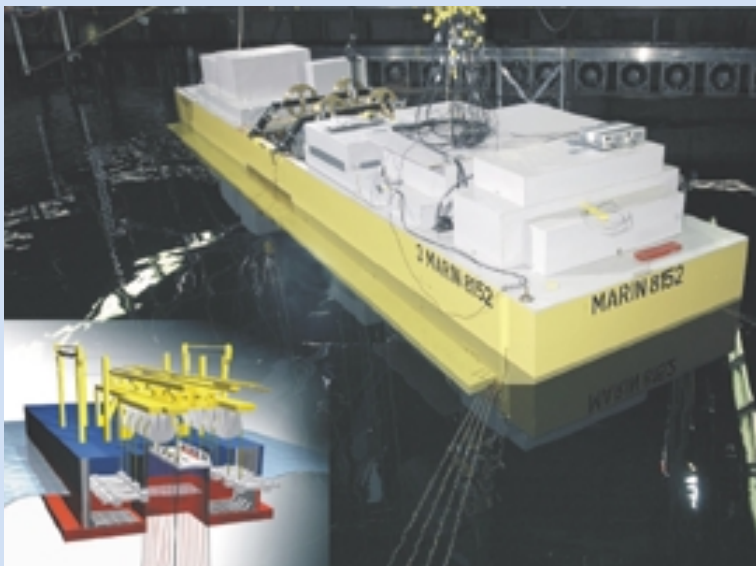


A current drive to produce oil in deeper and deeper waters has pushed many oil companies to look into new technologies and to lower costs for their field developments. Reducing the lead-time to first oil is often vital in order to see a quicker return on the investment. This is often achieved by starting production before the drilling phase is over. MARIN has been heavily involved in testing one particular state-of-the-art concept, SBM's Tension Leg Deck (TLD). Here Report looks at its ability to operate in harsh environments.

New TLD concept tackles harsh environments



Combined production and drilling has traditionally been carried out in shallow waters with jackets and GBSs and in deeper waters, with FPS such as spars, TLPs or semi-submersibles.

TLD concept

The TLD concept as developed by SBM, allows full drilling capabilities, as well as dry production trees for a large variety of floaters. This concept is rather insensitive to payload and does not rely on buoyancy to pretension the risers. Instead, the risers are connected to a rectangular deck in the moonpool, which is pretensioned by cables running over sheaves and connected at their other end to

pretension weights located in dedicated hull compartments.

This system has been model-tested before and its feasibility has been confirmed for West African environments. In the previous test programme, the weights were located in water some 100 m below the mean sea level.

Harsher environments

However, a new model test programme has now been defined in close co-operation with MARIN, to confirm the feasibility of the TLD concept in harsher environments (offshore Brazil) and also to validate a new TLD arrangement with weights inside dedicated hull compartments.

The basic programme consists of a variety of tests to check the general behaviour of the TLD system. In addition to the standard programme variations in the basic set-up were performed. The model was equipped with two sets of hinged arms, one set in the longitudinal direction of the vessel and one set in the transverse direction.

The outcome of these tests will help SBM make important choices in the design, with the combination of measured data and video recordings giving a good overview of the performance of the system. MARIN believes this will also enable SBM to continue to make advances at the cutting edge of design.