ABSTRAK

ANALISIS FASIES DAN LINGKUNGAN PENGENDAPAN PADA FORMASI CIBULAKAN ATAS, LAPANGAN "JON" CEKUNGAN JAWA BARAT UTARA BERDASARKAN DATA LOG SUMUR

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Penelitian ini dilakukan pada Formasi Cibulakan Atas di Lapangan "JON", Cekungan Jawa Barat Utara, yang merupakan salah satu cekungan hidrokarbon produktif di Indonesia dan memiliki potensi reservoir yang penting untuk kegiatan eksplorasi minyak dan gas bumi. Tujuan penelitian ini adalah mengidentifikasi variasi litologi, menganalisis perkembangan sikuen pengendapan, serta menentukan fasies dan lingkungan pengendapan berdasarkan data log sumur. Metode yang digunakan berupa analisis kualitatif terhadap data *wireline log* (*Gamma Ray*, *Density*, dan *Neutron*), data inti batuan (*core*), serta data *summary biostratigraphy* dari delapan sumur *offshore*. Analisis dilakukan melalui interpretasi log, analisis sikuen stratigrafi, elektrofasies, dan korelasi antar sumur untuk memperoleh gambaran kondisi bawah permukaan secara menyeluruh. Hasil penelitian menunjukkan bahwa Formasi Cibulakan Atas tersusun oleh batupasir, batuserpih, batugamping, dan batulanau. Analisis sikuen stratigrafi mengidentifikasi dua *sequence boundary* (SB1 dan SB2) serta satu *maximum flooding surface* (MFS1) dan dua *transgressive Surface* (TS1 dan TS2) Interval SB1–TS1 menunjukkan pola retrogradasional yang didominasi pola elektrofasies *bell shaped* dengan sisipan *funnel shaped*, dan TS1 – MFS1 mempunyai pola yang sama yaitu retrogradasional dengan dominasi *bell shaped* dengan sisipan *funnel shaped* sedangkan interval MFS1–SB2 dicirikan oleh pola progradasional dengan dominasi *funnel shaped*. Interval SB2–TS2 kembali memperlihatkan pola retrogradasional yang didominasi *bell shaped*, Analisis fasies menghasilkan tiga fasies utama, yaitu *sand flat*, *mixed flat*, dan *mud flat*. Berdasarkan asosiasi fasies tersebut, lingkungan pengendapan diinterpretasikan sebagai *tidal flat* yang termasuk ke dalam sistem pengendapan *marginal marine*. Hasil penelitian ini diharapkan dapat menjadi acuan dalam interpretasi geologi bawah permukaan serta mendukung kegiatan eksplorasi dan pengembangan hidrokarbon di Cekungan Jawa Barat Utara.

Kata kunci: data log sumur, fasies, formasi cibulakan atas, lingkungan pengendapan, sikuen stratigrafi.

ABSTRACT

FACIES ANALYSIS AND DEPOSITIONAL ENVIRONMENT INTERPRETATION IN THE UPPER CIBULAKAN FORMATION IN THE "JON" FIELD, NORTH WEST JAVA BASIN BASED ON LOG

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This study was conducted in the Upper Cibulakan Formation of the "JON" Field, Northwest Java Basin, one of Indonesia's productive hydrocarbon basins with significant reservoir potential for oil and gas exploration. This study aims to identify lithological variations, analyze the development of depositional sequences, and determine the facies and depositional environment based on well-log data. The method employed qualitative analysis of wireline log data, including Gamma Ray, Density, and Neutron logs, supported by core data and biostratigraphic summary data from eight offshore wells. The analyses included well-log interpretation, sequence stratigraphic analysis, electrofacies analysis, and interwell correlation to provide a comprehensive understanding of the subsurface geological conditions. The results indicate that the Upper Cibulakan Formation consists of sandstone, shale, limestone, and siltstone. Sequence stratigraphic analysis identified two sequence boundaries (SB1 and SB2), one maximum flooding surface (MFS1), and two transgressive surfaces (TS1 and TS2). The SB1–TS1 interval exhibits a retrogradational stacking pattern dominated by bell-shaped electrofacies with minor funnel-shaped electrofacies, while the TS1–MFS1 interval displays a similar retrogradational pattern characterized by dominant bell-shaped electrofacies with minor funnel-shaped electrofacies. In contrast, the MFS1–SB2 interval is characterized by a progradational stacking pattern dominated by funnel-shaped electrofacies. The SB2–TS2 interval shows a return to a retrogradational stacking pattern dominated by bell-shaped electrofacies. Facies analysis identified three main facies: sand flat, mixed flat, and mud flat. Based on these facies associations, the depositional environment is interpreted as a tidal-flat environment within a marginal-marine depositional system. The results of this study are expected to serve as a reference for subsurface geological interpretation and support hydrocarbon exploration and development activities in the Northwest Java Basin.

Keywords: depositional environment, facies, sequence stratigraphy, upper cibulakan formation, wireline log.