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黄河口埭岛海域海床的波致液化破坏研究

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Study of the wave-induced seabed liquefaction failure of the Chengdao Sea at the Yellow River Estuary

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- 摘要
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摘要 黄河口埭岛海域是胜利油田的重要产油区之一.其遭受地质灾害的主要原因是河系沉积物的液化.本文分析了该地区波致液化形成过程,建立了判别细粒土海床波致液化的理论计算模型,计算了埭岛海域不同钻孔处的液化深度,进一步得到液化流滑方向.通过研究主要得到了以下结论.(1)极端海况下,液化深度较大的区域分布在海域中部和东南区域,最深10 m深度处的软弱土体可出现液化;北部液化深度为4~8 m;西南大部分区域,液化深度最小,一般在 3.0 m 以内.(2)埭岛海域海床液化后,北部土体向北流滑;中部土体首先向东流滑,然后转为向东北流滑;东南部可能向东南向流滑,也可能残留.文中计算的海床液化深度和流滑方向可供石油工程设施设计和施工时参考.

关键词: 黄河口'") href="#">黄河口 埭岛海域 波浪 液化

Abstract: The wave-induced seabed liquefaction is the main cause of geogical disasters at the Chengdao Sea of the Yellow River Estuary, an oil production area. In this paper, a theoretical calculation model was established for assessing the seabed liquefaction, and calculating the liquefaction depth at different drills at the Chengdao Sea; further more, the direction of flow-slide was gotten. Through study some conclusions were gotten. (1) Under extreme sea conditions, the region with larger liquefaction depth lies at the central and southeastern of the Chengdao Sea, the weak soil layer up to 10 m can liquefy. The liquefaction depth can reach 4~8 m at the north, and liquefaction depth at the southwest is relatively little, [JP2] within 3 m. (2) The flow-slide directions of the seabed after liquefaction are as follows, soil at north slide to north, soil at middle firstly slides to east and then to northeast, soil at the southeast may slide to southeast or be residual. The liquefaction depth and slide direction can be used for petroleum engineering design and construction reference.

Key words: the Yellow River Estuary')") href="#">the Yellow River Estuary the Chengdao Sea wave liquefaction

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