

Sequence stratigraphic evaluation and seismic character of Early - Middle Miocene marine sediment deposits on the North West Java Basin, Indonesia.

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The North West Java Basin (NWJB) is an important basin in Indonesia, in terms of potential hydrocarbon exploration. Indonesian government report that a considerable exploration potential is suggested, and new discoveries will most likely be achieved in this basin, in the near future. This study concerns one the major targets for future exploration, and focuses on the organization of the mixed siliciclastic and carbonate succession of the Early-Middle Miocene Upper Cibulakan Formation (UCF) as one of the main production interval on the NWJB in term of sequence stratigraphic frameworks.

The NWJB is tectonically dominated by North-South trending normal fault. Some basement high and low area are observed in the seismic section as the product of rifting tectonic during Late Eocene – Late Oligocene. The thickness of the sedimentary rocks that fills in the lowest part of the basin may exceeds 3800 m (12.500 ft) as shown in the well sections. Lower part of UCF comprises approximately 600 meter of interbedded sandstones, siltstone, shales with several limestone bed. Regional evidence suggests the sediments are shelfal/deltaic in origin, and were deposited during Early Miocene times where a series of delta lobes prograded southward. Seismic interpretation of Lower UCF shows a significant difference in thickness between the hanging wall and footwall portions of the bounded fault. The sediments seems to cover the existing low topography and onlap towards the high. This indicates that the existing faults were active and play an important role in distributing sediment in the Lower UCF. The upper part of UCF consists of intercalated sandstone, siltstone, and shale with several carbonate build up bodies developed in structurally selective areas at two stratigraphic level. These carbonates are not widespread but occur as isolated build up that grade laterally into deeper marine silts and muds with limestone stringers.

Detailed sequence stratigraphic observation within this interval reveal two main sequences and highlight the distribution of the reservoir units for further exploration.

Keywords : Cibulakan Formation, Northwest Java, sequence stratigraphic, seismic characteristics.