# Analisis prospek hidrokarbon pada zona patahan menggunakan gabungan interpretasi geo electric ivel dan continuous wavelet transform di Lapangan X = Analisis of hydrocarbon prospect in fault zone using the interpretation of geo electric ivel and continuous wavelet transform in X Field

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Abstrak

[Lapangan X merupakan lapangan mature yang berada di Cekungan Sumatera Tengah. Lapangan ini memiliki struktur antiklin produk dari reverse oblique-slip fault yang membentuk zona patahan di sisi Barat Lapangan X. Zona ini terbukti menghasilkan hidrokarbon ditunjukan oleh sumur produksi X-027, X-153 dan X 154. Sehingga zona patahan ini memiliki potensi untuk di eksplorasi lebih lanjut. Namun, kondisi seismik di zona ini chaotic sehingga sulit untuk menginterpretasikan zona patahan. Penelitian ini akan menggunakan metode geoelectric IVEL dan continuous wavelet transform (CWT) untuk mendapatkan informasi keberadaan hidrokarbon di
zona patahan Lapangan X. Geoelectric IVEL (Inversion Vertical Electrical Logging) menggunakan metode vertical sounding schlumberger yang diolah untuk menghasilkan penampang resistivitas medium. Hasil penampang resistivitas medium pada penelitian ini menunjukkan adanya kemiripan nilai resitivitas dengan nilai log resistivitas sumur untuk zona reservoar 350sd dan 550sd (10-20 ohmm). Nilai resistivitas ini terlihat juga di zona patahan yang dijadikan indikator hidrokarbon. Hasil dalam domain kedalaman membantu dalam interpretasi kedalaman reservoar di zona patahan. Analisis continuous wavelet transform (CWT) pada penelitian ini menunjukan amplitudo tinggi pada frekuensi rendah 5-20 Hz dan merupakan indikasi adanya hidrokarbon. Amplitudo tinggi pada frekuensi rendah telihat juga di zona patahan, pada posisi dimana IVEL menunjukan nilai resistivitas sebagai indikator. .....Hidrocarbon X field is a mature field in Central Sumatera Basin. It has anticline structure as a result of reverse oblique-slip fault that produces fault zone in the North side of X Field. It is proved hydrocarbon with the production well X-027, X-153 and X-154. However, it is very difficult to interpret the fault zone with the available seismic data because of the chaotic seismic condition in fault zone. This study uses Ivel Geoelectric method and Continuous Wavelet Transform (CWT) to get hydrocarbon indicator in fault zone. Geoelectric IVEL (Inversion Vertical Electrical Logging) using vertical sounding schlumberger is processed to get medium resistivity section. Medium resistivity section from geoelectrical IVEL at reservoir zone showes similar resistivity value with resistivity log (10-20ohm) for reservoar 350sd and 550sd. This value is showed in fault zone as hydrocarbon indicator. Medium resistivity geoelectrical IVEL is depth domain. It is helpful for interpretation of reservoir depth at fault zone, that is not able to be done by seismic. Continuous wavelet transform (CWT) showes high amplitude at low frequency (5-20Hz) as hydrocarbon indicator. High amplitude at low frequency is showed in fault zone where IVEL showes the hydrocarbon indicator;X field is a mature field in Central Sumatera Basin. It has anticline structure as a
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