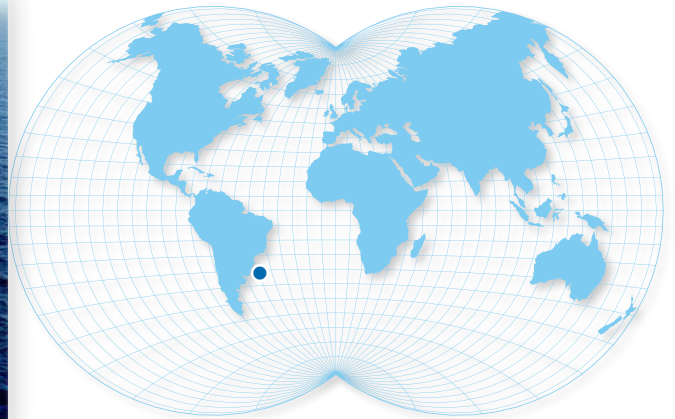


ESPADARTE FIELD, BRAZIL:

FPSO Cidade Rio de Janeiro MV14 Spread Mooring



Scope of Work

SOFEC designed and supplied the spread mooring system for a MODEC-owned 264,148 dwt FPSO located in the 1-RJS-409 / 3-RJS-415 Espadarte Sul field offshore Brazil's Campos.

The SOFEC spread mooring system is ABS certified.

General Description

Client Name:	Petroleo Brasileiro S.A. (Petrobras)
Contract Award:	July 2005
Installation:	December 2006
First Oil:	January 2007
Vessel Size:	264,148 dwt
Storage Capacity:	1,600,000 bbls
Water Depth:	1,350m (4,429ft)

Design Environmental Criteria (100-year storm)

Significant Wave Height:	7.8m (26ft)
Wind Velocity:	29m/s (56.4 knots)
Current:	2m/s (3.9 knots)

Mooring System

Spread Mooring:

- 18-leg Semi-taut leg system
- 1500 ton MBL polyester rope
- 4.75-in. Studless R4/R45
- PB Torpedo pile
- Pull-in system: 2 x 350mt chain jacks

Riser System

- All flexible risers in catenary configuration:
- 21 risers/umbilicals for 6 production wells
 - 10 risers/umbilicals for 5 water injection wells
 - 2 risers umbilicals for Gas Export
 - 34 Total risers/umbilicals