

Pemodelan fasies dan petrofisika reservoir batupasir formasi tanjung di lapangan k, cekungan Barito berdasarkan extended elastic impedance = Facies and petrophysical modeling of sandstone layers tanjung formation in k field Barito basin using extended elastic impedance

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Abstrak

Lapangan K merupakan salah satu lapangan minyak bumi dengan reservoir berupa batupasir Formasi Tanjung yang berada di Cekungan Barito. Penelitian ini bertujuan untuk memetakan gambaran bawah permukaan secara detail dengan metode pemodelan geologi yang meliputi pemodelan struktur, fasies, dan petrofisika serta diintegrasikan dengan hasil inversi EEI. Data penelitian terdiri dari data log tali kawat berjumlah empat belas sumur dan data seismik 3D. Data sumur ini dilakukan korelasi marker geologi, analisis elektrofases, serta analisis petrofisika sedangkan pada data seismik dilakukan interpretasi horizon, patahan, serta seismik inversi. Objektif pemodelan dilakukan pada tiga lapisan batupasir produktif, yaitu lapisan D, E, dan M serta khususnya pada pemodelan fasies serta petrofisika dilakukan co-kriging terhadap analisis seismik inversi yang telah dilakukan. Fasies yang berkembang pada lapangan K yaitu terdiri dari: Mouth Bar Sand, Estuary Bar Sand, dan Distributary Channel Sand. Distribusi porositas pada lapisan E dan M menunjukkan area dengan besaran porositas yang tergolong baik 0.2-0.25 pada area timur laut dan selatan yang belum dikembangkan. Saturasi menunjukkan area selatan di setiap lapisan telah memiliki nilai kejenuhan air yang tinggi sehingga area pengembangan lebih detail di bagian utara ke timur laut.

.....Field is one of the oilfield in Barito basin with sandstone reservoir from Tanjung Formation. This evaluation aims to map the subsurface in detail with geological modeling methods that include modeling of the structure, facies and petrophysical. The research data consists of fourteen well log data and 3D seismic data. The well data will be evaluated to make multi correlation of geological marker, geological analysis was performed to identify oil and gas bearing reservoir, elektrofacies analysis and petrophysical analysis. The seismic data will be interpreted to horizons, faults, and seismic inversion. The objective reservoir will be performed on three productive sandstone layer D, E, and M, and in particular on the facies and petrophysical modeling will be co kriging with seismic inversion analysis has been done. Facies that develop on the K field consist of Mouth Bar Sand, Estuary Bar Sand, and Distributary Channel Sand. The results of this evaluation are expected to help identify the presence of hydrocarbons as well as determining the future development plan. Porosity distribution of layer E and M shows the medium to good value 0.2 0.25 in northeast and southern area that undevelop area. Water saturation model in southern area from those three layers has high saturation, the development plan is more detail in the northern to the northeast of the research area.