

## ABSTRAK

### PERHITUNGAN CADANGAN VOLUMETRIK PADA FORMASI TELISA, BLOK *NORTH-WEST*, LAPANGAN “J”, CEKUNGAN SUMATERA TENGAH

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Lapangan “J”, Formasi Telisa, merupakan Lapangan terbesar di Cekungan Sumatera Tengah yang terletak sekitar  $\pm 30$  km di sebelah Timurlaut Pekanbaru, dengan luasan area 55.000 hektar. Berdasarkan hasil evaluasi data sumur dan data produksi pada Lapangan “J” lapisan pasir obyektif utamanya adalah batupasir Formasi Telisa 2 pada Blok *North-West*. Pada penelitian ini perhitungan cadangan hidrokarbon didasarkan analisa *horizon* dan *fault* untuk mengetahui jenis jebakan hidrokarbon dan cadangan hidrokarbon pada reservoir Formasi Telisa 2 tersebut.

Perhitungan cadangan pada Formasi Telisa 2, Blok *North-West* menggunakan metode perhitungan volumetrik deterministik dengan beberapa parameter, yaitu volume reservoir, porositas efektif, *saturasi water irreducible*, *net to gross* dan faktor volume formasi fluida. Perhitungan volumetrik yang bersifat deterministik, adalah menghitung jumlah cadangan hidrokarbon dengan menggunakan nilai data tunggal untuk memperkirakan dan mengklasifikasikan cadangan dari top reservoir hingga *oil water contact*. Terdapat 3 kasus dalam perhitungan ini, yaitu P1, P2 dan P3, dibagi berdasarkan batas fluida (batas air dan minyak) yang akan menunjukkan jumlah terakumulasinya hidrokarbon di dalam reservoir dengan masing-masing tingkat kepastiannya.

Berdasarkan analisa struktur dan horizon, struktur pada Blok *North-West*, Lapangan “J” dikontrol oleh *fault* regional dan *fault* lokal dari *basin high*. Sehingga dapat diketahui bahwa jenis jebakan reservoir pada Blok *North-west* Lapangan “J” dikontrol oleh *structural trap*. Dari hasil perhitungan cadangan volumetrik di 4 area Formasi Telisa 2, Blok *North-West*, Lapangan “J”, menghasilkan total cadangan hidrokarbon sebesar 16.185.770 STB pada Area 1, 7.956.218 STB pada Area 2, 4.363.544 STB pada Area 3 and 30,476,546 STB pada Area 4.

**Kata Kunci:** Formasi Telisa, Reservoir, Perhitungan Cadangan, Volumetrik

## ***ABSTRACT***

### **VOLUMETRIC RESERVE CALCULATION ON TELISA FORMATION, NORTH-WEST BLOCK, “J” FIELD, CENTRAL SUMATERA BASIN**

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Field "J", Telisa formation is the largest field in Central Sumatra Basin, located about 30 km Northeast of Pekanbaru with coverage area of 55,000 ha. Based on the results of the data evaluation wells drilling and production data in the Field "A" which shows its main objective is the sandstone layer in Telisa 2 Formation of North-West Block. In this study, the oil reserves calculation in sandstone formations Telisa 2 were determined by conducting horizon and fault mapping in order to identify the type of trap and hydrocarbon reserves of the area of the sandstone in Telisa 2 Formation.

Reserve calculation in sandstone of Telisa 2 Formation, North-West Block performed by deterministic methods of volumetric calculation methods calculated based on the volume of the reservoir, effective porosity, irreducible water saturation, net to gross and fluid formation volume factor. Deterministic reserve calculation is calculated of hydrocarbon reserves by using a single value to estimate and classify reserves from top of reservoir until oil water contact. There are three cases in this calculation, the P1, P2 and P3, where are cases divided by fluid contact (oil water contact) that indicate the amount of accumulated hydrocarbons in reservoir body with the level of certainty.

Based on the analysis of the structure and the horizon, the structure located on the North-west Block, are controlled by fault structure of regional and local fault of the basin high. So it can be seen that kind of trap reservoir in *North-west area*, “J” field is controlled by structural traps. Calculation of the volumetric reserves in 4 areas of Telisa 2 Formation, North-West Block, Field "J" are obtained as follows; Area 1 produces total hydrocarbon reserves of 16.185.770 STB, Area 2 produces 7.956.218 STB, Area 3 produces 4.363.544 STB and 30,476,546 STB in Area 4.

**Keywords** : Telisa Formation, Reservoir, Reserve Calculation, Volumetric