

ABSTRACT

Well logging and core data are two important steps in exploration, which are used to define geology, stratigraphy, petrophysic properties; make premises to define distribution of reservoirs and their volume as well as for exploitation. In this research, well log data from 10 wells, core data from 2 wells and fault system of Vam Co oilfield, Cuu Long basin were collected and analyzed. The main purposes in this research are to define sedimentary facies, depositional environment; calculate porosity, water saturation and permeability compared with core data; make distribution of reservoirs from log data. Based on well log interpretation and core data, reservoir C30 of Vam Co oilfield can be divided into four lithofacies including: shalestone/claystone, sandstone, fine sandstone and calcite cemented. Depositional environments are related to fluvial environments with three sedimentary facies: distributary, clay plug and crevasse/overbank. Correlations of reservoir C30's distribution were made by well logs. Porosity was calculated by Neutron-Density method while permeability was used with four methods, water saturation with three methods. Porosity distribution is uniform, from 19.1% to around 30%. Water saturation in reservoir C30 contains from 40 % to 60%. Core analysis gives high permeability result with 1932mD in well 2X and 3066.5mD in well 3X. Reservoir C30 has a thick and big trap area. Formed with direction from NE-SW, the trap of reservoir C30 is slightly inclined from the North to the South.

Key words: well log, core data, facies, depositional environments, reservoirs, petrophysic properties, Vam Co oilfield, Cuu Long basin, Vietnam.

SARI

Well logging dan data inti adalah dua langkah penting dalam eksplorasi, yang digunakan untuk mendefinisikan properti geologi, stratigrafi, sifat petrofisik; membuat tempat untuk menentukan distribusi reservoir dan volume mereka serta untuk eksploitasi. Dalam penelitian ini, data well log dari 10 sumur, data inti dari 2 sumur dan sistem patahan lapangan minyak Vam Co, basin Cuu Long dikumpulkan dan dianalisis. Tujuan utama dalam penelitian ini adalah menentukan fasies sedimen, lingkungan pengendapan; menghitung porositas, saturasi air dan permeabilitas dibandingkan dengan data inti; membuat distribusi reservoir dari data log. Berdasarkan penginterpretasian well log dan data inti, Reservoir C30 dari ladang minyak Vam Co dapat dibagi menjadi empat lithofacies yaitu: batu lempung, batu pasir, batu pasir halus dan kalsit tersemen. Lingkungan pengendapan terkait dengan lingkungan fluvial dengan tiga fasies sedimen: distributary, clay plug dan crevasse/overbank. Korelasi distribusi reservoir C30 ini dibuat dengan menggunakan data well log. Porositas dihitung dengan metode Neutron-Density sementara permeabilitas dihitung dengan empat metode, kejenuhan air dengan tiga metode. Distribusi porositas bersifat seragam, dari 19,1% menjadi sekitar 30%. Kejenuhan air di reservoir C30 dari 40% menjadi 60%. Analisis inti memberikan hasil permeabilitas tinggi dengan 1932mD di sumur 2X dan 3066.5mD di sumur 3X. Reservoir C30 memiliki area perangkat tebal dan besar. Perangkat reservoir C30 dibentuk mengikuti arah dari NE-SW, perangkat tersebut sedikit miring dari Utara ke Selatan.

Kata kunci: well log, data inti, fasies, lingkungan pengendapan, reservoir, sifat petrofisika, lapangan minyak Vam Co, reservoir Cuu Long, Vietnam.