



East Fortune FPSO Gas Turbine Exhaust Module

CLIENT – Petrofac
CONTRACTOR – Keppel Shipyard – Singapore
CONTRACT VALUE – \$250M
PROJECT DATE – 2011 (Completed April 2012)

The Berantai Field is an offshore green-field development in Malaysia which is jointly realised by Petroliam Nasional Berhad (Petronas) and Petrofac Energy Development International Limited (PEDIL).

The East Fortune was originally built as a product carrier and was converted to floating, production, storage and offloading vessel (FPSO) for operations in benign waters in 2006/7.

In 2011, the vessel was to be redesigned, overhauled and converted in compliance with the latest regulations of Det Norske Veritas (DNV).

The class notations: DNV +1A1 Ship Shaped Floating Production Storage and Offloading Unit

GGP Consult provided Structural Engineering services to Petrofac for the design of a gas turbine exhaust module

The scope of work included development of external and internal pressures, forces and temperatures, 3D structural modelling of the ducting, duct structure and support stress analysis, module steelwork design including supports, setting out drawings and fabrication drawings.

The complexity in this project was the operating temperature of 471°C, each duct had to be modelled in 3D using a Finite Element Analysis software to provide accurate stress and deflection results. A series of bellows were developed to allow for thermal expansion and the module was completed on schedule.