

RINGKASAN

KAJIAN TEKNIS *PROBLEM CHANNELING* DENGAN CARA *SQUEEZE CEMENTING* PADA SUMUR “AGH-01” DI LAPANGAN “GMR”

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Sumur “AGH-01” merupakan sumur *directional* yang berproduksi secara *natural flow* dan memiliki *problem multilayer channeling*. Problem tersebut diketahui berdasarkan analisa *chan’s diagnostic plot*. Pada analisa *production performance*, diperoleh produksi minyak terakhir sebelum dilakukan *workover* sebesar 77.6 BOPD, produksi air 482 BWPD dan didapatkan %WC (*water cut*) sebesar 86%. Nilai *water cut* tinggi disebabkan karena *multilayer channeling* di dekat zona perforasi. Maka dilakukan salah satu kegiatan *workover* yaitu operasi *squeeze cementing*. Tujuan dilakukannya *squeeze cementing* ini untuk memperbaiki *bonding cement* didekat zona perforasi yang merupakan penyebab naiknya produksi air dan selanjutnya reperforasi dengan interval baru untuk memaksimalkan interval zona produktif Sumur “AGH-01”.

Metodologi yang digunakan dalam pengerjaan skripsi ini yaitu menganalisa produksi air dengan data produksi untuk mengidentifikasi *problem* apa yang terjadi pada sumur tersebut menggunakan *chan’s diagnostic plot*. Setelah itu dilakukan validasi dengan data ALFA (*acoustic leak flow analyzer*) log untuk menemukan dimana letak *problem* yang terjadi.

Pelaksanaan *squeeze cementing* dilakukan pada interval perforasi 1639 – 1641.8 mMD dengan metode *bradenhead* dengan teknik *hesitation* menggunakan tekanan *low pressure squeeze cementing*. Total *slurry cement* yang digunakan sebanyak 6 bbl. Berdasarkan evaluasi dari hasil pekerjaan *squeeze cementing*, dilakukan analisa kuantitatif pada kedalaman 1639 – 1641.8 m didapatkan nilai *amplitudo* sebesar 5.5 mv, nilai CS sebesar 1025 psi dan *Bond Index* sebesar 1.74 yang menunjukkan *good bonding cement*. Kemudian penentuan perforasi baru dilakukan dengan analisa *Open Hole log* dihasilkan interval yang lebih pendek pada kedalaman 1639.5 – 1640.5 mMD dan dengan panjang interval perforasi sebesar 1 m.

Kata Kunci : *Squeeze Cementing, Chan’s Diagnostic Plot, ALFA Log*

ABSTRACT

TECHNICAL STUDY OF CHANNELING PROBLEM BY SQUEEZE CEMENTING OF AGH-01 WELL AT GUMIRA FIELD

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The "AGH-01" well is a directional well that produces natural flow and has a multilayer channeling problem. This problem was identified based on Chan's diagnostic plot analysis. In the production performance analysis, the final oil production before the workover was carried out was 77.6 BOPD, water production was 482 BWPD and the %WC (water cut) was 86%. The high water cut value is caused by multilayer channeling near the perforation zone. So one of the workover activities was carried out, namely the squeeze cementing operation. The purpose of this squeeze cementing is to repair the bonding cement near the perforation zone which is the cause of the increase in water production and then re-perforate at a new interval to maximize the productive zone interval of the "AGH-01" well.

The methodology used in working on this thesis is analyzing water production with production data to identify problems that occur in the well using Chan's diagnostic plot. After that, validation is carried out using ALFA (acoustic leak flow analyzer) log data to find where the problem is.

Squeeze cementing was carried out at a perforation interval of 1639 – 1641.8 mMD using the Bradenhead method with a hesitation technique using low pressure squeeze cementing pressure. The total slurry cement used was 6 bbl. Based on the evaluation of the results of the squeeze cementing work, a quantitative analysis was carried out at a depth of 1639 – 1641.8 m, obtaining an amplitude value of 5.5 mv, a CS value of 1025 psi and a Bond Index of 1.74 which indicates good bonding cement. Then the determination of new perforations was carried out using Open Hole log analysis resulting in shorter intervals at a depth of 1639.5 – 1640.5 mMD and with a perforation interval length of 1 m.

Keywords: Squeeze Cementing, Chan's Diagnostic Plot, ALFA log.