Analisis AVO dan model based inversion untuk memetakan penyebaran hidrokarbon: Studi kasus struktur "S", Cekungan Sumatera Selatan = AVO analysis and model based inversion to delineate hydrocarbon distribution (Case study of "S" structure South Sumatera Basin

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Abstrak

Studi Analisis AVO dan inversi dengan metode model based telah dilakukan pada Struktur S, Cekungan Sumatera Selatan. Tujuan studi ini adalah memetakan penyebaran kandungan gas di Formasi Air Benakat dengan data kontrol berasal dari satu sumur, yaitu sumur SF-1. Berdasarkan hasil analisis AVO terlihat adanya anomali kelas IIp pada TWT 1552 ms. Sementara berdasarkan Uji Kandungan Lapisan (UKL), Top Gas pada sumur SF-1 terdeteksi pada kedalaman 1857 m yang berkorelasi dengan hasil analisis AVO. Setelah dilakukan proses inversi seismik dengan model based inversion di sepanjang horizon Top Gas terlihat adanya penurunan nilai impedansi akustik dan rasio Poisson. Penurunan dua parameter tersebut menunjukkan adanya kandungan gas pada lapisan tersebut. Selain itu, dari hasil analisis map slice horizon dapat diprediksi bahwa adanya penyebaran gas ke arah tenggara terhadap sumur SF-1.
<hr>Study of analysis AVO and model-based inversion had been implied on structure S, South Sumatra basin. The aim of this study is to delineate the distribution of gas in Air Benakat formation by using the only one well data, SF-1 as a controller. A class-IIp anomaly in 1552 ms TWT was seen as the result of AVO analysis. Meanwhile the result of Drilled Stem Test (DST) showed that Top-Gas in SF-1 well has been detected in 1857 m depth which correlated to the previous AVO analysis result. After doing model-based inversion along Top-Gas horizon, we could see the decrement of acoustic impedance value and also Poisson ratio as well. The decrease of these parameters proved the gas content in the layers. In addition, the distribution of gas to the south-east of SF-1 well had been predicted due to map-sliced horizon analysis