ABSTRAK

EVALUASI *IDLE WELL* UNTUK KANDIDAT REAKTIVASI SUMUR PRODUKSI SERTA PERENCANAAN *ARTIFICIAL LIFT* PADA SUMUR BP-16 LAPANGAN STAR

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Lapangan STAR merupakan salah satu lapangan migas yang berada di Kabupaten Blora, Jawa Timur. Sumur BP-16 merupakan salah satu sumur *idle* yang sudah berproduksi sejak tahun 2009, lapisan yang diproduksikan yaitu XIV dan XII/XIII dengan produksi akhir pada tahun 2024 yaitu 119 BLPD,1 BOPD, dan WC 99%. Sumur BP-16 dinyatakan *idle* karena nilai *water cut* yang tinggi dan diperlukan adanya analisis terkait *problem high water cut*. Hal tersebut menjadi pemicu untuk dilakukannya strategi reaktivasi sumur dengan metode *shorten* & reperforasi.

Evaluasi dan analisis yang dilakukan dimulai dengan melakukan analisis performa produksi untuk mengetahui *problem high water cut* melaui pendekatan *chan's diagnostic* dan validasi dengan analisis log CBL/VDL. Dilakukan analisis kualitatif petrofisik dan korelasi struktur lapisan untuk mengetahui keberadaan zona potensi. Melakukan perhitungan *initial rate* dengan perhitungan laju alir awal menggunakan persamaan *darcy* dan *productivity index* (PI) berdasarkan data zona analog. Membuat konstruksi kurva IPR 2 fasa dengan metode vogel dan melakukan desain produksi *sucker rod pump* (SRP) sebagai upaya optimasi produksi. Melakukan penentuan *lifetime* sumur dan *forecast* dengan pendekatan *decline curve analysis* (DCA) melalui metode *best-fit curve trendline*. Melakukan analisis keekonomian.

Hasil penelitian menunjukkan bahwa terdapat zona potensi baru pada lapisan XII/XIII interval 693-696 meter. *Rate* awal yang diperoleh sebesar 7,7 BOPD dengan *lifetime* sumur 22 bulan. Hasil analisis keekonomian yaitu NPV sebesar 26.560 US$, IRR sebesar 24%, dan POT sebesar 2,85 bulan. Sehingga, proyek dinyatakan layak untuk dilakukan.

Kata kunci: Sumur *Idle, high water cut,* reaktivasi, *sucker rod pump,* keekonomian.

ABSTRACT

EVALUATION OF IDLE WELL FOR CANDIDATE REACTIVATION OF PRODUCTION WELLS AND ARTIFICIAL LIFT PLANNING FOR BP-16 WELL IN THE STAR FIELD

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The STAR field is one of the oil and gas fields located in Blora Regency, East Java. The BP-16 well is one of the idle wells that has been producing since 2009, the layers produced are XIV and XII/XIII with final production in 2024 of 119 BLPD, 1 BOPD, and 99% WC. The BP-16 well was declared idle due to the high water cut value and an analysis related to the high water cut problem was needed. This is the trigger for the well reactivation strategy with the shorten & reperforation method.

The evaluation and analysis carried out began by conducting a production performance analysis to determine the problem of high water cut through the chan's diagnostic approach and validation with CBL/VDL log analysis. Conduct qualitative petrophysical analysis and correlation of layer structure to determine the existence of potential zones.Initial rate calculation was performed by calculating the initial flow rate using the Darcy equation and productivity index (PI) based on analog zone data. Make a 2-phase IPR curve construction using the vogel method and conduct a production design of a sucker rod pump (SRP) as an effort to optimize production.The determination of the lifetime of the well and forecast is carried out with a decline curve analysis (DCA) approach through the best-fit curve trendline method. Finally, conducting an economic analysis.

The results of the study show that there is a new potential zone in layer XII/XIII at an interval of 693-696 meters. The initial rate obtained is 7,7 BOPD with a well life of 22 months. The results of the economic analysis are NPV of 26,560 US$, IRR of 24%, and POT of 2.85 months. Thus, the project was declared feasible.

Keywords: Idle well , high water cut, reactivation, sucker rod pump, economy.