

INTISARI

IDENTIFIKASI REKAHAN DAN PENENTUAN ZONA POTENSIAL HIDROKARBON PADA RESERVOIR *FRACTURE BASEMENT* MENGUNAKAN ATRIBUT SEISMIK *CURVATURE*, *VARIANCE* DAN *ANT-TRACK* DI LAPANGAN “PHW”, CEKUNGAN JAWA BARAT UTARA

Oleh:

Panji Hoetomo Wirawan

15/383220/PA/16880

Penelitian dilakukan pada Formasi *Basement* Lapangan “PHW” yang terletak di Sub-Cekungan Ciputat, Cekungan Jawa Barat Utara dengan luas $32,5 \text{ km} \times 22,5 \text{ km}$. Penelitian ini memiliki beberapa tujuan yaitu untuk melakukan identifikasi rekahan pada *basement*, penentuan zona potensial *basement* dan rekomendasi pengembangan lapangan. Data yang digunakan berupa Data seismik 3D PSTM, *Log FMI*, dan data produksi dari 8 sumur. Dalam melakukan identifikasi rekahan, digunakan beberapa jenis atribut yaitu atribut *curvature* berupa *most-positive curvature*, *most-negative curvature*, *variance*, dan *ant-track*. Perhitungan atribut tersebut digunakan untuk mengidentifikasi rekahan secara lateral pada *basement* Lapangan “PHW”. Kemudian, dikombinasikan pula dengan analisis *borehole image* dari *Log FMI* untuk mengidentifikasi dan menganalisis rekahan pada daerah penelitian. Data produksi digunakan sebagai data pendukung dalam penentuan zona potensial rekahan.

Perhitungan seismik menghasilkan arah dominan dari rekahan adalah NW-SE dan rekahan dengan arah N-S dan NE-SW. Hasil perhitungan atribut seismik ini cocok dengan arah dominan dari rekahan yang teridentifikasi pada *Log FMI*. Melalui analisis tersebut kemudian disimpulkan terdapat tiga zona potensial hidrokarbon pada Lapangan “PHW” dan diusulkan untuk melakukan eksplorasi mendalam dan pembukaan sumur baru pada zona kuning karena belum tersedianya sumur pada zona kuning, melakukan eksplorasi pada zona merah bagian timur karena zona merah memiliki intensitas rekahan cukup tinggi, dan melakukan *image logging* pada zona biru sebagai data pendukung tambahan untuk eksplorasi lebih lanjut.

Kata Kunci : *Basement*, Rekahan, *Most-Positive Curvature*, *Most-Negative Curvature*, *Variance*, *Ant-Track*, Zona Potensial Hidrokarbon.

ABSTRACT

FRACTURES IDENTIFICATION AND DETERMINING HYDROCARBON POTENTIAL ZONE IN FRACTURE BASEMENT RESERVOIR WITH SEISMIC ATTRIBUTES CURVATURE, VARIANCE, AND ANT-TRACK AT “PHW” FIELD, NORTHWEST JAVA BASIN

By:

Panji Hoetomo Wirawan

15/383220/PA/16880

A research had been conducted in about Basement of “PHW” Field that located in Ciputat Sub-Basin, Northwest Java Basin with area size 32.5 km × 22.5 km. This research had some purposes, first is to identify fractures at the basement of PHW field, determining potential hydrocarbon zone and recommend future field development. There are several data that had been used, 3D PSTM Seismic Data, FMI Logs, and production data of 8 wells. Several seismic attributes had been used to do this research, Curvature Attribute (Most-Positive Curvature and Most-Negative Curvature), Variance Attribute, and Ant-Track Attribute. Attribute calculations was used to identify fractures laterally at the basement of “PHW” Field. And then, that calculations was combined with borehole images and FMI Logs to identify and analysis fractures in the study area.

The results of seismic calculation showed that dominant fracture orientations is NW-SE and some fractures with N-S and NE-SW orientation. This results is corresponding with dominant fracture orientations from FMI Logs. From that analysis, had been concluded that there are three hydrocarbon potential zone at the basement of “PHW” Field and proposed to conduct deep exploration and opening of new wells in the yellow zone due to the unavailability of wells in the area, explore in the eastern red zone because the red zone has a high fracture intensity, and to do image logging in the blue zone as additional supporting data for further exploration.

Keyword: *Basement, Fracture, Most-Positive Curvature, Most-Negative Curvature, Variance, Ant-Track, Hydrocarbon Potential Zone.*