

RINGKASAN

ANALISA HASIL DATA UJI *PRESSURE BUILD UP* DAN *MODIFIED ISOCHRONAL* UNTUK MENGETAHUI KONDISI RESERVOIR DAN PRODUKTIVITAS SUMUR GAS “PNF” LAPANGAN “BYN”

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Pada studi kasus ini yaitu menganalisa hasil data *Pressure Build Up* dan *Modified Isochronal Test* untuk menentukan kondisi reservoir dan produktivitas pada sumur gas PNF. Sumur gas PNF berada di Lapangan BYN yang merupakan lapangan penghasil minyak dan gas bumi, di mana sumur ini mulai pertama produksinya pada tahun 2016 yang di kelola oleh PT Pertamina EP Asset 3. Untuk mengetahui kondisi dan produktivitas sumur gas PNF, pada tahun 2018 sumur gas PNF di lakukan *Well Testing* dengan metode uji yang di lakukan yaitu *Pressure Build Up* (PBU) dan *Modified Isochronal Test* (MIT).

Metodologi yang di lakukan antaralain yaitu pengumpulan data reservoir, data survei EMR, data produksi dan data pendukung lainnya, langkah selanjutnya yaitu analisa sifat fisik gas, melakukan analisa PBU dengan menggunakan *software* Ecrin v4.10, serta melakukan analisa *deliveryability* dengan metode konvensional dan metode LIT.

Hasil analisa *pressure build up* (PBU) yang di dapatkan dari perhitungan menggunakan *software* ecrin v4.10, pada sumur “PNF” didapatkan skin faktor di dapat sebesar -0,688 penurunan tekanan akibat skin -18,4121 psi. Permeabilitas yang didapatkan sebesar 131 mD, radius investigasi (ri) yang didapatkan sebesar 1130 ft. *Mobility ratio* (M) sebesar 0,847, *Difusivity ratio* (D) sebesar 0,642, serta Tekanan mula-mula reservoir (P*) sebesar 852,694 Psia dan memiliki model reservoir *radial composite* dengan batas reservoir *infinite acting* . Berdasarkan analisa deliverabilitas dengan metode LIT di dapatkan nilai AOFP sebesar 1,8332 MMSCF/d sedangkan untuk metode konvensional di dapatkan nilai AOFP sebesar 2,1699 MMSCF/d.

Kata kunci: *Pressure Build Up* (PBU), *Modified Isochronal Test* (MIT), Konvensional, LIT, Kondisi Reservoir, Deliverabilitas.

ABSTRACT

ANALYSIS OF PRESSURE BUILD UP AND MODIFIED ISOCHRONAL TEST DATA RESULTS TO DETERMINE RESERVOIR CONDITIONS AND PRODUCTIVITY OF GAS WELL "PNF" FIELD "BYN"

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In this case study, we analyze the results of Pressure Build Up and Modified Isochronal Test data to determine reservoir conditions and productivity at the PNF gas well. The PNF gas well is located in the BYN field which is an oil and gas producing field, where this well began its first production in 2016 which is managed by PT Pertamina EP Asset 3. To determine the condition and productivity of the PNF gas well, in 2018 the PNF gas well was conducted Well Testing with the test methods carried out namely Pressure Build Up (PBU) and Modified Isochronal Test (MIT).

The methodology includes collecting reservoir data, EMR survey data, production data and other supporting data, the next step is analyzing the physical properties of gas, analyzing PBU using Ecrin v4.10 software, and analyzing deliverability with conventional methods and LIT methods.

The results of the pressure build up (PBU) analysis obtained from calculations using ecrin v4.10 software, at the "PNF" well, the skin factor obtained was -0,688, the pressure drop due to skin was -18.4121 psi. The permeability obtained is 131 mD, the investigation radius (r_i) obtained is 1130 ft. Mobility ratio (M) of 0,847, diffusivity ratio (D) of 0,642, and initial reservoir pressure (P^) of 852,694 Psia and has a radial composite reservoir model with infinite acting reservoir boundaries. Based on the deliverability analysis with the LIT method, the AOF_P value is 1,8332 MMSCF/d while for the conventional method, the AOF_P value is 2,1699 MMSCF/d.*

Keywords: Pressure Build Up (PBU), Modified Isochronal Test (MIT), Konvensional, LIT, Reservoir Condition, Deliverabilitas.