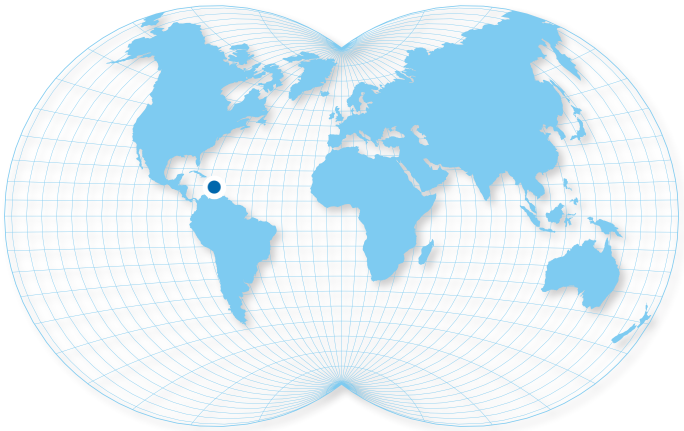
JOSE TERMINAL, VENEZUELA:

Vehop CALM



Scope of Work

SOFEC designed and constructed a CALM system located in 25m water depth to export diluted or refined crude oil and gas oil products to the 96,920 dwt tanker and import naphtha diluent from tankers to shore.

General Description

Client Name:	Petrozuata
Contract Award:	November 1997
Installation Date:	August 1998
Application:	Export/Import Gas, Refined Oil and Naphtha Transfer

Project Specifications

Water Depth:	25m (82ft)
Tanker Size:	96,920 dwt
Dimension:	12.5mØ x 5.3m
Floating Hose:	3 x 20-in.
Underbuoy Hose:	3 x 20-in. Chinese Lantern
Hawser System:	15-in. Single grommet
Anchor Leg System:	6 x 3.375-in. Grade 3
Anchor System:	36-in. Ø Piles

Design Environmental Criteria

Operational

Significant Wave Height:	4.6m (15ft)
Wind Velocity:	20m/s (39 knots)
Surface Current:	1.07m/s (2.1 knot)

Survival

Significant Wave Height:	8.6m (28ft)
Wind Velocity:	20m/s (39 knots)
Surface Current:	0.6m/s (1 knot)

Comments

Petrozuata produces heavy oil from onshore Eastern Venezuela oil fields and pipelines it to a facility (Jose Terminal) on the northern coast of Venezuela, near Puerto La Cruz. In Jose, the heavy oil is diluted to export through a monobuoy installed approximately 8km offshore. The buoy design includes a two-path swivel with triple floating hoselines. Two marine pipelines (36-in. and 24-in.) connect the buoy to the onshore pump station.