Overview - The tie-back region within an oil and gas well is often used to allow a continuous casing string. This additional string provides enhanced zone isolation and increased structural strength. This region is not well understood.

Objective – To develop an in-house thermo-structural FEA program capable of calculating the probabilistic stresses applied to a tie-back in an oilfield well to identify how an imperfect cement job affects the structural stability of the tie-back.

Probabilistic stress distribution due to property and fabrication variability

Increase stress by 10% due to eccentricity and 15% due to thermal