

## SARI

Stratigrafi berdasarkan penelitian terdahulu mengasumsikan bahwa cekungan Arafura yang memiliki paket stratigrafi yang sama dengan paket stratigrafi di *Goulburn Graben* dan sekitarnya. Berdasarkan hasil pemboran sumur X-1 di *MP Graben* yang terletak di utara *Goulburn Graben* menunjukkan bahwa mekanisme pengendapan di dua area tersebut berbeda karakter dan paket stratigrafinya. Oleh karena itu penelitian ini dilakukan untuk mendapatkan gambaran stratigrafi di lokasi penelitian guna mendapatkan rekonstruksi stratigrafi umum, sebaran lateral litologi dan efektifitas sistem perminyakan yang bekerja di lokasi penelitian. Hasil penelitian menunjukkan bahwa kontrol tektonik yang berbeda menyebabkan paket stratigrafi di dua *Graben* berbeda. *Goulburn Graben* pada masa Siluria hingga Karbon mengindikasikan paket stratigrafi pada zona lingkungan pengendapan laut, sedangkan Blok-X di *MP Graben* terletak pada zona *paleo-high*. Pada umur Permian Akhir hingga Jura, cekungan Arafura telah mengalami pengangkatan yang mengakibatkan sedimentasi batuan tersebut absen. Endapan Permian Awal dijumpai terbatas pada bagian selatan dari Blok-X dengan asal lingkungan pengendapan laguna atau lakustrin. Sebaran lateral litologi batuan dilakukan dengan pendekatan metode inversi akustik impedansi (AI) seismik. Hasil sebaran lateral litologi batuan menunjukkan bahwa zona batuan Permian umumnya tererosi di bagian utara dan dijumpai terbatas pada area selatan Blok-X dengan nilai AI pada rentang 26.000-42.000 (ft/s)\*(g/cc), dan memiliki sistem perminyakan yang cukup baik namun memiliki *sealing capacity* rendah. Namun demikian zona Ordovisium diketahui memiliki potensi reservoir batupasir yang berkembang baik yang kemungkinan berasal dari sistem turbidit.

## **ABSTRACT**

*The stratigraphy based on previous researches is assuming that the Ararufa basin has the same stratigraphy package within the Goulburn Graben and surroundings. Based on the result of the X-1 well in the MP Graben which is located to the north of Goulburn Graben indicates that the deposition mechanism in two areas have different character and package of stratigraphy. Therefore, this study have been conducted to describe a stratigraphy in the research area to reconstruct a general stratigraphy, lateral distribution of the lithology and the affectivity of petroleum systems that working in the research area. The result shows that differences of tectonic event have given a difference of stratigraphy package in two grabens. Goulburn Graben in the Silurian until Carboniferous age indicates a stratigraphy package on marine environment zone, while Block-X in the MP Graben is situated in the paleo-high zone. In Late Permian to Jurassic age, Arafura basin had been uplifted that impact on the absence of the rock sedimentation. Early Permian sediment has recorded limited in the south of Block-X as a lagoon or lacustrine environment. The lateral distribution of rock litology can be determined using acoustic impedance seismic inversion method. The result of the lateral distribution is showing that the Permian zone is generally eroded in the northern part and limited to the southern part of Block-X with the value of AI about 26.000-42.000 (ft/s)\*(g/cc), and has good petroleum system but the sealing capacity is low. However, the Ordovician zone has encountered to have a good potential sandstone reservoir that is probably coming from turbidity system.*