

SARI

PREDIKSI SEBARAN TEKANAN PORI PADA FORMASI GUMAI MENGGUNAKAN DATA LOG SUMUR DAN DATA SEISMIK DI AREA “ALAMANDA” SUB CEKUNGAN LEMATANG

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Berdasarkan pengeboran sumur di area Alamanda, Sub Cekungan Lematang, terdapat fenomena *overpressure* di formasi Gumai. Untuk mengetahui distribusi sebaran tekanan pori, khususnya fenomena *overpressure* di area Alamanda ini maka dilakukan prediksi tekanan pori menggunakan data log sumur dan data kecepatan interval seismik. Berdasarkan perhitungan prediksi tekanan pori menggunakan metode Eaton (1975) di data sumur, fenomena *overpressure* dengan nilai 3300 psi yang dimulai pada kedalaman 6200 ftMD di sumur BT-1 dan 6600 ftMD di sumur SG-1. *Overpressure* tersebut sudah dimulai di bagian bawah Formasi Air Benakat dan di keseluruhan Formasi Gumai. Secara lateral, fenomena *overpressure* ini juga terlihat pada hasil prediksi tekanan pori menggunakan data seismik di Formasi Air Benakat dan Formasi Gumai. Persebaran puncak *overpressure* ini di area Alamanda ini mengikuti pola puncak formasi, yaitu dari barat ke timur akan semakin dalam.

Berdasarkan analisis data, terjadinya *overpressure* di daerah penelitian ini diduga disebabkan oleh kombinasi mekanisme pembebanan dan mekanisme non pembebanan, namun lebih banyak dominasi mekanisme non-pembebanan. Mekanisme pembebanan terdapat di sekitar tinggian basement, sedangkan mekanisme non-pembebanan terdapat di area cekungan. Mekanisme pembebanan di area ini disebabkan oleh pembebanan dari Formasi Muara Enim, Kasai dan Air Benakat, sedangkan mekanisme non pembebanan ini diperkirakan akibat adanya diagenesis mineral smektit menjadi ilit.

Kata kunci : Tekanan pori, *Overpressure*, Formasi Gumai, Sub Cekungan Lematang

ABSTRACT

PORE PRESSURE PREDICTION ON GUMAI FORMATION USING WELL LOG AND SEISMIC DATA IN AREA "ALAMANDA", LEMATANG SUB BASIN

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Based on drilling data in Alamanda Area, Lematang Sub Basin, overpressure phenomenon is clearly exist in Gumai Formation. To estimate the distribution of pore pressure in this area, especially the overpressure phenomena, pore pressure prediction was conducted using well log data and seismic interval velocity. The prediction calculation was using Eaton Method (1975). Based on the calculation on log data, the overpressure started to begin at 330 psi at depth 6200 ftMD in BT-1 well and at depth 6600 ftMD in SG-1 well. The overpressure is started at lower part of Air Benakat Formation and the whole of Gumai Formation. Laterally, overpressure also shown along the Air Benakat and Gumai Formation based on prediction using seismic data. The distribution of the top of overpressure in Alamanda Area is following the formation i.e. getting deeper in the west of east direction.

Based on data analyses, the occurrence of overpressure in this area was caused by combination of loading and unloading mechanism, with dominated by unloading mechanism. The loading mechanism occurred in the basement high and the unloading mechanism occurred in the basinal area. The loading mechanism in this area is caused by the load of Muara Enim, Kasai and Air Benakat Formation while the unloading mechanism is suspected caused by diagenesis of smectite to illite.

Keywords : Pore pressure, overpressure, Gumai Formation, Lematang Sub-basin