

عنوان مقاله:

Hydrodynamic Simulation of Oil Blowout and Response Action to Evaluate Environmental Consequences on Prawns

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خلاصه مقاله:

A scenario-specific modeling of oil blowout from the Khark island pipelines in the Persian Gulf has been carried out to evaluate the environmental impact of oil spill on the local coast, seabed and prawns. Also, various scenarios for response actions have been considered. The analyses have been performed by SINTEF Oil Spill Contingency and Response (OSCAR), a 3-dimensional model system. At the first step, OSCAR as the oil spill analysis model was successfully verified in the Persian Gulf using Mina Al-Ahmadi oil spill field observed data. The oil path and predicted time resulted from the OSCAR model were in a very good agreement with the field observed data. Results related to the scenarios of oil blowout from the Khark Island pipelines indicate that the wind is the key factor for advection and spreading of oil in the area. Due to wind conditions in Khark area, the Khark South-East coast has the maximum oil contamination potential. The results show the spilled oil may extremely threat the Khark area environment and especially the local prawns due to the high concentration of hydrocarbons in the water column. The reason for high level of entrainment and dispersion of oil in the water column is the possibility of high-speed blowout from the pipeline in form of a jet. Results indicates that the response action not only may have a low efficiency to reduce the potential environmental damages on the coast, but also may increase the potential environmental hazards on the local prawns due to the utilization of chemical dispersants.

کلمات کلیدی:

Hydrodynamic Simulation, Oil Spill, Pipeline, Prawn

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