

FIELD DEVELOPMENT PLAN CASE STUDY

PETRONAS Carigali Sdn Bhd (PCSB) – Duyong Field
Offshore Peninsula Malaysia

AWT DISCIPLINES

Geology & Geophysics
Reservoir Engineering
Production Technology
Completions Engineering
Drilling Engineering
Facilities Engineering
Project Economics



PROJECT BACKGROUND

The Duyong Field is located southeast corner of Block PM-307, approximately 280 kilometres northeast of Kerteh, Terengganu, Malaysia, in the South China Sea. The Duyong Field was discovered by CONOCO in July 1970. CONOCO drilled two additional exploration wells before relinquishing the field to PETRONAS in 1976. PETRONAS Carigali Sdn Bhd (PCSB) drilled four appraisal wells in 1982 prior to setting platforms for development. First commercial gas was produced from the field in April 1984.

This field has undergone three major revisits since then; drilling four new wells (1995), workover / evaluating T reservoir (1999) and workover / testing T reservoir (2001). In 2004 AWT took part in Revisit IV campaign, looking at rejuvenating Duyong field through maximisation recoverable reserves, identifying infill and workover opportunities and productivity enhancement opportunities where new technology applications may provide benefit.

AWT WORKSCOPE

A Full Field Review (FFR) was conducted to investigate the potential of infill and workover opportunities in order to develop the remaining reserves within the reservoirs. The FFR scope of work included the following:

- Reservoir characterization (geophysics, petrophysics, geology and reservoir engineering)
- Reservoir Modelling (both Static and Dynamic)
- Production Monitoring

Based upon the development opportunities generated during FFR, the well engineering, drilling engineering, facilities engineering and the project economics aspects were evaluated for each development option during the Field Development Plan (FDP) phase.

AWT ADDED VALUE

The proposed Duyong Field Re-development improved simulated Duyong field gas recovery factors from 47% to 60% and increased the recovery factor from 42% to 56% for condensate. This was achieved through the optimum development scenario which consists of:

- Compression restage
- 2 workovers
- 2 infill wells
- Gas jet pump installation

The proposed gas surface jet pump removed the requirement for a new 8" pipeline to accept gas from high pressure wells reduced the CAPEX from US\$ 25 million to US\$ 5 million. Using the jet pump, low pressure wells would flow in to the same pipeline as the high pressure wells.

For more information contact:

Tel: (+603) 2162 3127 or visit our website at: www.awtinternational.com