

## RINGKASAN

# ANALISA *CASED HOLE LOG* DALAM PENENTUAN ZONA PROSPEK LAPISAN LAIN PADA SUMUR 001 LAPANGAN CYT

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Sumur 001 telah dilakukan workover dan well service berulang kali dan berhasil meningkatkan laju produksi dan menurunkan WC, akan tetapi nilai WC kembali naik sangat signifikan. Pada Januari 2022 Sumur 001 mencapai nilai water cut 98% dan memiliki rate oil sebesar 30 bopd. Oleh karena itu, sumur tersebut di *shut in* dan dilakukan *squeeze cementing* lalu dikarenakan kondisi lubang *cased hole*, maka dilakukan *running cased hole log* pada Januari 2022. Maksud dari penelitian ini yaitu menganalisa hasil interpretasi *cased hole log* pada Kerja Ulang Pindah Lapisan (KUPL) dengan tujuan untuk menentukan zona prospek hidrokarbon pada lapisan yang berbeda, sehingga nilai *watercut* turun pada sumur "001".

Lapisan prospek dapat ditentukan dengan meninjau ulang OH Log, menganalisa *Cased Hole Log* berupa PNX Log. Analisa PNX Log dilakukan dengan analisa kualitatif dan kuantitatif. Analisa kualitatif dilakukan dengan cara interpretasi kombinasi *lithology tools*, *porosity tools*, dan saturasi *tools*. Pada analisa kuantitatif dilakukan perhitungan volume *shale*, porositas, dan saturasi air. Perhitungan volume *shale* dilakukan dengan *gamma ray log*. Untuk perhitungan porositas menggunakan log porositas berupa FNXS & TPHI. Sedangkan pada perhitungan saturasi air, didapat dari nilai SIGMA. Setelah melakukan analisa kuantitatif, maka tahapan selanjutnya adalah menentukan *sw cut-off* dengan kurva *fractional flow*. Penentuan nilai *cut off* ini bertujuan untuk memberi batasan saturasi air agar mendapatkan ketebalan *net pay* dari zona yang prospek dan mengetahui *water cut* pada tiap saturasi.

Dari analisa secara kualitatif dan kuantitatif, didapatkan 3 zona prospek pada sumur 001. Zona 1 CH memiliki  $V_{shale}$  7 %, Porositas 12 %, Sw 0.72. Pada Zona 2 CH nilai  $V_{shale}$  9 %, Porositas 15 %, Sw 0.61. Pada Zona 3 CH  $V_{shale}$  1 %, Porositas 12 %, Sw 0.70. Pada *reservoir lumping*, didapatkan nilai *net pay*, sehingga *net pay* ini yang kemudian digunakan untuk menghitung *oil in place* pada masing masing zona prospek. Sehingga terdapat 1 zona yang diusulkan sebagai zona prospek baru untuk dilakukan kerja ulang pindah lapisan, yaitu zona 1 CH dengan *in palce* sebesar 280.113 MSTB dengan *water cut* 69%.

Kata kunci: *cased hole log*, *fractional flow*, zona prospek, PNX Log, C/O Log

## ABSTRACT

# **CASED HOLE LOG ANALYSIS IN DETERMINING OTHER LAYER PROSPECT ZONES AT WELL 001 CYT FIELD**

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*Well 001 has carried out workover and well service several times and succeeded in increasing the rate of production and reducing WC, but the value of WC has again increased significantly. In January 2022 Well 001 reached a water cut value of 98% and had an oil rate of 30 bopd. Therefore, the well was shut in and squeeze cementing was carried out and then due to the condition of the cased hole hole, a running cased hole log was carried out in January 2022. The purpose of this research is to analyze the results of the interpretation of the cased hole log on the Layer Transfer Rework (KUPL) with the aim is to determine the prospect zone of hydrocarbons in different layers, so that the watercut value decreases in well "001".*

*The prospect layer can be determined by reviewing the OH Log, analyzing the Cased Hole Log in the form of a PNX Log. PNX Log analysis was carried out using qualitative and quantitative analysis. Qualitative analysis was carried out by interpreting a combination of lithology tools, porosity tools, and saturation tools. In the quantitative analysis, shale volume, porosity and water saturation were calculated. Calculation of shale volume is done by gamma ray log. For the calculation of porosity using a porosity log in the form of FNXS & TPHI. Meanwhile, in the calculation of water saturation, it is obtained from the SIGMA value. After performing a quantitative analysis, the next step is to determine the sw cut-off with the fractional flow curve. Determination of the cut off value aims to provide a limit on water saturation in order to obtain the thickness of the net pay from the prospect zone and to know the water cut at each saturation.*

*From qualitative and quantitative analysis, there are 3 prospect zones in well 001. Zone 1 CH has Vshale 7%, Porosity 12%, Sw 0.72. In Zone 2 CH the Vshale value is 9%, Porosity is 15%, Sw is 0.61. In Zone 3 CH Vshale 1%, Porosity 12%, Sw 0.70. In the lumping reservoir, the net pay value is obtained, so this net pay is then used to calculate oil in place in each prospect zone. So that there is 1 zone that is proposed as a new prospect zone for rework moving layers, namely zone 1 CH with an in place of 280,113 MSTB with a water cut of 69%.*

*Kata kunci: cased hole log, fractional flow, prospect zone, PNX Log, C/O Log.*