عنوان مقاله:
Steel Catenary Risers, Design challenges and Fatigue Performance

محل انتشار:
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خلاصه مقاله:
It is publically accepted today that the seabed interaction has a vital influence on fatigue performance of steel catenaryrisers in touchdown zone. Most of recommended practices, however, still consider using linear seabed springs, andassuming a flat seabed. Improved non-linear hysteretic seabed models have recently been proposed, whichautomatically simulate the different stiffness in the seabed response through the touchdown zone. A furtherconsideration, however, is the influence of the trench that forms at the seabed. ROV surveys have shown that trenchesseveral diameters deep can develop beneath the riser in the early stages of the SCR life, and a critical question is howthis affects the fatigue life. A non-linear soil hysteretic model has been used to model gradual trench development in thetouchdown zone. Initially, the seabed model parameters are adjusted to allow trenches of varying depth to be developedover a moderate number of displacement cycles of the SCR. Design wave spectra are then applied, simulating a genericSpar system, after correcting the model parameters to more typical values normal range. The paper presents results thatshow the impact of trenches of different depths on the fatigue performance of SCRs in .the touchdown zone

کلمات کلیدی:
steel catenary risers, fatigue, seabed interaction