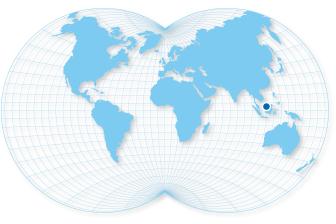


MALONG ANDING & SOTONG ANDING (MASA) FIELD, MALAYSIA:

FPSO Perintis External Turret





Scope of Work

SOFEC designed and constructed an external cantilevered turret mooring system for a permanently moored FPSO conversion.

The FPSO Perintis is installed near three fixed satellite production platforms located in the MASA fields offshore Malaysia. The FPSO is designed to produce a total of 55,000 BPD of combined fluids including 35,000 BPD of crude oil and 100 MMscfd of gas. Processed crude is exported through a tandem offloading arrangement and the produced gas is exported through subsea pipelines. Water injection is also provided by the FPSO's topsides facilities to the field and has a maximum capacity of 25 MBPD.

This SOFEC external turret mooring system is ABS classed.

General Description

Client Name: Trenergy FPSO SDN BHD

Contract Award: January 1998
Installation Date: March 1999
First Oil: April 1999
Vessel Size: 94,236 dwt

Storage Capacity: 640,000 bbls

Water Depth: 75m (246ft)

Fabrication: Turret - Malaysia

Vessel – Malaysia Topsides – Asia

Design Environmental Criteria (100-year storm)

Significant Wave Height: 5.5m (18 ft)
Wind Velocity: 22m/s (43 knots)
Current: 1m/s (1.8 knots)

Mooring System

6-leg Symmetric weighted catenary:

6-in. Stud link chain

12mt Drag embedment anchors

3.5-in. ORQ top chain

Turret

Permanent External Cantilevered



FPSO Perintis

(Continued) Fluid Swivel Assembly

Water Injection: 1 x 6-in. 900#

(1,407 psi design)

Production: 2 x 10-in. 900#

(1,014 psi design)

Gas Lift Swivel: 1 x 6-in. 900#

(1,930 psi design)

Gas Export: 1 x 6-in. 900#

(1,930 psi design)

Hydraulic Utility Swivel: 13 paths (3,000 psi design)

Electrical Utility Slipring: 16 paths

Riser System

1 x 16-in. Flexible riser (crude)

2 x 14-in. Flexible riser (crude)

1 x 12-in. Flexible riser (gas export)

1 x 6-in. Flexible riser (water injection)

1 x 4-in. Flexible riser (gas lift)