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重大工程实践

黄河口裸置管线在位稳定性数值模拟研究

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摘要:

基于Biot固结理论,并结合接触算法,考虑了海水流经管线时的尾流效应,建立了波浪荷载作用下裸置管线与周围土体相互作用的有限元模型,使计算结果更加符合实际情况。将此模型应用于黄河口埕岛油田裸置管线在位稳定性计算,分析了尾流效应对裸置管线稳定性的影响,在此基础上提出了适用于黄河口不同地质分区的裸置管线稳定性校核曲线。

关键词: 有限元 WakeII模型 管线稳定性

NUMERICAL STUDY ON STABILITY OF PIPELINE LAID ON SEABED IN YELLOW RIVER ESTUARY

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Abstract:

Based on the Biot theory and friction contact theory, a FEM model including wake effect of pipeline-soil interaction is developed to investigate the wave induced response of pipeline and seabed soil. The effect of wake to the stability of pipeline laid on seabed is analyzed, and a set of stability graph applicable to different engineering geologic regions in Chengdao area are proposed based on

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the numerical results.

Keywords: FEM WakeII model Stability of pipeline

收稿日期 2009-05-05 修回日期 2009-06-28 网络版发布日期

DOI:

基金项目:

国家自然科学基金(40472137),中石化集团公司重点攻关项目(40472137)

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