



S Texas - Eagle Ford Formation | Operator: Confidential |

INNOVATIVE SOLUTIONS

HiFi Guidance – Next Generation Trajectory Optimization
 APEX Rigs – The Rig Standard in Drilling Performance by Patterson-UTI
 MS Directional - Mpower Motors & Mpower MWD System

BENEFITS:

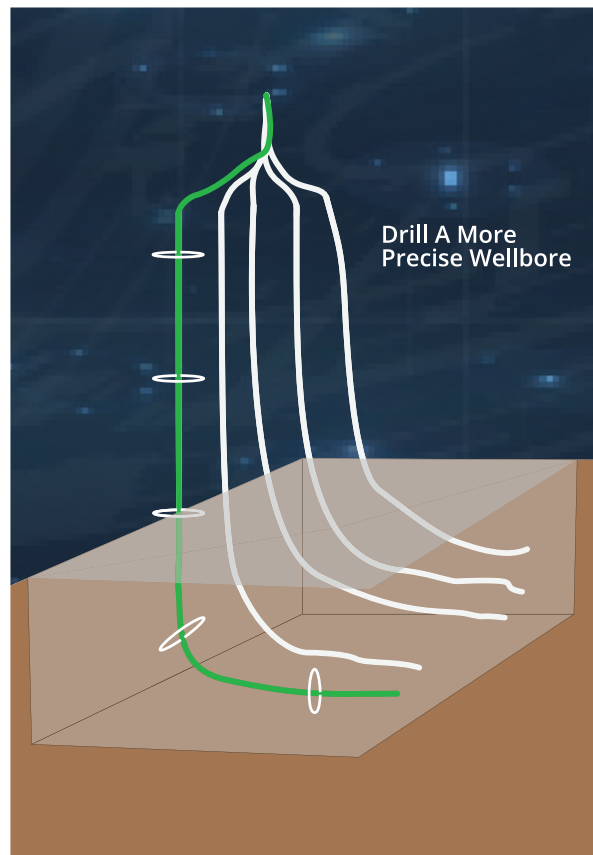
- Reduce Slides up to 60%
- Improve Projection to Bit Accuracy up to 30%
- Comprehensive Steering Recommendations Powered by HiFi Nav
- Seamless Automated Data Transfer

MISSION

The client wanted to determine a solution for increased directional performance without adjustments to the BHA or adding expensive equipment downhole. By focusing on trajectory optimization, the client sought to aid their experienced directional drillers in the lateral section to enhance their decision making, eliminate potential human bias, and drill more consistent wells. In the highly dense Eagle Ford drilling environment where high penetration rates are the norm, precise lateral targeting and deliberate steering decisions are paramount to executing the well plan objectives and meeting overall production expectations.

PROCESS

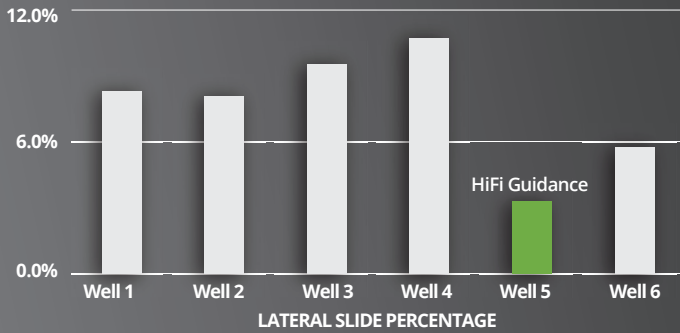
With our client, we determined that reducing the sliding percentage and overall number of slides could yield a reduction in drilling time thus saving unnecessary spread costs and resulting in a more consistent well. The analysis of offset wells revealed that the directional driller was sliding an average of 4x/1000' with a 35% variance between the day and the night directional driller. Through collaboration with the client, it was determined that the directional driller would follow standard operating procedures to execute 5 wells on the pad. On Well #5 of the pad, the HiFi Guidance recommendations would be used to make all steering decision in the lateral. The results of the 5 offset wells were then compared against Well #5 on the basis of slide percentage, overall number of slides, and dollars saved.



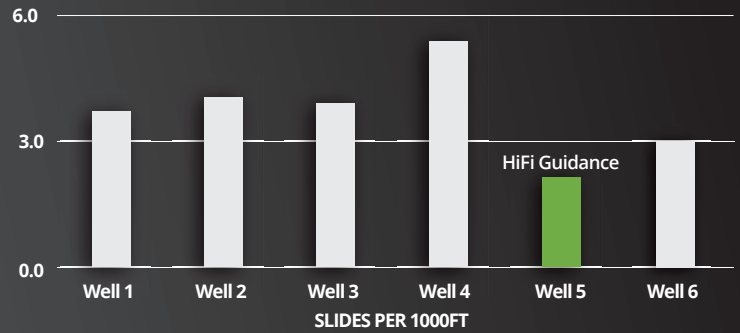
RESULTS

The average slide percentage for the 5 offset wells was 8.6% compared to 3.3% for Well #5 which used HiFi Guidance resulting in a 62% reduction in sliding percentage in the lateral. Additionally, the number of slides was reduced by 46% when comparing the directional driller alone vs directional driller with HiFi Guidance in the lateral. Drilling time was reduced by 17hrs resulting in a savings of \$35K. HiFi Guidance proved valuable in assisting the directional driller to reduce the number of slides, slide percentage and overall tortuosity.

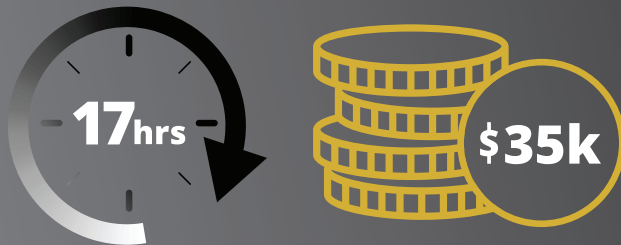
SLIDE PERCENTAGE REDUCED 62%



NUMBER OF SLIDES REDUCED 46%



DRILLING SAVINGS



+

INTANGIBLE VALUE

- Improve Goesteering to Reduce Target Changes
- Minimize Wellbore Tortuosity
- Reduce NPT & ILT
- Optimize Downhole Pump Placement
- Accurate Frac Spacing

Past performance is not a guarantee of future results. Results may vary.