HIFI NAV

UNCOVERS HIDDEN TVD ERROR THAT RESULTED IN SIDETRACK FOR PERMIAN OPERATOR

CASE STUDY

W Texas - Permian | Operator: Confidential |

INNOVATIVE SOLUTIONS

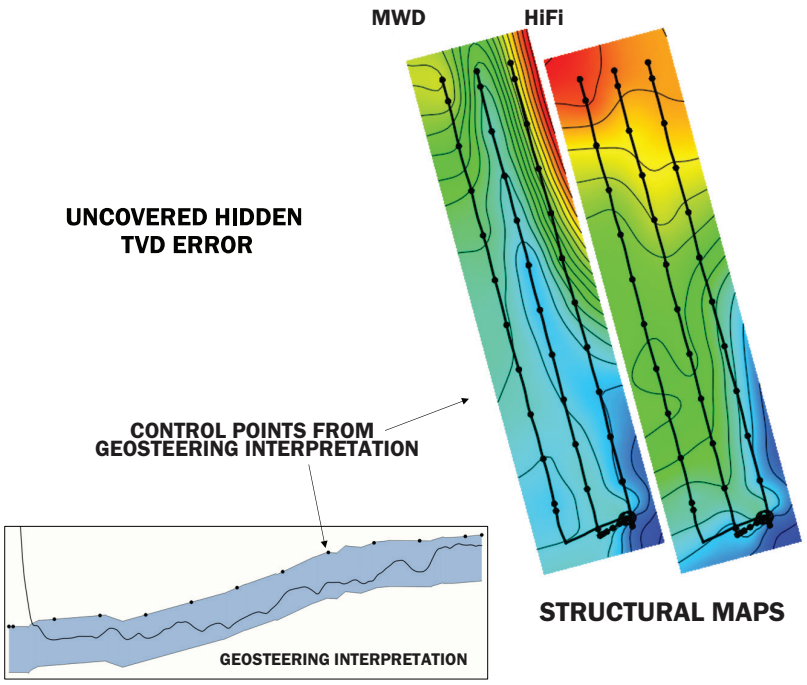
HIFI Nav: High-Density Trajectory Estimation

BENEFITS:

- Higher Survey Data Resolution
- Reduce the Impact of the Stockhausen Effect
- Improve Projection to Bit
- Reduce EOU up to 70%+ Vertically
- Improve Geosteering Interpretation

MISSION

While drilling on a pad in the Permian Basin, the geological team for the client encountered a discrepancy with the correlation of their structure maps to the gamma readings produced by the MWD. This discrepancy led to the conclusion that the well was likely out of the target zone. The only viable solution at that point was to sidetrack the well. In order to better understand this correlation disagreement, the client approached Superior QC to investigate the well placement. It was hypothesized that masked TVD error could be the culprit and through discussions with the operator, it was determined that processing the data through the HiFi Nav correction algorithm could potentially provide a better understanding of the well's position.

