

## **ABSTRACT**

### **RESERVOIR CARBONATE CHARACTERIZATION KUJUNG FORMATION NORTH EAST JAVA BASIN USING SEISMIC INVERSION AI IN “RUSMALA” FIELD**

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Kujung formation formed by the rising of sea levels and the depreciation of the reef condition. Based on the results of interpretation through geological investigation, it was founded that there is carbonate reef which keeps growing, so it is indicated that there is a hydrocarbons reservoir in this formation. Acoustic impedance seismic methods can provide a physical description of the rock in hydrocarbon reservoir characterization. This research was conducted at "RUSMALA" field, Kujung formation, North East Java basin using 3D PSTM seismic data and F-1, F-2 and F-3 well which have been supplemented by several log data, checkshot and marker in order to determine the impedance and porosity values based on the model of acoustic impedance inversion results with model based method of the field. Sensitivity test done by crossplot to the P-impedance and porosity. Crossplot can separate lithology of carbonate and shale in target zone. Based on the results of this research, carbonate reservoir in "RUSMALA" field is low impedance and high porosity, with high resistivity, low density, and low gamma ray, which showed that the reservoir contains hydrocarbons. Based on the analysis conducted to the structure map, the acoustic impedance maps and porosity spreading maps, it is found that the target zone is an area which can be developed more.

Keywords: inversion, acoustic impedance, model based, porosity