

CASE STUDY

QUEST SAVES CUSTOMER \$130K THROUGH POB REDUCTION AND DECREASES CARBON IMPACT OF OPERATION

▶ TECHNOLOGY

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

▶ APPLICATION

- Fully Remote Operations
- Wellbore placement
- High-accuracy wellbore surveying

▶ LOCATION

- Baku, Azerbaijan

INDUSTRY CHALLENGE + OBJECTIVE

Utilizing Gyro While Drilling (GWD) technologies has greatly reduced the risk of drilling top hole sections from congested platforms, often while production from offset wells continue on the installation. Conventional spinning mass gyroscopes were previously used for GWD and wireline orientation services. These both require personnel from the gyro service provider to be present at the rigsite for pre-run testing requirements and contingency BHA cases.

The development of SPEAR Solid State Gyro technology, first deployed with this operator in 2021, has enabled them to plan and execute these complex sections with no Gyrodata personnel on location while still providing world class service quality and ensuring precision of measurement in this challenging environment.

TECHNOLOGY + SERVICE SOLUTION

- The SPEAR platform sensors utilized in Gyrodata's Quest GWD system have a significantly reduced power consumption when compared to conventional GWD systems. This allows loadout from onshore of active, pre-programmed, pre-made primary and back-up tools. It facilitates multiple BHA runs with one tool while removing pre-job rigsite requirements including battery installation.
- The ruggedized design of the SPEAR platform solid-state gyro sensors directly reduce the risk of shock and vibration from the drilling environment affecting the calibration terms of the sensors.
- Toolface alignment of the GWD probe within the drilling collar is completed onshore in a controlled environment which removes the need for GWD personnel to be in the red-zone while making up BHA for a motor kick-off.
- Enhanced integration of Quest GWD with the MWD system allows for HSTF values of both the GWD and MWD to be received at surface. This direct comparison provides confidence of correct toolface measurement and programming for critical kick-off operations, making the requirement for wireline gyro toolface confirmation redundant.

RESULTS + VALUE DELIVERED

- 22" x 28" and 22" x 26" hole sections successfully drilled, over 4 runs, using the same Quest tool.
- Zero HSE, NPT or SQ incidents throughout the operation.
- Removal of GWD and wireline personnel from rigsite; Removes personnel from red-zone operations; frees up space for sim-ops.
- Wireline singleshot removed from Survey Program; ±3 hours rig time + wireline/gyro related charges removed: Total \$130k savings.
- 36 POB days saved for GWD personnel by running all operations from onshore ROC. 20 days saved by removing wireline personnel.
- 12 x crew-change seats and related CO₂ emissions saved across GWD and wireline.
- Reduction in emissions related to rig time, travel, personnel and freight.
- Gyro CCU and wireline unit mobilization not required, removing related CO₂ emissions and logistics costs.
- Removed requirement for international mobilization of GWD personnel due to sim ops on other rigs; 1,684 KG³ CO₂.