ABSTRAK

ANALISIS DAN PEMODELAN FASIES BERDASARKAN DATA SUMUR PADA LAPISAN "Y", FORMASI TALANGAKAR BAGIAN ATAS, LAPANGAN PINUS, CEKUNGAN JAWA BARAT UTARA

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Formasi Talangakar merupakan salah satu reservoar hidrokarbon utama di Cekungan Jawa Barat Utara yang memiliki karakteristik reservoar heterogen akibat variasi fasies dan lingkungan pengendapan. Heterogenitas tersebut memengaruhi distribusi dan kontinuitas reservoar, sehingga diperlukan analisis serta pemodelan fasies. Penelitian ini bertujuan untuk mengetahui litologi penyusun, menganalisis sikuen stratigrafi, menentukan fasies dan lingkungan pengendapan, serta merekonstruksi model fasies Lapisan "Y", Formasi Talangakar Bagian Atas. Metode penelitian mengintegrasikan data *wireline log*, *mudlog, core*, biostratigrafi, dan seismik 3 dimensi. Pengolahan data meliputi interpretasi litologi, sikuen stratigrafi, fasies dan lingkungan pengendapan, pembuatan peta struktur kedalaman, peta *isopach*, peta *trend* probabilitas, serta pemodelan struktur serta fasies menggunakan metode *Truncated Gaussian Simulation*.

Hasil penelitian menunjukkan bahwa Formasi Talangakar terdiri atas litologi batupasir, serpih, batubara, dan batugamping. Berdasarkan analisis sikuen stratigrafi, daerah penelitian berkembang pada fase transgresif dengan keberadaan *marker* stratigrafi *maximum flooding surface* dan tiga *flooding surface*. Enam fasies teridentifikasi, yaitu *marsh*, *mud flat*, *mixed flat*, *sand flat*, *tidal sand bar*, dan *shallow marine* yang terbentuk pada lingkungan pengendapan estuari dengan dominasi pasang surut hingga laut dangkal. Pemodelan fasies Lapisan "Y" menunjukkan bahwa fasies *sand bar* berkembang dengan persebaran relatif timur laut-barat daya, sedangkan fasies *sand flat* mendominasi area penelitian.

Kata kunci: Cekungan Jawa Barat Utara, Formasi Talangakar Bagian Atas, Pemodelan fasies

ABSTRACT

FACIES ANALYSIS AND MODELING BASED ON WELL DATA OF THE "Y" LAYER, UPPER TALANG AKAR FORMATION, PINUS FIELD, NORTHWEST JAVA BASIN

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The Talang Akar Formation is one of the principal hydrocarbon reservoirs in the Northwest Java Basin, characterized by significant reservoir heterogeneity resulting from variations in facies and depositional environments. This heterogeneity influences reservoir distribution and continuity, thereby necessitating comprehensive facies analysis and modeling. This study aims to identify the constituent lithologies, analyze the sequence stratigraphy, determine the facies and depositional environments, and reconstruct the facies model of the "Y" Layer within the Upper Talangakar Formation. The research integrates wireline logs, mudlogs, core, biostratigraphic data, and three-dimensional seismic data. Data processing includes lithological interpretation, sequence stratigraphic analysis, facies and depositional environment interpretation, construction of depth structure maps, isopach maps, probability trend maps, and structural and facies modeling using the Truncated Gaussian Simulation method.

The results indicate that the Talangakar Formation is composed of sandstone, shale, coal, and limestone lithologies. Based on sequence stratigraphic analysis, the study area developed during a transgressive phase, as evidenced by the presence of a maximum flooding surface marker and three flooding surfaces. Six facies were identified, namely marsh, mud flat, mixed flat, sand flat, tidal sand bar, and shallow marine, all of which were formed within a tide-dominated estuarine to shallow marine depositional environment. Facies modeling of the "Y" Interval demonstrates that the sand bar facies developed with a predominantly northeast–southwest distribution trend, whereas the sand flat facies dominates the study area.

Keywords: North West Java Basin, Upper Talangakar Formation, Facies modeling