

RINGKASAN

Sumur DF-08 memiliki permasalahan yaitu meningkatnya nilai *water cut*, tingginya frekuensi *well service* akibat banyaknya pasir mengendap di lubang sumur dan rendahnya *run life* pompa akibat *stuck*. Hal ini dibuktikan dengan data produksi sumur DF-08 tahun 2017 – 2018 dimana produksi semakin turun dan nilai *water cut* naik, selain itu dalam satu tahun sebanyak 12 kali dilakukan pekerjaan perawatan sumur sehingga menyebabkan *Loss Production Opportunity* (LPO) sebesar 2,227.2 Bbl.

Berdasarkan analisa logging (C/O Log), menunjukkan lapisan eksisiting zona 1 masih tersisa 2 m zona minyak, sedang lapisan pada zona 2 sudah terisi air. Hal ini menunjukkan bahwa WOC sudah mengalami kenaikan sehingga perlu dilakukan penentuan zona lapisan produktif yang baru. Indikasi lapisan prospek pada kedalaman 660 – 663 m dan 670 – 673 m dengan nilai S_o lebih dari 60%. Sehingga perlu dilakukan *squeeze cementing* pada lapisan lama dan reperforasi pada lapisan baru. Perencanaan *squeeze cementing* sumur DF-08 dilakukan pada kedalaman 695 m dengan *Top Of Cement* (TOC) 646 m menggunakan 19.4 bbl *slurry* semen dan tekanan *squeeze* 1254.408 psi. Kemudian dilakukan perencanaan reperforasi pada lapisan A dan B yang baru menggunakan HSD 4-1/2” – 5 SPF diperoleh total perforasi sebanyak 96 tembakan, dengan ΔP 48.84 psi. Setelah itu dilakukan kompleksi sumur dengan menggunakan metode *Sucker Rod Pump* (SRP) dengan parameter pompa THE 2-1/4”, SPM 5.8, SL 55 in dan *pump setting depth* (PSD) di kedalaman 663 m.

Optimasi Sumur DF-08 menunjukkan peningkatan produksi dari 95.2 BLPD / 4.8 BOPD menjadi 114.2 BLPD / 60 BOPD sehingga memperoleh *gain* produksi 55.2 BOPD dengan presentasi kenaikan *gain* produksi sebesar 1,150 %. Keberhasilan ini dibuktikan dengan analisa keekonomian menggunakan menggunakan perhitungan PSC (*Production Sharing Contract*) Cost Recovery diperoleh NPV 123,460 US\$, IRR 37.09 %, POT 2.6 bulan , dan PI 8.7.

Kata kunci: *Water Oil Contact, Well Logging, Squeeze Cement, Reperforasi, Sucker Rod Pump*

ABSTRACT

The DF-01 well has a problem, namely increasing value of water cut, high frequency of well service due to the large amount of sand settling in the wellbore and low run life due to stuck. This is evidenced by the production data of the DF-08 well for 2017 – 2018 where production has decreased and the value water cut increase, besides that in one year well maintenance work is carried out 12 times, causing Loss Production Opportunity (LPO) of 2,227.2 Bbl.

Based on logging analysis (C/O Log), it shows that the existing layer in zone 1 still has 2 m of oil remaining, while the layer in zone 2 is already filled with water. This indicates that the WOC has increased, so it is necessary to determine a new productive layer zone. Indication of the prospect layer at a depth of 660 – 663 m and 670 – 673 m with a S_o value of more than 60%. So it is necessary to do squeeze cementing on the old layer and reperforation on the new layer. planning squeeze cementing well DF-08 carried out at a depth of 695 m with Top Of Cement (TOC) 646 m using 19.4 bbl slurry cement and pressure squeeze 1254,408 psi. Then the reperforation plan was carried out on the new A and B layers using HSD 4-1/2" – 5 SPF to obtain a total of 96 perforations, with a DP of 48.84 psi. After that, well completion was carried out using the method Sucker Rod Pump (SRP) with pump parameters THE 2-1/4", SPM 5.8, SL 55 in and pump setting depth (PSD) at a depth of 663 m.

Optimization of Well DF-08 showed an increase in production from 95.2 BLPD / 4.8 BOPD to 114.2 BLPD / 60 BOPD so as to obtain gain production of 55.2 BOPD with a production gain presentation of 1.150%. This success is evidenced by an economic analysis using PSC calculations (Production Sharing Contract) Cost Recovery obtained NPV 123,460 US\$, IRR 37.09%, POT 2.6 months, and PI 8.7.

Keywords: Water Oil Contact, Well Logging, Squeeze Cement, Reperforation, Sucker Rod Pump