INTISARI

KARAKTERISASI RESERVOIR MENGGUNAKAN METODE SEISMIK MULTIATRIBUT *LINEAR REGRESSION* (MLR) PROPERTI VOLUME *SHALE* DAN *EFFECTIVE POROSITY* STUDI KASUS LAPANGAN "LSD", FORMASI GRUP BALIKPAPAN, CEKUNGAN KUTAI, KALIMANTAN TIMUR

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Struktur Antiklinorium yang menyusun Formasi Grup Balikpapan, Blok Sanga Sanga, Cekungan Kutai merupakan penghasil minyak dan gas bumi terbesar di Indonesia. Lapangan "LSD" menjadi bagian dari cekungan ini. Analisis multiatribut seismik menggunakan metode *linear regression* dilakukan untuk mengidentifikasi persebaran reservoir batupasir pada Lapangan "LSD". Selain itu, penelitian ini juga bertujuan untuk mengetahui hubungan metode seismik multiatribut *linear regression* terhadap analisis distribusi reservoir. Data yang digunakan dalam penelitian terdiri atas data seismik 3D *Post Stack Time Migration* dan lima data sumur. Data sumur digunakan sebagai analisis sensitivitas berdasarkan *crossplot log* untuk menghasilkan nilai *cutoff* litologi. Pada data seismik dilakukan analisis kuantitatif menggunakan metode multiatribut *linear regression* dengan teknik *step-wise regression* untuk memprediksi persebaran volume *shale* dan porositas efektif. Interpretasi dilakukan pada *horizon* A-25 dan C-13 dengan menggunakan peta struktur waktu dan peta persebaran atribut. Didapatkan zona prospek reservoir batupasir pada Lapangan "LSD" dengan karakteristik berupa nilai volume *shale* rendah berkisar antara 0 (*fraction*) hingga 0,35 (*fraction*) pada zona A-25 dan 0 (*fraction*) hingga 0,12 (*fraction*) pada zona C-13, serta nilai porositas efektif tinggi berkisar antara 30% hingga 60% pada zona A-25 dan 1% hingga 26% pada zona C-13. Pada akhirnya, diketahui penerapan metode seismik multiatribut *linear regression* terhadap analisis distribusi reservoir untuk mengidentifikasi litologi dan mengetahui persebaran litologi.

Kata kunci: *Multiatribut Linear Regression,* Volume *Shale,* Porositas Efektif, Reservoir Batupasir.

ABSTRACT

RESERVOAR CHARACTERIZATION USING MULTIATTRIBUTE LINEAR REGRESSION (MLR) SEISMIC METHODS SHALE VOLUME AND EFFECTIVE POROSITY PROPERTY CASE STUDY OF "LSD" FIELD, BALIKPAPAN GROUP FORMATION, KUTAI BASIN, EAST KALIMANTAN

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The Anticlinorium structure that forms the Balikpapan Group Formation, Sanga Sanga Block, Kutai Basin is the largest oil and gas producer in Indonesia. The "LSD" Field is part of this basin. Multi-attribute seismic analysis using the linear regression method was carried out to identify the distribution of sandstone reservoirs in the "LSD" Field. In addition, this study also aims to determine the relationship of the seismic multi-attribute linear regression method to the analysis of reservoir distribution. The data used in the study consisted of 3D Post Stack Time Migration seismic data and five well data. Well data was used as a sensitivity analysis based on log crossplots to produce lithology cutoff values. Quantitative analysis was carried out on the seismic data using the multi-attribute linear regression method with the step-wise regression technique to predict the distribution of shale volume and effective porosity. Interpretation was carried out on the A-25 and C-13 horizons using time structure maps and attribute distribution maps. A sandstone reservoir prospect zone was obtained in the "LSD" Field with characteristics in the form of low shale volume values ranging from 0 (fraction) to 0.35 (fraction) in zone A-25 and 0 (fraction) to 0.12 (fraction) in zone C-13, and high effective porosity values ranging from 30% to 60% in zone A-25 and 1% to 26 % in zone C-13. Finally, it is known that the application of the multi-attribute linear regression seismic method to the reservoir distribution analysis is to identify lithology and determine the distribution of lithology.

Keywords: *Multiattribute Linear Regression, Shale Volume, Effective Porosity, Sandstone Reservoir.*