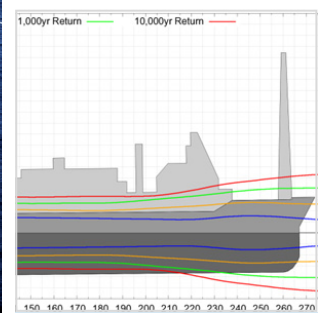


Laminaria Field, Timor Sea

Design Re-Assessment—FPSO Northern Endeavour



Orwell Offshore was commissioned to re-assess the hull structure, topsides, mooring and riser system of FPSO Northern Endeavour, operating at the Laminaria Field in the cyclone prone Timor Sea. Metocean modelling carried out by Woodside Energy had indicated that the FPSO could encounter conditions significantly more severe than those used as the basis for the original design.

Orwell's scope was to produce and calibrate models focusing on the hull, mooring and riser system. Calibrated analytical models were used to perform mooring analyses, and a hydrodynamic model was used to carry out a motion analyses. Twenty two process modules were structurally re-assessed using

revised accelerations from the motions analyses in order to determine suitability for on-going service.

Orwell delivered a revised estimate of the return period associated with exceeding the mooring system capacity and produced revised loading arrangements to reduce vessel pitching. Revised still water limits for shear forces and bending moments were developed to account for increases in wave loading on the hull.

Orwell identified potential weaknesses and remedial actions to be taken to ensure on-going compliance with Class and Regulatory Authority requirements.