

INTISARI

IDENTIFIKASI PERSEBARAN RESERVOIR MENGGUNAKAN ANALISIS MULTIATRIBUT DENGAN *PROBABILISTIC NEURAL NETWORK* DI LAPANGAN X

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Pemerintah Indonesia menargetkan produksi minyak sebesar 1 juta barel per hari dan gas sebesar 12 miliar standar kaki kubik per hari pada tahun 2030. Percepatan kegiatan eksplorasi menjadi salah satu strategi untuk mencapai target tersebut. Penelitian ini bertujuan untuk mengidentifikasi persebaran reservoir batupasir Formasi Talang Akar di Lapangan X, Cekungan Sumatra Selatan, dengan menggunakan atribut dan analisis multiatribut seismik berbasis algoritma *Probabilistic Neural Network* (PNN). Data yang digunakan meliputi data seismik 3D *Post Stack Time Migration* dan tiga sumur pemboran. Tahapan awal mencakup ekstraksi atribut seismik, yaitu amplitudo RMS, *sum of negative amplitude*, dan *envelope*. Selanjutnya, dilakukan analisis multiatribut untuk memprediksi sebaran porositas efektif menggunakan PNN, yang kemudian diinterpretasikan pada dua interval target (U – L dan L – S) melalui empat peta: RMS amplitudo, *sum of negative amplitude*, *envelope*, dan sebaran porositas efektif. Hasil interpretasi menunjukkan zona prospek reservoir dengan karakteristik berupa nilai amplitudo RMS, *sum of negative amplitude*, dan *envelope* yang relatif rendah, serta porositas efektif berkisar antara 7% hingga 15%.

Kata Kunci : atribut seismik, reservoir batupasir, *probabilistic neural network*, Formasi Talang Akar

ABSTRACT

IDENTIFICATION OF RESERVOIR DISTRIBUTION USING MULTIATTRIBUTE ANALYSIS WITH PROBABILISTIC NEURAL NETWORK IN FIELD X

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The Government of Indonesia has set a target to produce 1 million barrels of oil per day and 12 billion standard cubic feet of gas per day by 2030. Accelerating exploration activities is one of the key strategies to achieve this target. This study aims to identify the distribution of sandstone reservoirs within the Talang Akar Formation in Field X, South Sumatra Basin, using seismic attribute and multi-attribute analysis based on the Probabilistic Neural Network (PNN) algorithm. The data used consist of 3D Post Stack Time Migration seismic data and three well logs. The initial stage involves the extraction of seismic attributes, namely RMS amplitude, sum of negative amplitude, and envelope. Subsequently, a multi-attribute analysis was conducted to predict the distribution of effective porosity using PNN, which was then interpreted in two target intervals (U–L and L–S) through four resulting maps: RMS amplitude, sum of negative amplitude, envelope, and effective porosity distribution. Interpretation results indicate a prospective reservoir zone characterized by relatively low values of RMS amplitude, sum of negative amplitude, and envelope, as well as effective porosity ranging from 7% to 15%.

Keywords : seismic attribute, sandstone reservoir, *probabilistic neural network*, Talang Akar Formation