



Reinforcement of Riser Topside Spools

A large number of risers were reinforced to sustain very large wave crests occurring due to seabed subsidence and change of wave kinematics in the load models.

LICEngineering designed new effective clamps - some for temporary and some for permanent with a layout suitable for effective offshore installation using dedicated small work teams.

In order to ensure the structural integrity of the hook-up spools, the supports were designed by applying the worst-case wave conditions. It was found that, as a result of platform subsidence, the exposed 2.5" risers were not subject to direct breaking wave loads (i.e. 23m/s particle kinematics). Instead, the most critical load case was found to be ULS wave combined with ULS load factors.

For these designs advanced laser scan models were used to derive the actual geometry and the clamps were build to fit these dimensions.

Approximately 30 clamps were designed and have all been installed on core oli and gas supplying platform units in the North Sea

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Laser scan model, basis for detailed geometrical design of reinforcement clamps



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