



CAGG-AGH-2019

A COLLABORATIVE APPROACH OF REMOTE GEOSTEERING FOR AN OPTIMAL WELL PLACEMENT WITH HELP OF INTEGRATED REAL-TIME DATA

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Introduction

In the last decade, the oil industry has transitioned from drilling primarily vertical wells to a majority of extended reach horizontal wells. This shift has resulted in higher production efficiency achievable with horizontal wells, enhanced capabilities of the latest drilling/logging technologies and especially the real-time data for more informed decisions about well placement. Therefore, the overall objective of geosteering and well placement has extended to maximize the reservoir contact by keeping well trajectory in the pay zone with the help of quality real-time data and intuitive software with full remote expert support.

Samples and methods

This paper illustrates the immense impact real-time data feeds (M/LWD, images, special logging tools) and collaborative work done at remote operation centers with full remote expert support of multidisciplinary teams. Proper communication mechanism is also helpful to timely share the information across the asset teams. To achieve the desired geosteering objectives, experts monitor and evaluate the real-time data in the deviated section to land accurately on top of pay horizon followed by optimum placement by designing well path keeping in view the geological variables like (reservoir architecture, permeability and porosity distribution, and fluid contacts etc) and other drilling uncertainties during the operation. Moreover, intuitive applications also help the experts to gauge the reservoir geometry and anticipating about reservoir characters by correlating with data/logs of nearby wells. This further assists to update the reservoirs models in real-time based on the latest subsurface information for better reservoir management.

Results and Conclusions

This collaborative and modern geosteering approach not only helps in better characterizing the reservoir but helps the operator maximize the horizontal wellbore's exposure through proper well placement in the most efficient reservoir zone and also in drilling domain to overall increase the ROP, maintaining good hole conditions, avoid NPT/ILT and drilling uncertainties to eventually optimize the operational cost for an appropriate well delivery.

References

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