

# PERMIAN BASIN OPERATOR ACHIEVES 15% HIGHER ROP AND 21% IMPROVEMENT IN BACK TO DRILLING TIME

H&P Automation Technology Significantly Improves Efficiency and Preserves Bit Life

## Challenge

An operator in the Permian basin had been drilling similar well types for several years and was only seeing minimal improvements.

### Key Focus Areas to Reach Optimal Efficiency and Reduce Time to Target

- Increase their rate of penetration (ROP)
- Achieve consistent bit engagement after tagging bottom
- Decrease their overall on-bottom time

The operator had experienced efficiency gains enabled by H&P automation technology on other projects and decided to explore what additional H&P performance improvement options could help ultimately reach the desired outcome for this project.

## Solution

H&P recommended combining FlexDrill® and FlexB2D® technologies to maximize efficiency while minimizing the need for driller intervention. The process of staging drilling set points after tagging bottom can often be inconsistent and cause drilling dysfunction. FlexDrill technology transforms this common multi-step task into an automated and configurable process. Additionally, it performs automated zeroing of weight on bit (WOB) and differential pressure set points and helps ensure proper contact with the formation. This allows for configurable and consistent bit engagement, reducing bit and BHA torsional and lateral vibrations.

With FlexB2D technology, operators can achieve automated and uniform bit engagement after connections, increasing reliability and enhancing bit and BHA integrity – all with the push of button.



## PROJECT OVERVIEW

### Location

Glasscock and Martin Counties, Texas  
Spraberry, Wolfcamp A and B Formations

### Outcomes

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

### Technology & Services

- FlexDrill® Technology
- FlexB2D® Technology

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# Outcomes

The operator began to see significant performance improvements as soon as H&P technology was installed on the rig.

## Increased ROP

- Automated set point optimization created a 15% higher average ROP in all sections where H&P automation technology was utilized

## Time Savings

- The rig's average back to drilling time was reduced by an average of 17 seconds, which translated to an improvement of more than 21%

## Lower Average Bottom-hole Assembly (BHA) Totals

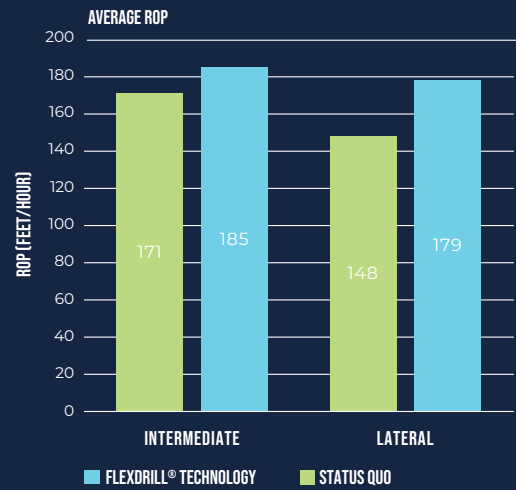
- The proper bit engagement and automated drilling dysfunction mitigation contributed to a reduction in total number of BHAs by 0.45 per well

## Lower Cycle Time

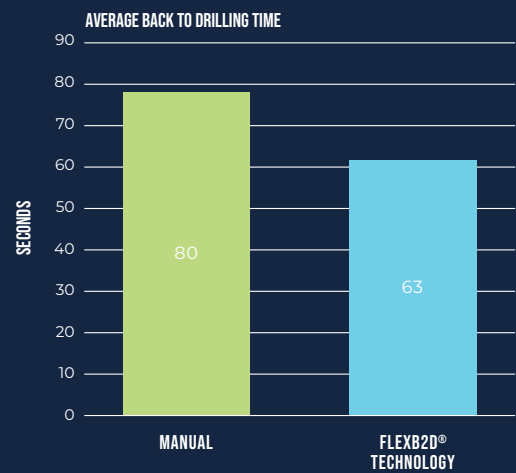
- The rig's average spud to total depth time was reduced to 15.8 days, with an average total depth of 17,500 feet

## Cost Savings

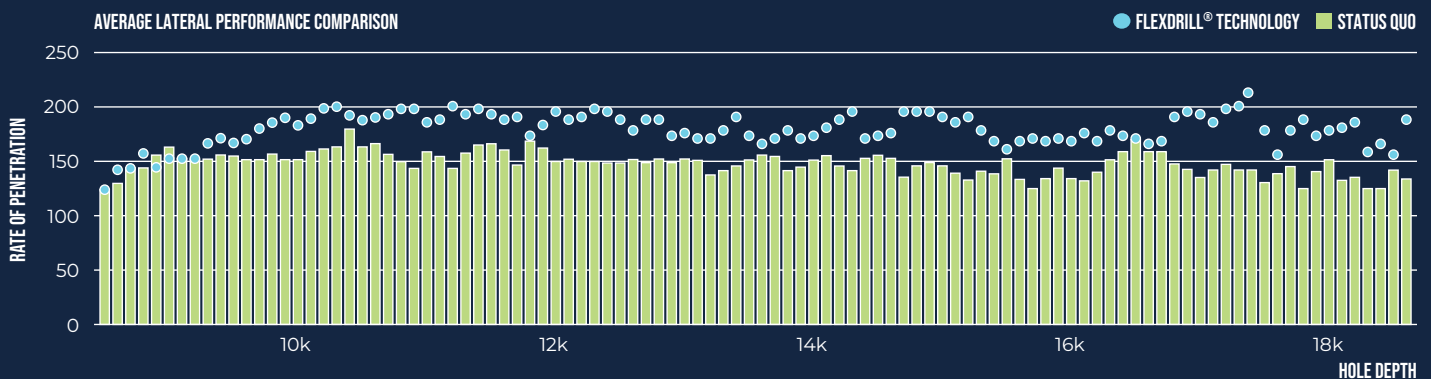
- With a \$70,000 spread rate, the average savings utilizing FlexDrill technology was \$3,400 per day



FlexDrill® technology increased the average ROP in both the intermediate section by 8% and the lateral section by 21%.



Automating the back to drilling process reduced the overall average when compared to completing the multi-step task manually.



In a foot-by-foot comparison of average ROP, FlexDrill® technology improved hole depth the lateral ROP by 21%. This improvement alone translated to a time savings of 8.4 hours.

