

ABSTRAK

EVALUASI DAN OPTIMASI SUCKER ROD PUMP DALAM PENINGKATAN PRODUKSI SUMUR “JTY-15” LAPANGAN “AC”

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Berdasarkan data hasil sonolog yang diberikan pada tanggal 10 Maret 2025 pada sumur JTY-15 didapatkan harga *Dynamic Fluid Level* (DFL) 820 m (2690 ft) dan harga *Static Fluid Level* (SFL) 608 m (1995 ft) , serta kedalaman pompa adalah 1070 m (3510,67 ft) . Berdasarkan Analisa kualitatif dari *surface card*, sumur ini mengalami *tag on pump* dan *slight fluid pound*. Untuk mengatasi hal tersebut maka sumur ini memerlukan perancangan optimasi.

Penelitian ini dilakukan dengan melakukan perhitungan evaluasi pompa terpasang dan perhitungan optimasi berdasarkan pengolahan data produksi, data reservoir, data pompa, dan data sumuran. Perhitungan optimasi dilakukan dengan sensitivitas parameter stroke length, pumping speed, dan size plunger.

Dari hasil perhitungan yang dilakukan, skenario optimasi yang direkomendasikan adalah mengubah stroke length menjadi 60 inci, pumping speed 8 spm dan plunger 2,5 inci. Dengan konfigurasi tersebut pompa berproduksi 250 BLPD pada Pwf 240 psi, menghasilkan efisiensi volumetris 92% dengan peningkatan sebesar 24,5% dibanding efisiensi volumetris pompa terpasang.

Kata kunci: Optimasi, Plunger, Pumping Speed, Stroke length, SRP

ABSTRACT

SUCKER ROD PUMP EVALUATION AND OPTIMIZATION ON WELL JTY-15 FIELD AC FOR ENHANCE PRODUCTION

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Based on sonolog data obtained on March 10, 2025, from well JTY-15, the Dynamic Fluid Level (DFL) was recorded at 820 meters (2690 ft) while the Static Fluid Level (SFL) was 608 meters (1995 ft). The pump setting depth was 1070 meters (3510,67 ft). A qualitative analysis of the surface card indicated that the well is experiencing plunger tagging and slight fluid pound, highlighting the need for optimization.

This study aims to evaluate the existing pump performance and conduct optimization calculations based on production data, reservoir data, pump data, and well data. The optimization process involves sensitivity analysis of stroke length, pumping speed, and plunger size parameters.

The recommended optimization scenario involves adjusting the stroke length to 60 inches, pumping speed to 8 strokes per minute (spm), and using a 2.5-inch plunger. With this configuration, the pump is capable of producing 250 barrels of fluid per day (BLPD) at a P_{wf} of 240 psi, achieving a volumetric efficiency of 92%, which represents a 24.5% improvement compared to the efficiency of the currently installed pump.

Keywords: Optimization, Plunger, Pumping speed, Stroke length, SRP