RINGKASAN

ANALISIS KEEKONOMIAN PENENTUAN SEWA ATAU BELI ESP SUMUR "NA-25" LAPANGAN "SK" MENGGUNAKAN SKEMA PSC *COST RECOVERY*

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Sumur "NA-25" di Lapangan "SK" menggunakan ESP yang memiliki peran krusial dalam menjaga produktivitas produksi minyak dari sumur yang sudah mengalami penurunan tekanan sehingga analisis keekonomian dapat dilakukan untuk mengetahui strategi ekonomi yang efektif bagi perusahaan dalam memilih antara menyewa atau membeli (*purchase*) *electrical submersible pump* (ESP) untuk meningkatkan produktivitas produksi minyak. PSC *Cost Recovery* dipilih untuk diaplikasikan karena PSC *Cost Recovery* dapat mengembalikan biaya operasi yang dikeluarkan oleh KKKS dengan persetujuan SKK Migas, pembagian hasil dilakukan terhadap profit margin, dan presentase bagi hasil dalam satu wilayah kerja relatif sama dan berubah apabila berasal dari lapisan (reservoir) yang lebih tua dan dilakukannya EOR pada lapangan tersebut.

Pada penelitian Lapangan "SK", dilakukan penentuan sewa atau beli pompa ESP dengan menggunakan skema PSC *Cost Recovery.* Pengerjaan dimulai dengan menetukan prediksi laju produksi minyak Sumur NA-25 menggunakan Analisis *Decline Curve* dengan Metode *Trial Error* dan X^2 *Chi-Square Test* sehingga menghasilkan data *annual production*, menghitung perkiraan biaya investasi dan operasi, depresiasi, *cash flow,* dan analisis sensitivitas. Penjumlahan *contractor take, goverment take,* dan *cost recovery* digunakan untuk validasi keekonomian.

Hasil analisis perhitungan *decline curve* didapatkan tipe *exponential curve* dengan nilai b sama dengan 0 dan *decline rate* sebesar 0,0995/*month.* Hasil perhitungan dan analisis keekonomian Sumur "NA-25" menghasilkan nilai NPV skenario sewa pompa ESP sebesar 14,26 MMUSD dan skenario beli pompa ESP sebesar 14,21 MMUSD. Selain NPV, skenario beli pompa ESP menghasilkan nilai PIR senilai 8,27 dan DPIR senilai 7,29. Skenario sewa pompa ESP lebih layak untuk dikembangkan karena nilai NPV sewa pompa ESP lebih besar daripada skenario beli pompa ESP. Hasil sensivitas yang dilakukan menunjukkan bahwa nilai *oil price* dan OPEX sangat sensitif terhadap perhitungan *cash flow.*

Kata Kunci: *Chi-Square, Cost Recovery, Decline Curve, ESP, PSC.*

ABSTRACT

ECONOMIC ANALYSIS OF DETERMINING TO RENT OR PURCHASE ESP "NA-25" WELL "SK" FIELD USING PSC COST RECOVERY SCHEME

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The "NA-25" well in "SK" Field uses an ESP that had a crucial role in maintaining the productivity of oil production from wells that have experienced a decrease in pressure, so that an economic analysis can be carried out to determine an effective economic strategy for companies in choosing between renting or purchasing an electrical submersible pump (ESP) to increase oil production productivity. PSC Cost Recovery was chosen to be applied because that contract can return the operating costs incurred by the KKKS with the approval of SKK Migas, the distribution of results is carried out against the profit margin, and the percentage of profit sharing in one work area is relatively the same and changes if it comes from an older layer (reservoir) and EOR is carried out in the field.

ESP pump rental or purchase was determined using the PSC Cost Recovery scheme in "SK" Field. The calculation process began by determining the predicted oil production rate for the NA-25 Well using Decline Curve Analysis with Trial Error and X^2 Chi-Square Test Method to calculate investment and operating costs estimation, depreciation, cash flow and sensitivity analysis. Sum of contractor take, goverment take, and cost recovery is used for economic validation.

The results of the decline curve analysis calculation obtained an exponential curve with b value of 0 and the decline rate of 0.0995/month. The results of economic calculations and analysis for the "NA-25" Well produced NPV value for renting an ESP pump on a well was 14.26 MMUSD and for buying an ESP pump scenario was 14.21 MMUSD. Besides NPV, buying ESP scenario produced 8.27 for PIR and 7.29 for DPIR. It can be concluded that the rental scenario's more feasible than buying an ESP pump because NPV value of renting ESP pump scenario is greater than buying ESP pump scenario. The sensitivity results show that oil price and OPEX values are very sensitive to cash flow calculations.

***Keywords**: Chi-Square, Cost Recovery, Decline Curve, ESP, PSC.*