Analisis ketidakpastian kedalaman target reservoar untuk sumur penilaian pada lapangan x, Cekungan Bintuni, Area Berau, Papua = Depth uncertainty analysis of rerservoir target for appraisal well at x field, Bintuni Basin, Berau Area, Papua

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Abstrak

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Model kecepatan lapisan bawah permukaan yang diestimasi pada proses pengolahan data seismik yang masih memiliki ketidakpastian posisi sebenarnya dari reflektor seismik atau kedalaman lapisan geologi. Penelitian ini melakukan analisis ketidakpastian dari kedalaman posisi lapisan reservoar pada Lapangan X. Hasil penelitian digunakan untuk membantu pemprediksi area target pengeboran sumur penilaian sebelum dilakukan pengembangan pada Lapangan X. Analisis dilakukan dengan menggabungkan dua metode yaitu analisis statistika dari proses koreksi peta kedalaman reservoar dan proses kalibrasi model kecepatan data seismik. Dari kedua analisis ini diketahui nilai maksimum ketidakpastian kedalaman pada batas atas reservoar sebesar 125ft. Distribusi nilai ketidakpastian kedalaman dilakukan dengan menggunakan acuan dari bentuk geologi lipatan Lapangan X untuk menghasilkan peta ketidakpastian kedalaman. Peta ketidakpastian kedalaman digunakan untuk mendapatkan peta lapisan reservoar dengan kasus dangkal, dasar dan dalam. Dari ketiga peta tersebut dikombinasikan dengan data sekunder kontak gas dan air (Gas Water Contact) dan asumsi akuisisi data pada sumur penilaian sehingga diperoleh prediksi area target pengeboran sumur penilaian dengan jarak terdekat 400 m dari sumur eksplorasi pada Lapangan X.
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ABSTRACT
Subsurface velocity model that estimated from seismic data processing still has uncertainty in term of real position of seismic reflector or depth geological layer. The research has been carried out for analyzing depth uncertainty of reservoir layer at X-Field. The result will be used to determine the target area of appraisal well which should be done before field development stage. This research used two methods to analyze the depth uncertainty, there are statistic analysis of reservoir depth map correction process and seismic velocity model calibration. From these analysis was known that maximum depth uncertainty number for top reservoar layer is 125 ft. The distribution of depth uncertainty value use X Field shape as geological model reference for generating depth uncertainty map. The depth uncertainty map was applied to get reservoir map with three alternative model, shallow case, base case and deep case. Combination of these three maps with the gas water contact infomation and data acquisition asumption generated the prediction of the target area for appraisal well at X-Field that the shortest distance is 400m from exploration well.;Subsurface velocity model that estimated from seismic data processing still has uncertainty in term of real position of seismic reflector or depth geological layer. The research has been carried out for analyzing depth uncertainty of reservoir layer at X-Field. The result will be used to determine the target area of appraisal well which should be done before field development stage. This research used two methods to analyze the depth uncertainty, there are statistic analysis of reservoir depth map correction process and seismic velocity model calibration. From these analysis was known that maximum depth uncertainty number for top reservoar layer is 125 ft.

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