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Pemodelan 3D Fasies pada Marker Subaerial Unconformity, Zona 'X', Formasi Talang Akar, Lapangan 'Miki', Cipunegara Low, Cekungan Jawa Barat Utara
Lovetta Kiendra Octora, Ir. Salahuddin Husein, S.T., M.Sc., Ph.D., IPM.; Ir. Jarot Setyowiyoto, M.Sc., Ph.D. IPU., ASI
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SARI

Lapangan 'MIKI' merupakan lapangan hidrokarbon di Zona Cipunegara Low, Cekungan Jawa Barat Utara, dengan reservoir utama pada Formasi Talang Akar. Penelitian ini bertujuan untuk mengidentifikasi *marker Subaerial Unconformity* (SU), menentukan fasies dan lingkungan pengendapan, serta menghasilkan model fasies tiga dimensi pada Zona 'X' Formasi Talang Akar melalui integrasi data log sumur dan atribut seismik 3D sebagai dasar evaluasi reservoir dalam mendukung rencana pemboran sumur eksplorasi baru di bagian selatan lapangan. Interpretasi elektrofasies berdasarkan pola log gamma ray pada Sumur TI-003 mengidentifikasi empat asosiasi fasies, yaitu *channel sand, floodplain, levee sand,* dan *crevasse splay*, yang berkembang pada lingkungan *upper delta plain* dalam sistem fluvial–deltaik. Analisis sikuen stratigrafi mengidentifikasi tiga *marker Subaerial Unconformity* (SU), dua *marker Maximum Rate of Accommodation* (MRA), dan delapan belas *Flooding Surface* (FS) yang membentuk dua sekuen pengendapan dengan pola *system tract* berupa Lo*w Accommodation, High Accommodation, Low Accommodation*, dan *High Accommodation*. Pemodelan fasies tiga dimensi dilakukan menggunakan metode *Sequential Indicator Simulation* (SIS) dengan atribut seismik *sweetness* sebagai *soft constraint*. Hasil pemodelan menunjukkan perubahan geometri tubuh batupasir pada setiap marker SU, yaitu berupa *discontinuous sheet* pada SU-1, *sheet-like* hingga *amalgamated sand bodies* pada SU-2, serta *isolated channel belt* pada SU-3 dengan orientasi dominan NW–SE. Perubahan geometri tersebut mencerminkan evolusi fasies akibat perubahan ruang akomodasi dan dinamika migrasi saluran dalam sistem fluvial *upper delta plain*.

Kata kunci: Formasi Talang Akar, *Subaerial Unconformity*, pemodelan fasies 3D, *Sequential Indicator Simulation*, atribut *sweetness*.

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ABSTRACT

The 'MIKI' Field is a hydrocarbon field located in the Cipunegara Low Zone of the Northwest Java Basin, with the Talang Akar Formation serving as its main reservoir. This study aims to identify Subaerial Unconformity (SU) markers, determine facies and depositional environments, and construct a three-dimensional facies model of Zone 'X' within the Talang Akar Formation by integrating well log and 3D seismic attribute data to support reservoir evaluation for a proposed exploration well in the southern part of the field. Electrofacies interpretation based on gamma ray log patterns from Well TI-003 identified four facies associations: channel sand, floodplain, levee sand, and crevasse splay, representing an upper delta plain depositional environment within a fluvial–deltaic system. Sequence stratigraphic analysis identified three Subaerial Unconformity (SU) markers, two Maximum Rate of Accommodation (MRA) markers, and eighteen Flooding Surface (FS) markers, defining two depositional sequences characterized by a succession of Low Accommodation, High Accommodation, Low Accommodation, and High Accommodation system tracts. Three-dimensional facies modeling was performed using the Sequential Indicator Simulation (SIS) method with the sweetness seismic attribute as a soft constraint. The resulting facies models reveal vertically varying sandstone geometries, including discontinuous sheets at SU-1, sheet-like to amalgamated sand bodies at SU-2, and isolated channel belts at SU-3 with a dominant NW–SE orientation. These geometric variations reflect facies evolution driven by changes in accommodation space and channel migration within an upper delta plain depositional system.

Keywords: *Talang Akar Formation, Subaerial Unconformity, 3D facies modeling, Sequential Indicator Simulation, sweetness attribute.*