

CHALLENGE

Reduce Bit and BHA runs without compromising penetration rates

SOLUTION

Detailed study by optimization team leading to selection of the Kaizen app

RESULTS

Well completed 6 days faster than offset representing **25%** increase in overall well productivity

45% Reduction in Lateral Trips

11% increase in Rotary ROP

AlphaApps™ KAIZEN Records Increased Drilling Productivity in Lateral Section in Montney

CASE STUDY OVERVIEW

An operator drilling extended horizontals averaging 4km in lateral length in Northern Alberta encountered the higher compressive strengths in the interbedded target Montney reservoir as compared to offsets in the same field. This finding resulted in increased BHA runs resulting from damaged bits and downhole motor failures. On the first pad, two laterals drilled with an average of 6 runs and 700m per lateral as compared to 1100m per run anticipated in the planned AFE. This setback the overall campaign days and the operator reached out to Precision Drilling for a solution.

ALPHA APPS SOLUTION

After a thorough study of the downhole dynamics, bit and BHA failures, Precision Drilling's optimization teams simulated a variety of applications to enhance bit and BHA life without compromising rate of penetration. They settled on the solution app called Kaizen with the confidence that this app would allow for superior penetration rates while minimizing downhole minimum Specific Energy (MSE) for lateral performance improvement. The Kaizen app identifies and automates processes for drilling dysfunction allowing the operator to manage drilling parameters without compromising penetration rates. The app has inbuilt features that machine learn optimum parameters allowing for closed loop corrections of drilling parameters while removing harmful drilling dysfunctions.

CONCLUSION

After thorough study of downhole parameters and app execution, the operator managed to revive and surpass their originally planned AFE days.

- » The well using the Kaizen app was completed 6 days faster than offsets on the same pad.
- » Increased run lengths averaging 1000m more than offset runs and resulting in 45% reduction of bit/BHA trips. This enhanced drilling productivity by 25% vs the offsets. (See fig 2)
- » The comprehensive study conducted by the optimization team led to an 11% increase in rate of penetration when compared to best offset. (See fig 3)

45%

LATERAL TRIPS
REDUCTION

25%

OVERALL WELL
PRODUCTIVITY
INCREASE

11%

ROTARY ROP
INCREASE

FIGURE 1

Figure 1 shows the lateral section drilled with the Alpha_ KAIZEN app compared with offsets on the same pad.

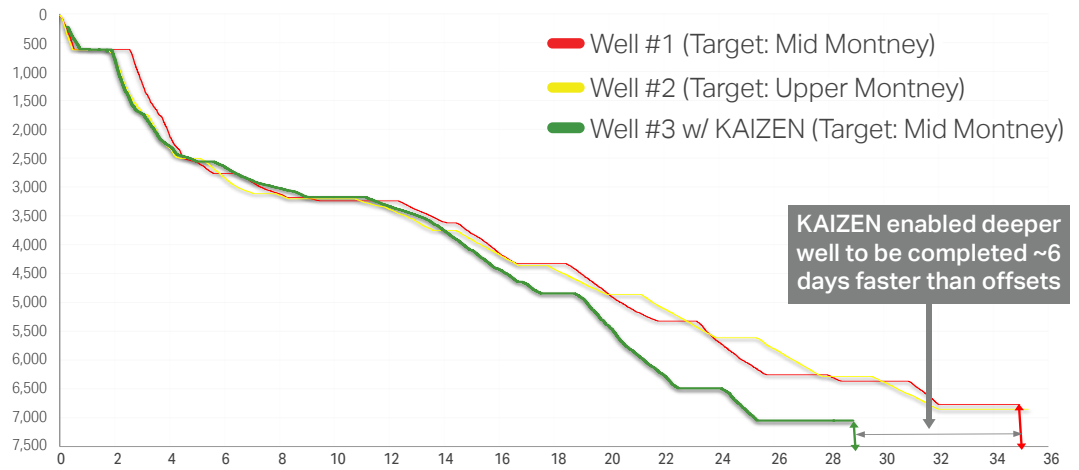


FIGURE 2

Figure 2 shows a 25% increase in drilling productivity with Kaizen vs. offsets.

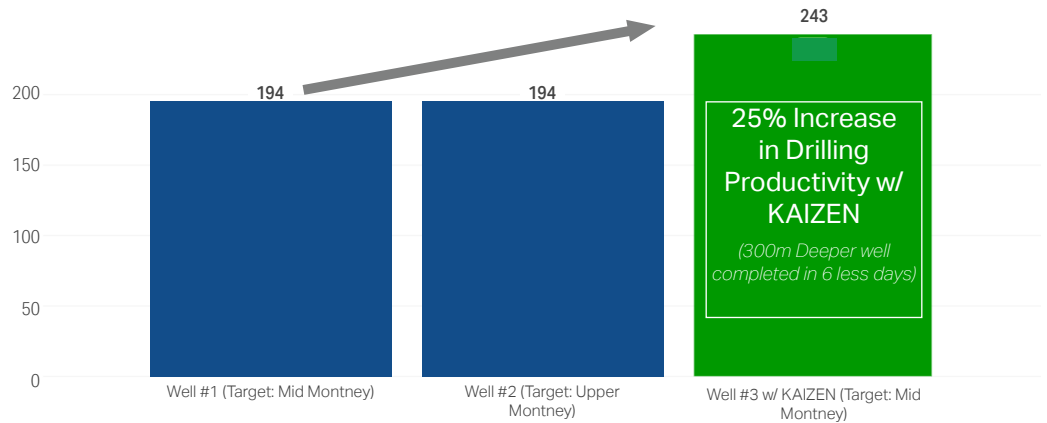


FIGURE 3

Figure 3 shows the increase in Rotary ROP from 18.2 m/hr on offset to 20.3 m/hr, resulting in an 11% improvement.

