

INTISARI

Cekungan Sumatra Selatan merupakan salah satu cekungan hidrokarbon terbesar di Indonesia dengan cadangan minyak sekitar 3 *Billion Barrel Oil* (BBO) dan cadangan gas sebesar 22 *Trillion Cubic Feet Gas* (TCFG) (Ginger dan Fielding, 2005). Formasi Talang Akar merupakan salah satu reservoir utama pada cekungan ini dan menjadi target reservoir batupasir (*sandstone*) di Lapangan JDEP, wilayah kerja PT. Sele Raya Belida. Berdasarkan interpretasi litofasies, interval penelitian didominasi oleh batupasir lempung yang berasosiasi dengan batupasir, serpih, dan batubara. Dominasi mineral lempung menyebabkan heterogenitas reservoir serta meningkatkan kompleksitas interpretasi petrofisika dalam identifikasi zona hidrokarbon. Penelitian ini bertujuan untuk menentukan properti reservoir batupasir dan mengidentifikasi zona hidrokarbon melalui integrasi analisis petrofisika, petrografi, *Routine Core Analysis* (RCAL), *Special Core Analysis* (SCAL), dan analisis sikuen stratigrafi. Penelitian dilakukan pada dua sumur, yaitu AMI-1 dan SUG-2, dengan dua interval reservoir pada masing-masing sumur, yaitu JDEP A dan JDEP B. Hasil interpretasi petrofisika divalidasi menggunakan data petrografi, RCAL, dan SCAL, sedangkan analisis sikuen stratigrafi digunakan sebagai kerangka stratigrafi melalui identifikasi *system tract*. Hasil penelitian menunjukkan bahwa Formasi Talang Akar tersusun atas empat litofasies, yaitu batupasir, batupasir lempung, serpih, dan batubara, dengan dua interval reservoir utama berupa batupasir bersih pada JDEP A dan JDEP B. Interval JDEP A memiliki nilai V_{sh} 0,19–0,21, $PHIE$ 16–18%, Sw 0,34–0,44, dan permeabilitas 372,1–479,1 mD, sedangkan JDEP B memiliki V_{sh} 0,18–0,20, $PHIE$ 17–19%, Sw 0,33–0,45, dan permeabilitas 385,9–581,1 mD, yang menunjukkan kualitas reservoir baik hingga sangat baik. Zona hidrokarbon teridentifikasi pada dua interval *net pay* pada JDEP A dengan ketebalan 24.38 ft dan 39 ft, serta JDEP B 12.88 ft dan 14.75 ft. Identifikasi stratigrafi pada sumur AMI 1 dan SUG 2 menghaikan 4 *flooding surface*.

Kata kunci: Cekungan Sumatra Selatan; Formasi Talang Akar; Reservoir Batupasir

ABSTRACT

The South Sumatra Basin is one of the largest hydrocarbon-bearing basins in Indonesia, with estimated oil reserves of approximately 3 *Billion Barrels of Oil* (BBO) and gas reserves of 22 *Trillion Cubic Feet of Gas* (TCFG) (Ginger and Fielding, 2005). The Talang Akar Formation is one of the major reservoir formations in the basin and serves as the target sandstone reservoir in the JDEP Field, within the working area of PT Sele Raya Belida. Based on lithofacies interpretation, the studied intervals are dominated by clayey sandstone associated with sandstone, shale, and coal. The dominance of clay minerals contributes to reservoir heterogeneity and increases the complexity of petrophysical interpretation, particularly in identifying hydrocarbon-bearing zones. This study aims to determine sandstone reservoir properties and identify hydrocarbon-bearing zones through the integration of petrophysical, petrographic, *Routine Core Analysis* (RCAL), *Special Core Analysis* (SCAL), and sequence stratigraphic analyses. The study was conducted on two wells, AMI-1 and SUG-2, with two reservoir intervals, JDEP A and JDEP B, identified in each well. The petrophysical interpretation results were validated using petrographic, RCAL, and SCAL data, while sequence stratigraphic analysis was used to establish the stratigraphic framework through the identification of *system tracts* and *flooding surfaces*. The results indicate that the Talang Akar Formation consists of four lithofacies, namely sandstone, clayey sandstone, shale, and coal, with two main reservoir intervals characterized by clean sandstone in JDEP A and JDEP B. The JDEP A interval has Vsh values of 0.19–0.21, PHIE values of 16–18%, Sw values of 0.34–0.44, and permeability values of 372.1–479.1 mD, whereas JDEP B has Vsh values of 0.18–0.20, PHIE values of 17–19%, Sw values of 0.33–0.45, and permeability values of 385.9–581.1 mD, indicating good to very good reservoir quality. Hydrocarbon-bearing zones were identified within two *net pay* intervals in each reservoir, with *net pay* thicknesses of 24.38 ft and 39 ft in JDEP A and 12.88 ft and 14.75 ft in JDEP B. Sequence stratigraphic analysis of the AMI-1 and SUG-2 wells identified four *flooding surfaces*, which were used to establish the stratigraphic correlation framework between the wells.

Keywords: *South Sumatra Basin; Talang Akar Formation; Sandstone Reservoir*