Tui On Development Fast Track

The relatively small Tui oil field is set to achieve fairly rapid transition from discovery to first production, by offshore development standards.

The Tui field development, about 36 km north of the Maui B platform, situated in water depths of 135 m, is expected to produce its first oil utilising a floating production storage and offloading facility (FPSO) in the second quarter of 2007. The first discovery well, Tui-1, was drilled in early 2003. Appraisal drilling in 2004 yielded discoveries in Pateke-2 and Amokura-1.

In detailing the progress, Randy Stewart, Principal of Alpha Petroleum Services and also Project Director of the Tui Area Development Project Management Team, said that 48% of total oil recovery would be achieved in the first three years.

The lowest tolerable limit of output, assuming prices of $US50 bbl, would be 2,400 bopd. A production graph shown at the 2006 NZ Petroleum Conference was for output to build up from year one's 10.7 MMbbl and 4 Bcf of gas, down to 4.7 MMbbl oil and 1.8 Bcf gas in year two, and 3.2 MMbbl oil and 1.2 Bcf gas in year three.

Stewart said that in developing the Tui field there were several boundary conditions to consider, including:

- The absence of petroleum development infrastructure such as pipelines and offshore platforms in the offshore NZ scene.
- Limited petroleum exploration and development activity in offshore NZ which has meant drilling, construction and support equipment was not readily available. High mobilisation costs, like $11 – 14 million from Western Australia, will be incurred bringing in equipment.
- Water depths of 125 m and "harsh met-ocean conditions" present challenges in design and for production structures.
- The challenges for transporting Tui area crude long distances in subsea pipelines due to the high wax content and low water temperature.
- The advanced state of decline for the nearest operating oil field (Maui B, 'F' sand producers), eliminates the option to develop Tui with subsea tie-backs.
- Tui's three oil accumulations discovered to date are not located in one central area that would allow economic development of all production wells from a single site.

Stewart said the preferred development option was an FPSO facility with subsea wells, and that simplicity of design and of proven technology is necessary to maintain high reliability. The field life must be extended to ten years to maximise oil recovery.

Given oil cuts of less than 9% from year two forward, the total fluid producing rate must be high to keep the oil rate above the economic limit "as determined by operating costs and oil prices." Stewart said gas production for Tui is too small for commercial viability as a sales stream. Gas produced will be used for gas lift, in a closed loop, and power on the FPSO. Any excess gas will be flared.

Because none of the existing exploration wells can be used for production, four new wells will be drilled. An experienced FPSO contractor will build, own, operate and maintain the Tui FPSO. A long term charter for lease and operation of the FPSO will be executed for an initial five years plus a further five year option. ■

PESA News No. 81 (2006)