

ABSTRAK

EVALUASI PENANGGULANGAN *PROBLEM TOTAL LOSS* PADA PEMBORAN TRAYEK 12 ¼ INCH SUMUR “SSS-01” LAPANGAN “GG”

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Sumur “SSS-01” yang terletak di Lapangan “GG” merupakan sumur pengembangan yang berada pada Cekungan Jawa Barat Utara. Sumur ini dibor dengan total kedalaman 6921 ftTVD. Pada saat pemboran berlangsung, terjadi *lost circulation* pada trayek 12 ¼” di kedalaman 3153 ftTVD sampai 4826 ftTVD dengan tipe *total loss* menembus Formasi Parigi. Tidak ada aliran balik lumpur ke permukaan dan tidak diketahuinya *lithology* batuan sampai ke trayek selanjutnya.

Analisa penyebab *lost circulation* dilakukan dengan menganalisa faktor tekanan formasi (PPFG) dan faktor *formation strength* (UCS). *Lost circulation* diatasi dengan metode *blind drilling* menggunakan *fresh water*. Evaluasi faktor hidrolik dilakukan meliputi perhitungan tekanan pompa minimum, *bottom hole circulating pressure* (BHCP), *equivalent circulating density* (ECD), dan evaluasi pada *bit* dan *annulus* menggunakan metode BHI. Evaluasi pengangkatan *cutting* pada metode *blind drilling* juga dilakukan guna mengetahui keefektifan dan keoptimalan metode ini.

Berdasarkan perhitungan diketahui nilai tekanan formasi sebesar 1299,24 psi, tekanan hidrostatik sebesar 1350 psi, dan nilai tekanan rekah formasi sebesar 1728,82 psi. Berdasarkan analisa disimpulkan bahwa penyebab dari *lost circulation* bukan dari faktor tekanan formasi. Hasil perhitungan faktor formasi metode Tixier menunjukkan *loss* terjadi akibat formasi yang tidak kompak. Hasil ini diperkuat dengan data *uniaxial compressive strength* yang memiliki *trendline* ke arah kanan jika diplot terhadap kedalaman. Hasil perhitungan *bit hydraulic impact* sebesar 27,64% mengindikasikan tidak optimalnya daya yang digunakan pada *bit*. Hasil perhitungan hidrolika pengangkatan *cutting* metode CTR sebesar 75,18% dan CCI sebesar 0,48 mengindikasikan tidak optimalnya pengangkatan *cutting* saat metode *blind drilling*.

Kata kunci: *Bit Hydraulic Impact, Blind Drilling, Cutting Carrying Index, PPFG, UCS.*

ABSTRACT

EVALUATION OF MITIGATION STRATEGIES FOR TOTAL LOSS ISSUES IN THE DRILLING 12 ¼ INCH TRAJECTORY OF WELL “SSS-01” IN THE “GG” FIELD.

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The well 'SSS-01', located in the 'GG' Field, is a development well within the North West Java Basin. This well was drilled to a total depth of 6921 ft TVD. During drilling operations, lost circulation occurred in the 12 ¼-inch interval at depths ranging from 3153 ft TVD to 4826 ft TVD, identified as a total loss that penetrated the Parigi Formation.

An analysis of the causes of lost circulation was conducted by examining formation pressure (PPFG) and formation strength factors (UCS). The lost circulation was addressed using a blind drilling method with fresh water. Hydraulic evaluations were performed, including calculations of minimum pump pressure, bottom hole circulating pressure (BHCP), equivalent circulating density (ECD), and hydraulics in the bit and annulus utilizing the Borehole Hydraulic Integrity (BHI) method. An evaluation of cuttings lift during the blind drilling method was also be calculated to determine the effectiveness and optimization of this approach.

From the calculations, it was determined that the formation pressure was 1299.24 psi, the hydrostatic pressure was 1350 psi, and the formation fracture pressure was 1728.82 psi. The analysis concluded that the cause of the lost circulation was not due to formation pressure factors. Results from the Tixier method of formation factor calculations indicated that the loss occurred due to the unconsolidated characteristic of the formation. This conclusion is supported by uniaxial compressive strength data, which showed a rightward trend when plotted against depth. The bit hydraulic impact calculation yielded a value of 27.64%, indicating suboptimal power utilization at the bit. The hydraulic calculations for cuttings lift during the CTR method yielded a value of 75.18%, and the Cutting Carrying Index (CCI) was 0.48, suggesting suboptimal cuttings lift during blind drilling.

Keywords: Bit Hydraulic Impact, Blind Drilling, Cutting Carrying Index, PPFG, UCS.