Evaluasi Formasi Berdasarkan Analisis Petrofisika pada Reservoir Mod, Lapangan Dai, Formasi Duri, Cekungan Sumatera Tengah = Formation Evaluation Based on Analysis Petrophysics on Mod Reservoir, Dai Field, Duri Formation, Central Sumatra Basin

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Abstrak

Formasi Duri merupakan salah satu formasi yang berperan sebagai reservoir di Cekungan Sumatra Tengah dan merupakan salah satu formasi penghasil minyak dan gas bumi terbesar di Indonesia. Daerah penelitian berada di Reservoir Mod, Lapangan Dai, Formasi Duri, Cekungan Sumatera Tengah. Penelitian ini dilakukan dengan melakukan 2 analisis, yaitu analisis kualitatif dan analisis kuantitatif. Analisis kualitatif dilakukan dengan menganalisis litologi penyusun pada Formasi Duri, dan menentukan fasies serta lingkungan pengendapan pada Formasi Duri. Sedangkan analisis kuantitatif dilakukan dengan analisis petrofisika yang bertujuan untuk untuk mendapatkan potensi reservoir utama dengan menghitung nilai parameter – parameter petrofisika, mengetahui nilai cut off dari parameter petrofisika tersebut sehingga didapatkan zona yang berprospek menghasilkan hidrokarbon. Berdasarkan analisis kualitatif, diketahui litologi formasi duri tersusun dari batu pasir, batu pasir lanauan, dan batu lempung, dengan fasies pada daerah penelitian adalah Fasies Tidal Sandbar, Tidal Channel, Mudflat, dan Sandflat dengan lingkungan pengendapan Tide dominated Estuary. Sedangkan analisis petrofisika diketahui zona efektif yang mengandung hidrokarbon yaitu zona dengan nilai volume shale yang berkisar antara 14.7% - 53.6% V/V, porositas efektif berkisar antara 20.9% - 29.6% V/V, saturasi air berkisar antara 40.1% - 68.8% V/V, Permeabilitas berkisar antara 79.6044 - 30695.541 MD, dan memiliki tebal lapisan net pay 21.5 - 230 feet.
.....Duri Formation is a formation that acts as a reservoir in the Central Sumatra Basin and is one of the largest oil and gas producing formations in Indonesia. The research area is in the Mod Reservoir, Dai Field, Duri Formation, Central Sumatra Basin. This research was conducted by conducting 2 analyses, namely qualitative analysis and quantitative analysis. Qualitative analysis was carried out by analyzing the constituent lithology of the Duri Formation, and determining the facies and depositional environment of the Duri Formation. Meanwhile, quantitative analysis is carried out by means of petrophysical analysis which aims to obtain the main reservoir potential by calculating the value of petrophysical parameters, knowing the cut-off value of these petrophysical parameters so that a zone with prospects for carbon production is obtained. Based on qualitative analysis, it is known that the lithological formations of thorns are composed of sandstone, silt sandstone, and claystone, with the facies in the study area being the Tidal Sandbar, Tidal Channel, Mudflat, and Sandflat facies with the depositional environment of Tide Dominated Estuary. While the petrophysic analysis shows that the effective zone containing carbon is the zone with shale volume values ??ranging from 14.7% - 53.6% V/V, effective porosity ranging from 20.9% - 29.6% V/V, air saturation ranging from 40.1% - 68.8% V /V, Permeability ranges from 79.6044 - 30695.541 MD, and has a thick layer of net pay 21.5 - 230 feet.