RISER EFFECTS TO FATIGUE LIFE OF MOORING LINES
STUDY CASE: SPM FPSO “SEAGOOD 101”

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ABSTRACT

The strength analysis on structures that imposed to cyclic load is needed to ensure the integrity of the structure and for assessing possible damage due to fatigue. The strength analysis on structures that imposed to cyclic load is needed to ensure the integrity of the structure and for assessing possible damage due to fatigue. Part of the SPM system vulnerable to damage due to cyclic loads are mooring lines. Mooring lines were damaged due to the pull that occurs continuously over a long time. This final project discusses about riser effects fatigue life of mooring lines, study case: SPM FPSO “SEAGOOD 101”. Beginning with modeling motion of the FPSO in free floating condition. Calculation of tension, stress, damage, to obtain the fatigue life is done using methods Rainflow Cycle approach. The results of the fatigue life analysis showed that the structure of mooring lines which uses the riser has a longer fatigue life than the structure (mooring lines) that does not use a riser. The smallest fatigue life occurred in the fairlead on the mooring line 1, which is 203.59 years on the condition of the structure using the riser and 213.34 in the condition of the structure without the riser.

Keywords: FPSO, SPM, riser, mooring line, fatigue, rainflow, fairlead