CASE STUDY

BY MITIGATE MOTOR FAILURES AND THE ASSOCIATED TIME LOST, OPERATOR SAVED $105,000 PER WELL

H&P Technology Helped Increase Lateral Slide ROP by 120% and Make a One-Run Lateral Curve Possible

Challenge

An operator in the Eagleford was struggling with consistent motor failures close to total depth (TD) in their two-mile unconventional laterals. In an initial effort to limit the issue they tried adjusting the autodriller parameters while rotating, but they were not seeing a change in the outcome. Additionally, they were seeing subpar sliding performance, further increasing their time to target, and as they later found out, a contributor to their increasing motor failures. Both challenges were costing the operator a significant amount of time and money and needed to be remediated as quickly as possible.

Solution

H&P's Advanced Well Engineering team performed an in-depth post-analysis using existing data to pinpoint what might be causing the motor failures. The H&P data stream was combined with operator-provided downhole data to narrow down the cause. The results showed significant dysfunction while sliding, increasing motor fatigue, and in their case, failure.

Having a diagnosis to the failure allowed the operator to pivot and know exactly what they needed to correct and where they were underutilizing existing technology, like FlexOscillator®. H&P engineers gave the operator's directional drillers a deep dive into the H&P data stream outputs combined with downhole data from the previous wells that had not been accessible in the past, to help give them a better understanding of how slides could best be executed to increase the rate of penetration (ROP) and decrease disfunction.

Outcomes

H&P's DrillScan® Slide Mechanics Analysis technology was able to provide the operator with the data and recommendations they needed to mitigate motor failures and the associated lost time. To test the value delivered from H&P's technology stack, H&P compared the previous three wells to the following five wells drilled after the DrillScan technology study began. Here is what they discovered:

Time Savings

- One run curve/lateral saved 1.75 days of nonproductive time (NPT), equating to approximately $105,000

Reduce Time to Target

- Slide ROP increased over 120%*

Reduced BHA Failures and Repair Costs

- 4 out of the 5 following wells were able to drill the curve and lateral in one run

Seeing the value in the services that the Advanced Well Engineering experts provided, the operator asked that they continue to monitor slide practices for each well and produce new recommendations to further enhance the slide practices as new drilling dysfunction challenges arose.

PROJECT OVERVIEW

Location
United States

Outcomes
- Enhance Bit and BHA Integrity
  - Reduce Failures and Repair Costs
- Reduce Time to Target
  - Increase Slide ROP
  - Reduce Flat Time

Technology & Services
- Advanced Well Engineering
- FlexOscillator® Technology

Are you looking to achieve a similar outcome?

Contact us today.

"TAKING THE ADDITIONAL STEP TO INVOLVE THE ADVANCED WELL ENGINEERING TEAM IN OPERATIONS ADDED A NEW LEVEL OF INSIGHT AND DETAIL IN PINPOINTING THE CAUSE OF NPT."

SAVED 1.75 DAYS AND 1 LATERAL BHA EQUATING TO > $105,000 PER WELL

AFTER STUDY WAS STARTED

* TRIP DUE TO DIRECTIONAL ERROR AND RESULTING BAILOUT ASSEMBLY, NO MOTOR FAILURES.

WELL	SLIDE ROP (FT/HR)	SLIDE TIME %	FORMATION DIFFICULTY	CURVE/LATERAL BHA'S
1	36	50	high	2
2	16	44	high	2
3	20	14	high	2
4	34	20	low	1
5	72	18	low	1
6	70	17	low	1
7	50	22	low	3*
8	42	28	low	1

	BEFORE STUDY	AFTER STUDY
AVG. SLIDE ROP	24 ft/hr	54 ft/hr
AVG. SLIDE % TIME	36%	21%

BHA reduction represents one less trip in the lateral that was taking place approx. 1k ft from TD on three wells before the DrillScan® technology study, this trip took an average of 1.75 days. On 5 wells following the study, there wasn't a single trip in curve/lateral for motor failure.

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