Poster 6

Play inventory in Straits of Melaka based on Blocks PM320 and PM322 evaluation

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Straits of Melaka has long been overshadowed by its hydrocarbon-rich sister fields in the Northern and Central areas, located barely 150 km away. Previous conceptual plays rely predominantly on fundamental hydrocarbon play concepts of 4-way dip closures with interpretations based on paper sections. With the advent of newer seismic lines, crispier processing techniques, interpretations of digitized lines in a workstation environment, and more importantly, fresh conceptual hydrocarbon play concepts, hydrocarbon prospectivity in the Straits of Malacca might yet to see the light of day.

Block PM320 is situated on the northwestern flank of Straits of Melaka and constitutes a shelfal extension of the North Sumatra Basin (NSB). 4 wells drilled in the 80s' pursued the Basement High Plays, which focused primarily on topographical highs with pinnacle reefal carbonates. With the exception of Singa Besar-1 which discovered 3.7 mmscfMMSCF of gas with 38% CO_2 content, all other wells have been dry. New play generation requires identifying the pinch-out onlapping trap of the TB2.2/2.3 onto Pre-Tertiary dolomitic basement, which is time equivalent to the prolific Baong Formation and is the primary reservoir for the gas fields in the NSB. The TB2.2/2.3 pinch-out trap focuses on the stratigraphic element, which was never previously pursued. Current evaluations have yielded the Temenggung lead, which has a potential sizeable closure of 77 km^2 with an estimated 50 bscf GIIP.

Block PM322 is located on the eastern margin of the Central Sumatra Basin (CSB). In an otherwise featureless province dominated by shallow basement, PM322 is highlighted by 5 grabens (Sabak, Angsa, Port Klang, Johor and Kukup), each of which is generally characterised by steep-dipped flanks and gently-sloped flanks. As such, each graben necessitates its own self-sustaining petroleum system in order to establish its own

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hydrocarbon potential, and Angsa Graben holds the highest potential for hydrocarbon prospectivity due to its depth and size. New play concepts revolves around the identification of stratigraphic alluvial fan play, and onlap trap of Sequence 3 onto basement and fault intersection trap configuration. Alluvial fan is a synsedimentary deposit via gravity transport during the conception of the graben in the Eocene, and this play relies on onlap traps with lateral sealing provided by lacustrine shales. Potential trapping configuration for Sequence 3, a lacustrine fluvial-deltaic sands, relies for the sequence to onlap against Pre-Tertiary recrystallized limestone. Another potential trap is the fault dependent closures that segments the objective sequence.

Recent seismic acquisition has provided better seismic resolution that has revealed in greater detail of the complex geological structuration due to transtensional tectonical regime which was not apparent on the older 2D paper sections. Limited by 2D coverage in a sparse grid, new identified plays are exciting but remain conceptual. 3D is the way forward in firming up the conceptual hydrocarbon plays.