

ABSTRAK

IDENTIFIKASI ZONA PROSPEK HIDROKARBON BERDASARKAN ANALISIS FASIES DAN ANALISIS PETROFISIKA PADA LAPANGAN “ANH”, FORMASI TALANG AKAR, CEKUNGAN SUMATERA SELATAN

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Penelitian ini dilakukan pada Formasi Talang Akar di Cekungan Sumatera Selatan dengan memanfaatkan data dari tiga sumur yaitu ANH-036, ANH-032, dan ANH-028. Penelitian bertujuan untuk mengidentifikasi variasi litologi, menganalisis sikuen stratigrafi, melakukan interpretasi fasies dan lingkungan pengendapan, mengevaluasi parameter petrofisika, serta menentukan zona prospek hidrokarbon yang potensial.

Metodologi penelitian analisis kualitatif mencakup interpretasi litologi, sikuen stratigrafi, fasies, dan lingkungan pengendapan berbasis data log sumur, *mudlog*, deskripsi inti batuan, dan analisis petrografi. Analisis kuantitatif meliputi perhitungan *volume clay*, porositas efektif, saturasi air dengan metode Indonesia, dan permeabilitas dengan metode Timur. Hasil analisis divalidasi dengan data *core analysis* berupa *RCAL* dan *SCAL* untuk memastikan reliabilitas dan akurasi.

Dari hasil analisis batuan yang mendominasi berupa batupasir, serpih dan batubara. Analisis sikuen stratigrafi menghasilkan enam zona parasikuen yang dibatasi oleh marker SB, TS, FS1-FS6, dan MFS. Tujuh fasies teridentifikasi yaitu *tidal mud flat*, *tidal sand flat*, *tidal sand bar*, *tidal mixed flat*, *tidal meanders*, *Salt Marsh*, dan *tidal-fluvial channel* yang terbentuk dalam sistem *tide dominated estuary*. Dengan menerapkan kriteria $cut-off\ VCL < 0,437$, $PHIE > 0,035$, dan $Sw < 0,66$, zona prospek utama teridentifikasi pada marker FS3-FS4 pada fasies *sand flat*, pada marker FS1-FS2 pada fasies *tidal meanders* dan marker SB-TS pada marker *Tidal-Fluvial Channel*. Zona prospek utama berada pada fasies *Tidal-Fluvial Channel*; pada zona SB-TS sumur ANH-028 dengan *net pay* 13,56 m, NTG 0,579, pada zona SB-TS sumur ANH-032 dengan *net pay* 14,02 m, NTG 0,592 serta pada fasies *sand flat* pada zona FS3-FS4 sumur ANH-036 dengan *net pay* 4,27 m, NTG 0,305.

Kata kunci: Analisis petrofisika, Estuari, Fasies, Sikuen stratigrafi

ABSTRACT

IDENTIFICATION OF HYDROCARBON PROSPECT ZONES BASED ON FACIES AND PETROPHYSICAL ANALYSIS IN THE “ANH” FIELD, TALANG AKAR FORMATION, SOUTH SUMATRA BASIN

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This study was conducted on the Talang Akar Formation in the South Sumatra Basin, utilizing data from three wells: ANH-036, ANH-032, and ANH-028. The study aims to identify lithological variations, analyze sequence stratigraphy, interpret facies and depositional environments, evaluate petrophysical parameters, and determine potential hydrocarbon prospect zones.

The research methodology encompasses qualitative analysis, including the interpretation of lithology, sequence stratigraphy, facies, and depositional environments based on well log data, mudlogs, core descriptions, and petrographic analysis. Quantitative analysis involves the calculation of clay volume, effective porosity, water saturation using the Indonesia Method, and permeability using the Timur Method. The analysis results were validated against core analysis data comprising Routine Core Analysis (RCAL) and Special Core Analysis (SCAL) to ensure reliability and accuracy.

The rock analysis results indicate that the dominant lithologies consist of sandstone, clay, and coal. Sequence stratigraphic analysis identified six parasequence zones bounded by markers SB, TS, FS1–FS6, and MFS. Seven facies were identified: tidal mud flat, tidal sand flat, tidal sand bar, tidal mixed flat, tidal meanders, salt marsh, and tidal-fluvial channel, all deposited within a tide-dominated estuary system. By applying cut-off criteria of $VCL < 0.437$, $PHIE > 0.035$, and $Sw < 0.66$, primary prospect zones were identified at markers FS3–FS4 within the sand flat facies, at markers FS1–FS2 within the tidal meanders facies, and at marker SB–TS within the Tidal-Fluvial Channel facies. The primary prospect zones are located within the Tidal-Fluvial Channel facies: at the SB–TS zone in well ANH-028 with a net pay of 13,56 m and NTG of 0,579; at the SB–TS zone in well ANH-032 with a net pay of 14,02 m and NTG of 0,592; and within the sand flat facies at the FS3–FS4 zone in well ANH-036 with a net pay of 4,27 m and NTG of 0.305.

Keywords: *Petrophysical analysis, Estuary, Facies, Sequence Stratigraphy*