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Pemodelan fasies karbonat dengan metode integrasi data geologi dan geofisika pada formasi kujung - ngimbang cekungan jawa timur utara = Carbonate facies modelling using geological and geophysical data integration at kujung and ngimbang formation north east java basin

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Abstrak

ABSTRAK
Pemodelan fasies karbonat pada Formasi Kujung dan Formasi Ngimbang telah dilakukan dengan mengintegrasikan data geologi dan data geofisika. Penelitian ini difokuskan pada analisis seismik fasies dan lingkungan pengendapan. Formasi target pada studi ini adalah Formasi Kujung dan Formasi Ngimbang. Formasi Kujung merupakan Formasi yang terdiri atas batuan karbonat. Formasi Ngimbang mampu menjadi reservoar minyak yang baik seperti yang telah ditembus oleh sumur-sumur di lepas pantai Jawa Timur. Namun kajian mengenai Formasi Ngimbang masih terbatas dan belum komprehensif sehingga harus diangkat potensi-potensi pada formasi tersebut dengan pendekatan seismik stratigrafi, ditambah dengan data sumur yang telah menembus Formasi Ngimbang. Dengan menggunakan seismic fasies sebagai acuan diharapkan dapat mengetahui potensi-potensi baru Batuan Karbonat pada Formasi Kujung dan Formasi Ngimbang. Untuk itu pada penelitian ini, dilakukan pemodelan facies karbonat. Hasil analisis memperlihatkan tiga fasies pada interval target yaitu: Fasies wackstone-grainstone coraline reffal dengan arah relatif berarah barat-timur, Fasies mudstone-packstone lagoonal dengan arah relative barat-timur,fasies grainstone dolomite tidal, yang berarah relative barat-timur. Pada fasies wackstone-grainstone coraline reffal, merupakan transgresive reef system, dimana pertumbuhan reef mengikuti kenaikan muka air laut relative. Analisis lebih lanjut pada seismik fasies dapat disimpulkan bahwa Formasi Ngimbang didominasi oleh fasies reefal.
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ABSTRACT
Carbonate rock is an important reservoir rock in Indonesia. North East Java Basin has several carbonate reservoir which still productive. This research focused on seismic facies analysis and depositional environtment. This study is conducted integrating geological and geophysical method for evaluating carbonate reservoir in Kujung and Ngimbang Formation. Kujung Formation consist of carbonate rocks. Ngimbang Formation capable of being good reservoir but the study of Ngimbang Formation is still limited and not comprehensible. Structure experience aggradation in the northern part and prograding unit to the south. Facies mapping of the Ngimbang and Kujung formation as presented in the study area suggested that the facies distribution is not as important as fault intensity to control the reservoir quality. Whereas facies modeling from well correlation suggested that towards western part, that is, from Well JPD in the eastern part to JPL in the western part, the facies become more basinal.From facies analyses in the Well JPD of Ngimbang Formation from top to bottom is mostly dominated by reefal facies but the presence of intensive micrite and stylolite suggested that late diagenetic process occurred and really influence reservoir quality. As also from facies analyses in the Well JPL indicated that Kujung Formation is having reefal to fore reef depositional environment. From this point of view, the area of interest is the area where fault intensity are

high. The top structure of Ngimbang Formation at the present time is higher towards eastern part, Whereas facies modeling from well correlation suggested that towards western part, that is, from Well JPD in the eastern part to JPL in the western part, the facies become more basinal.From facies analyses in the Well JPD of Ngimbang Formation from top to bottom is mostly dominated by reefal facies.