

## RINGKASAN

### PERENCANAAN *SQUEEZE CEMENTING* PADA SUMUR “PJ-10” LAPANGAN “PSS” MENGGUNAKAN METODE *BALANCE PLUG*

Oleh  
Puja Slamet Saputri  
NIM: 113200050  
(Program Studi Sarjana Teknik Perminyakan)

Sumur PJ-10 merupakan sumur produksi dengan status *suspend* dikarenakan sumur tersebut memiliki problem produksi kadar air tinggi dengan *water cut* sebesar 96% pada interval perforasi 2012 m - 2017 m, oleh karena itu sumur PJ-10 dilakukan salah satu kegiatan *workover* yaitu *squeeze cementing*. Tujuan dilakukannya *squeeze cementing* ini adalah untuk menutup zona perforasi yang menjadi penyebab naiknya produksi air dan kemudian dilakukan reperforasi untuk memaksimalkan zona produktif pada sumur PJ-10.

Metode dalam perencanaan *squeeze cementing* sumur PJ-10 meliputi pengumpulan data berupa data profil sumur, data casing, data kompleksi sumur, tekanan rekah formasi, tekanan hidrostatik, dan data densitas fluida. Langkah selanjutnya adalah perencanaan *squeeze cementing* berupa *planning* yang meliputi identifikasi problem dan alasan perencanaan *squeeze cementing*, dan *designing* yang meliputi desain bubuk semen, perhitungan *squeeze cementing*, dan perencanaan prosedur *squeeze cementing*. Lalu, melakukan analisa keberhasilan dan hasil penyemenan dari pekerjaan *squeeze cementing* yang dilakukan. Pelaksanaan *squeeze cementing* dilakukan menggunakan metode *balance plug* dengan teknik tekanan *low pressure squeeze cementing*.

Berdasarkan perhitungan, volume *slurry cement* yang diperlukan adalah 8.11 bbl membentuk puncak semen pada kedalaman 1971.6 m, volume *spacer* sebesar 11.57 bbl dan volume *water displacement* sebesar 44.7 bbl. Tekanan *squeeze* yang diterapkan sebesar 651.05 psi, masih di bawah tekanan rekah formasi sebesar 4307.95 psi. Waktu total operasi penyemenan yang dibutuhkan sebesar 3 jam 26 menit, dimana waktu tersebut masih dibawah *thickening time* yang telah ditentukan yaitu 4 jam 15 menit pada 100 Bc.

Kata kunci: *squeeze cementing, balance plug, low pressure squeeze*

## ABSTRACT

### PLANNING OF SQUEEZE CEMENTING IN THE WELL “PJ-10” FIELD “PSS” USING THE BALANCE PLUG METHOD

By

Puja Slamet Saputri

NIM: 113200050

*(Petroleum Engineering Undergraduated Program)*

*The "PJ-10" well is a production well with suspended status because the well has a problem of producing high water content with a water cut of 96% at a perforation interval of 2012 m - 2017 m, therefore the PJ-10 well was carried out by one of the workover activities, namely squeeze cementing. The purpose of squeeze cementing is to close the perforation zone which is the cause of the increase in water production and then reperforation is carried out to maximize the productive zone in the PJ-10 well.*

*The method for planning the squeeze cementing of the PJ-10 well includes data collection in the form of well profile data, casing data, well completion data, formation fracture pressure, hydrostatic pressure and fluid density data. The next step is planning squeeze cementing in the form of planning which includes identifying problems and reasons for planning squeeze cementing, and designing which includes cement slurry design, squeeze cementing calculations, and planning squeeze cementing procedures. Then, analyze the success and cementing results of the squeeze cementing work carried out. Squeeze cementing is carried out using the balance plug method with a low pressure squeeze cementing technique.*

*Based on calculations, the volume of slurry cement required is 8.11 bbl to form a cement peak at a depth of 1971.6 m, the spacer volume is 11.57 bbl and the water displacement volume is 44.7 bbl. The squeeze pressure applied was 651.05 psi, still below the formation fracture pressure of 4307.95 psi. The total cementing operation time required is 3 hours 26 minutes, where this time is still below the specified thickening time, namely 4 hours 15 minutes at 100 Bc.*

*Keywords: squeeze cementing, balance plug, low pressure squeeze.*