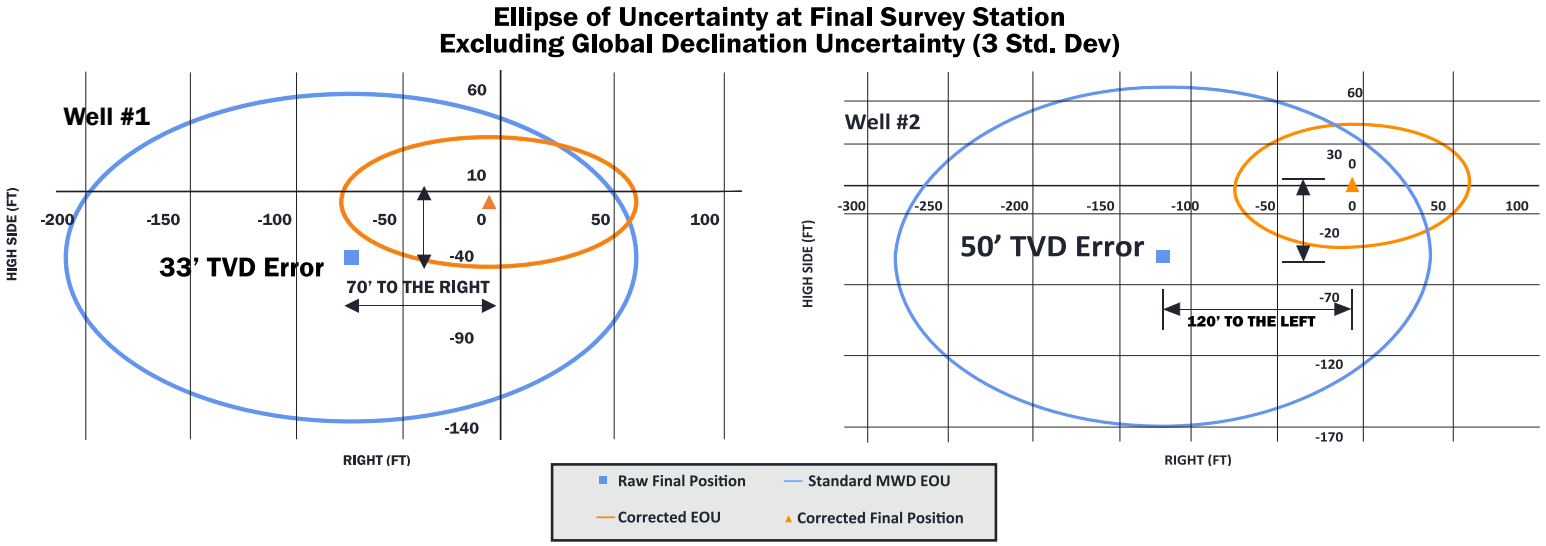


PROCESS

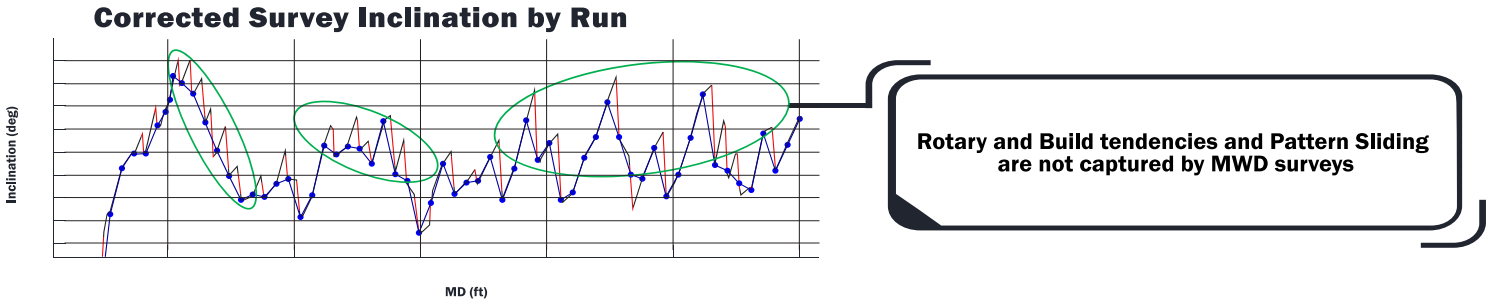
Two wells on the pad seemed to experience similar correlation discrepancies, so both were selected to be processed with HiFi Nav. Once the results were generated by the survey correction algorithm, they were provided to the client for reinterpretation. The HiFi Nav results were then compared with the original understanding of the wellbore position to determine if the utilization of HiFi Nav in real-time would have resulted in an improved outcome.

RESULTS

HiFi Nav's comprehensive survey management algorithm uncovered a significant positional error in the horizontal (semi-major) as well as TVD (semi-minor) planes on both wells. On Well #1, HiFi Nav identified 70ft of horizontal error and 33ft of TVD error and on Well #2, 120ft of horizontal error and 50ft of TVD error.



On both Well #1 & Well #2, a build tendency of approximately 1°/100ft combined with pattern downward sliding to combat it were the primary cause of the TVD error identified. HiFi Nav is able to identify and account for the characteristics of the wellbore trajectory that go unnoticed by traditional MWD surveying practices by synthesizing all available drilling data to model the trajectory at 15ft intervals.



The resulting resteer by the client's geosteering personnel correlated extremely well with the HiFi Nav output. The interpretation matched well with the gamma data and if used in real-time applications, HiFi Nav may have been able to prevent the need for sidetrack operations.