GEOPHYSICS PAPER 23

4D SEISMIC INTERPRETATION IN ANGSI FIELD

Tan Chin Kiang[1], Wahyudin Suwarlan[1], Kartina Ali[1] & Fariz Fahmi[2]

[1] Petronas Carigali Sdn Bhd, Level 16, Tower 2, Petronas Twin Towers, KLCC, 50088 Kuala Lumpur, Malaysia.
[2]ExxonMobil Exploration and Production Malaysia Inc

Some brown fields have the 4D seismic technology applied successfully to optimize reservoir production and recovery. This paper describes a case study on Angsi field where by the 4D seismic has contributed significantly as input to the reservoir dynamic model as well as for a deeper understanding of the reservoir behavior.

This paper illustrates key lessons that we have learnt from the 4D application, focusing on feasibility study, QC during interpretation phase and 4D information on the reservoir management.

The Angsi field is located 167 km NNE from Kerteh, offshore of Peninsular Malaysia with average water depth 69m. The depositional environment of Angsi field is fluvial coastal plain environment. The field was discovered in 1974 with exploration Angsi-1 and subsequently followed by 7 appraisal wells. Oil and gas have been produced since 2001. Water injection was the chosen technique to manage the reservoir pressure during depletion. Understanding the water movement and response is the concern in the water injected field.

The base seismic survey was acquired in 1995 while monitor survey in 2006 after 5 years of production. The primary objective of the 4D was to monitor the water movement from the injector wells.

The success story of the technique in Angsi field is the ability to map the water movement in I35L reservoir, understanding the reservoir compartmentalization issues, pattern of preferred water movement and reducing the reservoir quality uncertainty.

REFERENCES

JOHNSTON, D., 2005, 4D Seismic in the Deepwater: Rewards and Challenges, AAPG Distinguished Lecture Program.

RUI C. SANSONOWSKI, RILDO M. DE OLIVEIRA, NIER MACIEL DA S. RIBEIRO JÚNIOR, DIRCEU BAMPI, LUCIANO F. CAMARÃO JUNIOR., PETROBRAS/UN-BC/ATP-MRL/RES, 2007, 4D Seismic Interpretation in the Marlim Field, Campos Basin, Offshore Brazil: SEG/San Antonio 2007 Annual Meeting, Expanded Abstracts, 2872-2876.

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