

SARI

Penelitian dilakukan pada dua Formasi, yakni Formasi Cibulakan Atas, Cekungan Jawa Barat Utara dan Formasi Gumai Sub Cekungan Jambi. Penelitian menggunakan data *well log*, *mud log*, *drill stem test*, *side wall core* yang meliputi petrografi, XRD dan SEM, serta data paleontologi. Tujuan penelitian adalah mengetahui fasies, faktor penyebab *low-resistivity*, petrofisika serta membandingkan reservoir pada dua formasi telitian. Fasies dan lingkungan pengendapan reservoir *low-resistivity* Formasi Cibulakan Atas adalah *shelf transition* dan *middle shelf* di lingkungan *shelf*, sedangkan fasies Formasi Gumai *lower shoreface*, *shelf transition* dan *middle shelf* di lingkungan laut dangkal hingga *shelf*. Reservoir *low-resistivity* Formasi Cibulakan Atas disebabkan oleh ukuran butir reservoir pasir sangat halus – pasir sedang, mineral lempung kaolinit dan glaukonit, distribusi mineral lempung *laminated clay* dan *dispersed pore filling*, salinitas air *moderately saline water* - *highly saline water* dan terdapat lapisan tipis. Pada Formasi Gumai, reservoir *low-resistivity* disebabkan oleh, ukuran butir reservoir pasir sangat halus – pasir sedang, mineral lempung kaolinit (4% – 34%), ilit (1% – 16%), klorit (2% – 5%) dan glaukonit (2% – 6%), distribusi mineral lempung didominasi oleh *laminated clay*, salinitas air formasi *highly saline water*, terdapat mikroporositas dan terdapat lapisan tipis. Analisis petrofisika pada Formasi Cibulakan Atas didapatkan volume *clay* rata-rata 0.015% - 0.398%, porositas efektif 13% - 42.1% dan saturasi air 30.78% - 69.18% (*dual water*) serta 32.83% - 67.39% (*indonesian*). Pada Formasi Gumai didapatkan volume *clay* rata-rata 18.61% - 33.30%, porositas efektif 10.5% - 18.8% dan saturasi air rata-rata 21.34% - 55.11% (*dual water*), serta 28.51% - 48.88% (*indonesian*). Metode yang direkomendasikan dalam menganalisis reservoir *low-resistivity* adalah mengkombinasikan data *well log*, *mud log*, data *core* dan menggunakan metode probabilistik untuk menganalisis petrofisikanya. Pada daerah penelitian masih terdapat tujuh zona potensial reservoir *low-resistivity*.

Kata kunci: Reservoir, *Low-Resistivity*, Formasi Cibulakan Atas, Formasi Gumai.

ABSTRACT

This study was conducted on two formations, in Cibulakan Atas Formation, North West Java Basin and Gumai Formation, Jambi Sub Basin. The study used well log, mud log, drill stem test (DST), side wall core (SWC) which included petrography, XRD and SEM, as well as paleontology data. The purpose of this research is to explain facies, factors of low-resistivity reservoir, petrophysics and compare reservoir on two study formations. Facies and depositional environment of low-resistivity reservoir in Cibulakan Atas Formation is shelf transition and middle shelf in shelf environment, while facies of Gumai Formation is lower shoreface, shelf transition and middle shelf in shallow marine - shelf. Low-resistivity reservoir The Cibulakan Atas Formation is caused by very fine sand - medium sand reservoir grain size, kaolinite and glauconite clay minerals, clay mineral distribution dominated by laminated clay and dispersed pore filling in, moderately saline water-highly saline water and thin layer reservoir. The Gumai Formation, the low-resistivity reservoir is caused by a very fine sand - medium sand reservoir grain size, clay mineral such as kaolinite (4% - 34%), illit (1% - 16%), chlorite (2% - 5%) and Glauconite (2% - 6%), clay mineral distribution dominated by laminated clay, highly saline water, microporosity and thin layer reservoir. Petrophysical analysis of the Cibulakan Atas Formation showed an average clay volume of 0.015% - 0.398%, effective porosity 13% - 42.1% and water saturation 30.78% - 69.18% (dual water) and 32.83% - 67.39% (Indonesian). The Gumai Formation, the average clay volume is 18.61% - 33.30%, effective porosity 10.5% - 18.8% and water saturation average 21.34% - 55.11% (dual water), and 28.51% - 48.88% (indonesian). The recommended method of analyzing the low-resistivity reservoir is to combine well log, mud log, core data and use probabilistic methods to analyze the petrophysics. In the study area there are seven potential low-resistivity reservoir zones.

Keywords: Reservoir, Low-Resistivity, Cibulakan Atas Formation, Gumai Formation.