

## SARI

Daerah penelitian berada di Cekungan Jawa Timur Utara yang merupakan salah satu penghasil hidrokarbon dalam jumlah besar. Hingga saat ini masih sangat menarik untuk di eksplorasi terutama pada reservoir karbonat karena masih terdapat beberapa bagian cekungan yang berpotensi menghasilkan hidrokarbon. Penelitian ini dilakukan untuk mengetahui karakteristik fasies, lingkungan pengendapan, diagenesis, lingkungan diagenesis, dan properti petrofisik karbonat pada Formasi Kujung. Karakterisasi reservoir ini dilakukan dengan mengintegrasikan hasil analisis data bawah permukaan seperti *cutting*, *core*, *well log*, dan petrografi. Data bawah permukaan tersebut merupakan data yang menggambarkan kondisi geologi bawah permukaan daerah penelitian. Fasies karbonat Formasi Kujung, Lapangan Damatra terdiri dari *Bioclastic Mudstone-Wackestone*, *Bioclastic Wackestone*, *Large Foram Bioclastic Wackestone*, *Red Algae Echinoid Bioclastic Wackestone*, *Pelagic Foram Bioclastic Wackestone*, *Coralline Packestone*, *Bioclastic Packestone*, *Large Foram Bioclastic Packestone*, *Coralline Bioclastic Packestone*, *Bioclastic Grainstone* terendapkan pada lingkungan *reef platform margin* dengan sub-lingkungan pengendapan *reef* dan *open lagoon*. Proses diagenesis pada formasi ini terdiri dari sementasi, mikritisasi, pelarutan, neoformisme (*replacement* dan rekristalisasi), kompaksi, dan dolomitisasi dengan lingkungan diagenesis *Freshwater Phreatic*, *Mixing Zone*, dan *Vadose Zone*. Nilai rata-rata *vshale* reservoir karbonat Formasi Kujung Lapangan Damatra adalah sebesar 3.9% - 35%, porositas total 12% - 22%, porositas efektif 8% - 21%, saturasi air sebesar 27% - 68%, dan nilai permeabilitas sebesar 147 mD – 2518 mD.

## ABSTRACT

*Study area is located in the North East Java Basin, which is one of the biggest hydrocarbon producing basins. However, hydrocarbon exploration activity is interesting especially on the carbonate reservoir because there are so many part of basins have a good potential to produce hydrocarbon. This research was conducted to determine the facies characteristics, depositional environment, diagenetic, diagenetic environment, and petrophysic property of carbonate reservoir in Kujung Formation. Characterization of reservoir is done by integrating the analysis of subsurface data such as cutting, core, well log, and petrographic. The result of subsurface data describing the subsurface geological conditions. Carbonate facies of Damatra Block, Kujung Formation are identified as Bioclastic Mudstone-Wackestone, Bioclastic Wackestone, Large Foram Bioclastic Wackestone, Red Algae Echinoid Bioclastic Wackestone, Pellagic Foram Bioclastic Wackestone, Coralline Packestone, Bioclastic Packestone, Large Foram Bioclastic Packestone, Coralline Bioclastic Packestone, Bioclastic Grainstone are deposited in reef platform margin with reef and open lagoon as a sub-environment. Diagenetic process in this formation are cementation, micritization, neomorphism (replacement and recrystallization), compaction, and dolomitization. This diagenetic process are deposited in Freshwater Phreatic, Mixing Zone, and Vadose Zone. Reservoir carbonate vshale average point's of Kujung Formation, Damatra Field are 3.9% - 35%, total porosity 12% - 22%, effective porosity 8% - 21%, water saturation 27% - 68%, and permeability 147 mD - 2518 mD.*