

ABSTRAK

EVALUASI BONDING SEMEN HASIL *PRIMARY CEMENTING* DAN *SQUEEZE CEMENTING* PADA *PRODUCTION CASING 7"* MENGGUNAKAN DATA CBL-VDL DI SUMUR “JA-94” LAPANGAN “DYWA”

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Kualitas penyemenan merupakan salah satu faktor penting dalam menjaga integritas sumur dan keberhasilan *zonal isolation* selama masa produksi. Kegagalan penyemenan dapat menyebabkan terbentuknya jalur komunikasi fluida antar lapisan (*channeling*) yang berpotensi menimbulkan berbagai permasalahan operasional. Oleh karena itu, diperlukan evaluasi kualitas ikatan semen untuk memastikan efektivitas hasil penyemenan. Penelitian ini bertujuan untuk mengevaluasi kualitas *bonding* semen hasil *primary cementing* dan *squeeze cementing* pada Sumur JA-94 Lapangan DYWA menggunakan data *Cement Bond Log (CBL)* dan *Variable Density Log (VDL)*.

Metode penelitian yang digunakan berupa interpretasi data *CBL-VDL* untuk menilai kualitas ikatan semen antara *casing* dan formasi. Evaluasi dilakukan terhadap hasil *primary cementing* dan kondisi setelah pelaksanaan *squeeze cementing*. Analisis juga didukung oleh kajian terhadap data desain dan pelaksanaan penyemenan guna mengidentifikasi faktor-faktor yang berpotensi memengaruhi kualitas ikatan semen.

Hasil interpretasi menunjukkan bahwa pada beberapa interval masih ditemukan kualitas ikatan semen yang kurang baik (*poor bonding*) setelah pelaksanaan *primary cementing*. Kondisi tersebut mengindikasikan bahwa semen belum mampu memberikan isolasi zona secara optimal sehingga diperlukan tindakan remedial berupa *squeeze cementing*. Evaluasi pasca-*squeeze cementing* menunjukkan adanya peningkatan kualitas ikatan semen yang ditandai dengan perbaikan respons log *CBL-VDL*. Berdasarkan hasil penelitian, metode *CBL-VDL* dapat digunakan secara efektif untuk mengevaluasi kualitas penyemenan serta menilai keberhasilan pekerjaan *squeeze cementing* dalam meningkatkan integritas sumur.

Kata Kunci: *primary cementing, squeeze cementing, Cement Bond Log (CBL), Variable Density Log (VDL), cement bond, well integrity.*

ABSTRACT

EVALUATION OF CEMENT BONDING PRIMARY CEMENTING AND SQUEEZE CEMENTING IN PRODUCTION CASING 7" USING CBL-VDL DATA IN WELL "JA-94", "DYWA" FIELD

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Cementing quality is one of the most important factors in maintaining well integrity and ensuring effective zonal isolation throughout the production life of a well. Poor cementing quality may create fluid communication pathways between formations (channeling), leading to various operational problems. Therefore, an evaluation of cement bond quality is required to verify the effectiveness of cementing operations. This study aims to evaluate the cement bond quality resulting from primary cementing and squeeze cementing in Well JA-94, DYWA Field, using Cement Bond Log (CBL) and Variable Density Log (VDL) data.

The research method involved the interpretation of CBL-VDL data to assess the quality of the cement bond between the casing and the formation. The evaluation was conducted on both primary cementing results and post-squeeze cementing conditions. The analysis was further supported by a review of cementing design and operational parameters to identify factors that may have influenced cement bond quality.

The interpretation results indicated the presence of poor bonding in several intervals following the primary cementing operation. This condition suggested that the cement had not provided optimal zonal isolation, thereby requiring remedial treatment through squeeze cementing. Post-squeeze cementing evaluation showed an improvement in cement bond quality, as indicated by enhanced CBL-VDL responses. The results demonstrate that CBL-VDL analysis is an effective method for evaluating cementing quality and assessing the success of squeeze cementing operations in improving well integrity.

Keywords: *primary cementing, squeeze cementing, Cement Bond Log (CBL), Variable Density Log (VDL), cement bond, well integrity.*