

CASE STUDY

QUEST GWD ENABLES REMOTE SURVEYING IN NORTH SEA MULTI-LATERAL, PROVIDING GREATER CONFIDENCE WHILE DRILLING IN EAST/WEST CAUTIONARY ZONES

► TECHNOLOGY

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

► APPLICATION

- Directional drilling
- Wellbore placement
- Collision risk mitigation

► LOCATION

- North Sea

INDUSTRY CHALLENGE + OBJECTIVE

A North Sea operator was planning to drill a multi-lateral development with three 9½-in. sections from a semisubmersible in a deepwater application. The first branch was to be drilled with a standard MWD surveying system; however, following the completion of this, interference was expected while drilling branches two and three. Branch two was to be drilled from approximately 2950 to 5312 m at approximately 90° inclination and on a heading of approximately 91° azimuth, while the third branch from approximately 2898 to 5443 m at approximately 90° inclination and on a heading of 240° azimuth. To drill through areas of expected magnetic interference in the east/west cautionary zones and ensure wellbore collision risk mitigation, the operator decided to deploy our solid-state Quest GWD system with the third-party service company's RSS BHA.

TECHNOLOGY + SERVICE SOLUTION

- We suggested implementing our Quest GWD system, powered by SPEAR solid-state sensors.
- The solid-state SPEAR sensors measure the earth's rotational rate precisely and accurately.
- The sensors are able to handle harsher downhole environments when compared to conventional GWD systems.
- The Quest GWD system incorporates our advanced downhole data collection with smart processing, ensuring precise and speedier surveys.
- The Quest GWD system is compatible with wired drillpipe and mud-pulse telemetry.

RESULTS + VALUE DELIVERED

- The project was run entirely remotely from the remote operating center in Aberdeen, as the Quest GWD system was loaded out ready to be run downhole and surveys could be quality-controlled using the service company's software.
- Fully remote operations eliminated mobilization and logistics costs and provided an HSE benefit by removing personnel from high-risk zones offshore.
- The Quest GWD system's dramatically increased battery life allowed it to remain in a fully built, shutdown state for longer and mobilized offshore fully made up without the need for on-site personnel to finalize rig-up or change batteries between wells.
- The system provided greater confidence while drilling in the east/west cautionary zones above 20° inclination, as the SPEAR sensors in the Quest GWD probes are unaffected by the limitations of legacy surveying systems.
- Quest GWD data was delivered with wired drillpipe technology, further enhancing survey efficiency.

