عنوان مقاله:

Failure Analysis of a Subsea Composite Gas Pipeline Carrying Hydrodynamic Loads

محل انتشار:

یازدهمین همایش ملی صنایع دریایی ایران (سال: 1388)

تعداد صفحات اصل مقاله: 6

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خلاصه مقاله:

The application of filament – wound composite pipes for the marine transmission of natural gas is to be studied in this word. Pipelines resting on the seabed are subjected to the fluid loading resulted from waves and steady currents. The natural gas extracted from the South Pars reservoir is at a high pressure of 132 bars in the entrance of the pipeline . On bottom lateral and vertical stability assessment of the pipeline is performed. Also , the spanning of the pipeline over an appreciable distance due to the lack of the contact between the pipeline and a rough seabed is taken into account in the finite element modeling . A laminated composite pipe is analyzed under the combination of the drag, lift and inertial fluid loads , internal and external pressures , and gravity. These loads are incrementally applied to the pipe in order to be able to study the progressive failure of the layers of the laminated pipe. Finally , the stacking sequence of the unidirectional plies for the pipe is optimized in order to safely carry all hydrodynamic environmental loads

کلمات کلیدی:

Composite pipe, Natural gas transmission, On- bottom stability, Free-span analysis