

CASE HISTORY

MagTraC MWD Ranging™ Enables Safe Collision Avoidance in Geothermal Pad Drilling

CHALLENGE

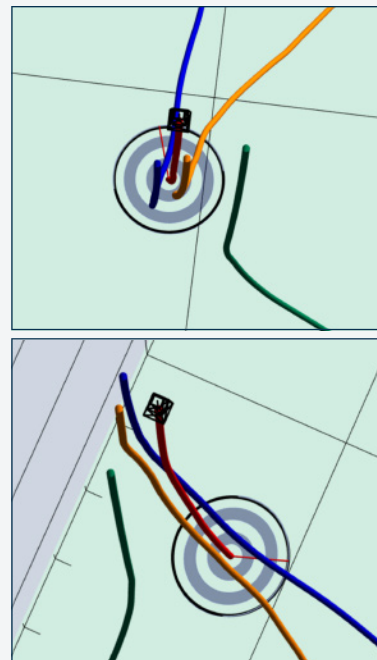
Country	Philippines
Territory	Leyte
Hole Size	23 in.
Telemetry	ElectroMagnetic

A geothermal operator planned to drill a new well from a densely populated multi-well pad in close proximity to several existing offset wells. Anti-collision analysis identified three critical offset wells ("A", "B", and "C") with Separation Factors below SDI's minimum allowable value of 1.5 across several intervals. Positional uncertainty was further increased by legacy survey quality, incomplete survey data for one offset well, and magnetic interference from nearby casing strings and the geothermal formation.

SOLUTION

Scientific Drilling deployed its Keeper gyroMWD to provide MagTraC MWD Ranging™ measurement while drilling the 23 in. hole section. Gyro surveys were acquired inside the 26 in. Casing during RIH to establish an accurate reference trajectory, while continuous BTotal monitoring was performed after drilling out of the casing shoe to identify magnetic anomalies. As the well approached the highest collision-risk interval, MagTraC Passive Magnetic ranging measurements were acquired to directly determine the relative position and distance of nearby casing strings.

The first ranging analysis identified a magnetic source approximately 11.3 m from the active wellbore and enabled refinement of the interpreted offset well position. A second proactive ranging survey later confirmed that the active wellbore was diverging from the adjacent wells. Using the ranging results together with gyroMWD surveys and anti-collision monitoring, the drilling team optimized the trajectory and safely navigated between the critical offset wells to section TD at 664 m MDRT.



Wellpath (Red) - 23 in. hole section

Offset Wells - 18 5/8 in. casing:

- **Well "A" (Orange)**
Critical offset well
- **Well "B" (Blue)**
Critical offset well
- **Well "C" (Green)**
Critical offset well due to large uncertainty

Well "A" Collision Avoidance
Closest Approach:
9.76 m C-C at 460 m MD

Well "B" Collision Avoidance
Closest Approach:
10.87 m C-C at 459 m MD

RESULTS

MagTraC MWD Ranging™ enabled successful execution of the 23 in. hole section by reducing positional uncertainty and mitigating collision risk associated with closely spaced offset wells. The well was safely drilled between the critical offset wells with no collision or sidetrack required. The section reached TD at 664 m MD without major drilling interruptions, providing increased confidence in wellbore positioning while reducing the potential for collision-related non-productive time.

TECHNOLOGY

Magnetic Ranging

MagTraC MWD Ranging™

Wellbore Surveying

Keeper gyroMWD

TESTIMONIAL

"Job well done. The objective was successfully achieved, and the team was very cooperative throughout the project."

-Geothermal Operator