High dogleg severity curves in a shale play

When Cimarex Energy Co. was drilling the Clark 1-20H well in the Woodford shale play in Oklahoma, USA, the company needed a solution for drilling high DLS curves. The only RSS for high DLS curves

Cimarex chose the PowerDrive Archer RSS because conventional rotary steerable systems do not have the capability to drill the curve without reducing the build rate. In addition, the PowerDrive Archer RSS is the industry's only RSS for drilling high DLS curves; even when build rates are high, wellbores are smooth and consistent.

Increased ROP

Using the PowerDrive Archer RSS to drill the 8.75-in 10°/100-ft DLS curve, ROP increased by 56% more than the recent field average drilled with a positive displacement motor assembly. The PowerDrive Archer RSS reduced wellbore tortuosity 16% compared with the curved section of an offset well drilled with a motor.

Drilling CHALLENGE

Drill a well with high dogleg severity (DLS) curves in a shale play and increase wellbore quality.

SOLUTION

Use PowerDrive Archer* high build rate RSS to drill the curve section and PowerDrive X6* RSS to drill the lateral section.

RESULTS

Drilled both the curve and lateral sections; drilled the 4,763-ft lateral section to TD in one run in slightly more than 2 days, setting a record for the fastest lateral ever drilled in the field; increased ROP by 56% more than the field average drilled with motors; and reduced tortuosity in the curve by 16%.
CASE STUDY: High build rate RSS increases ROP 56% more than field average in Woodford shale

The high quality of the curve section allowed the PowerDrive X6 RSS to drill the 4,763-ft lateral section to TD in one run, with a record average ROP of 120.6 ft/h. The average ROP of the Clark 1-20H curve section was 15 ft/h as compared to an average field ROP of 9.6 ft/h for curve sections. Using RSS to drill both the curve and lateral sections of the well resulted in drilling the lateral section in just 2.18 days, setting a new record in the field.

Contact your local Schlumberger representative to learn more.