

Identifikasi litologi fluida dengan menggunakan metode extended elastic impedance studi kasus lapangan blackfoot

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Abstrak

Extended Elastic Impedance method is one of the methods in reservoir characterization, which is used to identify lithology and fluids content. This method is an extension of Elastic Impedance method by changing $\sin^2\theta$ in Zoeppritz equation with $\tan^2\theta$ to get scaled reflectivity equation. θ is angle range between -90° up to 90° . By using proper angle (θ), we can calculate the reflectivity that associates with the log parameter (Gamma Ray, Porosity, Lamda-Rho and Mhu-Rho). To proceeds this scheme we need to derive gradient and intercept from AVO analysis, which is used in Zoeppritz equation to calculate reflectivity volume. The proper angle (θ), which is derived from Whitcombe equation, is 30° for Gamma Ray. While the proper angle (θ) for porosity, mhu-rho, and lamda-rho is 60° , -90° and 15° respectively.

The result of mhu-rho and lamda-rho inversion in the target area contain of sandstone and oil in the time depth range of 1545 ? 1573 ms for horizon 1 and horizon 2. Based on seismic inversion, lamda-rho and mhu-rho crossplot analysis we can see that the distribution of reservoir in target area has lamda-rho value between 9050 ? 9300 m/s*g/cc or 25 ? 37 GPa*g/cc and mhu-rho value between 7500 ? 11200 m/s*g/cc or 25 ? 35 GPa*g/cc.