# RINGKASAN

## ANALISIS KEGAGALAN DAN *RE-DESIGN SQUEEZE CEMENTING* UNTUK PENUTUPAN PERFORASI DI SUMUR "SF" LAPANGAN "DO"

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Sumur "SF" merupakan sumur produksi yang terletak terletak di Kabupaten Bekasi Provinsi Jawa Barat. Seiring berjalannya waktu, Sumur "SF" dinyatakan sudah tidak produktif dan memiliki tingkat *water cut* yang tinggi, sehingga akan dilakukan penutupan perforasi dan direncanakan reperforasi untuk memperoleh produktivitasnya kembali. Penutupan perforasi dengan *squeeze cementing* menggunakan metode *balance plug.* Target penyemenan Sumur "SF" berada pada zona perforasi dengan interval 1893-1896 m. Pada penyemenan pertama dan kedua pada interval 1893-1896 m belum berhasil dikarenakan terdapat indikasi permasalahan *loss circulation.* Setelah dilakukan analisa kegagalan penyemenan kemudian dilakukan *re-design* untuk mengatasi permasalahan *squeeze cementing* di interval tersebut.

Berdasarkan perhitungan *re-design*, volume *slurry* yang dibutuhkan yakni sebanyak 10.45 bbl dengan densitas 13.8 ppg. Di ketahui Sumur "SF" merupakan sumur *directional* tipe J dengan kedalaman total 2261 m MD dan m 2099 TVD dengan *bottom hole static temperature* (BHST) 243 deg.F. Semen dengan tipe kelas G digunakan untuk operasi penyemenan kali ini. *Additive-additive* digunakan untuk mengatasi permasalahan di Sumur "SF" antara lain, BAD-14L sebagai *dispersant*, BAR-19L sebagai *retarder,* BAL-22L sebagai *fluid loss control agent,* BAG-17L sebagai *gas block,* BAF-26L sebagai *antifoam,* serta *special additive* yakni BAS-200 atau *silica flour* yang digunakan untuk mencegah *strength retrogation*

Berdasarkan pengujian nilai *compressive strength* pada *re-design* sudah memenuhi standar API yakni 810 psi selama pengujian 24 jam. Pada pengujian *thickening time* yakni 4 jam 16 menit pada 100 BC. Secara perhitungan dan pengujian *re-design* sudah sesuai namun perlu diaplikasikan untuk mengetahui keefektifan *re-design* tersebut untuk menutup perforasi pada Sumur "SF" yang terdapat permasalahan *loss circulation.*

Kata kunci: *squeeze cementing, loss circulation, re-design, additive.*

# ABSTRACT

## *FAILURE ANALYSIS AND RE-DESIGN OF SQUEEZE CEMENTING FOR PERFORATION CLOSING IN "SF" WELL "DO" FIELD*

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*The "SF" well is a production well located in Bekasi Regency, West Java Province. As time goes by, the "SF" Well is declared to be unproductive and has a high water cut rate, so the perforations will be closed and reperforation planned to regain its productivity. Closing the perforation with squeeze cementing using the balance plug method. The cementing target for the "SF" Well is in the perforation zone with an interval of 1893-1896 m. The first and second cementing in the 1893-1896 m interval was not successful because there were indications of loss circulation problems. After analyzing the cement failure, a re-design was carried out to overcome the squeeze cementing problem in this interval.*

*Based on re-design calculations, the required slurry volume is 10.45 bbl with a density of 13.8 ppg. It is known that the "SF" well is a type J directional well with a total depth of 2261 m MD and 2099 m TVD with a bottom hole static temperature (BHST) of 243 deg.F. Class G cement was used for this cementing operation. Additives used to overcome problems in "SF" Wells include, BAD-14L as a dispersant, BAR-19L as a retarder, BAL-22L as a fluid loss control agent, BAG-17L as a gas block, BAF-26L as an antifoam, and special additive namely BAS-200 or silica flour which is used to prevent strength retrogation*

*Based on testing, the compressive strength value in the redesign meets API standards, namely 810 psi during 24 hour testing. In the thickening time test, it was 4 hours 16 minutes at 100 BC. In terms of calculations and testing, the re-design is appropriate, but it needs to be applied to determine the effectiveness of the re-design to close perforations in "SF" Wells that have loss circulation problems.*

*Keywords: squeeze cementing, loss circulation, re-design, additive*