

ABSTRAK

IDENTIFIKASI KANDUNGAN HIDROKARBON DAN MATURASI PADA FORMASI LIDAH DAN FORMASI CEPU BERDASARKAN INTEGRASI DATA SUMUR DAN GEOKIMIA DI LAPANGAN “RB” CEKUNGAN JAWA TIMUR UTARA

Oleh

Rima Buana

Lokasi yang memiliki prospek cadangan migas adalah lokasi yang memenuhi kriteria sistem hidrokarbon (*petroleum system*), yaitu: adanya batuan sumber (*source rock*), migrasi, reservoir, perangkap reservoir (*reservoir trap*), dan batuan lapisan tudung (*seal rock*) salah satunya berada di Cekungan Jawa Timur Utara. Cekungan Jawa Timur Utara adalah salah satu cekungan hidrokarbon di mana beberapa blok telah diproduksi dan dieksplorasi, salah satunya yaitu Blok Kangean. Penelitian ini bertujuan untuk mengetahui potensi reservoir dan batuan induk pada Blok Kangean di sumur RB-1, RB-2, RB-3, RB-4 dan RB-5. Untuk potensi reservoir didapatkan dari nilai *Sw*. Adapun hasil penelitian ini didapatkan nilai *Sw* pada lapisan reservoir di sumur RB-1 rentang 67,6-86,5%, sumur RB-2 rentang 57,4-69,6%, sumur RB-3 rentang 59,4-84,7%, sumur RB-4 rentang 68,88-99,21% dan sumur RB-5 rentang 14,94-85,14% berdasarkan nilai *Sw* bahwa pada kelima sumur memiliki kualitas reservoir yaitu minyak dan minyak & gas. Untuk potensi batuan induk didapatkan dari nilai *Total Organic Carbon* (TOC), tipe kerogen dan tingkat kematangan. Didapatkan hasil perhitungan TOC pada sumur RB-3 rentang 0,58–1,36%, sumur RB-4 rentang 0,65–1,46%, sumur RB-5 rentang 0,51–2,02% berdasarkan nilai TOC pada ketiga sumur memiliki kualitas batuan induk yaitu fair (sedang). Tipe kerogen sumur RB-3 tipe II/III gas *oil prone*, sumur RB-4 memiliki tipe kerogen tipe III gas *prone* dan sumur RB-5 memiliki tipe kerogen tipe III gas *prone*. Tingkat kematangan sumur RB-3, sumur RB-4 sumur RB-5 tingkat kematangan belum matang (*immature*) menuju matang.

Kata kunci: *Well Logging*, Saturasi Air (*Sw*), *Total Organic Carbon*.

ABSTRACT

IDENTIFICATION OF HYDROCARBON AND MATURATION IN THE LIDAH AND CEPU FORMATION BASED OF INTEGRATION WELL DATA AND GEOKIMIA DATA IN THE “RB” FIELD, NORTH EAST JAVA BASIN

By

Rima Buana

Locations that have prospects for oil and gas reserves are locations that meet the criteria for a hydrocarbon system (petroleum system), that is: source rock, migration, reservoir, trap, and seal rock one of them is in the North East Java Basin. The North East Java Basin is one of the hydrocarbon basins where several blocks have been produced and explored, one of which is the Kangean Block. This study aims to determine the reservoir potential and source rock in the Kangean Block in wells RB-1, RB-2, RB-3, RB-4 and RB-5. For reservoir potential, it is obtained from the value of Sw. The results of this study showed that the value of Sw in the reservoir layer in well RB-1 ranges from 67.6-86.5%, wells RB-2 ranges from 57.4-69.6%, wells RB-3 ranges from 59.4-84.7%, well RB-4 ranges from 68.88-99.21% and wells RB-5 ranges from 14.94-85.14% based on the Sw value that the five wells have reservoir quality that is oil and oil & gas. For the source rock potential, it is obtained from the value of Total Organic Carbon (TOC), kerogen type and maturity level. The TOC results obtained in wells RB-3 in the range of 0.58-1.36%, wells RB-4 in the range 0.65-1.46%, wells RB-5 in the range of 0.51-2.02% based on the TOC value at the three wells have source rock quality that is fair (medium). The kerogen type of well RB-3 is II/III gas oil prone type, well RB-4 is III gas prone type and well RB-5 is III gas prone type. Maturity level of well RB-3, well RB-4 well RB-5 maturity level is immature to mature.

Keywords: Well Logging, Saturation Water (Sw), Total Organic Carbon.