RINGKASAN

ANALISIS PENGARUH *REMEDIAL CEMENTING* TERHADAP *WATER CUT* DAN PERFORMA PRODUKSI PADA SUMUR "PL-31" LAPANGAN "OMJ"

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Sumur "PL-31" pada Lapangan "OMJ" sumur minyak *onshore directional* yang terletak pada Cekungan Jawa Timur Utara. Sumur "PL-31" mulai berproduksi sejak bulan Juni tahun 2015 dengan laju alir 607 BFPD dan nilai *water cut* sebesar 5% Sumur "PL-31" mengalami penurunan performa produksi sampai dengan bulan Januari tahun 2024 dengan laju alir 3.088 BLPD nilai *water cut* sebesar 95,7%. *Remedial cementing* dilakukan pada sumur "PL-31" dalam upaya menutup zona air yang membuat tingginya produksi air. Analisis performa produksi dengan *chan diagnostic plot* dan analisis nodal dilakukan untuk mengetahui perubahan perfroma produksi sebelum dan setelah *remedial cementing* pada sumur "PL-31".

Analisis *chan diagnostic plot* pada sumur "PL-31" mengidentifikasi masalah *near wellbore water channeling* di dekat lubang sumur, yang dikonfirmasi oleh analisis *log* CBL-VDL yang menunjukkan *bond index* dan *compressive strength* yang rendah di sekitar perforasi. Analisis *log* petrofisik dan RST menunjukan adanya zona air di sekitar interval perforasi yang memungkinkan air masuk melalui *channel*. Setelah dilakukan *remedial cementing*, evaluasi *log* CBL-VDL menunjukkan perbaikan ikatan semen, dan analisis nodal menunjukkan penurunan *water cut* menjadi 82,93% serta peningkatan produksi minyak sebesar 58%.

Berdasarkan hasil penilitain, *remedial cementing* berhasil memperbaiki kualitas penyemenan *primary cementing* yang buruk. Analisis produksi menunjukan peningkatan laju alir minyak dan penurunan laju alir air dan *water cut*.

Kata kunci: *cement bond log, chan diagnostic plot,* performa produksi, IPR tiga fasa, korelasi Beggs-Brill, *near wellbore water Channeling*

ABSTRACT

ANALYSIS OF THE EFFECT OF REMEDIAL CEMENTING ON WATER CUT AND PRODUCTON PERFROMANCE IN THE WELL "PL-31" FIELD "OMJ"

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The "PL-31" well in the "OMJ" field is an onshore directional oil well located in the North East Java Basin. It began production in June 2015 with a flow rate of 607 BFPD and a water cut of 5%. However, the well experienced a decline in production performance until January 2024, with a flow rate of 3.088 BLPD and a water cut of 95,7%.Remedial cementing was performed on the "PL-31" well to seal the water zone that was causing high water production. Performance analysis using chan diagnostic plot and nodal analysis was conducted to assess the changes in production performance before and after the remedial cementing.

Channel diagnostic plot analysis for well "PL-31" identified a near wellbore water channeling issue, which was confirmed by CBL-VDL log analysis showing a low bond index and compressive strength around the perforations. Petrophysical and RST log analysis indicated the presence of a water zone around the perforation interval, allowing water to enter through the channel. After remedial cementing, CBL-VDL log evaluation showed improved cement bonding, and nodal analysis indicated a reduction in water cut to 89,93% and an increase in oil production by 58%.

Based on the research results, the remedial cementing successfully improved the quality of the poor primary cementing. Production analysis showed an increase in oil flow rate and a decrease in water flow rate and water cut.

Keywords: Beggs-Brill correlation , cement bond log, chan diagnostic plot, near wellbore water Channeling, three phase IPR