

# Evaluasi prospek zona dangkal berdasarkan model statik dan dinamik sintesis material balance: Studi kasus lapangan AAA formasi Kampung Baru Kalimantan Timur = Shallow zone prospect evaluation based on static model and dynamic synthesis material balance: Case studies AAA field Kampung Baru formation East Kalimantan

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## Abstrak

### [<b>ABSTRAK</b><br>

Lapangan AAA merupakan salah satu lapangan gas terbesar di Indonesia yang terletak di delta mahakam, Kalimantan Timur. Karakteristik reservoir bagian dangkal lapangan ini berupa batuan pasir dengan lingkungan pengendapan deltaic distributary channel. Cadangan gas merupakan faktor jaminan pasokan gas selama kontrak, akan terus dimonitor baik pada kondisi eksplorasi (metoda perhitungan cadangan secara analog, volumetrik) hingga saat produksi (material balance) dengan tujuan untuk memperkirakan cadangan yang lebih pasti selaras dengan cara memproduksinya dan tindakan apa yang perlu dilakukan dalam memperpanjang usia produksi lapangan gas. Model statik digunakan untuk perhitungan cadangan volumetrik serta data produksi kumulatif sebagai validator. Kumulatif produksi reservoir tersebut sudah melebihi ekspektasi IGIP awal pada saat proposal pengeboran dengan metode perhitungan gas in place menggunakan metode seismik. Oleh karena itu perlu dilakukan analisa dan evaluasi reservoir tersebut dari analisa statik model geologi maupun dinamik. Berdasarkan analisa statik dan dinamis pada reservoir tersebut masih terdapat potensi gas yang dapat di produksikan. Dinamik sintesis menggunakan pendekatan material balance dengan aquifer model. Pada reservoir ini dominan tenaga dorong aktif adalah strong wáter drive. Dari analisa dinamik material balance menyebutkan bahwa sisa potensi gas (remaining reserves) yang dapat diproduksi sebesar 8% untuk reservor A166, dan 24% untuk reservoir A181. Prediksi produksi gas juga menggunakan model sumur dengan bantuan PROSPERTM yaitu analisa aliran gas didalam lubang sumur, prediksi PROSPERTM produksi awal akan berkisar 7MMscf pada A166 dan 4MMscf pada A181 dan akan secara gradual turun sepanjang penurunan tekanan. Dengan perolehan recovery factor (RF) berkisar 65-70%.

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### <b>ABSTRACT</b><br>

AAA field is one of the largest gas fields in Indonesia, which is located in the Mahakam delta, East Kalimantan. Reservoir characteristics of these shallow zone is sandstone with deltaic distributary channel depositional environment. Gas reserves are the main factors for gas supply during the contract , will continue to be monitored both exploration conditions (analogous calculation methods, volumetric) until the time of production (material balance) with the aim of estimating reserves is more definitely aligned in a way to produce it and what action needs to be extend the life of the production is done in the gas field. The static model used for the calculation of volumetric reserves and cumulative production data as a validator. The reservoir cumulative production has exceeded initial expectations of IGIP during drilling proposal with calculating gas in place using seismic methods. It is therefore necessary to analyze and evaluate the reservoir

with geological model static analysis and dynamic analysis. Based on static and dynamic analysis on the reservoir there is still potential gas can be produced. Dynamic synthesis approach using material balance with aquifer model. In this reservoir drive mechanism dominant is strong water drive. Dynamic analysis of Material balance concluded that the gas reserves (remaining reserves) which can be produced by 8 % for A166 reservoir, and 24 % for A181 reservoir. Prediction of gas production also use the well model using PROSPERTM to analyzed gas flow analysis in the wellbore, PROSPERTM prediction initial production will range 7MMscf on the A166 and A181 with 4MMscf will gradually declind along the pressure drop. With the acquisition of the ultimate recovery factor (RF) ranges from 65-70 %., AAA field is one of the largest gas fields in Indonesia, which is located in

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