ABSTRAK

ANALISIS FASIES DAN *ROCK TYPE* LAPISAN P1 DAN P2, FORMASI BALIKPAPAN, CEKUNGAN KUTAI

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Lapangan Wikas yang terletak di Cekungan Kutai, Kalimantan Timur merupakan wilayah dengan sistem pengendapan deltaik yang kompleks sehingga menghasilkan variasi fasies serta perubahan karakteristik porositas dan permeabilitas yang kemudian membentuk *rock type*. Penelitian ini bertujuan untuk mengidentifikasi hubungan antara *rock type* dan fasies melalui integrasi interpretasi data log sumur, analisis petrofisika, *mudlog*, dan data inti batuan dengan pendekatan analisis sumuran yang meliputi interpretasi litologi, elektrofasies, fasies, serta lingkungan pengendapan, yang selanjutnya dikombinasikan dengan penentuan *rock type* menggunakan metode *flow zone indicator* (FZI). Hasil analisis menunjukkan bahwa lingkungan pengendapan pada daerah penelitian berada pada *upper delta plain* dengan fasies berupa *distributary channel* yang berkembang pada lapisan P1 dan P2. Berdasarkan analisis *rock type* menggunakan metode FZI, diperoleh bahwa satu kontrol fasies yang sama dapat berkembang menjadi empat *rock type* yang berbeda, *Rock type* 1 memiliki rata-rata porositas sebesar 9,33 % dan permeabilitas 5,97 mD dengan nilai FZI < 2,50. *Rock type* 2 memiliki porositas 9.11% dan permeabilitas 9.67 mD dengan FZI 2.50 hingga < 3.53. *Rock type* 3 memiliki porositas 8.76% dan permeabilitas 15.69 mD dengan FZI 3.53 hingga < 4.60. *Rock type* 4 memiliki porositas 6.50% dan permeabilitas 9.35 mD dengan nilai FZI ≥ 4.60. Perbedaan *rock type* tersebut pada fasies *distributary channel* yang tursusun atas lapisan amalgamasi, yaitu P1 dan P2. Perbedaan *rock type* dipengaruhi oleh variasi tekstur batuan akibat variasi energi aliran pengendapan, komposisi, dan diagenesis lokal pascapengendapan.

Kata Kunci: Balikpapan, delta, fasies, FZI, *rock type*

ABSTRACT

FACIES ANALYSIS AND ROCK TYPE OF P1 AND P2 LAYERS, BALIKPAPAN FORMATION, KUTAI BASIN

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The Wikas Field, located in the Kutai Basin, East Kalimantan, is an area with a complex deltaic depositional system that produces variations in facies as well as changes in porosity and permeability characteristics, which subsequently form rock types. This study aims to identify the relationship between rock types and facies through an integrated interpretation of well log data, petrophysical analysis, mudlog, and core data using a well analysis approach that includes lithology interpretation, electrofacies, facies, and depositional environment, which is further combined with rock type determination using the Flow Zone Indicator (FZI) method. The analysis results show that the depositional environment in the study area is located in the upper delta plain with facies in the form of distributary channels that developed in the P1 and P2 layers. Based on rock type analysis using the FZI method, it was found that a single facies control can develop into four different rock types. Rock type 1 has an average porosity of 9.33% and permeability of 5.97 mD with an FZI value of < 2.50. Rock type 2 has a porosity of 9.11% and permeability of 9.67 mD with an FZI of 2.50 to < 3.53. Rock type 3 has a porosity of 8.76% and permeability of 15.69 mD with an FZI of 3.53 to < 4.60. Rock type 4 has a porosity of 6.50% and permeability of 9.35 mD with an FZI value of ≥ 4.60. These rock type differences occur in the distributary channel facies that make up the amalgamated layers, namely P1 and P2. The rock type differences are influenced by variations in rock texture due to variations in depositional flow energy, composition, and local post-depositional diagenesis.

Keywords: *Balikpapan, delta, facies, FZI, rock type*