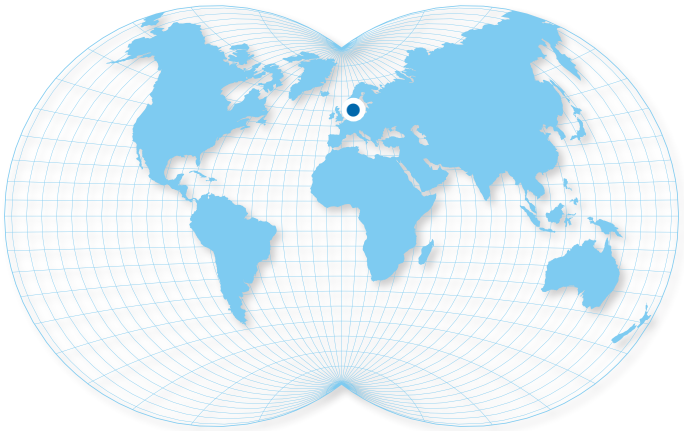
BUTINGE TERMINAL, LITHUANIA:

Butinge CALM



Scope of Work

SOFEC designed and constructed a CALM system to accommodate a 96,920 dwt tanker for operation in a cold weather environment.

General Description

Client Name:	Butinge Nafta
Contract Award:	November 1997
Installation Date:	November 1998
Application:	Crude Oil, Gas Product, Kerosene Import/Export

Project Specifications

Water Depth:	20m (66ft)
Tanker Size:	35,000 - 96,920 dwt
Dimension:	12.5mØ x 5.3m
Floating Hose:	2 x 16-in.
Underbuoy Hose:	2 x 16-in. Chinese Lantern
Hawser System:	11-in. Single grommet
Anchor Leg System:	6 x 3.5-in. ORQ
Anchor System:	12mt Drag anchors

Design Environmental Criteria

Operational	
Significant Wave Height:	4m (13ft)
Wind Velocity:	18m/s (35 knots)
Surface Current:	1m/s (2 knots)

Survival	
Significant Wave Height:	9.2m (30.3ft)
Wind Velocity:	54m/s (105 knots)
Surface Current:	1.6m/s (3 knots)

Comments

The SOFEC CALM system designed and constructed to load and lift crude oil from tankers through the Butinge Terminal. It is located approximately 7.3km offshore in the Baltic Sea near the northern border of Latvia in 20m water depth. The system features SOFEC's 12.5m diameter, 12-compartment buoy, with special considerations for the cold weather and ice conditions. The CALM is provided with a PLEM to transition from the submarine pipeline to each of the two loading hoses. Crude transfer is through a 36-in. pipeline.