

SARI

Lapangan Bona terletak di Sub-Cekungan Palembang Selatan dengan Formasi Talang Akar sebagai salah satu reservoir utama. Lingkungan pengendapan Formasi Talang Akar berkisar dari sistem fluvial hingga delta. Penelitian ini bertujuan untuk mengidentifikasi asosiasi fasies dan mengevaluasi karakter petrofisika berupa volume serpih, porositas, dan saturasi air guna menentukan zona potensi reservoir. Analisis fasies dilakukan melalui interpretasi litologi dari data log dan mudlog, identifikasi elektrofases berdasarkan pola gamma ray, analisis litofases dari data batuan inti, serta korelasi stratigrafi antarsumur untuk memahami distribusi *sand to sand*. Dua interval batupasir memiliki potensi hidrokarbon pada interval Formasi Talang Akar, Batupasir 'Y' lebih tua atau terendapkan dahulu dibanding Batupasir 'X' yang berada lebih diatas pada posisi stratigrafi. Interval Batupasir 'X' dan 'Y' memiliki nilai gamma ray rendah, resistivitas tinggi, log porositas yang baik, terdapat bukti *oil show* pada mudlog di beberapa sumur, dan termasuk interval produktif di beberapa sumur. Asosiasi fasies pada Lapangan Bona yaitu *fluvial channel*, *distributary channel*, *crevasse splay*, *interdistributary bay*, *delta front*, *tidal bar*, *distal bar* dan *prodelta*. Interval Batupasir 'X' berasosiasi fasies *tidal bar*, sedangkan Batupasir 'Y' berupa asosiasi fasies *fluvial channel* dan *crevasse splay*. Analisis petrofisika dilakukan secara deterministik, meliputi perhitungan volume serpih dengan metode gamma ray, porositas melalui crossplot densitas-neutron, serta saturasi air menggunakan persamaan Simandoux. Hasil menunjukkan bahwa Batupasir 'X' memiliki nilai rata-rata petrofisika volume serpih 38,06%, porositas efektif 11,92%, dan saturasi air 73,23%. Sementara Batupasir 'Y' memiliki volume serpih 26,83%, porositas efektif 17,99%, dan saturasi air 64,30%. Batupasir 'X' diasosiasikan dengan fasies *tidal bar* dan memiliki persebaran lateral dan ketebalan yang seragam, namun kualitas reservoirnya lebih rendah dan kehadiran hidrokarbon di beberapa sumur. Sebaliknya, Batupasir 'Y' yang berasosiasi dengan fasies *fluvial channel* dan *crevasse splay* menunjukkan kualitas reservoir yang lebih baik, ketebalan yang lebih bervariasi, distribusi yang tidak menerus, dan kehadiran hidrokarbon di beberapa sumur.

Kata kunci: Formasi Talang Akar, Cekungan Sumatera Selatan, fasies, lingkungan pengendapan, petrofisika

ABSTRACT

The Bona Field is located in the South Palembang Sub-basin, where the Talang Akar Formation serves as one of the main reservoir units. The depositional environment of this formation ranges from fluvial to deltaic systems. This study aims to identify facies associations and evaluate petrophysical properties, including shale volume, porosity, and water saturation, to determine potential reservoir zones. Facies analysis was conducted using log and mudlog lithology interpretation, electrofacies identification based on gamma ray patterns, core lithofacies analysis, and stratigraphic correlation between wells to understand sand-to-sand continuity. Two sandstone intervals show hydrocarbon potential within the Talang Akar Formation. Sandstone 'Y' is older or was deposited earlier than Sandstone 'X', which lies stratigraphically above it. Sandstone intervals, 'X' and 'Y' are characterized by low gamma ray, high resistivity, good porosity log responses, and oil shows observed in the mudlog of several wells. Facies associations in the Bona Field include fluvial channel, distributary channel, crevasse splay, interdistributary bay, delta front, tidal bar, distal bar, and prodelta. Sandstone 'X' is associated with tidal bar facies, while Sandstone 'Y' is linked to fluvial channel and crevasse splay facies. Petrophysical analysis was conducted using a deterministic approach, shale volume was estimated from gamma ray logs, porosity from density-neutron crossplots, and water saturation using the Simandoux equation. Results show that Sandstone 'X' has an average shale volume of 38.06%, effective porosity of 11.92%, and water saturation of 73.23%. Meanwhile, Sandstone 'Y' has a lower shale volume of 26.83%, higher effective porosity of 17.99%, and water saturation of 64.30%. Although Sandstone 'X' has more uniform lateral distribution and thickness, it shows poorer reservoir quality. In contrast, Sandstone 'Y' has better reservoir quality, more variable thickness, discontinuous distribution, and hydrocarbon presence in several wells.

Keywords: *Talang Akar Formation, South Sumatra Basin, facies, depositional environment, petrophysics*