

Subsea Wellhead Life-Extension Solution

Engineering, analysis and manufacture of Subsea Clamp System to improve fatigue life of a subsea wellhead

Client: Undisclosed

Time: 2011 – 2012

Location: Undisclosed

A tieback connector adaptor spool of a subsea wellhead was found to have inadequate fatigue life under predicted cyclic loading conditions. To increase the fatigue life of the component, **Neptune** engineered and manufactured a number of diver-installable reinforcing clamp systems. All elements of engineering, analysis, fatigue analysis, manufacture, assembly, test, including calibration of tensioning system and test jig to validate FE model predictions were carried out in-house by **Neptune**.

Our scope of supply included:

- ✚ All elements of engineering and project management
- ✚ All elements of engineering analysis and fatigue modelling
- ✚ Qualification and validation testing
- ✚ Factory acceptance testing and finite element model validation
- ✚ Technical risk assurance process
- ✚ Manufacture of every element of the wellhead bracing systems
- ✚ Management of third-party design verification and assurance process

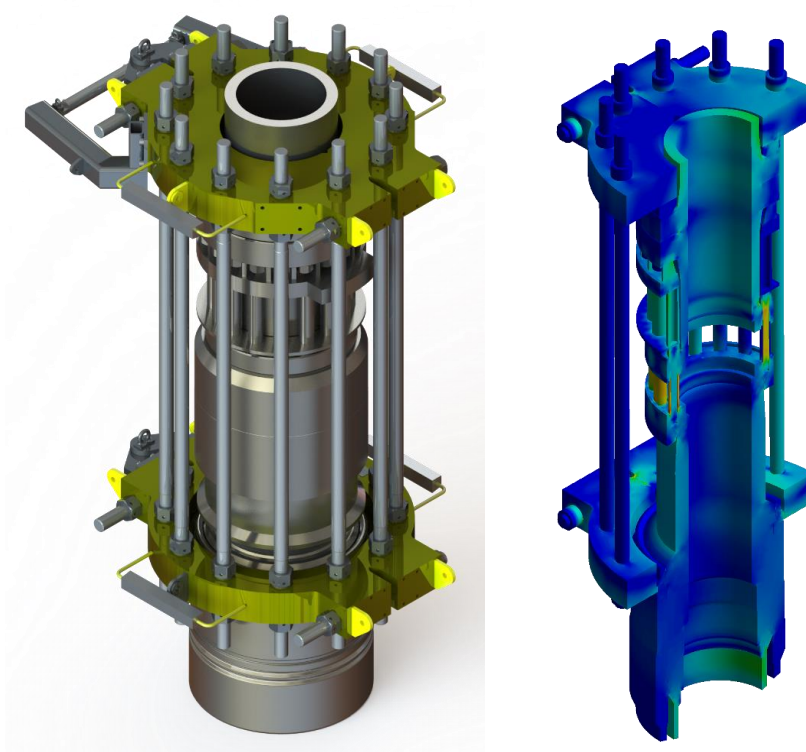


Figure 1: CAD and FEA models of subsea wellhead being strengthened by Neptune-engineered Subsea Clamp System.



Figure 2: In-house bend tests and tension system calibration of Subsea Clamp System (using strain gauges) to validate FEA models. Excellent correlations achieved.