

CHALLENGE

Reduce the number of bits while drilling intermediate section to a single bit run through interbedded formations.

SOLUTION

Fine tune Tag Bottom App parameters to prevent premature wear on the bit.

RESULT

Superior bit life resulting in lower cost per foot from drilling intermediate section in a single bit run consistently on future pads.

AlphaApps™ Programmed Tag Bottom Parameters Prevent Premature Bit Failure

CASE STUDY OVERVIEW

An operator had previously drilled with an Alpha rig (Fig 3, Rig A) in 2019-2020 without the use of the Alpha Remote Operations (ARO) and Drilling Optimization services as provided today. These services include a detailed look at execution of Alpha Automation set-points focusing on interbedded formations, drilling parameters, motor, and bit life among other parameters.

A new Precision Drilling rig was contracted (Fig 3, Rig B), where the latest software version of Alpha Automation was used with great success highlighting superior connection times in the 12.25" intermediate section when compared to previous wells drilled. However, like the offset Rig A, compromised bit life was becoming an issue throughout the interbedded intermediate section, (Fig 2). The optimization team studied this to be the parameter configurations set in the automation system for the Tag Bottom App where priority was given to connection time rather than bit life.

On discussion and agreement with the operator it was decided to change out some of the automation set-points with the goal to improve bit life and to drill the intermediate section in a single bit run. The ARO and optimization teams jointly mapped out a plan whereby the Maintained WOB (Weight on Bit) and Tag Bottom ROP (Rate of Penetration) were reduced to successfully mitigate bit wear. While these changes resulted in slightly slower connection and drilling times (Fig1), the intermediate sections were drilled with a single bit run as set out in the goal. This successful change in parameters was then transferred to subsequent wells on other pads with similar results. (Fig 1 and Fig 2).

CONCLUSION

Focused operational changes by the ARO and optimization services allowed the operator to understand the intricacies of the Tag Bottom App. The real time data available from automation allowed Precision Drilling teams to show the operator drilling dysfunction when the drill bit engages the formation after a connection. This in turn set a path to adjusting the parameters and setting a goal whereby the intermediate section could be drilled in a single bit run, reducing the cost per foot for the operator.

FIGURE 1
Drilling Connections: Intermediate Section - Rig B

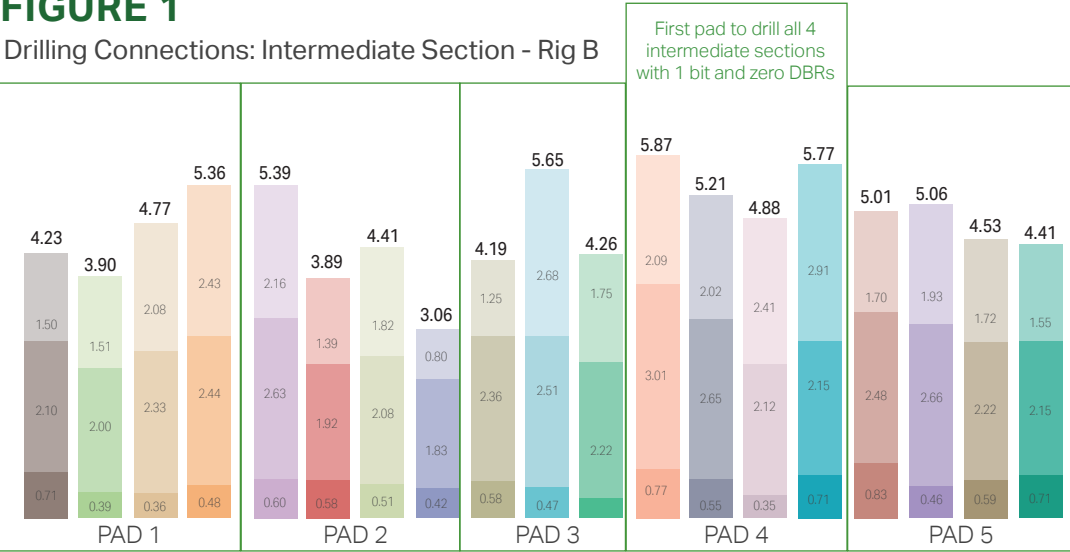


FIGURE 2
Intermediate Section - Drill Bits per Pad - Rig B

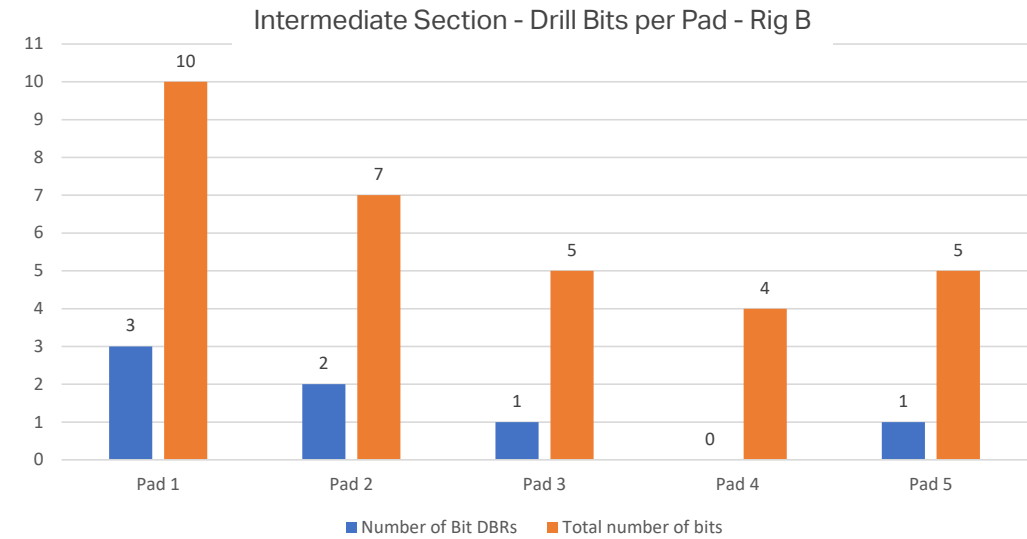


FIGURE 3

