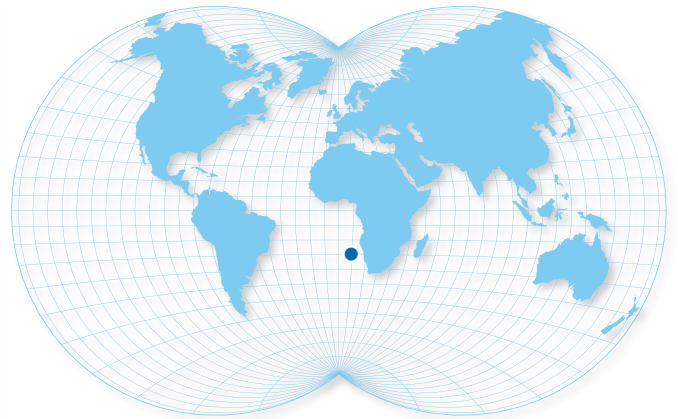


BLOCK 31 PSVM FIELD, ANGOLA:

FPSO PSVM External Turret



Scope of Work

SOFEC designed, constructed, fabricated and installed an external turret mooring system complete with anchor legs, fluid swivels and installation aids.

Angola Block 31 is operated by BP under Production sharing Agreements between multi-partner Contractor Groups and the concessionaire, Sonangol. The Block 31 Contractor Group comprises BP (26.67%), Esso (25%), Sonangol (20%), Statoil (13.33%), Marathon (10%), and Total (5%).

PSVM FPSO is a centrally located FPSO linked via flowlines and risers to a number of subsea production and injection wells. The PSVM FPSO is the first of several across Block 31 and will maximize value leverage through design and contracting standardization. Oil is exported by direct offloading to a trading tanker. Gas is initially re-injected into the reservoirs and later exported via a gas export pipeline to the new Angola LNG (ALNG) terminal when access is available.

The modularized production facilities for the PSVM FPSO will process 210,000 bfpd, produce 150,000 bopd, re-inject/lift 250+ mmscf and inject 300,000 bupd including both desulfated seawater and produce water. The power plant required to operate the facility will be in the 65-70 MW range for full operations. These production requirements will meet the majority of the developments.

The SOFEC external turret mooring system is ABS classed.

General Description

Client Name:	BP Angola
Contract Award:	June 2008
Installation Date:	February 2012
First Oil:	February 2013
Vessel Size:	296,200 mt
Storage Capacity:	2,000,000 bbls
Water Depth:	2,000m (6,652ft)

(Continued)

Design Environmental Criteria (100-year storm)

	Max. Swell:	Max. Squall:
Sig. Wave Height:	4.5m (14.8ft)	2.4m (7.9ft)
Wind Velocity:	6.3m/s (12.3 kts)	28.4m/s (55.2 kts)
Current:	0.5m/s (1.0 kts)	0.5m/s (1.0 kts)

Riser System

- 2 x 10-in. Single leg hybrid - Production
- 4 x 12-in. Single leg hybrid - Production
- 1 x 10-in. Single leg hybrid - Gas Injection
- 1 x 14-in. Single leg hybrid - Water Injection
- 1 x 8-in. Single leg hybrid - Gas Lift
- 2 x Lazy wave control umbilicals
- 1 x Spare slot