

## **ABSTRACT**

### **HYDROCARBON RESERVOIR CHARACTERIZATION BY USING PETROPHYSICS ANALYSIS BASED ON LOG DATA ON AIR BENAKAT FORMATION “TRD” WELL, SOUTH SUMATERA BASIN**

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The research area was located in South Sumatra Basin on Air Benakat Formation at South-East Jambi Province. The research conducted to know productive the interest zone by petrophysics analysis (volume shale water saturation, and porosity) and its characteristics by well-log. By the quicklook interpretation got permeable zones and productive zones each well. The lithology of TRD Well is sandstone with a few foraminifera. The interpretation based on the petrophysical analysis porosity of the 7th zone on TRD-10 is average 12,4%, saturation water 19,4% and volume shale 6,2%; the 7th zone on TRD-11 well is average porosity 16,2%, saturation water 41,3%, and volume shale 22%; the 11th zone on TRD-14 well is average porosity 33,2%, saturation water 21,2% and volume shale 1,2%; The 6th zone TRD-15 well, porosity 7,02%, saturation water 32,3% and volume shale 5,6%; On the TRD-17 well of the 7th zone is average the porosity 9,04%, saturation water 25,6% and volume shale 4,6%; and 4th zone of TRD-19 well, porosity 23,2% Saturation water 13,5% and volume shale 7,1%. Based on the result showed by netpay 2D and 3D Crosssection which are the distribution of petrophysical parameters. The characteristics of hydrocarbon reservoir on TRD Wells have low water saturation is less than 50%, porosity more than 5% and volume shale less than 25%. From the result of petrophysics parameter value used as the indicator of the productive zone and interpreted that sand reservoir on well TRD has potentially for the reservoir zone with gas prospect.

Keywords: petrophysics, saturation water, porosity, volume shale and netpay.

## ABSTRAK

### **KARAKTERISASI RESERVOAR HIDROKARBON DENGAN ANALISIS PETROFISIKA BERDASARKAN DATA LOG FORMASI AIR BENAKAT SUMUR “TRD” CEKUNGAN SUMATERA SELATAN**

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Daerah penelitian terletak pada Cekungan Sumatera Selatan, tepatnya pada Formasi Air Benakat yang berada di bagian tenggara Provinsi Jambi. Penelitian ini dilakukan untuk mengetahui dimana zona-zona produktif berdasarkan analisis parameter petrofisika (saturasi air, porositas dan *vshale*), serta bagaimana karakteristiknya. Interpretasi pintas menghasilkan zona-zona *permeable* dan zona produktif di setiap sumur. Adapun litologi pada sumur TRD adalah batupasir (*sandstone*) dengan sedikit kandungan foraminifera di dalamnya. Penentuan ini didasarkan pada hasil analisis petrofisika dengan hasil rata-rata porositas zona 7 pada sumur TRD-10 sebesar 12,4%, Sw 19,4% dan Vsh 6,2%; zona 7 sumur TRD-11 porositas 16,2%, Sw 41,3%, dan Vsh 22%; zona 11 pada sumur TRD-14 porositas 33,2%, Sw 21,2% dan Vsh 1,2%; zona 6 sumur TRD-15, porositas 7,02%, Sw 32,3% dan Vsh 5,6%; zona 7 sumur TRD-17, porositas 9,04%, Sw 25,6% dan Vsh 4,6%; dan zona 4 sumur TRD-19, porositas 23,2% Sw 13,5% dan Vsh 7,1%. Hasil ini juga dapat dilihat pada penampang *net pay* 2D dan 3D yang merupakan persebaran parameter petrofisika. Karakteristik reservoir pada sumur TRD ini relatif memiliki saturasi yang rendah di bawah 50%, porositas lebih dari 5 % dan kandungan lempung kurang dari 25%, sehingga dapat dikatakan zona produktif pada sumur TRD berpotensi gas.

Kata Kunci: Petrofisika, Saturasi Air, Porositas, *Vshale*, dan *Net pay*