

CASE STUDY

MICROGUIDE REVEALS SIGNIFICANT DISCREPANCY IN BOTTOMHOLE LOCATION, ISSUES WITH ROD GUIDE PLACEMENT

▶ TECHNOLOGY

- MicroGuide™ wellbore tortuosity logs

▶ APPLICATION

- Artificial Lift
- Rod guide placement

▶ LOCATION

- Permian Basin

INDUSTRY CHALLENGE + OBJECTIVE

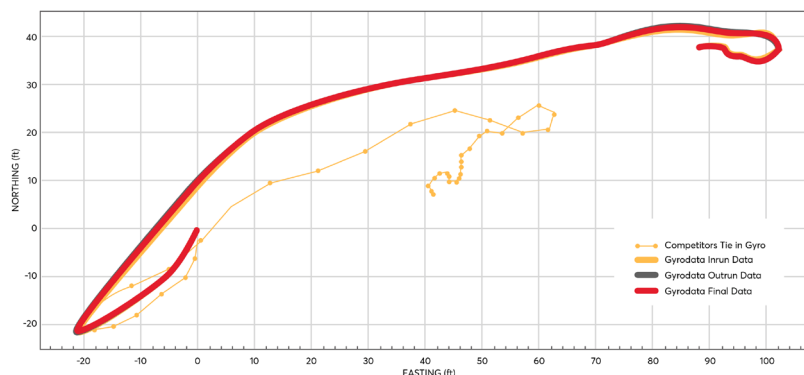
An operator in the Permian Basin had drilled a well and eventually put it on a rod lift system for production. After doing so, they eventually found that though there were no major issues with the rod pump, the well was not producing as expected. The operator had previous gyro surveys from a competitor that were used as the tie-in for the MWD surveys at the kickoff point. To determine what had happened to the well and the necessary solution to the problem, the operator requested Gyrodata to run a Microguide Log and analyze the side force data for comparison.

TECHNOLOGY + SERVICE SOLUTION

- Due to the limitations of the existing gyro survey and MWD survey data, we recommended performing a comprehensive MicroGuide logging analysis to provide true insight into excessive side force and tortuosity-related concerns over the entire depth of the well.
- Taking measurements in 1-ft increments versus stand-length intervals provides a detailed picture of true downhole conditions and issues that might be causing problems with artificial lift equipment.

RESULTS + VALUE DELIVERED

- After running our MicroGuide Log and comparing the data with the existing gyro survey data, the MicroGuide analysis revealed that side force had been miscalculated with the competitors' systems.
- Using the new information, we determined that the incorrect data led to a significant error in the calculation of both the well's trajectory and ultimate bottomhole location (Fig. 1), with the actual placement 56.2 ft laterally displaced from the bottomhole location provided by the competitor's tie-in gyro.
- Having this information allowed the operator to develop a solution for rod guide placement that would increase production in line with understanding the downhole conditions of the actual bottomhole location.
- For future applications the MicroGuide data will also help with positional uncertainty and gross error detection, which will be beneficial for infield drilling.



- Fig.1 - The MicroGuide analysis revealed a massive difference in the trajectory of the well, with virtually no data between our surveys and the former surveys aligning. Additionally, we highlighted a significant difference in the bottomhole location, which had led to the operator implementing a rod guide placement plan that did not correlate with the actual downhole conditions of the well.