

**THE STRUCTURAL GEOLOGY CONTROL OF HYDROCARBON
SYSTEM "REM" FIELD, NORTH - EAST JAVA BASIN, EAST JAVA,
BASED ON SEISMIC, WELL LOG, AND CUTTING DATA**

ABSTRACT

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The North East Java Basin is one of the basins with the largest hydrocarbon reserves in Southeast Asia that has been managed since the Dutch era. "REM" Field is one field in the North East Java Basin that located in the region of PT Pertamina EP Region Java, East Java. This field has the potential hydrocarbon and having high productivity in Java, which is a structural anticline field.

This study primarily aims to determine the structure of the control system without neglecting other aspects hydrocarbons such as Stratigraphy and Sedimentology. Subsurface interpretation performed using twenty-four (24) wells logs, one (1) cutting data and 3D seismic that covering the area.

The situation on study area is interpreted as en echelon anticline field that are have NW - SE axes and has two-directional plunging (NW - SE). Based on the well REM -X34 and cutting the data, four (4) formations that develop under the surface of the Field "REM" is Kujung Formation, Tuban Formation, Ngrayong Formation, and Wonocolo Formation. Subsurface conditions show the pattern of horst - graben area carefully situations have direction W - E direction which is the basement of Pre-Ngimbang. Multiplicity period occurred in Neogene Period compressional wrenching that made and controlled by major faults that have trending Left slip fault. The direction the field W - E follow RMKS Fault (Rembang Madura Kangean Sakala). In the Neogene compressional wrenching, fault reactivation occurred wrenching down or inversion occurs due to compressional force wrenching of the left horizontal fault characterized by the occurrence of positive flower structure that appears on seismic and also duplexing on Tuban Formation. Neogene compressional wrenching period also resulted in the formation by antitethic minor faults that have the opposite direction (Right slip fault) to the main faults are faults trending NNE - SSW. This fault is a major pathway for migration to penetrate the deepest layers of carefully situations in the region. This fault also divide the "REM" Field into two blocks, namely the NW and SE blocks where blocks NW has a higher productivity than the block of SE. The Hydrocarbon trap in this area is en echelon anticline fold.

Keywords: Field "REM", The Structural Control Hydrocarbon System, Left Slip Fault, Horst - Graben Meratus, Neogene compressional wrenching.