

RINGKASAN

EVALUASI PRIMARY CEMENTING CASING LINER 7” SUMUR “MS-04” MENGGUNAKAN ANALISA CBL-VDL LAPANGAN “AK” PT PERTAMINA EP ASSET 4

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Hasil penyemenan primer *casing liner 7”* pada kedalaman 7906-8540 ft dilakukan evaluasi menggunakan CBL-VDL untuk mengetahui kekuatan semen dan *bond index* yang di hasilkan memenuhi standar atau tidak. Indikasi hasil penyemenan buruk dengan problem *free pipe, channeling* dan *bad to formation* terjadi hampir di seluruh interval kedalaman penyemenan sehingga dapat menimbulkan problem masuknya fluida yang tidak di inginkan yang mengganggu produksi hidrocarbon. Oleh karena itu perlu dilakukan analisa secara komprehensif agar dapat diambil keputusan perlu atau tidaknya *squeeze cementing* terutama di zona prospek kedalaman 8410-8520 agar saat sumur diproduksi tidak mengalami kendala.

Evaluasi hasil penyemenan akan dilakukan menggunakan CBL-VDL yang akan di analisa secara kualitatif meliputi pembacaan amplitudo pada CBL dan gelombang sinyal VDL. Sedangkan analisa kuantitatif menghitung serta menganalisa besarnya harga *compressive strength* dan *bond index*. Selanjutnya dilakukan pula evaluasi desain bubuk semen, pola aliran yang terbentuk pada spacer maupun *slurry* dan *thickening time* serta operasional pelaksanaan penyemenan.

Berdasarkan hasil evaluasi penyemenan secara kuantitatif diperoleh *compressive strength* buruk sebesar 93,75% ($500 < CS$) dan *bond index* buruk sebesar 93,75% ($BI < 0,44$). Sedangkan analisa kualitatif diperoleh penyemenan dengan kategori buruk 96,87% yang mengindikasikan *free pipe, channeling*. Terutama pada zona prospek kedalaman 8410-8520 ft yang mengindikasikan terjadi *free pipe* pada hasil penyemenan. Secara keseluruhan hasil penyemenan tergolong buruk yang di sebabkan oleh formasi yang kompleks, pola aliran yang terbentuk belum sesuai dan desain *thickening time* terlalu lama sehingga disarankan melakukan *squeeze cementing* untuk memperbaiki hasil penyemenan.

Kata kunci: *Compressive strength, thickening time, bond index.*

ABSTRACT

EVALUATION OF PRIMARY CEMENTING CASING LINER 7” WELL “MS-04” USING CBL-VDL ANALYSIS OF “AK” FIELD PT PERTAMINA EP ASSET 4

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The results of the 7” casing liner primary cementing at a depth of 7906-8540 ft were evaluated using CBL-VDL to determine whether the cement strength and bond index produced met the standards or not. Indications of bad cementing results with free pipe, channeling and bad to formation problems occur in almost all cement depth intervals so that it can cause unwanted fluid entry problems which disrupt hydrocarbon production. Therefore it is necessary to carry out a comprehensive analysis so that a decision can be made whether or not squeeze cementing is necessary, especially at depths of 8410-8520 so that when the well is produced there are no problems.

Evaluation of cementing results will be carried out using CBL-VDL which will be analyzed qualitatively including reading the amplitude of the CBL and VDL signal waves. While the quantitative analysis calculates and analyzes the price of compressive strength and bond index. Furthermore, an evaluation of the cement slurry design, the flow pattern formed in the spacer and slurry and thickening time as well as the operational implementation of cement is also carried out.

Based on the quantitative evaluation of cement, it was found that a poor compressive strength was 93.75% ($500 < CS$) and a bad bond index was 93.75% ($BI < 0.44$). While the qualitative analysis obtained cement with a bad category of 96.87% indicating free pipe, channeling. Especially in the prospect zone with a depth of 8410-8520 ft which indicates the occurrence of free pipes in the cement results. Overall the cementing results are classified as poor which is caused by complex formations, the flow patterns that are formed are not suitable and the thickening time design is too long so it is advisable to do squeeze cementing to improve cementing results.

Keywords: Compressive strength, thickening time, bond index.