

Warukin Deep - the Hidden Potential of Warukin Field, Untouch Reserves in Mature

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ABSTRACT

Warukin Field, located at Barito Basin, South Borneo is one of the prolific oil fields that operated from late 1965, producing from Middle Warukin formation. The reservoir itself, is typical thick layered unconnected fluvial deltaic sandstones. The first discovery of this field is from exploration well that drilled at WS-01 with 2767 barrels of oil. The following delineation wells drilled and obtain Estimated Ultimate Recovery (EUR) 16.88 MMSTB. With cumulative production 13.01 MMBO and the remaining 3.87 MMBO from total 29 wells that has been drilled, the field is now considered as very mature field. The unconnected reservoir character in the existing production zones makes the IOR/EOR effort such as waterflood is very difficult and may not be the best answer for increasing the production.

Following the success of Piraiba's exploration well (PRB-01, 2015) located about 19 km from Warukin Field have proved that the Lower Warukin Formation is also contains hydrocarbon. Recent geological and geophysical studies using analog models and integration of old and new data from Warukin and its surrounding fields shows that there is hidden and untouched potential from deeper zone, the Lower Warukin with reservoir characters' analogs to Piraiba's multi layered sandstone reservoir. The complex stratigraphy architecture at Lower Warukin formation has proven to be a good stratigraphic traps. The Warukin Field itself located at the middle of Piraiba (downdip position) to the south and Tapian Timur Field to the Northeast (updip position), both have produced or discovered hydrocarbon from Lower Warukin.

Analog play concept and data integration, not only using old and new data but also comprehensive analysis from surrounding fields is successfully applicable at this field. This approach may be used to discover the overlooked potential of the field and interfield potential. From this research the calculated contingent resource from this field is approximately 22.14 MMSTB. With the difficulty of IOR or EOR in existing reservoir, going deep to the deeper zone is may be the best answer to revive the potency and increase production from this field. New development concept is proposed to drill the deeper zone while also looks for remaining hydrocarbon in existing reservoir using grid based drilling strategy.