CASE STUDY

FlexDrill

Improving Efficiencies and Preserving Bit Life by Automating eDriller Set Point Optimization

OBJECTIVE

One operator recently achieved record drilling performance on a Meramec well drilled in the STACK using FlexDrill™. The operator historically struggled with suboptimal rates of penetration (ROP) due to stick slip and whirl. This caused premature tool failures and bit damage, increasing nonproductive time and costs. They turned to H&P for a solution, and H&P recommended the FlexDrill system to enhance their drilling efficiency.

The operator decided to test the FlexDrill system on one rig after learning that the continuous, automatic optimization would increase ROP and lower mechanical specific energy (MSE), leading to a more efficient drilling process.

The proprietary functions within FlexDrill performed continuous drill off tests to find the optimal drilling parameters through any formation. This process mitigated their stick slip and whirl dysfunction, reducing the downhole vibrations responsible for bit and bottom hole assembly (BHA) damage. The system automatically staged drilling set points after tagging bottom, further reducing risk and accelerating their well program.

RESULTS

FlexDrill outperformed all offsets in both the intermediate and lateral portions of the well, while noting the following specifics:

Increased ROP
· The rig improved their spud to total depth time by five days, resulting in a 12% overall savings.

Reduced BHA Count
· There were four less BHAs used throughout the well, translating to an overall 30% reduction.

Record Breaking Performance
· The entire Tonkawa formation interval was drilled to casing point in a single run.

WELL PROGRAM STATS

· Blaine County, Oklahoma

· Meramec Formation

· Average Offset Spud to Total Depth: 39 days

· Average Offset Total Depth: 22,600 feet

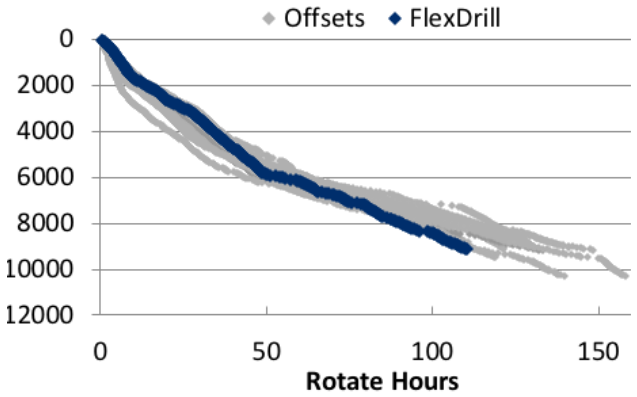
OFFSET WELL STATS

· Offsets were determined based on location for the intermediate section, and formation for the lateral section.

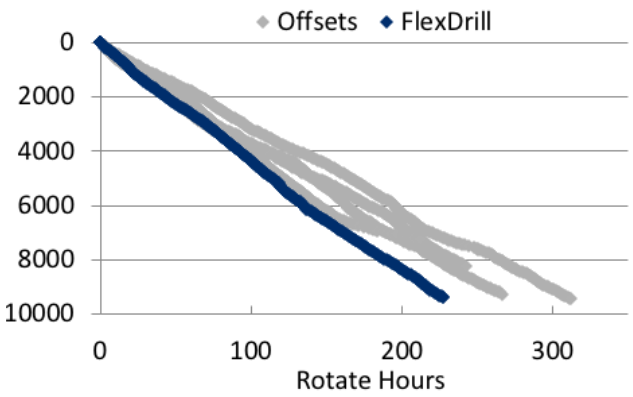
· Intermediate Comparison:
13 wells within a three-mile radius

· Lateral Comparison:
5 Meramec wells within a five-mile radius

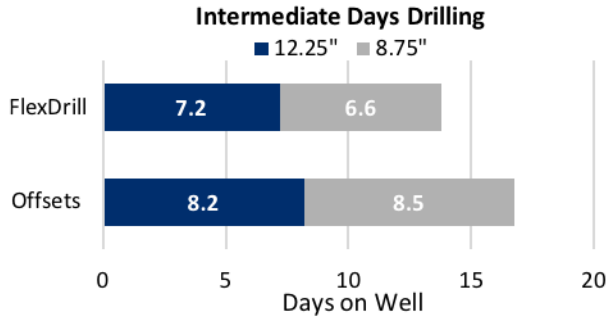
Intermediate Rotating Performance

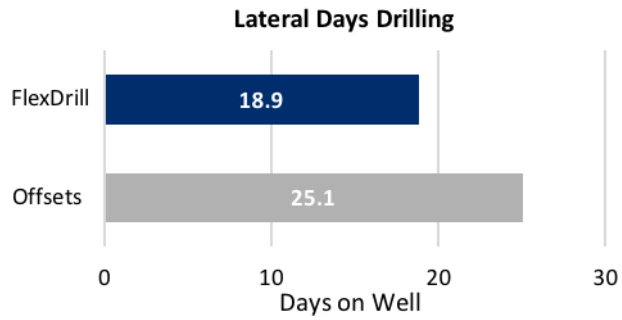


Lateral Rotating Performance

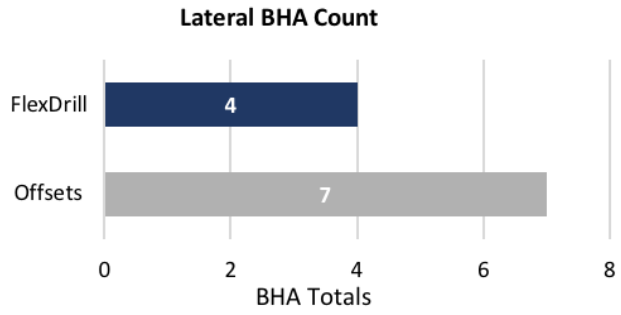


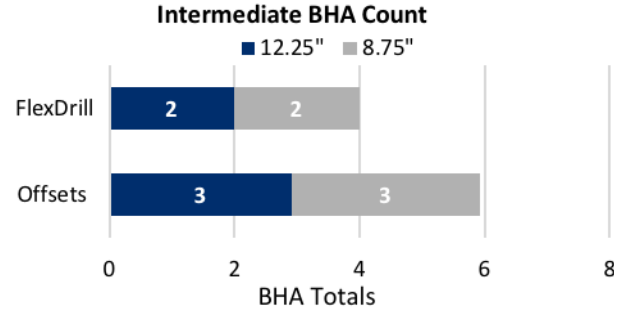
The two depth vs. time charts displayed above compare the rotating performance of the FlexDrill well in the intermediate (left) and lateral (right) sections with their relative offsets. The FlexDrill well, displayed in blue, demonstrates far better performance when compared to the average of the offsets.





FlexDrill ROP efficiencies contributed to a significant reduction in total days on well when compared with offsets in both the intermediate and lateral sections.





The proper bit engagement and reduced downhole vibration achieved by FlexDrill makes it the obvious leader in BHA efficiency, demonstrated by fewer BHA totals in both the intermediate and lateral sections.

* PAST PERFORMANCE IS NOT A GUARANTEE OF FUTURE RESULTS. ANY STATEMENTS REGARDING PAST PERFORMANCE ARE NOT GUARANTEES OF FUTURE PERFORMANCE AND ACTUAL RESULTS MAY DIFFER MATERIALLY.

ABOUT US

We're rated 1st by our customers 11 years in a row because no one designs, fabricates, and operates automated drilling performance packages as well as we do. H&P reduces risk, lowers total cost of operations and accelerates well programs better than anyone. Our long-standing commitment to safety reinforces the importance we place on people and our ability to recruit and retain top talent to serve our customers.

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