

# KPO Saves USD 2 Million with High Build Rate RSS

One-run method reaches TD 8.5 days faster than plan in Kazakhstan

## CHALLENGE

Drill a 6-in sidetrack from a near-vertical whipstock in one run and land well at 86°, which would require a build rate between 6°/30 m [6°/100 ft] and 9°/30 m [9°/100 ft].

## SOLUTION

Use PowerDrive Archer\* 475 high build rate rotary steerable system (RSS) fitted with an application-specific directional PDC bit from Smith Bits, a Schlumberger company, modeled using the IDEAS\* integrated drillbit design platform.

## RESULTS

- Drilled the reentry well in one run.
- Reduced drilling time by 8.5 days.
- Achieved the planned dogleg of 6°/30 m to 9°/30 m.
- Drilled 1,362 m at 8.6 m/h [4,468 ft at 28 ft/h], a field record for ROP.



## Increase efficiency of drilling reentry well

In a multiyear, multiwell drilling program in Kazakhstan, Karachaganak Petroleum Operating (KPO) wanted to restore production in a nonproducing well. To accomplish this, KPO needed to drill a 6-in sidetrack from a whipstock installed at a near-vertical inclination and land well at 86°, which would require a dogleg of 6°/30 m to 9°/30 m.

In the past, KPO used conventional RSS BHAs to achieve time and tortuosity gains. However, for dogleg assurance reasons, the build section could only be drilled with mud motors, which required multiple bit runs. KPO wanted to drill the 6-in reentry well more efficiently than previously had been possible to help restore production to nonproducing wells.

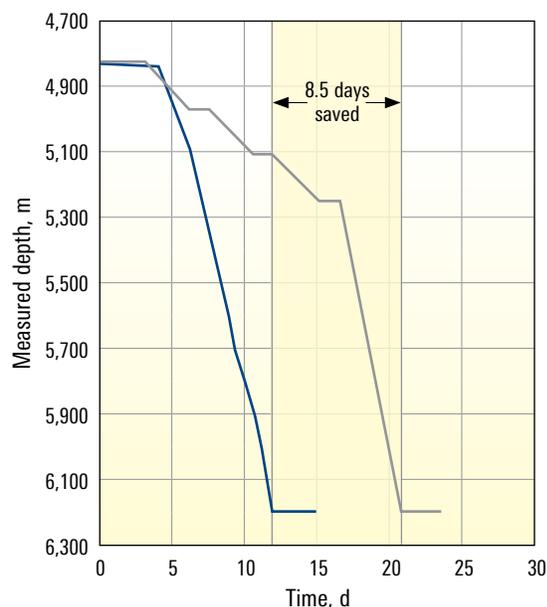
## Use PowerDrive Archer 475 RSS to reliably build high DLS curve

Schlumberger recommended drilling the high dogleg-severity (DLS) curve using the PowerDrive Archer 475 high build rate RSS, a highly reliable hybrid steering system with a dogleg capability of 18°/30 m [18°/100 ft]. Using the IDEAS integrated drillbit design platform, Schlumberger also selected an application-specific directional PDC bit from Smith Bits for use with the PowerDrive Archer RSS to provide greater directional response, minimal vibration, and high ROP.

## Drilled reentry well in one run at record ROP

The PowerDrive Archer 475 RSS and PDC bit was run from the whipstock window to TD, a total of 1,362 m. The well was placed precisely at the required TVD using a hold-inclination-and-azimuth command in the lateral section.

This BHA enabled KPO to drill the reentry well in one run at a record ROP of 8.6 m/h for the field and achieve the planned dogleg of 6°/30 m to 9°/30 m. The sidetrack was completed 8.5 days ahead of schedule, which was based on past experience using conventional mud motors. The time saved with the PowerDrive Archer RSS reduced operating cost by USD 2 million, and KPO plans to use this method to restore production in other nonproducing wells in its drilling program.



*The PowerDrive Archer 475 RSS saved KPO 8.5 days compared with the use of conventional mud motors for well reentry.*

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