

Poster No. 5

IPA95 - 1.1 - 223

PROCEEDINGS INDONESIAN PETROLEUM ASSOCIATION
Twenty Fourth Annual Convention, October 1995

**THE BAONG RESERVOIR DISTRIBUTION PREDICTION
USING SEQUENCE STRATIGRAPHY ANALYSIS :
A REGIONAL STUDY IN NORTH SUMATRA BASIN**

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ABSTRACT

In the past, correlation of field-to-field and exploration wells in the Baong sands, North Sumatra Basin, was difficult owing to rapid facies changes. Consequently, reservoir predictions and interpretation of facies distribution could not be made easily. To improve this situation, a regional study was carried out. Seismic and sequence stratigraphy formed the core of this study by providing a correlation framework for interpretation of the full integrated analysis of the depositional model, reservoir characteristics and basin evaluation.

The Baong Formation of Middle Miocene age has traditionally been divided into upper and lower shale members, with intervening middle sand members. However, the age of sandstone and shale members is variable in different parts of the basin as a result of multiple source directions for the sandstone members. Shale recognized as the lower Baong shale is N8 to N11 in age. A maximum flooding surface occurs within this shale interval. The shale is overlain by a sandstone deposited during the Middle Miocene Zone N 11 Lowstand, sourced mainly from the Malacca Platform with minor contributions from the Asahan Arch. A second package of sandstones, sourced from the Malacca platform and prograded from that direction, is interpreted as a highstand to shelf margin systems tract.

A shift in the direction of sediment supply from north sourced (Malacca) to south (Barisan) occurred at about the Middle Miocene zone N13. This shift of provenance suggests that a landmass emerged in a previous marine area to the south. Prograding highstand sands, following a flooding event in the Middle Miocene zone N13, were recognized in the Pertamina area and these sands shale out to the north in the Gebang Block. Continued infill of the shelf area, accompanied by a base level drop, resulted in the deposition of a lowstand unit in the southern part of the study area. These sandstone packages have been recognized as a significant reservoir target in the Pertamina area.

The results of the study indicate that the lowstand and highstand/shelf margin sands of the Middle Miocene Zone N11 - N12 form a new interesting exploration target. The prograding highstand of Middle Miocene Zone N13 forms a less attractive exploration target due to the poor quality and thinly developed sand layer, while the N13 age lowstand sand is already in a nature area.

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