RINGKASAN

PENENTUAN ZONA PROSPEK HIDROKARBON DENGAN MENGGUNAKAN DATA *LOG* DAN *WELL TEST* PADA SUMUR SE-002 LAPANGAN "RNK"

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Sumur SE-002 merupakan sumur gas aktif yang terletak pada Lapangan "RNK" yang termasuk ke dalam Cekungan Sumatera Tengah. Dalam mendeskripsikan karakteristik reservoir pada sumur ini perlu dilakukan analisa petrofisik yang mencakup analisa kualitatif dan kuantitatif menggunakan data *well logging*. Kemudian, dari data *well logging* ini akan dilakukan interpretasi log yang nantinya dipakai untuk menentukan zona produktif hidrokarbon dari reservoir pada sumur ini. Setelah zona produktif hidrokarbon didapatkan, maka dilakukan suatu pengujian sumur untuk mendapatkan parameter reservoir.

Metodologi yang digunakan pada penulisan kali ini yaitu melakukan pengolahan data *well logging* pada sumur SE-002, melakukan analisa kualitatif dan kuantitatif, memvalidasi data *well logging* dengan data *core*, penentuan nilai *cut-off*, pembuatan *reservoir lumping*, dan tabulasi zona prospek. Setelah zona prospek didapatkan, dilakukan pengolahan dan analisa *well test* menggunakan *software IHS WellTest v7.6* untuk menentukan model, serta parameter karakteristik reservoir.

Berdasarkan hasil analisa petrofisik didapatkan nilai *cut-off* untuk formasi Binio vsh sebesar 41%, porositas efektif 10.5%, dan *cut-off* Sw 62%. Kemudian, nilai *cut-off* untuk formasi Tualang vsh sebesar 27%, porositas efektif 16%, dan *cut-off* Sw sebesar 71%. Dari perolehan nilai *cut-off* tersebut, didapatkan *net pay zone* untuk sumur SE-002 sebesar 77,5 ft. Setelah analisa petrofisik dilakukan, selanjutnya dilakukan analisa *well test* pada zona B5A dengan interval perforasi 1504-1524 ft. Berdasarkan *software IHS WellTest v7.6* pada sumur SE-002, didapatkan nilai P* sebesar 384.3 psia, nilai permeabilitas (k) sebesar 265 mD, nilai *skin* total (s') sebesar 16, FE sebesar 30.4 %, dan *Radius of Investigation (ri)* sebesar 1534.67 ft.

Kata Kunci: *petrofisik, logging, cut-off, hidrokarbon, well test*

ABSTRACT

DETERMINATION OF HYDROCARBON PROSPECT ZONE USING LOG DATA AND WELL TEST ON WELL SE-002 IN THE "RNK" FIELD

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The SE-002 well is an active gas well located in the "RNK" Field within the Central Sumatra Basin. In describing the reservoir characteristics of this well, petrophysical analysis is needed, including qualitative and quantitative analysis using well logging data. Subsequently, interpretation of the well logging data will be conducted to determine the productive zones of the reservoir in this well. Once the productive zones are identified, a well testing will be performed to determine reservoir characteristic parameters.

The methodology used in this writing involves processing well logging data from the SE-002 well, conducting qualitative and quantitative analysis, validating well logging data with core data, determining cut-off values, creating reservoir lumping, and tabulating prospect zones. Once the prospect zones are identified, well test processing and analysis will be conducted using IHS WellTest v7.6 software to determine the model and reservoir characteristic parameters.

Based on the petrophysical analysis results, the cut-off values for the Binio formation are 41% for Vsh, effective porosity of 10.5%, and Sw cut-off of 62%. Then, the cut-off values for the Tualang formation is 27% for Vsh, effective porosity of 16%, and Sw cut-off of 71%. From these cut-off values, the net pay zone for the SE-002 well is determined to be 77.5 ft. After the petrophysical analysis, a well test analysis is conducted on zone B5A with a perforation interval of 1504-1524 ft. Based on IHS WellTest v7.6 software analysis of the SE-002 well, the following values are obtained: P of 384.3 psia, permeability (k) of 265 mD, total skin (s') of 16, FE of 30.4%, and Radius of Investigation (ri) of 1534.67 ft.*

Keywords: petrophysics, logging, cut-off, hydrocarbon, well test