

INTISARI

KARAKTERISASI RESERVOIR *SHALE* MENGGUNAKAN INVERSI IMPEDANSI AKUSTIK DAN PERSEBARAN *TOTAL ORGANIC CARBON* DI LAPANGAN “RUMAHSETIA”, FORMASI LOWER BAONG, CEKUNGAN SUMATRA UTARA

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Cadangan minyak dan gas bumi konvensional sudah semakin menipis sehingga eksplorasi perlu dilakukan pada cadangan non-konvensional seperti *shale gas*. Cekungan Sumatra Utara memiliki potensi hidrokarbon *shale* (contoh; Formasi Baong, Belumai dan Bampo). Target penelitian dilakukan pada Formasi Lower Baong yang dikerjakan menggunakan data seismik 2D *post-stack*. Penelitian ini bertujuan untuk melakukan karakterisasi reservoir berdasarkan nilai impedansi akustik (AI) dan nilai *total organic carbon* (TOC). Nilai TOC diperoleh menggunakan persamaan TOC Carbolog. Persamaan linear TOC vs AI digunakan untuk mengkonversi nilai AI menjadi nilai TOC. Hasil penelitian mengindikasikan bahwa nilai TOC tinggi (>1wt%) berkorelasi dengan nilai AI rendah (4900-5800 m/s*g/cc). Terdapat dua zona yang memiliki nilai impedansi akustik rendah, zona pertama berkorelasi dengan nilai TOC dari 1,2 – 1,4 wt% dan zona lainnya berkorelasi dengan nilai TOC 1,25 – 1,4 wt%. Penelitian ini dapat disimpulkan bahwa reservoir *shale gas* memiliki nilai impedansi akustik rendah karena adanya kehadiran gas.

Kata kunci : *shale gas*, Lower Baong, impedansi akustik, TOC Carbolog

ABSTRACT

CHARACTERIZATION OF SHALE RESERVOIR USING ACOUSTIC IMPEDANCE INVERSION AND SPREAD TOTAL ORGANIC CARBON IN “RUMAHSETIA” FIELD, LOWER BAONG FORMATION, NORTH SUMATRA BASIN

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*Oil and gas conventional reserves have declined, so exploration must be undertaken on unconventional reserves such as shale gas. North Sumatra Basin has potential of shale hydrocarbon (i.e., Baong, Belumai and Bampo Formations). This research was spesific on the Lower Baong Formation, which using 2D seismic post-stack. This study was conducted to characterize reservoir based acoustic impedance inversion (AI) and distribution of total organic carbon (TOC). TOC was obtained by using the TOC Carbolog equation. Then, TOC vs AI linear equation used to convert AI value to TOC value. The results indicate that shale with high value of TOC (> 1 wt%) which correspond to low acoustic impedance value (4900-5800 m/s*g/cc). These low acoustic impedance value was presence on two zones, first zone correlates to TOC value of 1.2 to 1.4 wt%, and the other correlates to TOC value from 1.25 to 1.4 wt%. Thus it can be concluded that shale gas reservoir correspond to low acoustic impedance value due to gas presence.*

Keywords : shale gas, Lower Baong, acoustic impedance, TOC Carbolog