Karakterisasi zona reservoar berdasarkan hasil inversi lambda mu rho dan sebaran porositas hasil multiatribut: studi kasus Lapangan Bintang cekungan Jawa Timur = Reservoir zone characterization based on lambda mhu rho inversion result and porosity distribution result using multiattribute: case study Bintang Field East Java basin

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Abstrak

[Lapangan “BINTANG” berada di Cekungan Jawa Timur. Formasi target adalah Formasi Ngimbang yang memiliki beberapa zona target dengan ketebalan antara 20-40meter yang berada dibawah ketebalan tuning seismik. Zona-A dan Zona-C merupakan zona target penelitian. Formasi Ngimbang pada daerah penelitian, memiliki lithologi karbonat dan shale, sehingga perlu untuk memisahkan kedua lithologi kedua melalui data seismik. Data sumur test produksi daerah penelitian menunjukkan keberadaan hidrokarbon. Berdasarkan analisa sensitifitas, parameter P-Impedance dan Mu-Rho digunakan untuk memisahkan lithologi daerah penelitian. Daerah reservoar yang merupakan batuan karbonat berada pada nilai P-Impedance dan Mu-Rho kecil diatas cuttoff. Parameter Lambda-Rho*Poisson Ratio digunakan untuk mengidentifikasi sebaran hidrokarbon dimana zona bernilai kecil merupakan daerah yang mengindikasikan sebaran hidrokarbon. Inversi dilakukan dengan metode Extended Elastic Impedance (EEI) dimana metode ini menghasilkan volum reflektifitas langsung dari parameter yang dipilih. Inversi dengan metode EEI yang diaplikasikan dengan parameter Mu-Rho paling baik menggunakan sudut korelasi -45 dan untuk parameter Lambda-Rho*Poisson Ratio menggunakan sudut 33,5. Proses multiatribut digunakan untuk memprediksi sebaran porositas. Hasil multiatribut menunjukkan bagian utara daerah penelitian merupakan daerah yang lebih dangkal sehingga porositas lebih tinggi dibanding daerah selatan arah
tenggara. Daerah utara masih berada pada bagian lagoonal sedangkan arah selatan-tenggara merupakan outer margin yang semuanya berada pada lingkungan pengendapan platform carbonate.
....."BINTANG" field is located in the East Java basin. The target formation is Ngimbang Formation which have several target zones with thickness between 20-40 meters which is below seismic tuning thickness. Zone-A and Zone-C is the target zone. Formation Ngimbang in this study area has carbonate and shale lithology, so that needs to seperate this two lithology by seismic data. From the sensitivity analysis, parameter P-Impedance and Mu-Rho used to separate the lithology in the study area. Carbonate rocks reservoir is at value of PImpedance and Mu-Rho small above the cuttoff. Parameter Lambda-Rho*Poisson Ratio used to identify the distribution of hydrocarbons, which small value area indicates the distribution of hydrocarbons. Inversion is performed using the extended elastic impedance (EEI) method which directly produces the reflectivity volume of the parameters has been selected. Inversion with EEI method which applied with Mu-Rho parameter best correlation angle is -45 and for Lambda-Rho*Poisson Ratio parameter is 33,5. Multiatributte process used to predict the porosity. Multiattribute results show that the northern part of study area is shallow area, that porosity is higher than the southern of the southeast regions. Northern areas are still located on the lagoonal while the south-southeast is the outer margin area which all area in platform carbonate depositional environments.;"BINTANG" field is located in the East Java basin. The target formation is Ngimbang Formation which have several target zones with thickness between 20-

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