

## ABSTRAK

### ***WELL DESIGN PADA SUMUR USULAN “L-3” PADA LAPANGAN “AE”***

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Lapangan AE terletak di wilayah Cekungan Sumatera Tengah dan sedang direncanakan pengembangan lapangan dengan mengusulkan pemboran sumur pengembangan berjumlah 1 sumur *infill* dengan target lapisan Formasi BN; MN; dan PM *Sand*. Untuk membuat rencana umum pemboran sumur diperlukan data pendukung dari sumur *offset* di lapangan tersebut. Terdapat *offset well* yaitu L-1 dan L-2 dengan formasi yang *equivalent* dengan Sumur L-3.

Pada penelitian menggunakan pendekatan kualitatif dan kuantitatif untuk membuat desain perencanaan sumur L-3 mencakup berbagai aspek mulai dari *trajectory*, perencanaan *casing setting depth*, perancangan *casing* dengan mempertimbang beban kerja, konfigurasi *bottom hole assembly* (BHA), rekomendasi *mud design* dan *cement design* yang disesuaikan dari *offset well*, hingga pemilihan unit rig pengeboran yang tepat.

Perencanaan well trajectory profile menggunakan Software COMPASS menghasilkan Sumur Tipe S karena memiliki 3 target lapisan formasi dengan KOP 708,8 ftTVD, Build up section 3°/100 ft dan drop of section -2°/100 ft, max inclination 14°, dan azimuth 275,58° hingga kedalaman 2350 ftTVD. Grade casing yang digunakan pada sumur L-3 berdasarkan perhitungan manual maupun menggunakan software stresscheck yaitu Surface Casing 13 3/8”, 54,5 ppf, K-55, BTC, R3; Intermediate Casing 9 5/8”, 43,5 ppf, K-55, BTC, R3; Production Casing 7”, 23 ppf, K-55, BTC, R3. Pada desain mud dan cement menggunakan referensi offset well karena menembus formasi yang sama dengan hasil pengeboran yang baik. Berdasarkan hasil dari software wellplan, diketahui bahwa drillstring pada sumur L-3 tidak mengalami buckling ataupun failure. Estimasi total waktu pengeboran untuk sumur L-3 adalah selama 19 hari.

Kata kunci: *Well Design, Casing Design, Directional drilling*

## **ABSTRACT**

### **WELL DESIGN FOR THE PROPOSED “L-3” WELL IN THE “AE” FIELD**

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*The "AE" field is located in the Central Sumatra Basin area and is being planned for field development by proposing the drilling of development wells amounting to 1 infill well with the target of BN, MN, and PM Sand Formation layers. To make a general plan for drilling wells, supporting data from existing wells in the field is needed. There are offset wells, namely L-1 and L-2 with a formation equivalent to the L-3 Well.*

*This study uses a qualitative and quantitative approach in the design planning of the L-3 well, which includes various aspects such as trajectory trajectory determination, designing the casing setting depth, casing design with workload in mind, bottom hole assembly (BHA) configuration, recommended mud and cement is adjusted from the existing well to well L-3, to the selection of the right drilling rig unit.*

*Well trajectory profile planning using COMPASS Software resulted in a Type S well because it has 3 formation layer targets with a KOP of 708.8 ftTVD, a build up section of 3°/100 ft and a drop of section of -2°/100 ft, a max inclination of 14°, and an azimuth of 275.58° to a depth of 2350 ftTVD. namely Surface Casing 13 3/8", 54.5 ppf, K-55, BTC, R3; Intermediate Casing 9 5/8", 43.5 ppf, K-55, BTC, R3; Production Casing 7", 23 ppf, K-55, BTC, R3. In mud and cement designs, the reference of offset wells is used because it penetrates the same formation with good drilling results. Based on the results of the wellplan software, it is known that the drillstring in the L-3 well did not experience buckling or failure. The estimated total drilling hours for the L-3 well are for 19 days.*

*Keywords: Well Design, Casing Design, Directional drilling*