ABSTRAK

PERENCANAAN KONSTRUKSI SUMUR DENGAN *MONOBORE SINGLE TRIP COMPLETION* UNTUK PENGOPTIMALAN *OPERATION TIME & WELL COST* PADA SUMUR "FDL" LAPANGAN SEPINGGAN

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Tren peningkatan permintaan minyak dan gas bumi yang sejalan dengan turunnya produksi membuat sektor hulu perlu mengambil upaya untuk memaksimalkan cadangan yang ada, salah satunya dengan penambahan sumur pengembangan. Salah satu usulan sumur pengembangan adalah Sumur "FDL" yang akan dibor di lepas pantai Lapangan Sepinggan, Balikpapan, Kalimantan Timur, di mana pengeboran lepas pantai umumnya memerlukan biaya lebih besar dibandingkan pengeboran darat, sehingga penerapan teknik-teknik yang mampu menekan biaya menjadi sangat vital.

Perencanaan konstruksi sumur dengan *monobore single trip completion* merupakan salah satu metode usulan untuk Sumur "FDL" sehingga lama waktu operasi dan biaya dalam perencanaan sumur dapat dioptimalkan. Perencanaan ini meliputi *wellpath*, *casing setting depth*, desain *casing*, pemilihan material, desain *monobore single trip completion* dan pengestimasian *operation time & well cost.*

Berdasarkan hasil penelitian, didapatkan bahwa Sumur "FDL" memiliki 4 *casing section*, yaitu *conductor casing* 20" dari kedalaman 0 - 430 ft MD, *surface casing* 13 3/8" dengan *grade* J-55 dengan *pounder* 61 ppf dari kedalaman 0 - 2110 ft MD, *intermediate casing* 9 5/8" *grade* L-80 dengan *pounder* 43,5 ppf dari kedalaman 0 - 7481 ft MD dan *production tubing* 3 ½" T-95 dengan *pounder* 9,2 ppf dari kedalaman 0-14755 ft MD dengan pelapis *Chrome* SM 13CRM. Perencanaan *monobore single trip completion* Sumur "FDL" menggunakan semen dengan densitas 15, 8 ppg sebanyak 540 bbl dan fluida komplesi $CaCl_2$ 11 ppg sebanyak 520 bbl. Estimasi pembuatan sumur ini dilakukan selama 31 hari dengan biaya sebesar $17.640.805 membuat komplesi ini lebih cepat 3 hari dan menghemat *well cost* sebesar $800.252 dibandingkan dengan menggunakan 7" *liner conventional completion*

Kata kunci: Desain *Casing, Monobore Completion, Operation Time, Well Cost*

ABSTRACT

WELL CONSTRUCTION PLANNING WITH SINGLE TRIP MONOBORE COMPLETION TO OPTIMIZE OPERATION TIME & WELL COST ON THE "FDL" WELL IN THE SEPINGGAN FIELD

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The increasing trend in demand for oil and natural gas in line with the decline in production has made the upstream sector need to take efforts to maximize existing reserves, one of which is by adding development wells. One of the proposed development wells is the "FDL" Well which will be drilled offshore in the Sepinggan Field, Balikpapan, East Kalimantan, where offshore drilling generally requires higher costs than onshore drilling, so the application of techniques that can reduce costs is very vital.

Well construction planning with a single trip monobore completion is one of the proposed methods for the "FDL" Well so that the long operating time and costs in well planning can be optimized. This planning includes the well path, casing setting depth, casing design, material selection, single trip monobore completion design and estimation of operating time & well costs.

Based on the research results, it was obtained that the "FDL" Well has 4 casing sections, namely 20" conductor casing from a depth of 0 - 430 ft MD, 13 3/8" surface casing with grade J-55 with 61 ppf pounder from a depth of 0 - 2110 ft MD, 9 5/8" intermediate casing grade L-80 with 43.5 ppf pounder from a depth of 0 - 7481 ft MD and 3 ½" T-95 production tubing with 9.2 ppf pounder from a depth of 0-14755 ft MD with Chrome SM 13CRM coating. The planning of a single trip monobore for the completion of the "FDL" Well uses cement with a density of 15.8 ppg as much as 540 bbl and 11 ppg $CaCl_2$ completion fluid as much as 520 bbl. The estimated time for this well construction was 31 days with an estimated cost of $17,640,805, making this completion 3 days faster and saving well costs of $800,252 compared to using a conventional 7" liner completion.

Keywords: Casing Design, Monobore Completion, Operation Time, Well Cost