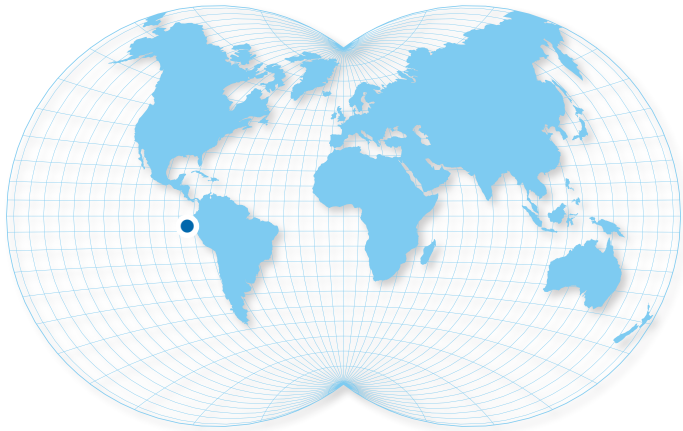


BALAO TERMINAL, ECUADOR: OCP #2 (Papa) CALM



Scope of Work

SOFEC designed and supplied two CALM Buoy systems for the OCP pipeline project in Ecuador. The new-build pipeline originates in the eastern jungles near Lago Agrio and covers approximately 500km to the Balao terminal, near the port city of Esmeraldas. The two buoys are located in 31m and 41m water depths approximately 7km offshore and receives heavy crude oil for export by 130,000 and 250,000 dwt tankers, respectively. Each buoy is capable of transferring up to 60,000 BPH of crude.

General Description

Client Name:	OCP/Techint
Contract Award:	December 2001
Installation Date:	April 2003
Application:	Heavy Crude Export

Project Specifications

Water Depth:	41m (134ft)
Tanker Size	250,000 dwt
Dimension:	12.5mØ x 5.3m
Floating Hose:	2 x 24-in.

Underbuoy Hose:	2 x 24-in. Staggered Lazy Wave
Mooring Hawser:	15-in. Dual grommet
Anchor Leg System:	3.875-in. Grade 3
Anchor System:	6 x 16mt Drag Anchors

Design Environmental Criteria

Operational	
Significant Wave Height:	3.6m (11.8ft)
Wind Velocity:	21.5m/s (41.8 knots)
Surface Current:	1.37m/s (2.6 knots)
Survival	
Significant Wave Height:	5.2m (17ft)
Wind Velocity:	30m/s (58.3 knots)
Surface Current:	1.55m/s (5 knots)