

INTISARI

ESTIMASI SEBARAN LITOLOGI DAN FLUIDA PADA RESERVOAR KARBONAT MENGGUNAKAN *EXTENDED ELASTIC IMPEDANCE* DI LAPANGAN “VAN HALEN”

Sulistyo Oetomo Putro

12/330929/PA/14409

Metode inversi seismik dapat digunakan untuk karakterisasi reservoir hidrokarbon (litologi+fluida). Karakterisasi untuk menghasilkan pemisahan litologi dan fluida dapat menggunakan metode inversi elastik. Estimasi sebaran litologi dan fluida pada reservoir karbonat dilakukan menggunakan metode *extended elastic impedance*. *Crossplot* antara λ rho dengan μ rho mampu memisahkan karbonat berisi gas terhadap litologi karbonat. Karbonat Halen porous berisi gas mempunyai *cut off* λ rho 20 - 45 Gpa*g/cc dan μ rho 25 - 40 Gpa*g/cc. Sedangkan karbonat Van porous berisi gas mempunyai *cut off* λ -rho 20 - 60 Gpa*g/cc dan μ -rho 15 - 44 Gpa*g/cc.

Intercept dan *Gradient* untuk EEI di ekstrak dari seismik *Near Angle Stack* dan *Far Angle Stack*. Sudut optimal dari hasil korelasi silang antara log λ rho dan log μ rho dengan log EEI mendapatkan sudut sensitif 16° (λ rho) dan -40° (μ rho). Inversi sparse spike volume reflektifitas pada sudut -40° menghasilkan sebaran karbonat porous pada zona Halen-west, Van-north, Van-southeast. Sedangkan inversi pada volume reflektifitas pada sudut 16° menunjukkan sebaran gas di zona karbonat Halen-west, Van-southeast, Van-north. Zona prospek pada karbonat bertipe *build up* yang bersifat porous berisi gas.

Kata kunci : *Extended elastic impedance, Lambda Rho, Mu Rho, Karbonat*

ABSTRACT

ESTIMATION OF LITHOLOGY AND FLUID DISTRIBUTIONS ON CARBONATE RESERVOIR USING EXTENDED ELASTIC IMPEDANCE IN “VAN HELEN” FIELD

SULISTYO OETOMO PUTRO

12/330929/PA/14409

*Seismic inversion method was used to reservoir hydrocarbon characterization (lithology + fluid). Reservoir characterization in this study to find the difference of lithology and fluid using elastic inversion method. Estimation of the distribution of lithology and gas in carbonate reservoir had done using extended elastic impedance (EEI) method. Cross plot between lambda rho and mu rho can distinguish carbonate porous contain gas toward carbonate lithology. Carbonate Halen porous contain gas shows cut off of lambda rho about 20 - 44 Gpa*g/cc and mu rho 25 - 40 Gpa*g/cc. Meanwhile, carbonate Van porous contain gas display lambda rho cut off lambda rho 20 - 60 Gpa*g/cc and mu rho 15 - 44 Gpa*g/cc.*

Intercept and Gradient for EEI were extracted from Near Angle Stack and Far Angle Stack seismic. The optimum angle of cross correlation between lambda rho and mu rho log versus EEI log obtained a sensitive angle 16° (lambda rho) and -40° (mu rho). Sparse spike inversion of reflectivity volume -40° result the distributions porous carbonate in Halen-west, Van-north, Van-southeast zone. Meanwhile, inversion of reflectivity volume 16° showed distributions of gas in the halen-west, the van-southeast, the van-north carbonate zone. In this study, carbonate prospect zone build up type shows characteristic porous gas carbonate.

Key words : *Extended elastic impedance, Lambda Rho, Mu Rho, Carbonate*