

RINGKASAN

DESAIN CASING MENGGUNAKAN METODE *MAXIMUM LOAD* DENGAN PENDEKATAN *SOFTWARE LANDMARK* PADA SUMUR “SW-01” LAPANGAN “RINI”

Oleh

Sulistiyorini Widi Hastuti

NIM: 113190004

(Program Studi Sarjana Teknik Perminyakan)

Sumur “SW-01” merupakan sumur *directional* tipe lintasan *slant* (*J-Type*) dengan kedalaman akhir 5638,45 ftMD/5544,61 ftTVD. Pada Sumur “SW-01” dilakukan desain *casing* pemboran yang sesuai dan memenuhi syarat secara teknis dengan tujuan untuk mencegah terjadinya *problem* seperti *burst*, *collapse*, dan *tension* yang dapat menyebabkan meningkatnya beban internal dan eksternal *pressure* yang dialami oleh *casing*.

Metodologi yang digunakan dalam penelitian ini yakni *maximum load*, dengan memperhitungkan pembebanan yang bekerja pada *casing*, yakni beban *burst*, *collapse*, *tension*, *biaxial*, dan *triaxial*. Perencanaan desain *casing* pada Sumur “SW-01” dilakukan analisa *casing setting depth* berdasarkan data PPF, memperhitungkan *kick tolerance*, pemilihan *grade casing*, dan dilakukan metode pendekatan untuk perencanaan *casing* menggunakan *software Landmark*.

Hasil perhitungan manual dan perhitungan dengan menggunakan *software Landmark* dalam perencanaan *casing*, didapatkan lima trayek desain, yakni *conductor casing* (0 – 164 ft) menggunakan *casing X-52*; 157,5 ppf, *surface casing* (0 – 1476 ft) menggunakan *casing K-55*; 94 ppf, *intermediate casing* (0 – 4373 ft) menggunakan *casing K-55*; 54,5 ppf, dengan nilai *kick tolerance* sebesar 27,03 bbls, *production casing* (0 – 4829 ft) menggunakan *casing K-55*; 40 ppf, dengan nilai *kick tolerance* sebesar 37,17 bbls, dan *production liner* (0 – 5638 ft) menggunakan *casing K-55*; 23 ppf, dengan nilai *kick tolerance* sebesar sebesar 72,15 bbls. *Safety factor* setiap trayek telah memenuhi standar API untuk ketahanan *casing* yang dipilih. Pada sumur SW-01, perencanaan *casing* dapat menjadi acuan dalam tahapan proses desain *casing* sebab diperoleh hasil yang akurat dan aman secara teknis.

Kata kunci: *casing setting depth*, *kick tolerance*, *maximum load*, *Landmark*

ABSTRACT

CASING DESIGN USING MAXIMUM LOAD METHOD WITH LANDMARK SOFTWARE APPROACH IN WELL “SW-01” FIELD “RINI”

By

Sulistiyorini Widi Hastuti

NIM: 113190004

(Petroleum Engineering Undergraduated Program)

The SW-01 Well is a Type J slant directional well with a final depth of 5638,45 ftMD/5544,61 ftTVD. The SW-01 Well a suitable and technically qualified drilling casing design is carried out with the aim of preventing problems such as total loss and kick that cause an increase in the internal and external pressure loads experienced by the casing.

The methodology used in this study is maximum load, taking into account the loads acting on the casing, which is blast load, collapse, tension, biaxial and triaxial loads. Casing design planning for Well "SW-01" is done by analyzing the casing setting depth based on PPF data, considering kick tolerance, casing grade selection, and approach method for casing planning using Landmark software.

The results of manual calculations and calculations using Landmark software in casing planning, five design routes were obtained, which is conductor casing (0 - 164 ft) using X-52 casing; 157.5 ppf, surface casing (0 - 1476 ft) using K-55 casing; 94 ppf, intermediate casing (0 - 4373 ft) using K-55 casing; 54. 5 ppf, with a kick tolerance value of 32.55 bbls, production casing (0 - 4829 ft) using K-55 casing; 40 ppf, with a kick tolerance value of 52.25 bbls, and production liner (0 - 5638 ft) using K-55 casing; 23 ppf, with a kick tolerance value of 69.08 bbls. The factor of safety for each route has met API standards for the durability of the selected casing. In the SW-01 well, casing planning can be a reference in the casing design process stage because accurate and technically safe results are obtained.

Keywords: casing setting depth, kick tolerance, maximum load , Landmark