

ABSTRACT

The Muara Enim Formation is one of the potential sandstone reservoir zones in the South Sumatra Basin. This study analyzes and maps the distribution of acoustic impedance (AI) and effective porosity. In this study, crossplot and seismic inversion techniques were applied to combine well data with 3D seismic data, thereby providing a more accurate characterization of the reservoir. Seismic inversion results show variations in AI values in the Muara Enim Formation (MEF) of around 2,850–3,100 g/cc·m/s and high effective porosity of around 0.31–0.32, making it a prime prospect zone with good reservoir quality, especially around the AA well in the 600–720 ms time range. Meanwhile, the interval in the Air Benakat Formation (ABF) has a higher AI value ranging from 3,400–3,600 g/cc·m/s and has lower porosity, namely 0.27–0.285. This indicates that the reservoir quality is slightly lower than in the MEF, although the interval still has potential. Integration of the AI distribution map and porosity results in the interpretation that the main hydrocarbon prospect zone is located in the Muara Enim Formation (MEF) interval.

Keywords : *Muara Enim Formation, sandstone, seismic inversion, acoustic impedance, effective porosity.*