

ABSTRACT

GEOLOGY AND RESERVOIR CHARACTERIZATION OF “AB” LAYER TUBAN FORMATION “X” FIELD NORTH EAST JAVA BASIN BASED ON WIRELINE LOG DATA AND MUD LOG DATA

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This research was located at one of the JOB Pertamina-PetroChina East Java, located at North East Java Basin, Bojonegoro District, approximately ± 135 km west of Surabaya City, East Java. This research is focusing on “AB” Layer, Tuban Formation, “X” Field. Regionally, age of this formation is Early Miocene.

This research was conducted using secondary data, such as wireline log data, and mud log data. The number of wells used in this research were 8 wells. Analysis and interpretation performed in this research to determined the characteristics of the reservoir and the amount of reserves contained in the research area.

Based on the analysis and interpretation of wireline log data and mud log data in this research area, obtained some of evolved carbonate rock facies namely pack-grainstone, wacke-packstone, wackestone, and mud-wackestone. This carbonate facies depositional environment is back reef. Fluid analysis was performed at X-23 well and obtained the LKO (lowest known oil) of “AB” Layer at -6405 ft TVDSS. Petrophysical values obtained with minimum porosity at 0,016, maximum porosity at 0,322, and average porosity at 0,152. Petrophysical values obtained with minimum saturation water at 0,039, maximum saturation water at 1, and average saturation water at 0,619. Petrophysical values obtained with minimum net to gross at 0,001, maximum net to gross at 0,999, and average net to gross at 0,787. Based on a well to well correlation in both stratigraphic correlation and structure correlation, it was found that the sediment source materials comes from the west area towards the east area, and there are 2 faults that worked, one normal faults and one reverse fault. Based on the reserve calculation result of “AB” Layer, “X” Field, this area has reserve at 93.567×10^3 bbl.

Keywords : *reservoir characterization, reserve calculation, Tuban Formation, North East Java Basin.*