

ABSTRAK

PENENTUAN *CASING SETTING DEPTH* DAN *HOLE GEOMETRY* SUMUR “MH-01” LAPANGAN “SA”

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Sumur “MH-01” pada Lapangan “SA” merupakan sumur eksplorasi di area Cekungan Jawa Timur Utara dengan kedalaman mencapai 1756 m menembus Formasi Kunjung, Formasi Ngimbang Atas, Formasi Ngimbang Bawah. Sumur “MH-01” memiliki zona produktif pada Formasi Ngimbang Bawah *Limestone* dan Ngimbang Bawah *Sandstone*. Kedalaman *casing* serta *hole size* harus dilakukan secara optimal sehingga dapat menghindari problem yang mungkin terjadi.

Pada penelitian kali ini dilakukan penentuan *casing setting depth* dan *hole geometry* dengan mempertimbangkan ukuran tubing. Prediksi *pore pressure* dan *fracture pressure* menggunakan data log, yaitu *gamma ray*, *density*, dan *sonic log* Sumur “MH-01”. Langkah-langkah yang dilakukan meliputi analisis *shale point* serta penentuan NCT, perhitungan tekanan *overburden*, prediksi tekanan pori dan tekanan rekah formasi dengan metode Eaton lalu divalidasi menggunakan data *drill stem test* dan *leak off-test*. Dari hasil prediksi *pore pressure* dan *fracture pressure* dapat dilakukan penentuan *mud weight* dan perhitungan tekanan hidrostatik, ECD, tekanan hidrodinamis. Kemudian dapat dilakukan penentuan kedalaman *casing*, ukuran tubing dan casing produksi, setelahnya menentukan ukuran *hole geometry* dan casing tiap trayek.

Berdasarkan prediksi *pore pressure* dan *fracture pressure* yang dibuat, didapatkan penentuan *casing setting depth* dengan 4 trayek yaitu *Conductor Casing* pada 0 - 92 m, *Surface Casing* pada 0 - 522 m, *Intermediate Casing* pada 0 - 1272 m, dan *Production Casing* pada 0 - 1756 m. Penggunaan pada tubing produksi dengan OD 3.5” ID 2.992” dan *Hole Geometry* (production) 8 1/2” dengan casing 7”, (intermediate) 12 1/4” dengan casing 9 5/8”, (surface) 17 1/2” dengan casing 13 3/8”, dan (conductor) 26” dengan casing 20”.

Kata kunci: Eaton, *Hole Geometry*, Kedalaman Casing, Tekanan Pori, Tekanan Rekah

ABSTRACT

DETERMINATION OF THE CASING SETTING DEPTH AND HOLE GEOMETRY WELL "MH-01" FIELD "SA"

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The "MH-01" well in the "SA" Field is an exploration well in the North East Java Basin area with a depth of 1756 m penetrating the Kunjung Formation, the Upper Ngimbang Formation, and the Lower Ngimbang Formation. The "MH-01" well has a productive zone in the Lower Limestone Ngimbang Formation and the Lower Sandstone Ngimbang Formation. The depth of the case and hole size must be done optimally so that it can avoid problems that may occur.

In this research, the casing setting depth and hole geometry were determined by considering the size of the tubing. Pore pressure and fracture pressure prediction uses log data, namely gamma ray, density, and sonic log of the "MH-01" Well. The steps taken include shale point analysis and NCT determination, overburden pressure calculation, pore pressure prediction and formation crack pressure with the Eaton method and then validated using drill stem test data and off-test leak. From the results of the pore pressure and fracture pressure prediction, mud weight determination and hydrostatic pressure, ECD, and hydrodynamic pressure calculations can be carried out. Then the depth of the casing, the size of the tubing and the production casing can be determined, after which the size of the hole geometry and casing of each route can be determined.

Based on the pore pressure and fracture pressure prediction made, the determination of the casing setting depth was obtained with 4 routes, namely Conductor Casing at 0 - 92 m, Surface Casing at 0 - 522 m, Intermediate Casing at 0 - 1272 m, and Production Casing at 0 - 1756 m. Use in production tubing with OD 3.5" ID 2.992" and Hole Geometry (production) 8 1/2" with 7" casing, (intermediate) 12 1/4" with 9 5/8" casing, (surface) 17 1/2" with 13 3/8" casing, and (conductor) 26" with 20" casing.

Keywords: Eaton, Hole Geometry, Casing Depth, Pore Pressure, Fracture Pressure.