

TEXAS OPERATOR SEES AN AVERAGE SAVINGS OF \$42,000 AT \$70,000 SPREAD RATE

H&P Uses Automated Technology to Increase ROP, Lower Cycle Time, and Speed Up Drilling by 22%

Challenge

An operator in the Eaglebine formation needed to mobilize a stacked rig to H&P's South Texas district without compromising on their desired performance outcome. The aim was to increase time to target while also preserving the life of the drill bit. The well had a three casing string profile with an intermediate bit size of 7 7/8-in., a lateral bit size of 9 7/8-in., and an average total depth (TD) of 16,800 feet.

Solution

H&P recommended a suite of automated drilling solutions designed to establish drilling consistency across the crew and increase overall efficiency.

Working together, FlexDrill® software uses Autodriller control system's set point automation to increase rig efficiency, reducing overall mechanical specific energy (MSE) and downhole dysfunctions like whirl and stick slip. Additionally, FlexDrill technology would help fulfill another desired customer performance outcome since it preserves bottom hole assemblies (BHAs), reducing the flat time attributed to tripping out and in the hole to change out bits and tools.

In order to test the effectiveness of this proposed solution and accurately capture the value it creates, the customer decided to batch drill three wells using H&P technology and compare the performance to one well without H&P technology.

Outcomes

Early-on, drilling consistency was established and time savings were quickly identified across the wells, with a 22% (0.6-day) average on-bottom rotating drilling time improvement. The customer saw a ROP increase of 5% in the intermediate section and 26% improvement in the lateral – all contributing to a 12% lower cycle time and an average cost savings \$42,000 at a \$70,000 spread rate.

ROP Increase

- 5% intermediate section ROP improvement
- 26% lateral section ROP improvement

Faster Drilling

- 22% (0.6-day) average on-bottom rotating drilling time improvement

Lower Cycle Time

- 12% spud to TD improvement due to reduction from 13.5 days to 11.9 days

Cost Savings

- \$42,000 average savings at a \$70,000 spread rate



PROJECT OVERVIEW

Location

Brazos County, Texas
Eaglebine formation

Outcomes

- Reduce Time to Target
 - Increase Rotating ROP
- Enhance Bit and BHA Integrity

Technology & Services

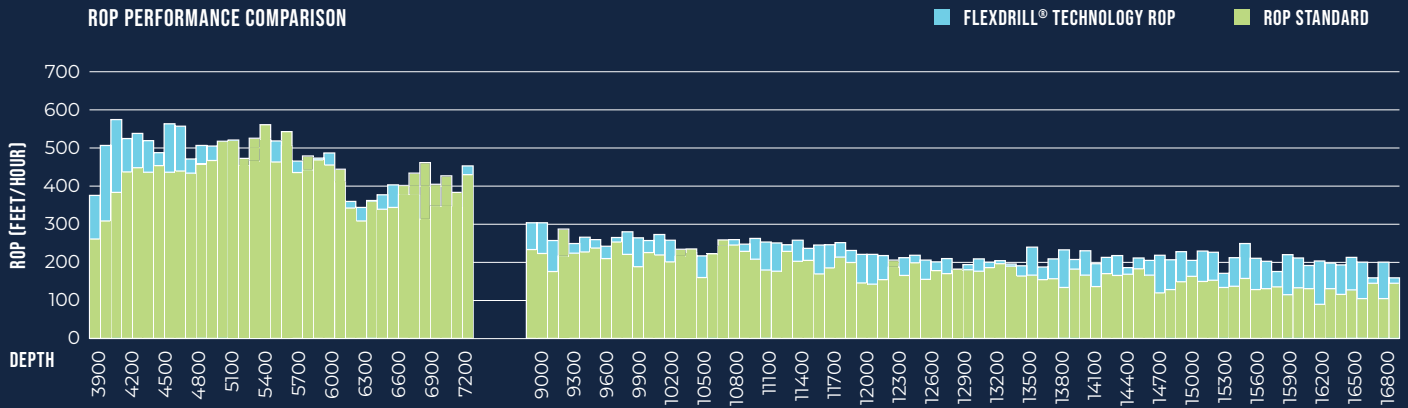
- FlexDrill® Technology
- Autodriller Control System

Are you looking to achieve a similar outcome?

