Pemodelan statik dan karakterisasi reservoar dangkal lapangan athar dengan atribut seismik dan inversi seismik simultan = Static modeling and reservoar characterization of shallow reservoir athar field with seismic attribute and simultaneous seismic inversion

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Abstrak

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Lapangan Athar mulai berproduksi sejak tahun 1975 dengan produksi kumulatif mencapai 900 MMbbls dan RF 50%. Pada tahun 2011 dilakukan akuisisi seismik 3D untuk melihat remaining potential yang ada di lapangan ini. Analisa seismik 3D dengan atribut seismik dan inversi simultan memberikan hasil yang cukup baik untuk menentukan penyebaran batupasir dan hidrokarbon yang ada di dalam nya. Volume densitas hasil inversi, atribut minimum amplitude, dan atribut arc length membantu dalam mengidentifikasi penyebaran reservoar. Lambda-Rho dan AI membantu dalam mengidentifikasi area-area yang mengandung hidrokarbon. Interpretasi struktur di seismik menunjukkan adanya sesar minor, yang sebelumnya tidak teridentifikasi pada seismik 2D. Hasil analisa seismik digunakan dalam pembuatan 3D geomodel. Penentuan batas channel, dan area hidrokarbon di dipandu hasil dari analisa seismik dan data sumur. Empat tubuh channel teridentifikasi dari analisis tersebut, sementara overbank deposit disebarkan secara statistik. Data interpreasi struktur digunakan untuk menentukan jumlah segmen atau kompartemen, dan hasilnya adalah lima segmen selatan dan satu segmen utara terdapat di zona dangkal Lapangan Athar. Hasil pemodelan geologi menunjukkan bahwa segmen 5 menjadi area yang masih memiliki prosepek untuk produksi minyak, sementara segmen 2 memiliki prospek untuk produksi gas.
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ABSTRACT
Athar Field start producing since 1975 up to now with cummulative production reached 900 MMbbls and RF 50%. 3D seismic was acquired in 2011 to identify the remaining potential in this field. Analysis of 3D seismic with attribute and simultaneous inversion provide a good result to determine reservoar distribution and hydrocarbon contained. Density cube from inversion, minimum amplutide attribute, anda arc length attribute are used to map the sand distribution. Lambda Rho and AI (Ip) are usefull to identify the remaining hyrocarbon area. Structural interpretation from seismic shows there are minor faults which is not identified before with 2D seismic. The result of the analysis was used to create 3D Geomodel. The channel limit determination, and remaining hydrocarbon area guided by analysis from seismic and well data. As a result, four channel bodies were identified, whilst overbank deposit distributed statistically. Structural interpretation data used to determine the number of segment or compartment, and the result are five segments in the south and one segment in the north identified in the shallow zone Athar Field. The result of geological modeling shows that segment 5 still has prospect in oil production, whilst segment 2 has prospect in gas production.;Athar Field start producing since 1975 up to now with cummulative production reached 900 MMbbls and RF 50%. 3D seismic was acquired in 2011 to identify the remaining potential in this field.
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