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Abstract

Tepat-1 well was spudded in the block DW-N, offshore Sabah in December 2017. The well was P & A in March 2018 with oil and gas discovery in the excellent reservoir quality Oligocene age carbonate. It is a new hydrocarbon play opener in the area. Previous wells drilled in the UDW Sabah have shown dry results due to various reasons. In addition to the geoscience analyses and studies done to better understand this unexplored region, innovative ideas were investigated to seek any possibility of enhancing the exploration's chance of success.

Gas has been found prolific in the similar play in the Sarawak region. Nevertheless, based on the regional collaborative perception and persevere effort, Tepat-1 well was drilled targeting the oil scenario. Tepat-1 was drilled in 2820m water depth, a record so far for an exploration well in Malaysia. Furthermore, it is a world record in water depth for the deployment of MPD equipment with MPD/PMCD/ABD drilling technique.

While drilling through the fragile reservoir in the original hole, major operational challenge was encountered when heavy losses occurred, consequently neither rock cutting were returned nor wireline data acquisition could be deployed.

The team was tantalized as the long hydrocarbon column was indicated but the hydrocarbon phase was not conclusive. At the critical time to decide on the best way forward, the JV's Partners came together as one "Tepat Team", had frank discussion, and got to the aligned decision to drill the sidetrack well.

In order to avoid the similar losses from occurring in the sidetrack, and ensure the possibility to acquire all vital data, TOTAL and JV's Partners managed to drill the well successfully with:

- 1) A new ABD (At Balance Drilling) approach - using an innovative Viscosified Sea Water (VSW) drilling mud that is light enough to maintain underbalanced against the low reservoir pressure at all time, while still fulfil its mud function.
- 2) The adaptation of wireline pressure rendering MPD equipment to be able to perform complete wireline loggings in the underbalanced wells (in MPD/PMCD/ABD technique), in the deepwater environment.

Amongst the challenges and uncertainties during the whole operation, the decision to continue with a sidetrack well was much accredited, as fluid samples were then collected and oil accumulation in Tepat

is proven. The mutual supports and confidence from the JV Partners and Regulator managements were able to achieve via thorough communication and collaboration.

Oil and gas discovery of Tepat-1 opened a new hydrocarbon play in the frontier UDW Sabah. It would have not been achieved without the perseverance attitude, innovative spirit and collaborations from everyone who has been involved in the project.