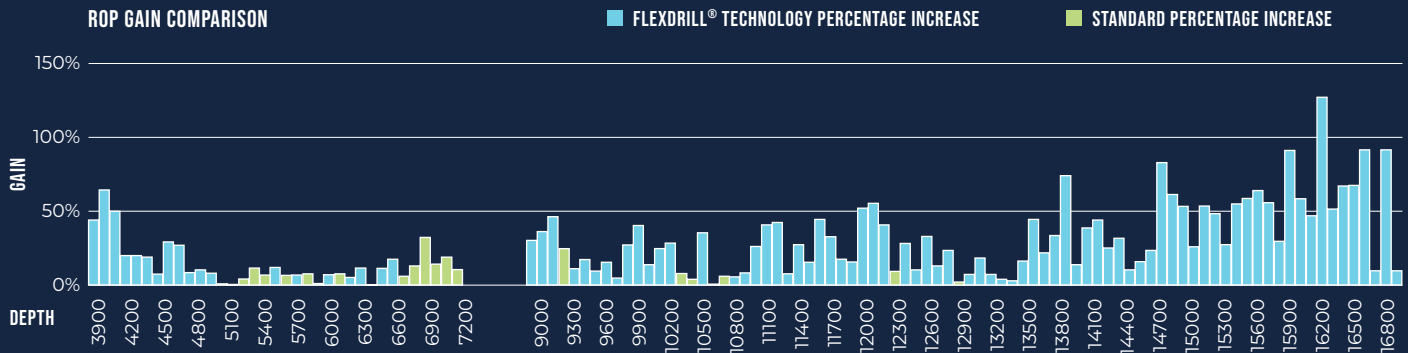
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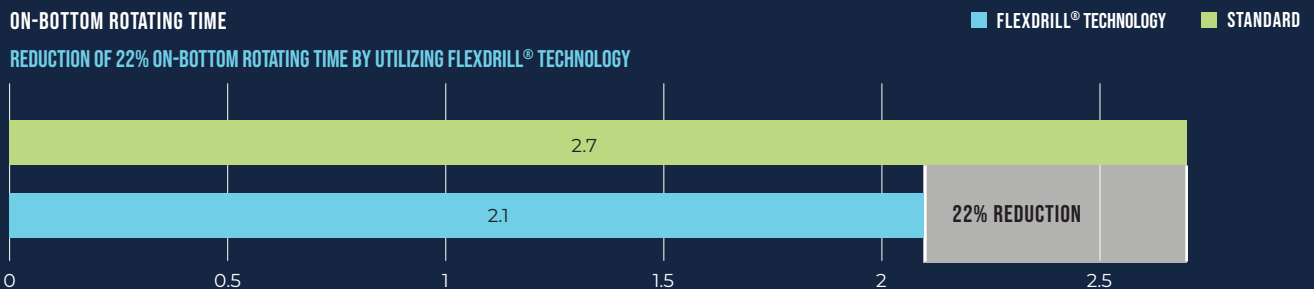
H&P HELPS OPERATOR ACHIEVE IMMEDIATE PERFORMANCE IMPROVEMENTS BY INCREASING ROP AND PRESERVING BIT LIFE



Comparing average ROP for the three wells drilled with FlexDrill® technology as opposed to the standard well, the H&P wells were drilled an average of 40 feet per hour faster than the standard well at the same depth.



This chart shows the frequency at which the FlexDrill® technology well had an increased ROP when compared to the standard well. The frequency of the blue bars indicates a FlexDrill® technology ROP percent increase, which occurred throughout 83% of the total footage drilled. The frequency of the green bars indicates the standard well's ROP percent increase, which happened during only 17% of the total footage drilled.



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