ABSTRAK

UPAYA PENINGKATAN PRODUKTIVITAS MELALUI DESAIN *HYDRAULIC FRACTURING* PADA SUMUR MF-01 LAPANGAN ARTA

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Sumur MF-01 yang berproduksi pada lapangan ARTA memiliki karakteristik *reservoir* dengan permeabilitas 10 mD, porositas 17%, tekanan reservoir 1714 psi. Pada Sumur MF-01 memiliki harga permeabilitas yang rendah dan mengakibatkan aliran fluida produksi tidak maksimal. Sehingga perlu dilakukan stimulasi *hydraulic fracturing* untuk meningkatkan nilai permeabilitas pada Sumur MF-01.

Perencanaan stimulasi *hydraulic fracturing* pada sumur MF-01 dilakukan dengan menganalisa geometri rekahan, data komplesi sumur, data reservoir dan data perforasi yang akan dilakukan simulasi menggunakan simulator "X" untuk penentuan geometri rekahan, klasifikasi fluida perekah, penentuan volume *proppant* dan *pumping schedule,* dan hasil dari simulator "X" divalidasi dengan perhitungan kenaikan *productivity index* serta perbandingan grafik *inflow performance relationship.*

Analisa keberhasilan dari stimulasi *hydraulic fracturing* dilihat dari perubahan produktivitas sumur, dari hasil perbandingan *productivity index* (PI) yang sebelumnya 0,7 dan sesudah dilakukan simulasi menjadi 3,1, lalu permeabilitas yang sebelumnya 10 mD menjadi 51,11 mD, dan laju alir yang sebelumnya 874 bfpd menjadi 3857 bfpd. Maka dapat disimpulkan bahwa perencanaan simulasi *hydraulic fracturing* pada sumur MF-01 berhasil meningkatkan performa sumur secara signifikan.

Kata kunci: *hydraulic fracturing*, *Proppant*, PKN, *fluid frac, skin*.

ABSTRACT

INCREASING PRODUCTIVITY THROUGH HYDRAULIC FRACTURING DESIGN IN MF-01 WELL IN ARTA FIELD

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The MF-01 well producing in the ARTA field has reservoir characteristics with permeability of 10 mD, porosity of 17%, reservoir pressure of 1714 psi. MF-01 well has a low permeability price and results in not maximizing the flow of production fluid. So it is necessary to do hydraulic fracturing stimulation to increase the permeability value at the MF-01 Well.

The planning of hydraulic fracturing stimulation at the MF-01 well is carried out by analyzing fracture geometry, well completion data, reservoir data and perforation data which will be simulated using the "X" simulator to determine fracture geometry, classification of fracturing fluid, determination of proppant volume and pumping schedule, and the results of the "X" simulator are validated by calculating the increase in productivity index and comparing the inflow performance relationship graph.

Analysis of the success of hydraulic fracturing stimulation is seen from changes in well productivity, from the comparison of productivity index (PI) which was previously 0.7 and after simulation to 3.1, then permeability which was previously 10 mD to 51.11 mD, and flow rate which was previously 874 bfpd to 3857 bfpd. It can be concluded that the simulation planning of hydraulic fracturing at the MF-01 well has significantly improved the well performance.

Keywords: hydraulic fracturing, *Proppant*, PKN, *fluid frac*