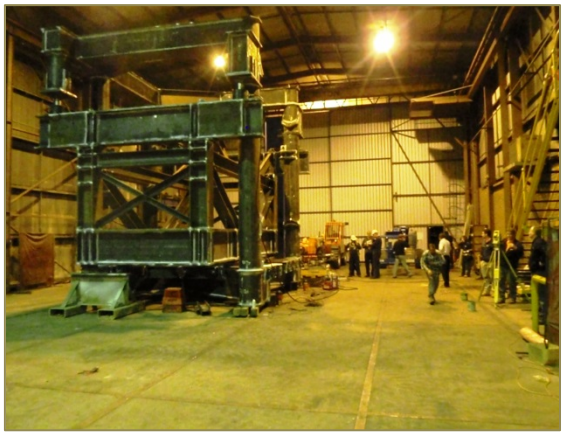
Woodside Energy Limited
Enfield Operations on Nan Hai VI Modu

Design, Fabrication and Installation of an Interface Structure (IFS)

ICON Engineering was commissioned by Woodside Energy Limited (WEL) to provide engineering support and design, fabricate and install an Interface Structure (IFS) in preparation for a Workover operation on the ENC01 Well as part of the Enfield 2009 campaign. The Workover operation was conducted from the Nan Hai VI MODU.

The IFS was designed to be mounted on the moonpoll of the Nan Hai VI to support the Support Landing Structure, Open-water Christmas Tree (OXT), tubing string and associated equipment.

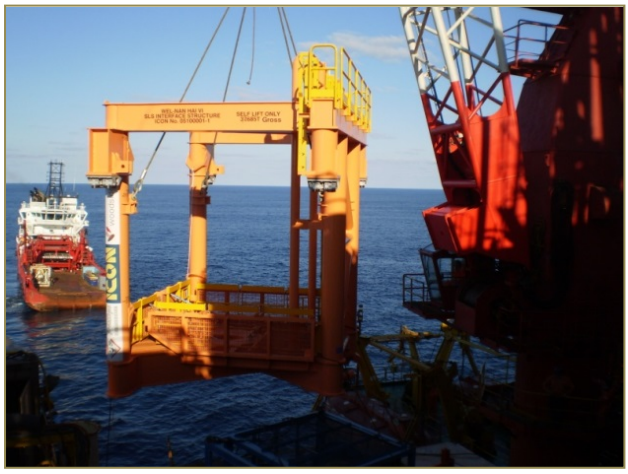


Load testing of the IFS prior to installation

Design, Fabrication and Load Testing of the IFS

ICON undertook the design, fabrication of the IFS including all attached walkways, handrails and ladders. The IFS/Normar Carrier connection and the rollers to fix to the moonpool rails were also included in the scope. An IFS locking mechanism was incorporated for the when the IFS was under the rotary centre.

Prior to the IFS being deployed to the Nan Hay VI, a load test was carried out. This involved the design and fabrication of a load test rig.



Lifting IFS over starboard aft quarter of Nan Hai VI

Rig Modifications required for Installation of the IFS

ICON also carried out the design, fabrication and installation of rig modifications required to allow for the installation of the IFS. This included an extension to existing walkway beneath the moonpoll and modificaitons to existing walkway aft of drill floor and around aft riser tensioner.

Lowering the IFS into Moonpool

IFS Installation Sequences and Aids

Several options for the lift of the IFS from the supply vessel and into the moonpool were considered by ICON on behalf of WEL. Installation sequence drawings were prepared and design and fabrication of installation guides including the LRP / SLS Interface Plate, FS/LMRP Trolley Interface Skid, IFS Installation Guide Frame and the Normar Carrier Tubing Bumper.

OXT Operation Procedures, Manuals and training

ICON also provided operation procedures, manuals and training for the OXT operation sequence. All equipment was verified as fitting as proposed and sequence drawings and 3D computer animations of the OXT operations were created.

IFS Offshore Support

Offshore support was provided by ICON for the IFS installation. The procedures for the installation of the IFS, OXT, EDP and LRP as provided by ICON were executed and supervised by ICON personnel. The IFS was installed without incident.

The EDP and LRP landed on the IFS

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