

SARI

Lapangan X, Subcekungan Ardjuna, Formasi Parigi, Cekungan Jawa Barat Utara memiliki karakter karbonat yang khas, yaitu *carbonate build up*. Formasi Parigi memiliki potensi untuk dikembangkan cadangan minyak dan gas di Indonesia kurang lebih 0,48 juta kaki kubik. Formasi Parigi terendapkan selaras diatas Formasi Main Masif pada umur Miosen Tengah hingga Miosen Akhir pada fase tektonik *post rift sag*. Penelitian ini memiliki tujuan untuk mengetahui karakter litofasies, lingkungan pengendapan dan proses pertumbuhan *carbonate buildup*. Tahapan penelitian ini dibagi menjadi 4 bagian yaitu: tahap studi literatur, tahap pengolahan data, tahap analisis dan interpretasi, dan hasil akhir. Data yang dipakai meliputi data *well log*, data *core*, dan data penampang seismik yang representatif. Terminologi *Carbonate buildup* didefinisikan sebagai akumulasi fasies karbonat yang memiliki bentukan positif yang dikelilingi oleh permukaan pengendapan yang lebih rendah (Burgess dkk., 2013). Berdasarkan analisis *core* dengan mendeskripsi 4 *core* sumur didapatkan litofasies dengan fasies *mudstone*, fasies *wackestone*, fasies *packstone*, fasies *grainstone*, fasies *floatstone*, dan fasies *shale* dengan kandungan organisme berupa *foraminifera*, *korall*, *alga* dan *skeletal fragment*. *Well log-core correlation* dilakukan untuk mengetahui litofasies pada log yang tidak memiliki *core*. Korelasi *core* dan log sumur menggunakan nilai log *gamma ray* dan log resistivitas ILD. Berdasarkan pembagian parasekuen pada sembilan log sumur, didapatkan delapan *flooding surface* dan dua diantaranya merupakan MFS (*Maximum Flooding Surface*). Berdasarkan litofasiesnya, didapatkan lingkungan pengendapan pada daerah penelitian adalah *inner back-reef lagoon*, *outer back-reef lagoon*, *reef core* dan *fore reef* (Pomar et al., 2004) dengan pola pengendapan secara umum *deepening upward*. Penampang seismik 1 adalah data seismik yang dipilih untuk menunjukkan proses pertumbuhan *carbonate build up* pada daerah penelitian. Berdasarkan analisis dari penampang seismik 1, reflektor seismik yang teridentifikasi adalah kenampakan *mounded shape*, *wavy sub-parallel*, *chaotic*, dan *downlap reflection*. Mendapatkan hasil fase pertumbuhan *carbonate build up* dimulai dari fase *catch up #1*, *keep up #2*, *keep up #3*, dan diakhiri oleh *keep up #4*.

Kata kunci : *carbonate buildup*, Formasi Parigi, Subcekungan Ardjuna, Seismik Stratigrafi, Lingkungan pengendapan

ABSTRACT

X field, Ardjuna Sub Basin, North West Java Basin, has special characteristic in the morphology, that is carbonate build up. Parigi Formation has potential due to increase the oil and gas reserves in Indonesia moreless 0.48 MMSCFD. Parigi Formation deposited in line with Main Massive Formation in Middle Miocene until Late Miocene. The purposes of this research are knowing lithofacies characteristics, depositional environment, and carbonate build up phase. Work flow in general divided by 4 steps, firstly is desk study, second is processing data, third is analysis and interpretation the output, the final step is final result and arranging the conclusions. This research used primary data and secondary data, primary data such as nine well log datas, four core datas, and one representative seismic section called 'Penampang Seismik 1'. Then the secondary data is regional geology of the research formation. The main object of this research is carbonate build up, carbonate build up is accumulation carbonate facies which have positive formation surrounded by lower depositional surface (Burgess et al., 2013). Based on four well core descriptions, the lithofacies found are mudstone facies, wackestone facies, packstone facies, grainstone facies, floatstone facies, and shale facies. The lithofacies found contain organism in the form of foraminifera, corals, algae and skeletal fragments. Well log-core correlation has purpose to knowing lithofacies in well log which doesn't have core. The correlation used gamma ray log and ILD resistivity log. Based on core and well log analysis, it was found eight flooding surfaces which two of them are Maximum Flooding Surface (MFS) and divided nine parasequences. Based on lithofacies analysis, the depositional environment of the study area is inner back-reef lagoon, outer back-reef lagoon, reef core, and fore reef (Pomar et al., 2004). Generally, the pattern of carbonate build up Parigi Formation is deepening upward. Seismic section 1 is the seismic data selected to show the growth process of carbonate build up in the study area. Based on the seismic section 1 analysis, seismic reflectors identified as mounded shape, wavy sub-parallel, chaotic, and downlap reflection. Obtained carbonate build up growth phase starting from catch up phase # 1, keep up phase # 2, keep up phase # 3, and ended with catch up phase # 4.

Keywords : carbonate buildup, Parigi Formation, Ardjuna Sub basin, Seismic stratigraphy, depositional environment