

ABSTRAK

IDENTIFIKASI ZONA HIDROKARBON PADA FORMASI KAMPUNGBARU, CEKUNGAN KUTAI, BERDASARKAN ANALISIS PETROFISIKA

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Energi migas masih menjadi salah satu sektor penting dalam perekonomian Indonesia. Seiring meningkatnya kebutuhan masyarakat dan industri terhadap hidrokarbon, semakin sulit menemukan akumulasi hidrokarbon yang ekonomis. Salah satu wilayah potensial untuk pengembangan hidrokarbon adalah Cekungan Kutai. Daerah penelitian berada di Lapangan “GITA”, Formasi Kampungbaru, Cekungan Kutai. Penelitian ini bertujuan untuk mengetahui zona hidrokarbon, jenis fluida, dan karakteristik reservoir menggunakan analisis petrofisika. Penelitian ini menggunakan analisis kualitatif dan kuantitatif. Analisis kualitatif dilakukan dengan melakukan interpretasi litologi, fasies, dan lingkungan pengendapan. Analisis kuantitatif bertujuan untuk mengetahui properti petrofisika, meliputi volume serpih, porositas, dan saturasi air. Analisis kuantitatif menggunakan metode deterministik dan multimin dengan menggunakan log gamma ray-resistivitas (GR-RES) dan *triple combo*. Hasil dari penelitian pada Lapangan “GITA” adalah litologi pada lapangan ini, yaitu batupasir, serpih, batupasir gampingan, serpih organik dan batubara. Fasies pada daerah penelitian, yaitu *tributary channel*, *intertributary plain*, *crevasse splay*, *delta plain flooding*, *point bar* dan *tidal plain*. Reservoir pada daerah penelitian merupakan reservoir batupasir dengan fasies *tributary channel*, *crevasse splay*, dan *point bar*. Dari analisis kualitatif didapatkan bahwa lingkungan pengendapan berada pada *Upper Delta Plain* hingga *Lower Delta Plain*. Analisis kuantitatif untuk properti petrofisika didapatkan nilai volume serpih berkisar 13% hingga 43,3 %, porositas efektif 19% hingga 31,5%, saturasi air berkisar 10 % hingga 75 %. Berdasarkan klasifikasi, didapatkan bahwa nilai porositas efektif pada lapisan reservoir prospek tersebut termasuk dalam kategori baik hingga istimewa.

Kata kunci: Analisis petrofisika, Cekungan Kutai, Formasi Kampungbaru, hidrokarbon

ABSTRACT

IDENTIFICATION OF HYDROCARBON ZONES IN THE KAMPUNGBARU FORMATION, KUTAI BASIN, BASED ON PETROPHYSICAL ANALYSIS

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The oil and gas sector remains one of the important sectors in Indonesia's economy. Along with the increasing demand for hydrocarbons from society and industry, economically viable hydrocarbon accumulations are becoming increasingly difficult to discover. One of the potential areas for hydrocarbon development is the Kutai Basin. The study area is located in the "GITA" Field, Kampungbaru Formation, Kutai Basin. This study aims to identify hydrocarbon zones, determine fluid types, and characterize reservoir properties using petrophysical analysis. This study applies both qualitative and quantitative analyses. The qualitative analysis was conducted by interpreting lithology, facies, and depositional environment. The quantitative analysis aims to determine petrophysical properties, including shale volume, porosity, and water saturation. The quantitative analysis was carried out using deterministic and multimineral methods based on gamma ray-resistivity (GR-RES) logs and triple-combo logs. The results of the study in the "GITA" Field show that the lithologies consist of sandstone, shale, calcareous sandstone, organic shale, and coal. The facies identified in the study area include distributary channel, interdistributary plain, crevasse splay, delta plain flooding, point bar, and tidal plain. The reservoirs in the study area are sandstone reservoirs associated with distributary channel, crevasse splay, and point bar facies. Based on the qualitative analysis, the depositional environment is interpreted to range from the upper delta plain to the lower delta plain. The quantitative analysis of petrophysical properties shows that shale volume ranges from 13% to 43.3%, effective porosity ranges from 19% to 31.5%, and water saturation ranges from 10% to 75%. Based on the classification, the effective porosity values in the prospective reservoir layers are categorized as good to excellent.

Keywords: *Hydrocarbon, Kampungbaru Formation, Kutai Basin, Petrophysical analysis.*