

ABSTRAK

PENENTUAN CASING DESIGN MENGGUNAKAN METODE MAXIMUM LOAD PADA OPERASI PEMBORAN SUMUR YK-13 LAPANGAN WAMBAR

Oleh
Duan Yoga Crestiano Kwando
NIM: 113210179
(Program Studi Sarjana Teknik Perminyakan)

Sumur YK-3 merupakan *well development* pada Lapangan Wambar. Formasi yang ditembus yaitu Formasi Ledok, Formasi Wonocolo, dan Formasi Ngrayong. Untuk mengoptimalkan pemboran dan mencegah terjadinya problem pemboran pada Sumur YK-13, maka perlu adanya perencanaan sebelum melakukan operasi pemboran. Adapun dalam merencanakan pemboran pada Sumur YK-13 meliputi beberapa aspek, seperti perencanaan *casing setting depth* dan *casing design*. Tujuan perencanaan ini yaitu untuk mendapatkan *casing setting depth* dan *casing design* yang optimal dan dapat digunakan sebagai referensi untuk operasi pemboran yang akan datang.

Metodologi yang dipakai pada penelitian ini menggunakan metode *maximum load*, dimana metode ini menghitung *burst load* pada kondisi saat sumur *kick*, dan untuk *collapse load* pada saat sumur *lost circulation*. Perencanaan *casing setting depth* sumur YK-13 menggunakan *mud window* dengan cara *plotting data pore pressure* dan tekanan rekah formasi *gradient fracture* agar *casing* aman dan tidak terjadi problem *loss* dan *kick*. Sedangkan perencanaan *casing design* sumur YK-13 menghitung *burst load*, *collapse load*, *tension load*, dan *biaxial load*.

Penentuan *casing design* menggunakan metode *maximum load* pada Sumur YK-13 dan didapatkan spesifikasi pada trayek *surface* menggunakan *casing* K-55; 54,5 ppf; BTC, trayek *intermediate* menggunakan *casing* K-55; 36 ppf; BTC, trayek *production liner* menggunakan *grade* N-80; 23 ppf; BTC

Kata kunci: 1, *casing setting depth* 2, *casing design* 3, *maximum load* 4, *kick tolerance* 5, *grade casing*

ABSTRACT

DETERMINATION OF CASING DESIGN USING THE MAXIMUM LOAD METHOD IN DRILLING OPERATIONS OF WELL “YK-13” “WAMBAR” FIELD

By
Duan Yoga Crestiano Kwando
NIM: 113210179
(Petroleum Engineering Undergraduated Program)

Well YK-3 is a development well located in the Wambar Field. The formations penetrated are the Ledok Formation, the Wonocolo Formation, and the Ngrayong Formation. To optimize drilling operations and prevent drilling problems in Well YK-13, a detailed plan is required prior to drilling operations. The planning for Well YK-13 includes several aspects, such as casing setting depth design and casing design. The objective of this planning is to determine the optimal casing setting depth and casing design, which can also serve as a reference for future drilling operations.

The methodology used in this study applies the maximum load method, where this method calculates the burst load under well kick conditions and the collapse load during lost circulation conditions. The casing setting depth design for well YK-13 is determined using the mud window approach by plotting pore pressure data and formation fracture gradient to ensure casing integrity and to prevent loss and kick problems. Meanwhile, the casing design planning for well YK-13 involves calculating burst load, collapse load, tension load, and biaxial load.

The casing design for Well YK-13 was determined using the maximum load method, resulting in the following specifications: for the surface section, casing K-55; 54.5 ppf; BTC, for the intermediate section, casing K-55; 36 ppf; BTC, and for the production liner section, casing grade N-80; 23 ppf; BTC.

Keywords: 1, casing setting depth 2, casing design 3, maximum load 4, kick tolerance 5, grade casing