RINGKASAN

ANALISA PENYEBAB DAN PENANGGULANGAN PROBLEM PIPE STICKING PADA TRAYEK 8 ½" SUMUR DIRECTIONAL DRILLING "DR-12" LAPANGAN "DRH"

Oleh
Dimas Rafli Hidayat
NIM: 113190160
(Program Studi Sarjana Teknik Perminyakan)

Tidak bisa dipungkiri permasalahan seringkali terjadi selama proses pemboran, salah satunya adalah *problem pipe sticking*. Saat pemboran trayek 8 ½" Sumur "DR-12" berjalan mencapai kedalaman 7355 ftMD, rangkaian tidak dapat diputar dan digerakan yang menandakan terjadinya *problem pipe sticking*. Agar pemboran berikutnya tidak mengalami permasalahan yang sama, maka perlu untuk dilakukan analisa *problem pipe sticking* yang terjadi.

Dalam melakukan analisa *problem* ini akan dimulai dengan menentukan penyebab *pipe sticking* dengan meninjau dari aspek lithologi formasi, densitas fluida pemboran, *dogleg severity*, serta pengangkatan *cutting*. Selanjutnya akan melakukan analisa tanda-tanda terjadinya *pipe sticking* berdasarkan data parameter pemboran. Dan terakhir melakukan analisa penanggulangan *pipe sticking* yang dilakukan.

Permasalahan terjadi akibat *mechanical pipe sticking* yang disebabkan oleh batuan *shale* reaktif yang mengalami *swelling* dengan nilai CEC 27 meq/100 gram, dan pengangkatan *cutting* yang tidak baik dengan *cutting transport ratio* (Ft) *sebesar* 56%, c*utting concentration* (Ca) yang masih cukup baik sebesar 1.15%, Particle Bed Index (PBI) sebesar 1, dimana kondisi *cutting* hampir mengendap. Serta mengalami *differential pipe stiking* dengan *differential pressure* sebesar 288 psi. Pipa dapat terbebaskan dengan upaya perendaman *black magic* serta dilakukan penarikan sebesar 210 klbs.

Kata kunci: *pipe sticking, differential sticking, mechanical sticking*

ABSTRACT

PIPE STICKING PROBLEM ANALYSIS CAUSES AND REMEDIES ON TRAJECT 8 ½" DIRECTIONAL DRILLING WELL "DR-12" "DRH" FIELD

By
Dimas Rafli Hidayat
NIM: 113190160
(*Petroleum Engineering Undergraduated Program*)

It is undeniable that problems often occur during the drilling process, one of which is a pipe sticking. When the drilling traject 8 ½" Well "DR-12" reached a depth of 7355 ftMD, the string could not be rotated or moved, indicating a problem pipe sticking. To prevent a similar problem from occurring during future drilling, it is necessary to analyze the problem of pipe sticking.

The analysis of this problem will begin by determining the cause of pipe sticking, which involves reviewing aspects such as lithology formation, drilling fluid density, dogleg severity, and cutting removal. Next, the analysis will involve examining the signs of pipe sticking based on the drilling parameter data. Finally, countermeasures to address pipe sticking will be analyzed.

The problems that occurred were caused by mechanical pipe sticking resulting from swelling reactive shale rock with a CEC value of 27 meq/100 gram and poor cutting removal with a cutting transport ratio (Ft) of 56%. Although the cutting concentration (Ca) was sufficient at 1.15% and the Particle Bed Index (PBI) was 1, the cutting conditions almost settled, leading to the problem. Additionally, the drilling process experienced differential pipe sticking due to a differential pressure of 288 psi. The pipe can be freed by immersing black magic and apply pull force 210 klbs

Keywords: pipe sticking, differential sticking, mechanical sticking