

RINGKASAN

EVALUASI *WELL CONTROL* PADA SUMUR SSS-05 LAPANGAN PTR DENGAN METODE *WAIT AND WEIGHT*

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Pada sumur SSS-05 Lapangan PTR pada saat melakukan kegiatan pemboran pada trayek 8 ½” dengan target kedalaman pada 6389 ft TVD, ketika pemboran mencapai kedalaman 4875 ft TVD terdapat indikasi terjadinya permasalahan *well kick* dengan indikasi adanya kenaikan *fluida* pada *trip tank* sebesar 15 *barrel*, sehingga dilakukan tindakan prosedur *well control* dengan menghentikan *rotary tabble* dan mengangkat *drillstring* sampai dengan *tool joint* 3 ft diatas *rotary tabble*, kemudian dilakukan *stop* pompa. Dilakukan observasi pada sumur SSS-05 ditemukan pada *hole* terlihat adanya gelembung pada lumpur dan pada *return line flow* terdapat adanya aliran, sehingga dilakukan *shut-in* pada sumur SSS-05.

Metode evaluasi pada penelitian ini diawali dengan identifikasi problem *kick* pada Sumur SSS-05, dilanjutkan dengan pengumpulan data sumur yang meliputi ukuran *hole* dan kedalaman, ukuran *casing* dan kedalaman, data pompa, rangkaian *drill string*, data lumpur, data *leak off test* (LOT) serta volume lumpur aktif di *tank*, dan juga data *kick* berupa *shut in drill pipe pressure* (SIDP), *shut in casing pressure* (SICP), *pit gain*, dan kedalaman terjadinya *kick*. Selanjutnya dilakukan analisa kuantitatif berdasarkan *well control kill sheet* untuk menghitung parameter-parameter penanggulangan *kick* menggunakan metode *wait and weight*. Tahap akhir dari evaluasi ini adalah penilaian keberhasilan dengan indikator sumur mati (SIDP = 0 psi), yang kemudian dilanjutkan dengan pembahasan dan penarikan kesimpulan.

Berdasarkan hasil analisis, hasil evaluasi menunjukkan bahwa penanggulangan *kick* pada Sumur SSS-05 berhasil dilakukan menggunakan *kill mud weight* sebesar 10,91 ppg, tekanan awal sirkulasi (ICP) sebesar 630 psi, tekanan akhir sirkulasi (FCP) sebesar 436 psi, dan *maximum allowable annular surface pressure* (MAASP) sebesar 685,9 psi. Proses *killing well* dilaksanakan menggunakan *slow pump rate* 45 SPM dan *kill rate pump* 400 psi selama total waktu 81 menit. Setelah proses *killing well* selesai dan pompa dimatikan secara bertahap, nilai SIDP menjadi 0 psi, yang sesuai dengan hasil perhitungan, sehingga menandakan bahwa sumur telah mati dan *kick* berhasil tertanggulangi.

Kata kunci: *Kill Mud Weight, Shut-In, Well Kick, Wait And Weight*

ABSTRACT

EVALUATION OF WELL CONTROL ON WELL SSS-05 PTR FIELD WITH WAIT AND WEIGHT METHOD

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At well SSS-05 in the PTR Field, during drilling operations in the 8 ½" hole section targeting a depth of 6389 ft TVD, indications of a well kick were observed when drilling reached 4875 ft TVD. The kick indication was shown by an increase in fluid volume in the trip tank by 15 barrels. Therefore, well control procedures were carried out by stopping the rotary table and lifting the drill string until the tool joint was 3 ft above the rotary table, then stopping the pump. An observation was conducted on well SSS-05, where bubbles were seen in the mud within the hole and there was flow in the return line, confirming that a kick had occurred, leading to a shut-in on well SSS-05.

The evaluation method in this study began with identifying the kick problem at well SSS-05, followed by collecting well data, including hole size and depth, casing size and depth, pump data, drill string configuration, mud data, leak off test (LOT) data, and active mud volume in the tank, as well as kick data such as shut-in drill pipe pressure (SIDP), shut-in casing pressure (SICP), pit gain, and kick depth. Subsequently, a quantitative analysis was conducted based on the well control kill sheet to calculate kick control parameters using the wait and weight method. The final stage of the evaluation was assessing the success indicator with a dead well condition (SIDP = 0), which was then followed by discussion and conclusion.

Based on the analysis results, the evaluation showed that the kick control in well SSS-05 was successfully carried out using a kill mud weight of 10,91 ppg, with an initial circulation pressure (ICP) of 630 psi, final circulation pressure (FCP) of 436 psi, and a maximum allowable annular surface pressure (MAASP) of 685,9 psi. The killing operation was conducted with a slow pump rate of 45 SPM and a kill rate pump pressure of 400 psi for a total duration of 81 minutes. After the killing process was completed and the pump was shut down gradually, the SIDP value dropped to 0 psi, which was consistent with the calculated value, indicating that the well was dead and the kick was successfully controlled.

Keywords: Kill Mud Weight, Shut-In, Well Kick, Wait and Weight