

## SOUTHERN HUB AREA RATIONALISATION PROJECT

# FEED Safety Studies

ODE and DORIS Engineering completed the Greenfield and Brownfield Front End Engineering Design phase for Perenco UK's Southern Hub Area Rationalisation Project. The Brownfield scope involved modifications to three installations while the project's Greenfield design scope encompassed the installation of a repurposed jack-up rig at the Leman 49/27B installation.

**Project Name**  
Southern Hub Area Rationalisation Project (SHARP) Brownfield

**Client**  
Perenco UK

**Location**  
Southern North Sea

**Date**  
2018 - 2019

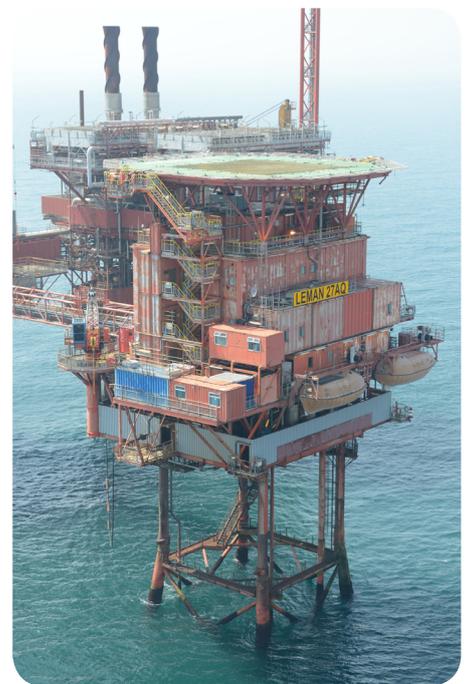
The Southern Hub Area Rationalisation Project (SHARP) was carried out to remove the gas compression facilities on the Indefatigable 49/23A and Leman 49/27A platforms and hence decommission a substantial quantity of equipment on the platforms. The production fluids would be transferred, at low pressure, to the existing Leman 49/27BT platform. Fluids would be transferred from 27BT to the new facility for compression Leman 27BC. Production from Leman 27BC would

then be re-exported to the PUK shore treatment plant at Bacton through the existing 30" gas pipeline.

ODE and DORIS Engineering delivered the SHARP Brownfield and Greenfield Front End Engineering Designs. Collectively these scopes involve optimisation and rationalisation of the Leman 49/27A, Leman 49/27B and Indefatigable 49/23A installations in order to extend the operational life of these 40-year-old assets for a further 20 years.

The project scopes were split so that ODE London produced the Brownfield design while a DORIS / ODE joint venture produced the Greenfield design. In addition, both offices were supported by the CAD team in the ODE Cairo office.

The Brownfield scope considered the rationalisation of the Indefatigable 49/23A, Leman 49/27A and Leman 27BT installations to become Normally



Unmanned installations.

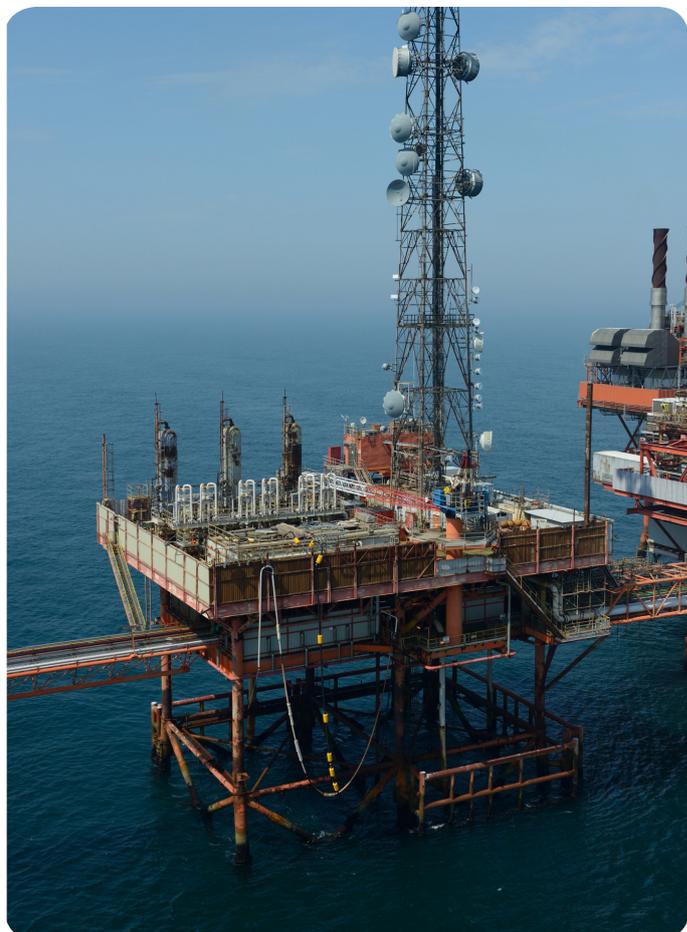
The Inde 49/23A platform was subject to numerous modifications. Fluids from the existing five facilities feeding the Inde 49/23A platform were transferred to the existing Davy Slugcatcher where condensate and water are removed from the feed streams. New wet gas meters were installed in the Davy and Bessemer fields reception facilities. Following gas / liquid separation, the gas is exported to Lemman 49/27BT. A new, improved and more sophisticated sphere launcher was installed on to the export line.

Condensate from the Davy slugcatcher is injected into the export line via new condensate export pumps, while produced water is treated in a new PWT system. Corrosion inhibitor is injected into the export line using a new injection system, while the old system was mothballed. Finally, a new diesel system was installed and redundant vent lines were mothballed.

On the Lemman 49/27AP platform, the Lemman South riser and the Lemman 49/27H&J were disconnected subsea and reconnected to a new riser. Production fluids from both sources are now combined in new reception pipework with other Lemman sources and sent to Lemman 49/27BT. A new corrosion inhibitor system injects corrosion Inhibitor into the gas on AP, while the MEG injection pumps and 2 out of 5 MEG storage tanks were mothballed. In addition, a new diesel system was also installed.

On the Lemman 49/27BP platform, the old diesel system was mothballed and diesel from the new Lemman 49/27BC compression platform was connected instead. In addition, the gas pipework was redesigned to utilise three wells as water injection wells, with produced water coming from the Lemman 49/27BT and the new compression BC platforms.

On the Lemman 49/27BT platform, a new pigging module was installed, with a new pig launcher and Y piece to allow pigs to travel to Bacton from either the new BT launcher, or from Inde 49/23A. Gas from all Lemman sources and Inde is now routed to a new slugcatcher on the new BC compression platform.



Some of the existing import and export pipework is no longer required so after disconnection has been left in a mothballed state. Like on the BP platform, 3 wells were converted to be water injection wells.

