

SU TU DEN (BLACK LION) FIELD, VIETNAM:

FPSO Cuulong MV9 External Turret



Scope of Work

SOFEC designed and constructed an external turret mooring system to moor the 149,500 dwt MODEC purpose-built FPSO. The FPSO receives produced oil and reinjects both produced gas and water. The SOFEC turret is designed to support a single production platform in Phase I, with space to accept additional production from a second future production platform in Phase II of the project.

General Description

| | |
|--------------------|---|
| Client Name: | CUU Long Joint Operating Company (CLJOC) |
| Contract Award: | May 2002 |
| Installation Date: | October 2003 |
| First Oil: | October 2003 |
| Vessel Size: | 149,500 dwt |
| Storage Capacity: | 1,000,000 bbls |
| Water Depth: | 48m (157ft) |
| Fabrication: | Turret - Malaysia Vessel - Korea Topsides - Korea |

Design Environmental Criteria [100-year storm]

| | |
|--------------------------|--------------------|
| Significant Wave Height: | 8.0m (26.2ft) |
| Wind Velocity: | 28m/s (54.4 knots) |
| Surface Current: | 1.4m/s (2.7 knots) |

Mooring System

9-leg 3 x 3 chain catenary mooring

Turret

External Cantilevered Bow

Fluid Swivel Assembly

| | |
|------------------|---|
| Oil / Water: | 1 x 12-in. toroid (1,480 psi design) |
| Gas Lift: | 1 x 8-in. toroid (2,220 psi design) |
| Gas Production: | 1 x 10-in. toroid (2,220 psi design) |
| Water Injection: | 1 x 12-in. toroid (3,705 psi design) |



FPSO Cuulong MV9

(Continued)

| | |
|--------------------------------|---|
| Spare: | 1 x 12-in. toroid (3,705 psi design) |
| Future Gas Production Swivels: | 2 x 12-in. toroid (2,220 psi design) |

Riser System

- 3 x 11-in. Flexible riser
- 1 x 7-in. Flexible riser
- 2 - Electrical control umbilicals

Comments

First oil was achieved 18 months after contract award. The SOFEC external turret mooring system is ABS classed.