

## SARI

Lapangan FE yang termasuk dalam Blok Pekawai terletak di Cekungan Kutai di area lepas pantai. Pada lapangan ini terdapat tiga sumur eksplorasi hidrokarbon yang menarik untuk diteliti. Kajian fasies, lingkungan pengendapan dan analisis petrofisika untuk penentuan zona prospek dilakukan pada lapangan ini. Penulisan ini menggunakan data log sumur, data *mud log*, dan data *sidewall core*. Analisis diawali dengan menganalisis fasies dengan integrasi data log sumur terhadap data *sidewall core* dan *mud log* yang kemudian diikuti penentuan lingkungan pengendapan. Analisis petrofisika kualitatif selanjutnya dilakukan untuk mengetahui zona menarik dari zona penulisan. Setelah analisis data sumur secara kualitatif, selanjutnya dilakukan analisis secara kuantitatif yang meliputi analisis volume *shale*, analisis porositas dan analisis saturasi air. Zona prospek selanjutnya ditentukan dengan melakukan plot nilai *cut-off* dari hasil analisis petrofisika sehingga kemudian dapat ditarik kesimpulan yang merupakan tahap akhir penulisan. Berdasarkan hasil penulisan, didapatkan 6 fasies, yaitu fasies batupasir, fasies batupasir karbonan, fasies batupasir gradasional, fasies batulanau, fasies batulanau karbonan, dan fasies batulempung. Analisis petrofisika menunjukkan zona prospek memiliki nilai rata-rata volume serpih di atas 54%, porositas efektif 13-19% dan memiliki klasifikasi baik, dan saturasi air 32%-82%. Hasil analisis menunjukkan terdapat 3 zona prospek dengan ketebalan prospek *net pay* pada ketiga sumur berkisar 2,5 hingga 3 meter.

**Kata kunci:** *Formasi Pulau Balang, Cekungan Kutai, petrofisika, zona prospek hidrokarbon..*

## ABSTRACT

*Field "FE" which is included in the Pekawai Block is located in the Kutai Basin in the offshore area. In this field there are three interesting hydrocarbon exploration wells to study. Facies, depositional environment and petrophysical analysis for the determination of prospect zones were carried out on this field. This study uses well log data, mud log data, and sidewall cores data. The analysis begins by analyzing facies by integrating well log data on the sidewall core and mud log data then followed by the determination of the depositional environment. Qualitative petrophysical analysis is then carried out to determine the interesting zones of the research zone. After analyzing the well data qualitatively, then quantitative analysis was carried out which included volume shale analysis, porosity analysis and water saturation analysis. The next prospect zone is determined by plotting the cut-off value from the results of the petrophysical analysis. Based on the results of the study, it was 6 facies, namely sandstone facies, carbonaceous sandstone facies, gradational sandstone facies, siltstone facies, carbonaceous siltstone facies, and claystone facies. Petrophysical analysis shows that the prospect zone has an average clay volume value of 54%, effective porosity of 13-19%, and water saturation 32-82%. The results show that there are 3 prospect zones with net pay thickness in the three wells ranging from 2.5 to 3 meters.*

**Keywords:** *Pulau Balang formation, Kutai Basin, facies, petrophysics, Hydrocarbon prospect zone.*