

Optimized Drilling System Saves 5 Days for Lukoil-Komi in Russia’s Timan-Pechora Region

Custom BHA enables drilling region’s longest horizontal section and the first drilled with a rotary steerable system

CHALLENGE

Reduce well construction time and mitigate drilling risks for 155.6-mm horizontal section of Timan-Pechora region development well.

SOLUTION

Design application-specific BHA that includes a PDC drill bit, a rotary steerable system (RSS), and MLWD technologies.

RESULTS

- Increased average ROP 56%.
- Reached section TD 5 days ahead of plan.
- Drilled longest horizontal section in the region.
- Provided quality hole to run liner to bottom.



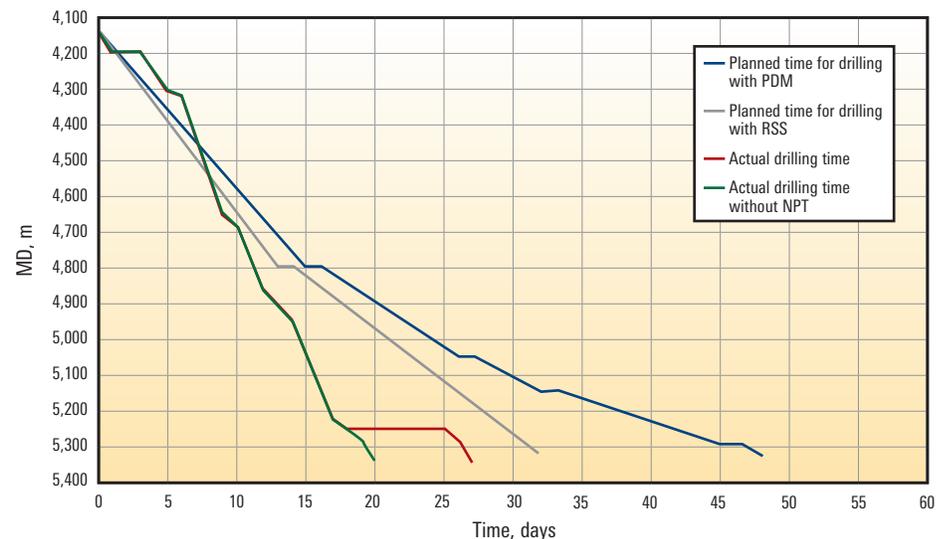
Reduce well construction time in Russian oil field

Lukoil-Komi had used positive displacement motors (PDMs) to drill the 155.6-mm horizontal sections of development wells from pads in the Vostochno-Lambeysorskoe oil field in the Timan-Pechora region of the Russian Federation’s Komi Republic. Due to low rates of penetration and the need for several bit runs, drilling one of these horizontal sections to TD often took as long as 50 days.

Optimize drilling system through planning and drilling software

Improving drilling performance in the field required careful attention to hydraulics and drilling mechanics to reduce drilling time, increase ROP, and mitigate risk. Schlumberger used the IDEAS* integrated design platform to select surface parameters and BHA components that would provide the best performance consistent with safety requirements.

The BHA incorporated a SHARC* high-abrasion-resistance PDC drill bit from Smith Bits, a Schlumberger company, PowerDrive X6* RSS, ImPulse* integrated MWD platform, and adnVISION* azimuthal density neutron service. The BHA was run on a tapered drillstring to ensure proper weight transfer without sacrificing good hole cleaning and to allow drilling jar placement for maximum effectiveness.

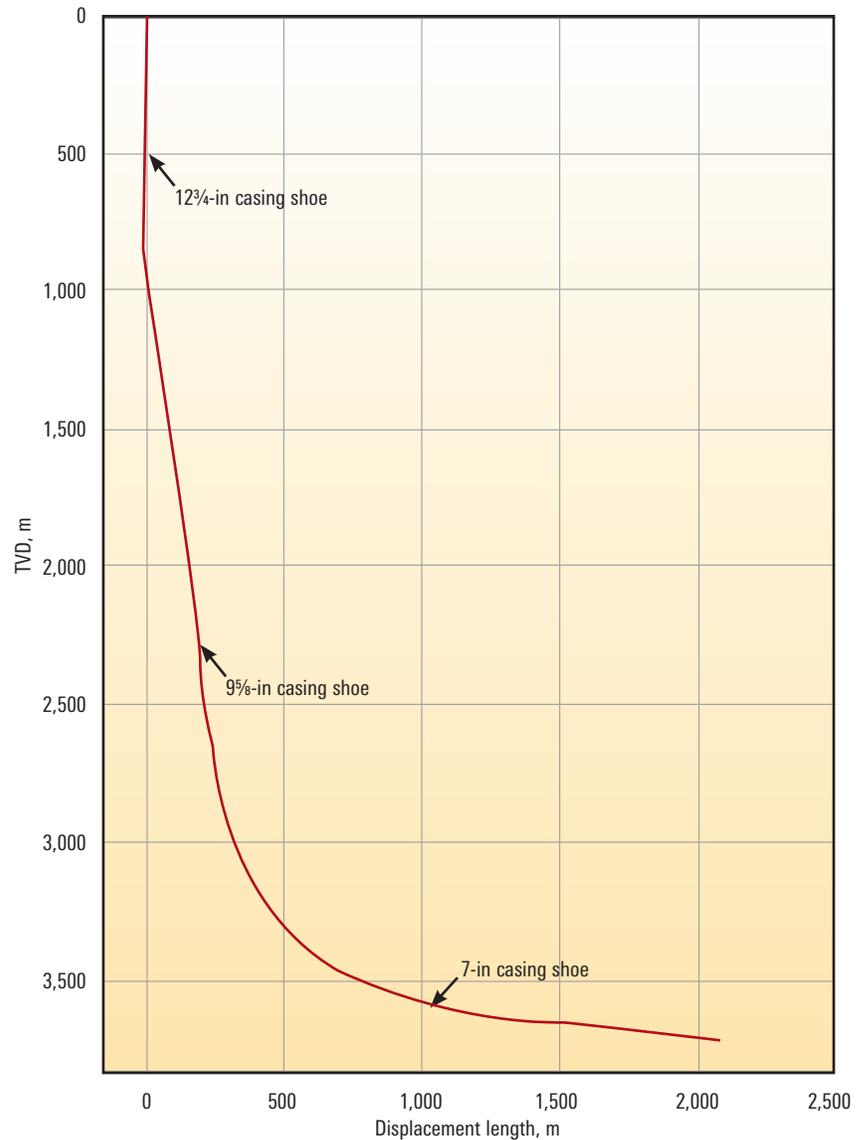


Drilling optimization enabled finishing the well’s horizontal section 5 days ahead of plan.

CASE STUDY: Custom BHA drills longest horizontal section in Russian field

Reached section TD 5 days ahead of plan

The optimized drilling system minimized shock and vibration and provided proper hole cleaning, enabling Lukoil-Komi to drill the entire 1,152-m section at average ROP of 5.47 m/h—56% faster than planned—with minimum wear to the MDi613 PDC bit. Total drilling time for the 155.6-mm section was 27 days, 5 days ahead of plan. Optimum borehole quality allowed successfully running the liner to bottom in the longest horizontal section ever drilled in the Timano-Pechora region and the first to be drilled with a PowerDrive X6 RSS.



The PowerDrive X6 RSS and the PDC drill bit drilled the well's 1,152-m horizontal hole section in just one run.

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