

**Analisis Kecedapan Sesar Untuk Mengetahui Potensi Kebocoran Perangkap Hidrokarbon Pada Interval Reservoir Batupasir Jumelai Di Lapangan X, Area Mahakam Selatan, Cekungan Kutei, Kalimantan Timur**

**Rizal Ashari\*, Sugeng Sapto Surjono, Rahmadi Hidayat**  
**NIM : 12/330207/TK/39391**

*Departemen Teknik Geologi, FT UGM, Jalan Grafika No. 2, Yogyakarta, 55281*  
**\*asharizal69@gmail.com**

**SARI**

Analisis sesar di Lapangan X, Area Mahakam Selatan, Cekungan Kutei, Kalimantan Timur bertujuan untuk menentukan arah dan tipe sesar serta untuk mengetahui potensi kebocoran hidrokarbon pada interval reservoir Batupasir Jumelai. Analisis kecedapan sesar dilakukan dengan menggunakan metode kualitatif berupa analisis jukstaposisi dan metode kuantitatif berupa analisis *Shale Gouge Ratio* (SGR). Kedua metode analisis tersebut dilakukan integrasi untuk menentukan potensi kebocoran sesar di Lapangan X.

Data yang digunakan pada penelitian ini adalah berupa data seismik 2D serta data *log* sumur pemboran. Data tersebut diolah dan dilakukan interpretasi menggunakan perangkat lunak Petrel versi 2013. Fasies litologi dan properti *vshale* ditentukan dengan melakukan interpretasi *log* sumur pemboran. Horizon dan struktur sesar ditentukan dengan interpretasi penampang seismik 2D. Hasil interpretasi fasies litologi, *vshale*, dan struktur sesar dilakukan pemodelan fasies litologi serta pemodelan properti *vshale*.

Hasil dari penelitian ini adalah bahwa sesar di Lapangan X merupakan sesar turun dengan tipe sesar tumbuh dan mempunyai arah tenggara-barat laut. Analisis jukstaposisi menghasilkan kesejajaran antar batuan reservoir pada bagian bagian barat laut, tengah, dan sedikit pada bagian tenggara bidang sesar. Analisis SGR menghasilkan nilai di atas 50% yang mengindikasikan pengolesan serpih yang merata pada bidang sesar. Integrasi jukstaposisi dan SGR menghasilkan area potensi kebocoran interval reservoir pada bidang sesar di bagian barat laut, tengah, dan sedikit pada bagian tenggara.

**Kata kunci :** Mahakam Selatan, Sesar Tumbuh, Kecedapan Sesar, Jukstaposisi, *Shale Gouge Ratio*

**Fault Seal Analysis For Determine Leak Potential Of Hydrocarbon Trap At  
Jumelai Sandstone Reservoir Intervals, South Mahakam Area, Kutei Basin,  
East Kalimantan**

**Rizal Ashari\*, Sugeng Sapto Surjono, Rahmadi Hidayat**  
**NIM : 12/330207/TK/39391**

*Departemen Teknik Geologi, FT UGM, Jalan Grafika No. 2, Yogyakarta, 55281*  
**\*asharizal69@gmail.com**

**ABSTRACT**

*Fault Analysis at Field 'X', South Mahakam Area, Kutei Basin, East Kalimantan was purposed to determine the fault direction and fault type also to understand hydrocarbon leak potential at Jumelai Sandstone reservoir intervals. Fault Seal Analysis was done by using juxtaposition analysis as qualitative method and Shale Gouge Ratio (SGR) as quantitative method. Both methods were integrated to determine the fault leak potential at Field 'X'.*

*The data sets were used for this research include 2D seismic data sets and wireline logs. Those data sets were processed and done by Petrel Software version 2013. Facies lithology and vshale property were determined by interpretation using well logs data. Horizon and fault structure were determined by using 2D seismic lines. The results of lithology interpretation, vshale interpretation, and fault structure interpretation were processed to create facies modeling and vshale property modeling.*

*The results of this research are that the fault in Field 'X' is a normal fault with growth fault type and the fault has north west-south east direction. Juxtaposition analysis shows reservoir-reservoir juxtapose at north west, middle, and little proportion at south east of fault plane. Shale Gouge Ratio (SGR) analysis shows value 50% that indicate good distribution of shale smear at fault plane. The integration between juxtaposition and SGR analysis shows reservoir intervals leaking potential area at north west, middle, and little area at south east of fault plane.*

**Key words :** South Mahakam, Growth Fault, Fault Seal, Juxtaposition, Shale Gouge Ratio