Aplikasi multi atribut seismik untuk mengidentifikasi fasies paleochannel formasi talang akar bagian Atas (studi kasus Lapangan HD Cekungan Sunda) = Multi attribute seismic application for porosity distribution identification of Paleochannel Facies of Upper Talang Akar Formation (Case study of "HD" Field, Sunda Basin)

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Abstrak

Lapangan 'HD' merupakan lapangan gas di Cekungan Sunda yang dikembangkan sejak tahun 2006 dan telah membuktikan keberadaan hidrokarbon pada lapisan batupasir Formasi Talang Akar bagian atas. Formasi ini merupakan sedimen sedimen darat yang terendapkan sepanjang aliran sungai purba (paleochannel) berumur Oligosen Atas dan berpotensi sebagai lapisan reservoir yang baik. Aplikasi multi atribut seismik merupakan salah satu teknik yang dipakai dalam mengidentifikasi pola sebaran dan kualitas reservoir sedimen tersebut. Penerapan teknik multi atribut seismik pada Lapangan "HD" menghasilkan 7 atribut kombinasi terbaik yaitu Filter 55/60-65/70, Duadrature Trace, Log (inversion), Filter 35/40-45/50, Derivative, Y-Coordinate, dan Second Derivative dengan koefisien korelasi sebesar 0.612388.
Hasil dari sebaran distributary channel pada 4 lapisan reservoir target diinterpretasikan masuk ke dalam lingkungan pengendapan upper delta plain dimana secara kualitas Lapisan Sand-A mempunyai porositas terbaik 18%, Sand-B sebesar 20%, Sand-C bernilai 28%, dan Sand-D sebesar 24%. Sedangkan dari identifikasi kawasan prospek hidrokarbon, Lapisan Sand-A mempunyai 5 kandidat prospek (A1, A2, A3, A4 dan A5), Lapisan Sand-B terdapat 6 kandidat prospek (B1, B2, B3, B4, B5 dan B6), Lapisan Sand-C mempunyai 5 kandidat prospek (C1, C2, C3, C4 dan C5), serta Lapisan Sand-D terdapat 7 prospek (D1, D2, D3, D4, D5, D6 dan D7). Hasil perhitungan sumberdaya hidrokarbon keempat lapisan reservoir didapatkan original oil inplace Sand-A sebesar 1,63 mmscf, Sand-B sebesar 2,47 mmscf, Sand-C sebesar 0,7 mmscf, dan Sand-D sebesar 7,07 mmscf.
<hr><i>"HD" fields is a gas field in Sunda Basin, it developed since 2006. The hydrocarbon existence in this field is proven at sandstone layers of the Upper Talang Akar Formation. Upper Talang Akar Formation is a terrestrial sediments, which is deposited along the ancient river (paleochannel) of Upper Oligocene age and this formation is potential to be a good reservoir. Multi attribute seismic application is a techniques used to identify the patterns of distribution and reservoir sediments quality. The application of multi attribute seismic techniques in the "HD" field produce 7 best attributes combination, they are Filter 55/60-65/70; Duadrature Trace; log (inversion); Filter 35/40-45/50; Derivative; YCoordinate; and second derivative with correlation coefficient 0.612388.
The result of the distributary channel in the 4 layers reservoir target are interpreted into the upper delta plain deposition environment. Sand-A layer has the best porosity about 18%, Sand-B by 20%, Sand-C around 28%, and Sand-D approximately 24%. Whilst the hydrocarbon prospect identification of the region, Sand-A layer have 5 prospects candidate (A1, A2, A3, A4, and A5), Sand-B layer have 6 prospects candidate (B1, B2, B3, B4, B5, and B6), Sand-C have 5 prospects candidate (C1, C2, C3, C4, and C5), and Sand-D have 7 prospects candidate (D1, D2, D3, D4, D5, D6, and D7). The results of hydrocarbon resources calculation from reservoir layer obtained original oil inplace. Sand-A layer has 1,63 mmscf, Sand-B 2,47 mmscf, Sand-

C 0,7 mmscf, and Sand-D 7,07 mmscf.</i>