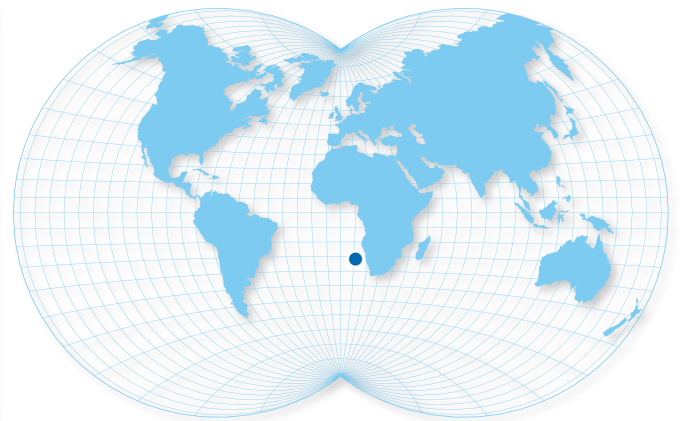


KIZOMBA B FIELD, BLOCK 15, ANGOLA:

FPSO Kizomba B Spread Mooring



Scope of Work

Contracted through Hyundai Heavy Industries, SOFEC was responsible for the design and analysis of the Kizomba B FPSO spread mooring system. The Kizomba B FPSO is a near-identical copy of the Kizomba A FPSO. The supply of the off-vessel equipment (wire, chain, piles) as well as the installation of the system was once again the responsibility of the EPC3 installation contractor.

The SOFEC spread mooring system is DnV classed.

General Description

Client Name:	Esso Exploration Angola (Block 15) Ltd.
Contract Award:	March 2003
Installation Date:	April 2005
First Oil:	May 2005
Vessel Size:	375,000 dwt
Storage Capacity:	2,200,000 bbls
Water Depth:	1,016m (3,332ft)

Design Environmental Criteria (100-year storm)

	Max. Swell:	Max. Squall:
Swell:	4.5m (14.8ft)	2.3m (7.5ft)
Sig. Wave Height:	0.2m (0.7ft)	1.4m (4ft)
Wind Velocity:	7.5m/s (14.6 kts)	28.4m/s (55.2 kts)
Current:	0.3m/s (0.6 kts)	2m/s (3.9 kts)

Mooring System

Spread Mooring:

- 13-leg Semi-taut leg system with sheathed spiral strand and studless R4 chain
- 5mØ / 27m length suction piles

Riser System

Initial stage risers:

- 2 OOLs
- 2 SLORs
- 3 PIP SLORs
- 8 FTLs suspended between FPSO & TLP
- Future maximum: Additional 12 SLORs and PIP SLHRs