

ABSTRAK

ESTIMASI NILAI SATURASI AIR (S_w) BERDASARKAN POROSITAS PERHITUNGAN *LOG* DAN POROSITAS *CORE* PADA LAPANGAN “X” CEKUNGAN BINTUNI, PAPUA BARAT

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Petrofisika merupakan metode yang dilakukan untuk menganalisis karakteristik fisik suatu reservoir berupa kandungan *shale*, porositas efektif, dan saturasi air pada suatu reservoir untuk mengetahui nilai-nilainya secara kuantitatif. Tujuan dari penelitian ini adalah untuk mengukur parameter petrofisika berupa saturasi air berdasarkan porositas perhitungan *log* dan porositas *core* di Cekungan Bintuni, Papua Barat. Dengan menggunakan empat data sumur yaitu sumur A2, A4, A5, dan A6. Berdasarkan analisis kualitatif pada masing-masing sumur didapatkan 1 zona target kedalaman reservoir. Berdasarkan analisis kuantitatif Dimana nilai vsh pada tiap-tiap sumur memiliki nilai yang rendah yaitu dibawah 30% diindikasikan sebagai formasi bersih (*cleansand*), kemudian hasil perhitungan porositas rata-rata pada sumur A2 12,10%, dengan nilai saturasi air log 52,30%, dan saturasi air core 42%, pada sumur A4 nilai porositas rata-rata 15,93%, nilai saturasi air log 24,86%, dan saturasi air core 23,21%. Pada sumur A5 nilai porositas rata-rata 13,63%, nilai saturasi air log 51,80%, dan saturasi air core 39,14%, pada sumur A6 nilai porositas rata-rata 12,43%, nilai saturasi air log 44%, dan saturasi air core 45,63%. Berdasarkan hasil perhitungan saturasi air *log* dan saturasi air *core*, didapatkan nilai korelasi yang tinggi, sehingga dapat disimpulkan bahwa hasil perhitungan saturasi air *log* sesuai dengan data pengukuran *core*.

Kata Kunci : Reservoir, Saturasi Air, Petrofisika

ABSTRACT

ESTIMATION OF WATER SATURATION (S_w) VALUE BASED ON LOG POROSITY CALCULATIONS AND CORE POROSITY IN FIELD "X" BINTUNI BASIN, WEST PAPUA

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Petrophysics is a method used to analyze the physical characteristics of a reservoir in the form of shale content, effective porosity, and water saturation in the reservoir to determine the values quantitatively. This research aims to measure petrophysical parameters in the form of water saturation based on calculated porosity logs and core porosity in the Bintuni Basin, West Papua. Using four well data, namely wells A2, A4, A5, and A6. Based on qualitative analysis for each well, 1 target zone for reservoir depth was obtained. Based on quantitative analysis, where the vsh value in each well has a low value, namely below 30%, it is indicated as a clean formation (cleansand). The results of the calculation of the average porosity in well A2 are 12.10%, with a log water saturation value of 52.30 % and core water saturation is 42%, in well A4 the average porosity value is 15.93%, log water saturation value is 24.86%, and core water saturation is 23.21%. In well A5 the average porosity value is 13.63%, the log water saturation value is 51.80%, and the core water saturation is 39.14%, in well A6 the average porosity value is 12.43%, the log water saturation value is 44%, and core water saturation 45.63%. Based on the results of the calculation of log water saturation and core water saturation, a high correlation value was obtained, so it can be concluded that the results of the log water saturation calculation are by the core measurement data.

Keywords: Reservoir, Water Saturation, Petrophysics