RINGKASAN

ANALISA PENANGGULANGAN *WELL KICK* DENGAN MENGGUNAKAN METODE *WAIT AND WEIGHT* PADA SUMUR "RS-23" LAPANGAN "BUMI"

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Pemboran sumur "RS-23" Lapangan "BUMI" merupakan sumur untuk meningkatkan produksi minyak di lapisan yang terbukti prospek. Sumur ini merupakan sumur *directional* dengan target kedalaman 6468 ft TVD/6968 ft MD yang pada saat melakukan cabut rangkaian setelah melakukan pemboran pada trayek 8.5" terjadi *kick* pada kedalaman 6326 ft TVD/6796 ft MD. Setelah observasi ditemukan gelembung gas pada lumpur di dalam sumur. Lumpur yang digunakan pada trayek 8 ½" saat terjadi *kick* yaitu KCL *Polymer* dengan densitas lumpur sebesar 10.4 ppg.

Dalam melakukan analisa penanggulangan *well kick* ini, langkah pertama yang perlu dilakukan ada mengumpulkan data lapangan yang berupa data rencana pemboran dan data pelaksanaan pemboran, data rangkaian pemboran dan data *kick* serta penanggulangannya. Setelah itu melakukan analisa tanda-tanda dan penyebab terjadinya *kick* dengan menentukan *pressure window* yang meliputi tekanan formasi, tekanan rekah formasi, tekanan hidrostatik, tekanan hidrodinamik dan juga menganalisis dari data *mud log.* Kemudian dilakukan penanggulangan *well kick* dengan menggunakan metode *wait and weight*, perhitungan yang dilakukan meliputi penentuan *kill mud weight*, penentuan jumlah *sack barite* yang dibutuhkan untuk densitas lumpur yang baru dan waktu yang diperlukan untuk membunuh *kick.* Setelah perhitungan dilakukan analisa kesesuaian untuk penanggulangan *well kick* dengan metode *wait and weight.*

Berdasarkan hasil perhitungan, tekanan hidrostatik pada kedalaman 6326 ft TVD sebesar 3575 psi dapat meanggulangi *kick* dengan densitas lumpur baru (*kill mud weight*) sebesar 10.9 ppg dan membutuhkan penambahan *barite* sebesar 141.2 sack. *Well kick* berhasil ditanggulangi karena nilai SIDP setelah penggantian lumpur sama dengan 0. Hasil analisa menunjukkan metode *wait and weight* sesuai digunakan pada lapangan ini.

Kata kunci: *Well Kick, Kill Mud Weight, Metode Wait and Weight, Drillpipe Pressure.*

ABSTRACT

ANALYSIS OF WELL KICK MANAGEMENT USING THE WAIT AND WEIGHT METHOD ON THE "RS-23" WELL IN THE "BUMI" FIELD

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Drilling the "RS-23" well in the "BUMI" field is a well to increase oil production in a proven prospect. This well is a directional well with a target depth of 6468 ft TVD/6968 ft MD. When the drilling string was removed after drilling on an 8.5" route, a kick occurred at a depth of 6326 ft TVD/6796 ft MD. After observation, gas bubbles were found in the mud in the well. The mud used on the 8 ½" route when the kick occurs is KCL Polymer with a mud density of 10.4 ppg.

In carrying out an analysis of well kick countermeasures, the first step that needs to be taken is to collect field data in the form of drilling plan data and drilling implementation data, drilling sequence data, and kick data as well as countermeasures. After that, analyze the signs and causes of the kick by determining the pressure window which includes formation pressure, formation fracture pressure, hydrostatic pressure, and hydrodynamic pressure, and also analyze the mud log data. Then, handling the well kick is carried out using the wait and weight method. The calculations carried out include determining the kill mud weight, determining the number of barite sacks needed for the new mud density, and the time required to kill the kick. After the calculations, a suitability analysis was carried out to handle well kicks using the wait and weight method.

Based on the calculation results, the hydrostatic pressure at a depth of 6326 ft TVD of 3575 psi can handle the kick with a new mud density (kill mud weight) of 10.9 ppg and requires the addition of a barite of 141.2 sacks. The well kick was successfully resolved because the SIDP value after mud replacement was equal to 0. The analysis results showed that the wait and weight method was suitable for use in this field.

Keywords: Well Kick, Kill Mud Weight, Wait and Weight Method, Drillpipe Pressure.