ABSTRAK

DECLINE CURVE ANALYSIS UNTUK MENENTUKAN CADANGAN SISA LAPANGAN "EG"

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Laju produksi pada Lapangan EG mengalami penurunan, dimana hal ini perlu diantisipasi untuk mencapai target keekonomisan. Oleh karena itu dilakukan analisis *decline curve* pada Lapangan EG untuk menentukan cadangan sisa dan sisa umur produksi Lapangan EG sebagai acuan dilaksanakannya pengembangan. Lapangan EG sendiri terletak di Cekungan Sumatera Selatan dengan karakteristik reservoir *multi layered*, sehingga perlu pendekatan khusus dalam perhitungan estimasi cadangan sisa. Lapangan EG memiliki 8 blok yang dipisahkan oleh patahan dan terdapat 11 *layer* aktif. Penelitian ini berfokus pada *Layer* C Blok 1 dan *Layer* C Blok 2 karena berdasarkan studi yang dilakukan sebelumnya, *Layer* C dikedua blok tersebut memiliki produksi yang cukup tinggi.

Pada *Layer* C Blok 1 terdiri dari lima sumur dengan cominggled completion, sehingga perlu dilakukannya *splitting* alokasi produksi untuk mengetahui bobot produksi pada *Layer* C. *Splitting* alokasi produksi digunakan metode kh, dimana parameter yang digunakan berupa permeabilitas (k) dan ketebalan (h). Hasil *splitting* selanjutnya dianalisis menggunakan metode *Decline Curve Analysis* (DCA) untuk mendapatkan parameter DCA berupa nilai b dan Di. Parameter tersebut dapat digunakan untuk memperkirakan tren penurunan produksi, *estimated ultimate recovery* (EUR), *remaining reserves* (RR) dan *remaining lifetime* (RLT).

Berdasarkan proyeksi *decline curve analysis*, didapat hasil *estimated ultimate recovery* (EUR) untuk *Layer* C Blok 1 sebesar 525,70 Mstb dengan *remaining reserves* (RR) sebesar 56,41 Mstb dan *remaining lifetime* (RLT) sekitar 4,43 tahun dengan tipe *decline harmonic* serta nilai Di sebesar 0,3807. Sedangkan untuk *Layer* C Blok 2, didapat nilai EUR sebesar 484.02 Mstb dengan RR sebesar 13,07 Mstb dan RLT sekitar 0,83 tahun dengan tipe *decline harmonic* serta nilai Di sebesar 0,8912. Hasil penelitian ini menggambarkan potensi Lapangan EG yang dapat diproduksikan serta estimasi umur lapangan di masa depan.

Kata kunci: cadangan, *decline curve, forecast, splitting*

ABSTRACT

DECLINE CURVE ANALYSIS TO DETERMINE REMAINING RESERVES OF THE "EG" FIELD

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Production rates in the EG Field have been declining, which requires anticipation in order to achieve economic targets. Therefore, a Decline Curve Analysis (DCA) was conducted in the EG Field to estimate the remaining reserves and remaining production lifetime as a basis for field development planning. The EG Field is located in the South Sumatra Basin and is characterized by a multi-layered reservoir system, which requires a specific approach for remaining reserve estimation. The field consists of eight fault-separated blocks and eleven active producing layers. This study focuses on Layer C in Block 1 and Layer C in Block 2, as previous studies indicate that Layer C in both blocks exhibits relatively high production performance.

Layer C in Block 1 consists of five wells with commingled completion, which necessitates production allocation splitting to determine the production contribution of Layer C. The splitting of production allocation was performed using the kh method, with permeability (k) and thickness (h) as the governing parameters. The production data obtained from the splitting process were subsequently analyzed using Decline Curve Analysis (DCA) to determine the decline parameters, including the decline exponent (b) and decline rate (Di). These parameters were then used to estimate the production decline trend, Estimated Ultimate Recovery (EUR), Remaining Reserves (RR), and Remaining Lifetime (RLT).

Based on the decline curve projection, the estimated ultimate recovery (EUR) for Layer C Block 1 is 525.70 Mstb, with remaining reserves (RR) of 56.41 Mstb and a remaining lifetime (RLT) of approximately 4.43 years. The decline behavior follows a harmonic decline model with a decline rate (Di) of 0.03173. Meanwhile, Layer C Block 2 yields an EUR of 484.02 Mstb, with remaining reserves of 13.07 Mstb and a remaining lifetime of approximately 0.83 years, also exhibiting harmonic decline behavior with a decline rate (Di) of 0.7427. The results of this study illustrate the producible potential of the EG Field and provide an estimation of its future production life.

Keywords: decline curve, forecast, reserver, splitting