

ABSTRAK

ESTIMASI VOLUME HIDROKARBON DAN IDENTIFIKASI JENIS FLUIDA BERDASARKAN NILAI SATURASI AIR LAPANGAN RY CEKUNGAN SUMATERA SELATAN

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Cekungan Sumatera Selatan merupakan cekungan sedimentasi yang menjadi salah satu cekungan penghasil hidrokarbon terbesar di Indonesia. Formasi muara enim menjadi fokus lokasi dalam penelitian ini. Penelitian ini menggunakan analisis petrofisika dan evaluasi formasi untuk mengetahui zona reservoir sumur, mengetahui nilai parameter petrofisika, mengidentifikasi jenis kandungan fluida, dan mengestimasi cadangan hidrokarbon sumur lapangan RY. Penelitian ini menggunakan tujuh data sumur yaitu sumur GH-52, GH-77, GH-81, GH-83, GH-84, GH-89, dan GH-90. Penelitian ini menghasilkan tujuh zona target tiap sumur penelitian. Dari hasil analisis kuantitatif didapatkan nilai *volume shale* pada sumur GH-52 memiliki *range* 4-7%, GH-77 *range* 4-10%, GH-81 *range* 2-4%, GH-83 *range* 2-4%, GH-84 *range* 5-7%, GH-89 *range* 1-3%, dan GH-90 memiliki *range* 1-4%. Didapatkan nilai porositas pada sumur GH-52 memiliki *range* 11-17%, GH-77 sebesar 9-47%, GH-81 sebesar 12-23%, GH-83 sebesar 11-19%, GH-84 sebesar 10-29%, GH-89 sebesar 14-20%, dan GH-90 sebesar 18-73%. Kemudian didapatkan nilai saturasi air pada sumur GH-52 sebesar 17-71%, GH-77 sebesar 11-51%, GH-81 sebesar 16-36%, GH-83 sebesar 24-73%, GH-84 sebesar 30-50%, GH-89 sebesar 23-42%, dan GH-90 sebesar 4-71%. Berdasarkan saturasi air, jenis kandungan fluida pada zona reservoir sumur GH-52 seluruhnya berupa gas, GH-77 didominasi gas, GH-81 seluruhnya berupa gas, GH-83 didominasi gas, GH-84 didominasi gas, GH-89 seluruhnya berupa gas, dan GH-90 didominasi minyak dan gas. Berdasarkan hasil pemodelan 2D dan 3D didapatkan bahwa zona reservoir hidrokarbon total memiliki elevasi kedalaman sebesar -2636 meter dan ketebalan sebesar 74,5 meter dengan ketebalan reservoir rata-rata 10,6 meter. Nilai *volume bulk* total sebesar 173250 m³ dan volume cadangan hidrokarbon sebesar 134252 US Barel.

Kata Kunci : Cekungan Sumatera Selatan, Petrofisika, *Volume Bulk*

ABSTRACT

ESTIMATION OF HYDROCARBON VOLUME AND IDENTIFICATION OF FLUID TYPE BASED ON FIELD WATER SATURATION VALUE IN THE SOUTH SUMATRA BASIN

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The South Sumatra Basin is a sedimentary basin that is one of the largest hydrocarbon producing basins in Indonesia. The Muara Enim formation is the focus location in this study. This study uses petrophysical analysis and formation evaluation to determine the well reservoir zone, determine the petrophysical parameter values, identify the type of fluid content, and estimate the hydrocarbon reserves of the RY field well. This study uses seven well data, namely wells GH-52, GH-77, GH-81, GH-83, GH-84, GH-89, and GH-90. This study produces seven target zones for each research well. From the results of quantitative analysis, it was found that the shale volume value in the GH-52 well had a range of 4-7%, GH-77 range 4-10%, GH-81 range 2-4%, GH-83 range 2-4%, GH-84 range 5-7%, GH-89 range 1-3%, and GH-90 has a range of 1-4%. The porosity values obtained in the GH-52 well range from 11-17%, GH-77 9-47%, GH-81 12-23%, GH-83 11-19%, GH-84 10-29%, GH-89 14-20%, and GH-90 18-73%. Then the water saturation value was obtained in the GH-52 well of 17-71%, GH-77 of 11-51%, GH-81 of 16-36%, GH-83 of 24-73%, GH-84 of 30-50%, GH-89 of 23-42%, and GH-90 of 4-71%. Based on water saturation, the type of fluid content in the reservoir zone of the GH-52 well is entirely gas, GH-77 is dominated by gas, GH-81 is entirely gas, GH-83 is dominated by gas, GH-84 is dominated by gas, GH-89 is entirely gas, and GH-90 is dominated by oil and gas. Based on the results of 2D and 3D modeling, it was found that the total hydrocarbon reservoir zone has a depth elevation of -2636 meters and a thickness of 74,5 meters with an average reservoir thickness of 10,6 meters. The total bulk volume value is 173250 m³ and the hydrocarbon reserve volume is 134252 US Barrels.

Keyword : South Sumatra Basin, Petrophysics, Bulk Volume