

CASE STUDY

OMEGA^x HELPS OPERATOR ESTABLISH TRUE WELL LOCATION AHEAD OF EOR PROJECT OFFSHORE MALAYSIA

▶ TECHNOLOGY

- Omega^x™ drop gyro system

▶ APPLICATION

- High-angle tangent wells
- Wellbore survey validation

▶ LOCATION

- Offshore Malaysia

INDUSTRY CHALLENGE + OBJECTIVE

An operator with wells offshore Malaysia suspected that their old wellbore surveys, taken when the project was initiated in the 1980s, were inaccurate, especially with regards to well placement. The wells were primarily high-angle wells with inclination of greater than 70° and extended tangent sections that had a high potential for enhanced oil recovery (EOR).

Since the wells were so old, the operator did not have information on the MWD tool type used when they were originally drilled, resulting in a standard MWD error model being applied to the available data for wellbore placement. The operator needed a technology that could operate effectively in the challenging environment and deliver improved surveys to determine precise bottomhole location.

TECHNOLOGY + SERVICE SOLUTION

- We recommended the Omega^x solid-state drop gyro system due to its ability to take more precise, more accurate surveys than previously available. In addition, for these wells, the system's improved battery life was a major advantage, as long logging runs required significant tool time downhole.

RESULTS + VALUE DELIVERED

- As part of the campaign, the operator planned to re-survey five wells across two platforms. It was critical that the operator understood the true well location to maximize the effectiveness of the EOR campaign. The initial two wells on the first platform were completed with the Omega^x system, revealing discrepancies between the original surveys carried out and the true wellbore location. Results from the wells showed the following:
 - Well 1—There was a TVD difference of 2.11 meters and a lateral difference of 6.78 meters versus the original surveys.
 - Well 2—There was a TVD difference of 4.93 meters and a lateral difference of 10.66 meters versus the original surveys.
- In addition to the updated wellbore position, the Omega^x system provided a significant improvement in uncertainty reduction over historical data, allowing the operator to make better decisions on where to place new wells to improve the recovery rate on the field.
- The final three wells, which will be re-surveyed from the second platform, are expected to show similar results.

