

ABSTRAK

PENENTUAN OOIP DAN MODEL *WATER INFLUX* PADA LAPISAN “N” KOMPARTEMEN “NF” MENGUNAKAN METODE *MATERIAL BALANCE*

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Lapisan “N” Kompartemen “NF” terletak pada Lapangan WN. Kompartemen ini memiliki empat sumur aktif dan sudah berproduksi sejak tahun 2022 sampai sekarang. Nilai *original oil in place* yang didapat dari metode volumetrik, dianalisa kembali menggunakan metode *material balance* agar mendapatkan hasil yang lebih akurat.

Langkah pertama yang dilakukan yaitu melakukan pengolahan data produksi, tekanan, dan data PVT. Selanjutnya, menentukan kumulatif *water influx* menggunakan metode *Material Balance*. Setelah itu, menentukan jenis *drive mechanism* menggunakan metode *drive index* dan *campbell plot*. Kemudian, menentukan model *water influx* menggunakan pendekatan *Schilthuis* dan *Van Everdingen-Hurst*. Setelah nilai *water influx material balance* dan *water influx* model sudah sesuai, langkah selanjutnya yaitu menentukan nilai *original oil in place* menggunakan metode *straight line material balance*.

Berdasarkan hasil analisa, didapatkan model *water influx* yang sesuai yaitu metode *Van Everdingen-Hurst* dengan aliran *unsteady state* pada *rD finite aquifer* 10, A 1 1/hari. Nilai *original oil in place* yang didapat setelah disesuaikan dengan model *water influx* yaitu sebesar 2,654 MMSTB. Sedangkan untuk nilai *original oil in place* metode volumetrik sebesar 2,653 MMSTB. Sehingga didapatkan persen perbedaan sebesar 0,003%.

Kata kunci: *original oil in place, water influx, material balance*

ABSTRACT

DETERMINATION OOIP AND WATER INFLUX MODEL IN LAYER “N” COMPARTMENT “NF” USING THE MATERIAL BALANCE METHOD

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The "N" layer of the "NF" compartment is located in the WN Field. This compartment has four active wells and has been producing since 2022. The original oil in place value obtained from the volumetric method was reanalyzed using the material balance method to obtain more accurate results.

The first step is to process production, pressure, and PVT data. Next, determine the cumulative water influx using the material balance method. After that, determine the type of drive mechanism using the drive index and Campbell plot methods. Next, determine the water influx model using the Schilthuis and Van Everdingen-Hurst approaches. Once the water influx material balance and water influx model values are consistent, the next step is to determine the original oil in place value using the straight-line material balance method.

Based on the analysis results, the appropriate water influx model is the Van Everdingen-Hurst method with unsteady state flow at finite aquifer rD 10, A 1 l/day. The original oil in place value obtained after being adjusted to the water influx model is 2.654 MSTB. Meanwhile, the original oil in place value for the volumetric method is 2.653 MSTB. So the percentage difference is 0.003%.

Keywords: original oil in place, water influx, material balance