

ABSTRAK

EVALUASI FORMASI DAN ANALISA FASIES DENGAN METODE DETERMINISTIK PADA FORMASI TALANGAKAR, LAPANGAN “MFR” CEKUNGAN SUMATRA SELATAN

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Formasi Talangakar merupakan salah satu formasi yang berperan sebagai reservoir di Cekungan Sumatra Selatan yang dapat menghasilkan minyak dan gas bumi. Daerah penelitian berada di Lapangan “MFR” yang merupakan salah satu lapangan dengan lokasi di wilayah Cekungan Sumatra Selatan pada Sub-cekungan Palembang Selatan yang memiliki potensi hidrokarbon.

Penelitian dilakukan dengan dua metode, yaitu analisis kualitatif dan analisis kuantitatif. Analisis ini menggunakan data *wireline log*, *mudlog*, data *Core*, dan data produksi. Analisis kualitatif dilakukan dengan mengidentifikasi litologi, menentukan bidang sikuen stratigrafi dan *system tract*, penentuan fasies dan lingkungan pengendapan. Analisis kuantitatif dengan menghitung properti petrofisika menggunakan metode deterministik meliputi *Volume Shale*, porositas, saturasi air, dan permeabilitas. Kemudian dilakukan *cut-off* dari parameter tersebut sehingga didapatkan zona yang menghasilkan hidrokarbon.

Berdasarkan analisis kualitatif, didapatkan litologi berupa batupasir, batuserpih, dan batubara. Batupasir daerah penelitian berada pada fasies *channel*, *crevasse splay* dan lingkungan pengendapan *fluvial*. Dari hasil analisis kuantitatif didapatkan hasil berdasarkan nilai *pay zone* berupa nilai porositas 17.8% - 37.9%, nilai permeabilitas 303.171 mD – 13489.42 mD, nilai Volume Shale 11.3% - 36%, nilai saturasi air 21.3% - 59.9%. Pada lokasi penelitian dijumpai 4 lapisan reservoir.

Kata kunci: Cekungan Sumatra Selatan, Deterministik, Fasies, Formasi Talangakar, Lingkungan Pengendapan.

ABSTRACT

FORMATION EVALUATION AND FACIES ANALYSIS USING DETERMINISTIC METHODS IN THE TALANG AKAR FORMATION, “MFR” FIELD, SOUTH SUMATRA BASIN

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The Talangakar Formation is one of the formations serving as a Reservoir in the South Sumatra Basin capable of producing oil and natural gas. The study area is located in the “MFR” Field, which is one of the fields situated within the South Sumatra Basin in the South Palembang Sub-basin that possesses hydrocarbon potential.

The research was conducted using two methods: qualitative analysis and quantitative analysis. This analysis utilized wireline log data, mudlog data, core data, and production data. Qualitative analysis involved identifying lithologies, determining stratigraphic sequence boundaries and tract systems, and identifying facies and depositional environments. Quantitative analysis involved calculating petrophysical properties using deterministic methods, including shale volume, porosity, water saturation, and permeability. A cut-off was then applied to these parameters to identify zones capable of producing hydrocarbons.

Based on the qualitative analysis, the identified lithologies include sand stone, shale, and coal. The sand stone in the study area is found in channel, crevasse splay facies, and fluvial depositional environments. Quantitative analysis yielded results based on pay zone values, including porosity values of 17.8%–37.9%, permeability values of 303.171 mD–13,489.42 mD, shale volume values of 11.3%–36%, and water saturation values of 21.3%–59.9%. Four Reservoir layers were identified at the study site.

Keywords: South Sumatra Basin, Deterministic, Facies, Talangakar Formation, Depositional Environment.