



Lifetime Support

Inocean supplies design and engineering support for projects, whether vessels are still in the planning stage or need upgrades or maintenance. We draft, calculate and analyse problems with retrofits on board or challenges in mooring and transport.

Inocean has extensive experience in this field as a result of our long-time relations to clients in the FPSO sector and the rig market.

It's a huge advantage to know a vessel and its history. With all the drawings and models in-house we can execute a project faster and help reduce the need for docking – or at least keep shutdown time to a minimum.



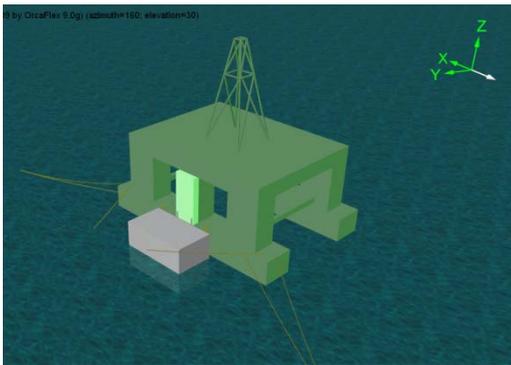
You know us, we know you – and your vessel

Periodically a ship or a rig will always need upgrades, modifications or maintenance. By choosing Inocean as your engineering partner you are guaranteed fast and safe support, for example:

- When the vessel is about to compete for a new contract or when change of Class is needed
- When planning and executing modifications
- When repairing damages
- In projects related to fatigue and life extension

What we do

Inocean can play a key role in inspections, analyses and engineering support related to everything concerning structure (hull and topside supports), motion, DP (dynamic positioning) and mooring. We develop a stability booklet for approval including intact and damage stability in accordance with all relevant regulations. We calculate loading conditions for all pertinent loading / offloading scenarios, transit and inspection/ repair conditions. We take responsibility for inclining test procedures and execution and hydrodynamic analysis for the ship in transit and operation. See examples below:



Example 1: Transit of *Leiv Eiriksson* (Ocean Rig) from Ølensvåg outside Haugesund to the Black Sea.

Inocean scope of work:

- Mooring calculations
- Strength issues during thruster changeout
- Strength calculations on riser deck
- Loading condition
- Towing calculation at operation draft

Example 2: Refitting of thrusters, *Leiv Eiriksson* (Ocean Rig).

Two thrusters needed to be changed according to the maintenance programme. Work done with the rig at quay with the aid of a heavy-lift vessel and an advanced pipe and wire system.

Inocean scope of work:

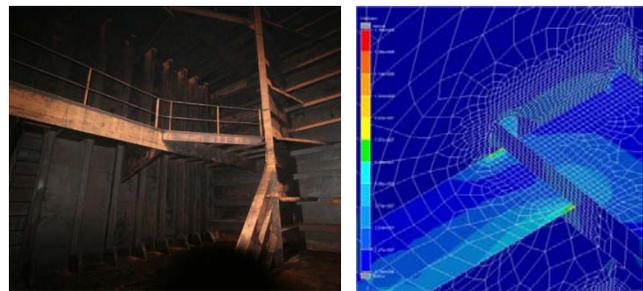
- Making structural modifications of the heavy-lift gear and guidance of the thrusters
- Assisting in various design and analysis issues.



Example 3: Conversion of *Eirik Raude* (Ocean Rig) for drilling operations offshore Ghana.

Inocean scope of work:

Various engineering tasks regarding steel design, equipment, analysis of stability, deck load capacity, etc.



Example 4: An FPSO has been in operation in a field for years. Now the vessel is in poor shape and requires maintenance.

Inocean scope of work:

- Hull assessment including analyses of measurements made on board of the condition of steel plates and supports.
- Documentation of minimum plate thicknesses used for repair/plate replacement .
- Secure Class acceptance for calculations, analyses and conclusions.