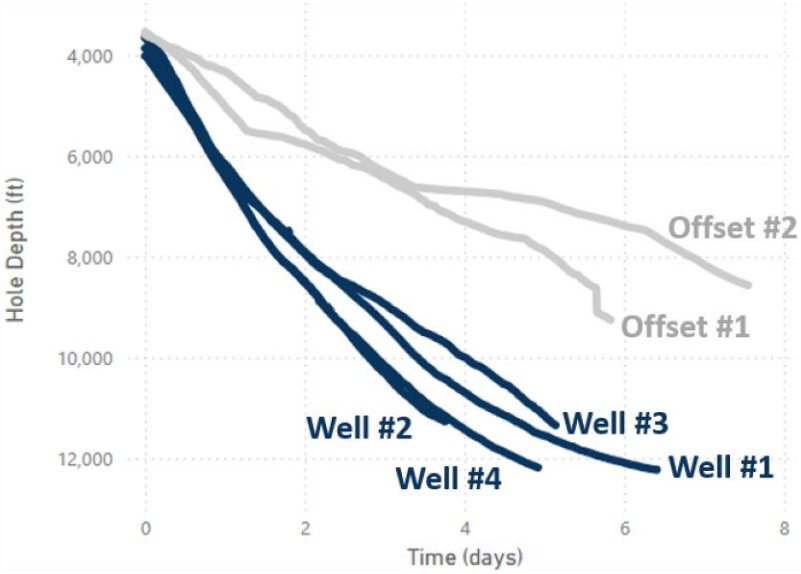
Smart autodriller delivers a 94% increase in ROP on a brake-handle rig

Challenge:

Drill the 8½-inch production section to total depth (TD) at competitive rates of penetration (ROP) using a brake-handle rig. The reservoir section is well-known for inducing stick/slip behavior and significant lateral vibrations, which complicate drilling performance and equipment longevity.

Solution:

NOV's Intelligent Drilling Optimizer, Kaizen™, uses artificial intelligence to continuously learn, respond to changing conditions, and apply optimal setpoints. This novel approach reduces drilling dysfunction and improves performance. By combining this technology with the eWildcat 2.0 autodriller, Kaizen enhances the on-bottom performance of brake-handle rigs, making them directly competitive with rigs that utilize control systems. On brake-handle rigs, Kaizen directly applies Weight-on-Bit (WOB) setpoints based on current environmental conditions. Optimal rotations-per-minute (RPM) parameters are provided in an advisory mode since RPM cannot be directly controlled. Parameters can be adjusted to mitigate or reduce lateral and axial vibrations below set thresholds, further improving bottom-hole assembly (BHA) and bit life.



Client: Offshore

Area: West Africa

Interval: 8.5" Lateral

Drive: Rotary Steerable

Results:

- Increased ROP by 94%, breaking previous performance records.
- By minimizing dysfunction, PDC bits were pulled out of hole at TD with great dull conditions.
- Drilled with fewer average on-bottom days per well, despite drilling over 50% more lateral footage.
- Saved an average of 112 hours or 4.6 days per lateral.
- Enhanced performance on brake-handle rigs to be comparable with fully automated rigs.

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Days Saved

On Four 8.5" Sections

Please follow THIS LINK for more product information