GEOLOGI, STUDI SIKUEN STRATIGRAFI DAN PERHITUNGAN CADANGAN LAPISAN "ADR" FORMASI TALANG AKAR LAPANGAN "DEE" CEKUNGAN SUMATERA SELATAN

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Lapangan DEE adalah salah satu lapangan penghasil minyak dan gas bumi di Cekungan Sumatera Selatan milik KSO Pertamina – Indrillco Hulu Energy. Pada tahun 2012 dilakukan *completion* sumur pada Formasi Talang Akar, dan hasil tes produksi ditafsirkan bahwa di sumur DO-1, DO-2, dan DO-3 terdapat beberapa interval reservoir yang berpotensi mengandung hidrokarbon, termasuk Lapisan "ADR". Penelitian dengan pendekatan sikuen stratigrafi ini menggunakan data 3 sumur (*wireline log, mud log), sidewall core* dan properti petrofisik sebagai pendukung, sehingga diharapkan dapat memberikan informasi lebih rinci untuk pengembangan sebuah lapangan minyak dan gas. Analisis yang dilakukan berupa, analisis lingkungan pengendapan, analisis elektrofasies, sikuen stratigrafi, korelasi sikuen stratigrafi, korelasi struktur, pembuatan peta bawah permukaan dan perhitungan cadangan lapisan "ADR".

Dari hasil penelitian didapatkan Formasi Talang Akar memiliki fasises pengendapan berupa *fluvial delta plain-delta front,* yang terbagi menjadi Talang Akar bagian bawah dengan fasies pengendapan berupa *channel, channel bar,* dan *crevasse splay,* Formasi Talang Akar bagian atas dengan fasies pengendapan *interdistributary channel, distributary channel, tidal channel,* dan *mouth bar.* Berdasarkan hasil analisis sikuen stratigrafi didapatkan tiga paket sikuen pengendapan penyusun Formasi Talang Akar, yakni Sikuen 1 , Sikuen 2, dan Sikuen 3 yang masing-masing sikuen tersebut dibatasi oleh sebuah SB- 1, SB-2, SB-3, dan SB-4. Tersusun atas beberapa unit *systems tract* yakni LST, TST dan HST. Dalam korelasi struktur memperlihatkan bentukan struktur berupa sayap antiklin yang berarah baratlaut-tenggara. Sebagai pengembangan dalam penelitian ini, dilakukanlah perhitungan cadangan pada lapisan "ADR". Unit reservoar ini berada pada paket TST-3 bagian dari Formasi Talang Akar bagian atas. Penentuan unit ini didasarkan dari pengamatan data log sumur dan *sidewall core* yang memperlihatkan adanya indikasi hidrokarbon berupa terdapatnya jejak minyak bumi dan nilai resistivitas pada log sumur bernilai cukup tinggi. Unit reservoar terbentuk di sub-lingkungan *tidal channel.* Dari hasil perhitungan didapat cadangan pada lapisan "ADR" berjumlah 22.618.001,07 STB.

Kata kunci : Lapangan DEE, Sumatera Selatan, Formasi Talang Akar, *fluvial delta plain-delta front*, *tidal channel,* sikuen stratigrafi.

GEOLOGY, STUDY OF SEQUENCE STRATIGRAPHY, AND CALCULATION RESERVE OF "ADR" LAYER, TALANG AKAR FORMATION, "DEE" FIELD, SOUTH SUMATERA BASIN

Abstract

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"DEE" field is one of the field belongs to KSO Pertamina – Indrillco Hulu Energy that produce oil and gas, located in the South Sumatra Basin. In 2012, was completion the well on Talang Akar formation, and the production test results interpreted that in well DO-1, DO-2, and DO-3 have several interval of a reservoir that have potentials of hydrocarbon, including a layer of "ADR". This research approach stratigraphy sequence used 3 well data's (wireline log, mud log), sidewall core and petrophysic analysis as a supporter, therefore it is expected to provide more detailed information to the development of an oil and gas field. The analysis was undertaken in the form of deposition of environmental analysis, electrofacies analysis, stratigraphy sequence analysis, sequence stratigraphy correlation, structure correlation, subsurface maps and the reserve calculation layers of "ADR".

From this research, it shows that Talang Akar Formation have a deposition facies in the form of fluvial delta plain-delta front, of which is divided into the Lower Talang Akar with deposition facies in the form of channel, channel bar, and crevasse splay, and the Upper Talang Akar with deposition facies in the form of interdistributary channel, distributary channel, tidal channel, and mouth bar. Based on the results of the stratigraphy sequence analysis, this research obtained three packages of deposition sequence of a constituent Talang Akar Formation, namely as sequence 1 , sequence 2 , and sequence 3 where each sequence was limited by a SB-1 , SB-2 , SB-3 , and SB-4. Structured by several units systems tract namely as LST, TST and HST. The structure correlation shows that the structure is in the form of anticline wings which is directed to North West-East South. As a development in this research, the reserve calculation layers of "ADR" was conducted. Reservoir unit is located in pack TST-3 which is the component of the Upper Talang Akar Formation. The determination of this unit is based on the observation of well data log and sidewall core which shows there were indications of hydrocarbon in the form of trace oil and the quite high value of the well log resistivity. Reservoir unit is formed in the sub-environmental tidal channel. From the calculation result, it obtained reserves layer of "ADR" totalled 22.618.001,07 STB.

Keywords : DEE Field, South Sumatra, Talang Akar Formation, fluvial delta plain-delta front, tidal channel, stratigraphy sequence.