CASE STUDY

QUEST GWD AND MAGGUIDE MWD PAIRED WITH PASSIVE MAGNETIC RANGING SERVICE ENABLES SUCCESSFUL WELLBORE INTERCEPT WITHOUT WIRELINE TOOLS, SAVING MORE THAN $1 MILLION

TECHNOLOGY

- Quest™ gyro-while-drilling (GWD) system
- SPEAR™ solid-state sensors
- MagGuide MWD

APPLICATION

- Wellbore placement
- Passive magnetic ranging

LOCATION

- Eddy County, New Mexico

INDUSTRY CHALLENGE + OBJECTIVE

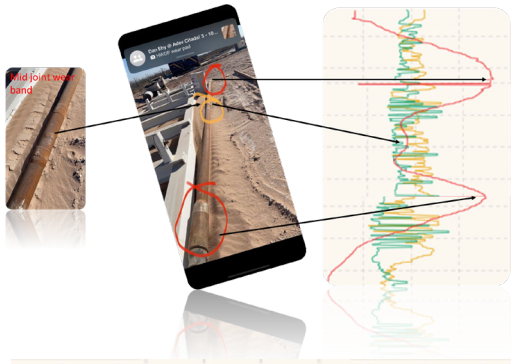
An operator in Eddy County, New Mexico had two separate rigs drilling vertical portions of their respective wellbores. After reaching total depth (TD) of the verticals and pulling out of hole on each rig, both bottomhole assemblies (BHAs) became stuck at approximately the same depth due to a problem zone where mechanical sticking and fluid loss were possible. The operator decided to abandon the fish in each well, which would require proper zonal isolation and a direct intersect point along each fish. A total of four sidetracks would be necessary, and the operator determined that they would attempt each sidetrack using only passive magnetic ranging. We recommended implementing our Quest GWD system with MagGuide MWD and a third-party passive magnetic ranging service.

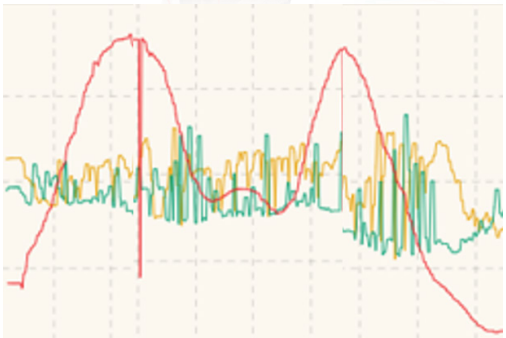
TECHNOLOGY + SERVICE SOLUTION

- We suggested implementing our Quest GWD system, powered by SPEAR solid-state sensors, and MagGuide MWD system.
- The Quest GWD system incorporates our advanced downhole data collection with smart processing, ensuring precise and faster surveys. Real time Gyro Tool Face enables full BHA control while steering from vertical and in magnetic interference from the offset well/fish.
- The sensors are able to handle harsher downhole environments when compared to conventional GWD systems.
- The MagGuide system is a ruggedized MWD system designed to deliver superior performance and reliability for the most complex drilling operations.

RESULTS + VALUE DELIVERED

- The operator was able to successfully drill freely in a zone of magnetic interference while obtaining high-accuracy wellbore azimuth, real-time steering toolface, and dynamic magnetic data while drilling. The magnetic data was used to determine the strength of the magnetic field associated with the fish, allowing the operator to combine gyro and MWD data to enhance the accuracy of the passive magnetic ranging call.
- As shown in the pictures, the high resolution dynamic magnetic measurements allowed the ranging professionals to remarkably get detection of not only the HWDP connections, but also the mid-joint wear pad as well.
- The stuck BHA was successfully intersected two times on each rig without the use of any wireline tools.
- The combination of Quest GWD and MagGuide MWD systems improved data collection speed by five times versus standard methods, taking 1 hour instead of 6 hours.
- The operator saved more than $1 million in ranging costs using the passive while-drilling method and avoided the problems that would have occurred with sticking wireline tools given downhole conditions
- The operator saved approximately 20 days of rig time by avoiding the need for wireline-deployed runs of both gyro and ranging instruments.





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