

RINGKASAN

ESTIMASI ZONA PROSPEK DAN CADANGAN GAS MULA-MULA BERDASARKAN INTERPRETASI LOG PADA SUMUR SA-001

Sumur SA-001 Lapangan “LBS” terletak di Provinsi Sumatra Selatan yang termasuk cekungan Sumatra Selatan. Pada lapangan “LBS” menembus formasi produktif yaitu Formasi Air benakat dan Formasi Gumai yang memiliki batu pasir yang mengandung glaukonit dan terdapat kandungan shale. Sumur SA-001 memiliki prospek yang baik dilihat dari uji test *rate* gas, sehingga diperlukan penelitian lanjutan untuk mengestimasi zona prospek hidrokarbon dan jumlah cadangan gas awal pada sumur SA-001.

Tahapan pengerjaan penelitian ini dimulai dari mempersiapkan data, melakukan *environmetals correction* menggunakan *chart schlumberger*. Zona *top* dan *bottom* zona prospek dengan analisa kualitatif dan memperkirakan fluida pengisi reservoir. Sumur SA-001 memiliki nilai log resistivitas yang rendah interval antara 1-5ohm-m, umumnya reservoir hidrokarbon memiliki nilai log resistivitas lebih dari 10ohm-m. indikasi Sumur SA-001 merupakan *low-resistivity reservoir* yang disebabkan kandungan glaukonit dan kandungan *vitric tuff*. Sumur SA-001 pada analisa kuantitatif melakukan perhitungan pada volume *shale*, porositas, dan saturasi air. Setelah itu dilakukan *cut-off* untuk mengeliminasi lapisan tidak produktif lalu didapat reservoir lumping, dan pengerjaan akhir yaitu melakukan perhitungan OGIP.

Sumur SA-001 dengan analisa kualitatif yang dilakukan terdapat 13 lapisan prospek. Pada analisa kuantitatif dilakukan perhitungan volume shale menggunakan *gamma ray log*, untuk perhitungan porositas menggunakan metode log densitas berdasarkan validasi data *core*, dan penentuan saturasi air dengan metode *dual water*. Langkah selanjutnya yaitu melakukan cut-off sehingga didapat nilai cut-off V_{shale} sebesar 0.57, porositas sebesar 0.19, dan saturasi air sebesar 0.65. Sumur SA-001 nilai saturasi air tidak diperhitungkan karena Sumur SA-001 merupakan sumur gas. Langkah berikutnya yaitu reservoir lumping pada sumur SA-001 didapat *net pay* sebesar 50.04 m. Langkah terakhir menentukan nilai OGIP berdasarkan konsep *well basis* dan didapat nilai OGIP sebesar 215.06 BSCF.

Kata kunci: Zona Prospek, Log, Cut Off, OGIP.

ABSTRACT

ESTIMATION OF ZONE PROSPECT AND ORIGINAL GAS IN-PLACE BASED ON LOG INTERPRETATION AT SA-001 WELL.

Well SA-001 Field "LBS" is located in South Sumatra Province which is included in the South Sumatra Basin. The "LBS" field has productive formations, the Air Benakat Formation and the Gumai Formation which has sandstone containing glauconite and contains shale. The SA-001 well is in exploratory status, so further research is needed to estimate the hydrocarbon prospect zone and the amount of original gas reserves in the SA-001 well.

The stages of this research work started from preparing the data, carrying out environmental corrections using the Schlumberger chart. Determining the top and bottom of the prospect zone by qualitative analysis and estimating the reservoir fill fluid. The SA-001 well has a low resistivity log value between 1-5ohm-m, generally for hydrocarbon reservoirs it has a resistivity log value of more than 10ohm-m. Indications The SA-001 well is a low-resistivity reservoir due to its glauconite content and vitric tuff content. Then in the quantitative analysis, the shale volume, porosity, and water saturation are calculated. After that, a cut-off was carried out to eliminate the unproductive layer and then a lumping reservoir was obtained, and the final work was to calculate the OGIP.

From the qualitative analysis conducted there are 13 layers of prospects. In the quantitative analysis, shale volume calculations were performed using gamma ray logs, for porosity calculations using the density log method based on core data validation, and water saturation determination using the dual water method. The next step is to cut-off so that the V_{shale} cut-off value is 0.57 and the porosity is 0.19 and water saturation is 0.65. While the water saturation value is not taken into account because SA-001 Well is a gas well. The next step is reservoir lumping in the SA-001 well to obtain a net pay of 50.04 m. The final step is to determine the original gas in-place value based on the well basis concept and obtain an OGIP value of 215.06 BSCF.

Keywords: Interest Zone, Log, OGIP, Cut Off