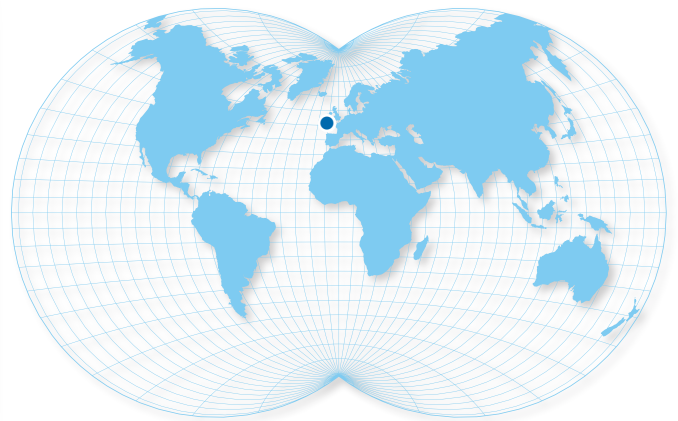


OFFSHORE UK NORTH SEA - EUROPE:

FSO Ailsa Permanent Internal Turret



Scope of Work

SOFEC designed, constructed, fabricated and installed a permanent internal turret for the FSO Ailsa (Maersk Culzean).

The Culzean project development is an ultra-high pressure high temperature (UHP/HT) gas condensate development located some 145 miles (233 km) East of Aberdeen in the UK sector of the Central North Sea.

The Culzean discovery is located on Block 22/25a (License P111) in a water depth of some 90m (295 ft). MOUK as operator holds a 49.99% interest in Culzean, with partners JX Nippon UK and BP. Condensate is exported to an FSO where it is stored and periodically offloaded to shuttle tankers. The FSO location is 3 km away from the WHP in straight distance. The riser base position is at a water depth of 85m.

The SOFEC internal turret mooring system will be DNV GL classed.

General Description

Client Name:	Maersk Offshore UK (MOUK)
FPSO Contractor:	MODEC Offshore Production Systems (MOPS) Singapore
Contract Award:	September 2015
Installation Date:	June 2018
First Condensate:	June 2019
Vessel Size:	70,000 dwt
Storage Capacity:	350,000 bbls
Water Depth:	85m (279ft)
Fabrication:	Turret - Keppel Shipyard Topsides - Dyna-Mac Vessel - SembCorp Marine

Design Environmental Criteria (100-year storm)

Sig. Wave Height:	13.2m (43.3ft)
Wind Velocity:	33.5m/s (65.11 kts)
Current:	0.77m/s (1.49 kts)

FSO Ailas

(Continued)

Mooring System

12-leg (3x4) mooring chain and wire rope anchor legs
140mm R3 DNV GL chain
98 mm spiral strand, single layer sheathed
DRAG Anchors 35 MT + 13.7 MT internal ballast

Comments

The turret mooring system complies with the mandatory EU directives and UK HSE requirements.

Fluid Swivel Assembly

In Phase 1, the assembly includes from top to bottom:

- One (1) LVESR (Low Voltage Electrical Slip Ring)
- One (1) Utility Swivel
- One (1) Condensate Toroidal Swivel Spare
- One (1) Condensate Toroidal Swivel
- One (1) Fuel Gas Toroidal Swivel Spare
- One (1) Fuel Gas Toroidal Swivel

Future Phase, the assembly includes from top to bottom:

- One (1) LVESR (Low Voltage Electrical Slip Ring)
- One (1) Utility Swivel
- One (1) Crude Oil Toroidal Swivel
- One (1) Crude Oil Toroidal Swivel
- One (1) Crude Oil Toroidal Swivel
- One (1) Condensate Toroidal Swivel Spare
- One (1) Condensate Toroidal Swivel
- One (1) Fuel Gas Toroidal Swivel Spare
- One (1) Fuel Gas Toroidal Swivel

Riser System

Phase 1:

1 x 4-in. Flexible Riser (Fuel Gas Import)
1 x 6-in. Flexible Riser (Condensate Import)

Future Phase:

2 x 8-in, Flexible Risers (Condensate/Crude Oil)
1 x 10-in, Flexible Riser (Condensate/Crude Oil)