ABSTRACT

The 'X' interval of the Baturaja Formation, MRT Field, is located in the Southern Palembang Sub-Basin of the South Sumatra Basin, consisting of carbonate rocks. The carbonate reservoir is quite unique due to its high heterogeneity. This study was conducted to investigate the facies, depositional environment, diagenetic processes, and diagenetic environment of the carbonate rocks to assist in exploration in the study area. The research methods used include core description and thin section analysis, well log analysis (electrofacies), and reviewing biostratigraphic reports. Based on the results of core descriptions, thin section analyses, and biostratigraphic reports, five facies associations were identified in the 'X' interval: coralline floatstone, packstone-grainstone to floatstone, bioclastic mollusks packstone to floatstone, coral bafflestone to floatstone, and bioclastic mollusks wackestone to rudstone. After determining the facies associations, the depositional environment can be established based on the composition of the constituent fosilts and the textures identified in the thin section analyses. The depositional environment of interval 'X' is located at the reef slope. In the five facies associations, four diagenetic processes were identified: dissolution, cementation, burial compaction, and neomorphism, which dominate the 'X' interval. The diagenetic environment can be determined based on the diagenetic processes occurring in interval 'X', specifically in the vadose and freshwater phreatic zones.

Keywords: *Facies, depositional environments, diagenetic processes, diagenetic environments, South Sumatra Basin.*

SARI

Interval ‘X’, Formasi Baturaja, Lapangan ‘MRT’ terletak pada Sub Cekungan Palembang Selatan, Cekungan Sumatra Selatan yang tersusun oleh batuan karbonat. Reservoar batuan karbonat cukup unik, hal ini dikarenakan heterogenitas pada batuan karbonat yang tinggi. Penelitian dilakukan untuk mengetahui fasies, lingkungan pengendapan, proses diagenesis, serta lingkungan diagenesis batuan karbonat guna membantu eksplorasi pada daerah penelitian. Metode penelitian yang digunakan dalam penelitian mencakup deskripsi foto batuan inti serta foto sayatan tipis batuan, analisis log sumur (elektrofasies), serta mengkaji laporan biostratigrafi. Berdasarkan hasil deskripsi foto batuan inti, foto sayatan tipis batuan, serta laporan biostratigrafi. teridentifikasi 5 asosiasi fasies pada interval ‘X’, yaitu: *coralline floatstone, packstone-grainstone to floatstone, bioclastic mollusks packstone to floatstone, coral bafflestone to floatstone, bioclastic mollusks wackestone to rudstone.* Setelah menentukan asosiasi fasies, lingkungan pengendapan dapat ditentukan berdasarkan komposisi fosil penyusun dan tekstur yang teridentifikasi pada foto sayatan tipis batuan. Lingkungan pengendapan interval ‘X’ berada pada *reef slope.* Pada 5 asosiasi fasies tersebut teridentifikasi juga proses diagenesis yang terdiri dari 4 fases diagenesis, yaitu: *dissolution*, sementasi, burial kompaksi, dan neomorfisme sebagai proses diagenesis yang mendominasi pada interval ‘X’. Lingkungan diagenesis dapat ditentukan berdasarkan proses diagenesis yang terjadi pada interval ‘X’, yaitu pada *vadose* dan *freshwater phreatic zone*.

Kata kunci: Fasies, lingkungan pengendapan, proses diagenesis, lingkungan diagenesis, Cekungan Sumatra Selatan.