

RINGKASAN

EVALUASI PENANGGULANGAN *PROBLEM WELL KICK* MENGUNAKAN METODE *DRILLER* PADA SUMUR “Z-05” LAPANGAN “MYH”

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Sumur “Z-05” pada Lapangan “MYH” merupakan sumur pemboran berarah (*Directional Drilling*), pada saat proses pemboran berjalan sampai dengan kedalaman 8000 ft TVD / 8341 ft MD tidak adanya tanda-tanda problem yang akan terjadi, namun pada saat pompa di matikan dan akan mencabut rangkaian terjadilah *problem well kick* pada kedalaman 8000 ft TVD / 8341 ft MD. Hal ini ditandai dengan adanya aliran di dalam lubang sumur saat pompa dimatikan.

Dalam penelitian ini melakukan evaluasi menggunakan Metode Driller. Metode *driller* adalah metode penanggulangan *kick* yang dilakukan dengan dua kali sirkulasi, sirkulasi pertama menggunakan lumpur lama untuk mengeluarkan fluida *kick* dan sirkulasi kedua menggunakan lumpur baru.

Proses dalam melakukan penanggulangan *kick* dengan menentukan tekanan formasi yang didapatkan dari hasil penelitian sebesar 4352 psi, tekanan hidrostatik sebesar 3952 psi, tekanan hidrodinamik 4966 psi, tekanan rekah formasi sebesar 5017 psi. Penentuan metode yang akan digunakan untuk menanggulangi *kick* yaitu, metode *driller*. Pada sirkulasi pertama menggunakan densitas lumpur lama sebesar 9,5 ppg, total volume dilubang bor sebesar 605 bbl, Jumlah total stroke pompa yang digunakan 7287 stroke, dan rate pompa 4,9 bbl/menit sehingga diperoleh lama waktu sirkulasi 123,4 menit. Pada sirkulasi kedua menggunakan densitas lumpur baru sebesar 10,46 ppg, total volume dilubang bor sebesar 605 bbl, Jumlah total stroke pompa yang digunakan 7287 stroke, dan rate pompa 4,9 bbl/menit sehingga diperoleh lama waktu sirkulasi 123,4 menit, total waktu penanggulangan *kick* 246,8 menit. Nilai *initial circulating pressure* sebesar 1299 psi, *final circulating pressure* sebesar 292 psi dan *pressure drop* sebesar 22,03 psi/2,7 menit. Setelah dilakukan perhitungan tekanan hidrostatik setelah *killing well* sebesar 4352 psi dan SIDP sebesar 0 psi sehingga menandakan bahwa sudah tidak ada aliran fluida *kick* dari formasi ke lubang sumur dan penanggulangan *well kick* pada sumur “Z-01” lapangan “MYH” dinyatakan berhasil.

Kata Kunci : *Well Kick*, Tekanan Formasi, Metode *Driller*, *Directional Drilling*

ABSTRAK

EVALUATION OF WELL KICK PROBLEM CONTROL USING DRILLER'S METHOD IN "Z-05" WELL, "MYH" FIELD

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The "Z-05" well in the "MYH" Field is a directional drilling well, during the drilling process up to a depth of 8000 ft TVD / 8341 ft MD there were no signs of problems that would occur, but when the pump was turned off and the circuit was about to be removed, a well kick problem occurred at a depth of 8000 ft TVD / 8341 ft MD. This is indicated by the presence of flow in the wellbore when the pump was turned off.

In this study, an evaluation was carried out using the Driller Method. The driller method is a kick control method that is carried out with two circulations, the first circulation uses old mud to remove the kick fluid and the second circulation uses new mud.

The process of performing kick control by determining the formation pressure obtained from the research results of 4352 psi, hydrostatic pressure of 3952 psi, hydrodynamic pressure of 4966 psi, formation fracture pressure of 5017 psi. Determination of the method to be used to overcome the kick, namely the driller method. In the first circulation using the old mud density of 9.5 ppg, the total volume in the borehole of 605 bbl, the total number of pump strokes used 7287 strokes, and the pump rate of 4.9 bbl / minute so that the circulation time is 123.4 minutes. In the second circulation using the new mud density of 10.46 ppg, the total volume in the borehole of 605 bbl, the total number of pump strokes used 7287 strokes, and the pump rate of 4.9 bbl / minute so that the circulation time is 123.4 minutes, the total kick handling time is 246.8 minutes. The initial circulating pressure value is 1299 psi, the final circulating pressure is 292 psi and the pressure drop is 22.03 psi / 2.7 minutes. After calculating the hydrostatic pressure after killing the well of 4352 psi and SIDP of 0 psi, this indicates that there is no longer any kick fluid flow from the formation to the wellbore and the well kick control in the "Z-01" well in the "MYH" field was declared successful.

Keywords: Well Kick, Formation Pressure, Driller's Method, Directional Drilling