Precise Placement of Lateral Maximizes Reservoir Exposure and Production Rates in Vietnam

Distance-to-boundary data from PeriScope service guides geosteering to develop new oil prospects for Cuu Long Joint Operating Company

**CHALLENGE**
Maximize length of horizontal laterals placed within 2–4-m thick oil sands.

**SOLUTION**
Use PeriScope* bed boundary mapping service with PowerDrive X6* rotary steerable system (RSS) to geosteer the well through the reservoir.

**RESULTS**
- Optimized reservoir exposure in three target sands.
- Achieved higher than expected production rates with Well 1 at 1,600 bbl/d, Well 2 at 1,200 bbl/d, and Well 3 at 1,500 bbl/d.

“We in Cuu Long JOC very much appreciate the effective teamwork from Schlumberger while drilling our recent very challenging and long-reach production well. Bringing us the PeriScope technology was, of course, the first critical step—the kind of innovation needed for our continued business unit success.”

David Weichman
Subsurface Geologist
Cuu Long Joint Operating Company

**Develop thin oil-bearing sands to mitigate field production decline**
The Cuu Long Joint Operating Company (CLJOC)—a joint venture of PetroVietnam, Perenco, the Korea National Oil Corporation (KNOC), SK Energy, and Geopetrol—was experiencing a decline in oil production from 25 wells in the Cuu Long Prospect oil field offshore southern Vietnam. Production in the field had begun in 2003 from a fractured granite basement and later reservoirs were developed in the overlying sands.

During exploration and development drilling, CLJOC identified additional thin oil-bearing sands in nearby reservoirs and decided to develop them to reverse the decline in field production. Achieving that goal would require long laterals and precise well placement to maximize reservoir exposure.

**Use distance-to-boundary measurements to geosteer RSS**
The PeriScope bed boundary mapping service provided distance-to-boundary data with azimuthal gamma ray and average resistivity measurements. The PowerDrive X6 RSS allowed continuous rotation of the drillstring while steering the well, which optimized drilling efficiency, maximized ROP, and minimized the time spent on dedicated hole-cleaning trips.

While drilling the first lateral, the PeriScope service detected a conductive boundary below the well path, which enabled proactive geosteering decisions to build the trajectory and avoid a premature exit into the underlying shale. The 129-m lateral was placed within the target sand, exceeding the initial objective of 100 m. The well is producing more than 1,600 bbl/d of oil—50% more than the expected rate—with near-zero water cut.

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**Drilling**

**TVD, m**

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**True Horizontal Length, m**

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**PeriScope bed boundary mapping service provided real-time data that enabled proactive geosteering to maximize exposure in the B15 thin-sand reservoir.**
**CASE STUDY:** Distance-to-boundary measurements guide lateral placement to increase production in Vietnam field

Maximize reservoir exposure to increase field production

Encouraged by the success of the first horizontal appraisal well, CLJOC decided to develop other potential thin-oil prospects. The second well had 57 m of net pay and an initial production rate of 1,200 bbl/d of oil. Its production has been steady, with minimal water cut. And a third horizontal appraisal well targeted the deeper of two sands. PeriScope service enabled the team to maximize reservoir exposure. A total of 110 m of lateral was placed in very good quality sand with an average thickness of 2 to 4 m, again exceeding the 100-m objective.

Initial production from this third well—1,500 bbl/d of oil with only a 10% choke—indicates that it may have been the best of the three. Based on this success, CLJOC may plan additional horizontal wells in the field, using similar technology and well placement methods.

Contact your local Schlumberger representative to learn more.