GEOPHYSICS POSTER 8

AN APPRAISAL WELL, FROM GEOPHYSICAL POINT OF VIEW: DO NOT SIMPLY CALL IT A FAILURE!

Hijreen Ismail[1], Prama Arta[2] & Bernato Viratno[2]

[1]PETRONAS Carigali Muriah Ltd.,Level 17-18, Menara Mandiri, Bapindo Plaza, Jl. Jend Sudirman Kav 54-55, Jakarta 12190- Indonesia.

[2]PETRONAS Carigali Sdn Bhd, Tower 2, Petronas Twin Towers, Kuala Lumpur City Centre, 50088 Kuala Lumpur, Malaysia.

The field is located around 148 km from Bintulu, Offshore Sarawak. This field was discovered in March 2006 by Z-1 exploration well. The type of reservoir is a carbonate pinnacle.

The recently drilled appraisal well X-ST1, has opened various perspectives. The production tests in the three different zones failed to prove the availability of a significant amount of hydrocarbon in the northern part of the field structure. However the successful VSP operation, manage to provide a new time depth relationship at the well location. The success also offered velocity control at the northern area and allowed reinterpretation works. The latest well correlation sets a new geological marker, whereby the Top of carbonate was found to be ~26 m shallower when compared to prognoses. Five horizons were reinterpreted. They are Top of carbonate and Top of zone 4, 5, 6, and 7. Using the new generated 3D velocity model, all the TWT maps were then converted to depth structure maps. When the generated depth structure map of Top of zone 6 was overlaid with gas water contact as found in Z-1 well, a saddle, which separates the southern pinnacle from the northern area carbonate platform in this zone, appeared to be suggested. Hence new resource assessment exercises had been conducted based on the new gross bulk volume (GBV). Consequently, it was gladly found out that there are 69% increase of volume in terms of calculated 2P GIIP. The drilled X-ST1 well also provided input on the quality of the carbonate in the northern area. The porosity observed in this well is totally different from the Z-1 exploration well. In conclusion the X-ST1 appraisal well did provide noteworthy inputs to the understanding of the field structure and economic values to the company.

RECOMMENDATIONS

- Regenerate inversion cube based on the latest data
- Acquire 3D seismic at non-3D seismic area, especially at the northern area of the structure.
- Carry out advance reservoir characterization analysis such as AVO model.

Warta Geologi (Newsletter of the Geological Society of Malaysia), Vol. 37, No. 1, January-March 2011
Copyright © 2017 by Geological Society of Malaysia (GSM)