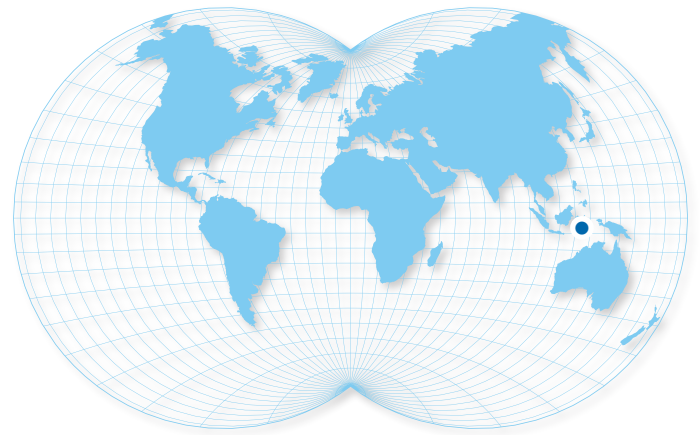


PALAWAN ISLAND, PHILIPPINES: Malampaya CALM



Scope of Work

SOFEC designed, constructed, and installed a CALM Buoy system for the SHELL Malampaya Deep Water Gas to Power project.

The Malampaya CALM transfers condensate from the concrete gravity Production Platform to tankers through a 2.5km long 24-in pipeline. Located in 75m water depth, the CALM buoy is capable of accommodating 40,000 - 110,000 dwt tankers.

General Description

Client Name:	Shell
Contract Award:	November 2010
Installation Date:	May 2012
Application:	Condensate Transfer

Project Specifications

Water Depth:	75m (246ft)
Tanker Size:	40,000 - 110,000 dwt
Dimension:	12.5mØ x 5.3m

Floating Hose:	1 x 16-in.
Underbuoy Hose:	2 x 12-in. Lazy S
Hawser System:	16-in. Single grommet
Anchor Leg System:	6 x 3-in. ORQ + 20%
Anchor System:	Gravity anchors

Design Environmental Criteria

Operational	
Significant Wave Height:	3.5m (11.5ft)
Wind Velocity:	15.7m/s (30.5 knots)
Surface Current:	0.9m/s (1.8 knots)
Survival	
Significant Wave Height:	12.3m (40.3ft)
Wind Velocity:	50.2m/s (97.6 knots)
Surface Current:	2.8m/s (5.5 knots)

Comments

The Malampaya project is located in the South China Sea offshore of the Palawan Island in the Philippines.