

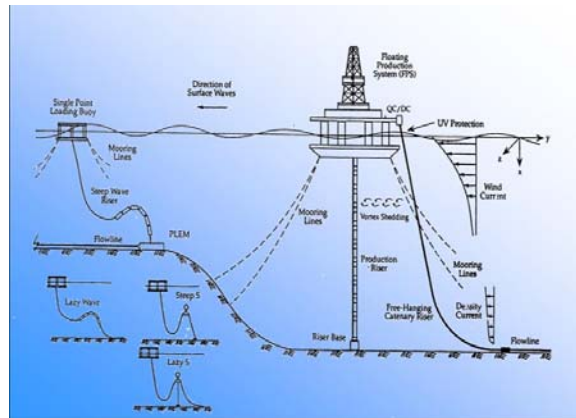


Dynamics and stability of a deep water riser during J-lay

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Description:

During deep water pipe-lay using J-lay method the pipeline is loaded dynamically by waves, current and the motions of the lay-vessel. All of these dynamical effects will cause the pipeline near the touchdown point oscillate both vertically and horizontally which may lead to the pipeline settling on the seabed in a non-straight configuration. At present, the dynamics of risers and pipelines have been studied by several research groups and some models are well established with a number of commercial analysis packages developed.



However, there many uncertainties remain, such as the effect of vortex shedding and pipe interaction with the seabed. It is necessary to address these effects by incorporating them into the prediction model.

Goal:

To model the dynamics and stability of the pipeline during the pipe-lay with the focus on the stability of the straight configuration of the laid pipeline. The stability can be jeopardized by pipeline vibration caused by hydrodynamic forces and pipe-soil interaction. Given the fact that a non-straight configuration of the laid pipeline can significantly reduce its service life, it is of high practical importance to understand the fundamental reasons behind the non-straightness and to recommend measures which will help reduce it.

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