ABSTRAK

KARAKTERISASI RESERVOIR MENGGUNAKAN SEISMIK INVERSI *ACOUSTIC IMPEDANCE* DAN ATRIBUT SEISMIK FORMASI PEUTU LAPANGAN "DAVINA" CEKUNGAN SUMATERA UTARA

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Telah dilakukan penelitian karakterisasi reservoir pada Lapangan "Davina" Formasi Peutu Cekungan Sumatera Utara. Penelitian bertujuan untuk mengetahui karakter reservoir serta penentuan zona prospek yang dapat digunakan sebagai titik sumur bor baru.

Penelitian ini menggunakan metode seismik inversi dan atribut seismik. Data seismik 3D *Pre- Stack Time Migration* serta 3 sumur pemboran digunakan sebagai data utama penelitian ini. Data sumur diikat ke data seismik dalam proses inversi agar mendapatkan korelasi yang baik antara data seismik dan data sumur.

Berdasarkan analisa *cross plot Porosity* vs *P-Impedance*, porositas tinggi berasosiasi pada nilai *P-Impedance* rendah. Hasil inversi menunjukkan bahwa pada zona target, *P-Impedance* rendah terakumulasi pada *reef* karbonat yang menunjukkan bahwa pada *reef* karbonat memiliki nilai porositas tinggi. Proses atribut seismik baik atribut amplitudo dan atribut frekuensi menunjukkan pada zona target dengan porositas tinggi berasosiasi dengan nilai anomali rendah. Dari analisa kualitas reservoir, zona target terbagi menjadi tiga yaitu *good reservoir, medium reservoir, poor reservoir* dimana zona prospek yang ditentukan masuk pada zona *good reservoir* dengan nilai *P-Impedance, amplitude* dan *frequency* yang rendah serta porositas tinggi.

Kata Kunci : seismik inversi, atribut seismik, *acoustic impedance*, porositas, karbonat *build-up*

ABSTRACT

CHARACTERIZATION OF RESERVOIR ROCK USING SEISMIC INVERSION AND ATTRIBUTE SEISMIC PETU FORMATION "DAVINA" FIELD NORTH SUMATERA BASIN

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This research had been done Characterization of reservoir "Davina" Field, Peutu Formation, North Sumatera Basin. This research used to know reservoir character and find prospect zone to used for next exploration or production well.

This research used inversion acoustic impedance and attribute seismic. Seismic 3D pre- stack time migration and 3 wells data use for main data in this research. Well tie process has been done in this research to get good correlation between seismic data and wells data.

Based on Porosity vs P-Impedance Cross plot analysis, high porosity correlates with low P-Impedance. Inversion result show low P-Impedance accumulated at reef carbonate, based on Porosity vs P-Impedance cross plot analysis reef carbonate have high porosity. Atribute seismic amplitude envelope show target zone have low anomaly and from instantaneous frequency show target zone have low frequency. From quality reservoir analysis, target zone divided into three zone, good reservoir, medium reservoir, and poor reservoir and prospect zone included at good reservoir zone with low P-Impedance, amplitude, frequency and high porosity.

Key words : seismic inversion, attribute seismic, acoustic impedance, porosity, carbonate build up