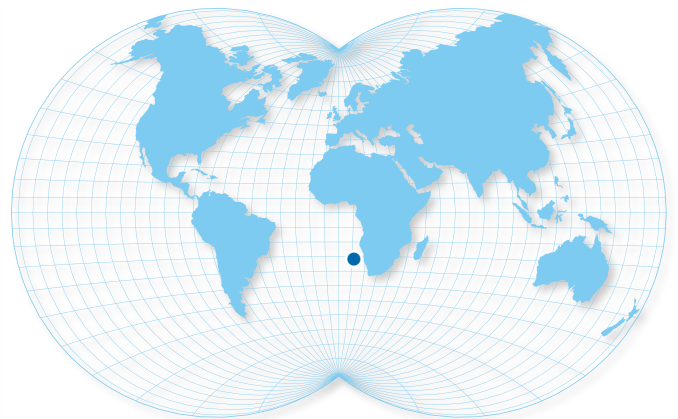


KIZOMBA A FIELD, BLOCK 15, ANGOLA:

FPSO Kizomba A Spread Mooring



Scope of Work

SOFEC was responsible for the design and analysis of the SOFEC spread mooring system for the world's largest FPSO. The supply of the off-vessel equipment (wire, chain, piles) as well as the installation of the system was the responsibility of the EPC3 installation contractor. SOFEC was also contracted directly by the client to provide consulting services in support of the offshore FPSO installation.

The SOFEC spread mooring system is DnV classed.

General Description

Client Name:	Esso Exploration Angola (Block 15) Ltd.
Contract Award:	August 2001
Installation Date:	May 2004
Vessel Size:	375,000 dwt
Storage Capacity:	2,200,000 bbls
Water Depth:	1,180m [3,870ft]

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:
 - 15-leg Semi-taut leg system
 - 4.25-in. Sheathed spiral strand
 - 4.375-in. Studless R4
 - 5mØ / 27m length suction piles
 - Pull-in system: 2 x 350mt winches

Riser System

- 2 x 20-in. ID OOLs [steel]
- 8 FTLs, suspended between FPSO & TLP
- 5 SLORs, 10 or 12-in. gas or water injection, future up to 36 production lines