



Apache Van Gogh: Flexible Pipe Delivery Management

The Van Gogh field development is located offshore Western Australia in a water depth of 345m. The system will operate using a number of unbonded flexible risers and flowlines for production, water injection and gas injection/lift purposes. First production is scheduled for early 2009.

The Van Gogh field is being developed using an FPSO with a disconnectable turret system. Flexible pipe is being used for the risers and flowlines. The wells, centred around two manifolds, tied back to the FPSO via the flowlines to subsea riser bases. The production fluid characteristics require the flexible pipe to be designed for sour service.

One of the challenges of the project is to design a riser/mooring configuration that can withstand the site environmental conditions for both connected and disconnected turret configurations. A steep wave configuration has been selected for the riser system as being the most suitable solution for the development. The delivery of the pipes is a critical project activity as the pipes are being manufactured in Europe and must be transported to the field location in time for the installation in late 2008. Interface management of the riser and flowline system must ensure compatibility with the FPSO piping, turret buoy, riser bases and flowline manifolds.

Scope of Delivery

- Preliminary design of riser system configuration including the risers and umbilical for future expansion
- Combined Vessel/Turret/Mooring response evaluation
- Coupled analysis for Buoy/Mooring/Riser disconnected system, including the generation of RAO data for the system
- Interference analysis of the risers in connected and disconnected conditions
- Development of the Flexible Pipe Specification and Design Premise for the procurement of the flexible pipe
- Delivery management of the flexible pipes and associated ancillary equipment
- Interface management for the riser and flowline system.

Benefits

- Development of an optimised configuration that works for both the connected and disconnected cases
- Combined Vessel/Turret/Mooring response evaluation confirms the robustness of the riser and mooring systems
- Coupled analysis provides information to the FPSO supplier for the response of the turret system during the disconnection scenario and provides extreme responses of both mooring and riser systems in the disconnect configuration
- Provision of a detailed Flexible Pipe Specification and Design Premise ensures that the project specific requirements are communicated effectively to the flexible pipe supplier
- Delivery management of the flexible pipes ensures that the detailed design and manufacture of the pipe is in accordance with the relevant codes, specifications and procedures and that the pipe is tested and delivered on time for the installation.
- Interface management of the flexible pipes ensures that all of the equipment is designed to the same data and that the connecting systems can be installed effectively and efficiently.