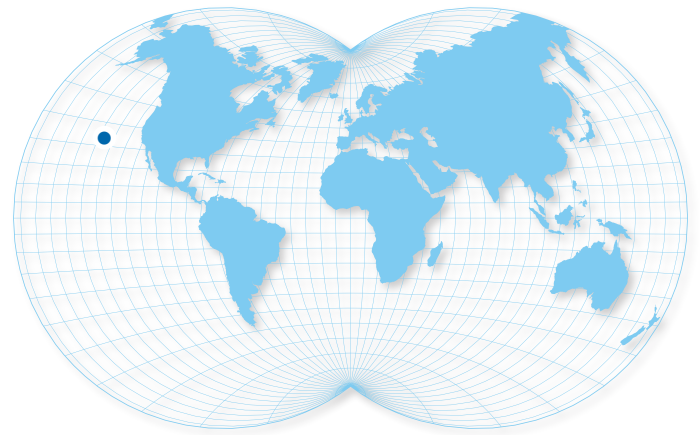


# OAHU ISLAND, HAWAII, NORTH AMERICA: HIRI CALM



## Scope of Work

SOFEC designed, constructed and installed a CALM terminal for crude oil, bunker fuel, gasoil, kerosene and gasoline and fuel oil. This unique SOFEC CALM buoy is designed with a three-product swivel, which incorporates a crude oil circuit, a white product circuit, and an export sales circuit.

## General Description

Client Name:	Hawaiian Independent Refinery Inc. (HIRI)
Contract Award:	February 1986
Installation Date:	January 1987
Application:	Three Product – Crude, Bunker and White Oil Import

## Project Specifications

Water Depth:	31m (100ft)
Tanker Size:	150,000 dwt
Dimension	11.5mØ x 4.0m
Floating Hose:	2 x 16-in., 1 x 12-in.

Underbuoy Hose:	2 x 16-in., 1 x 20-in. Chinese Lantern
Hawser System:	18-in. Single grommet
Anchor Leg System:	6 x 3.5-in. Grade U3
Anchor System:	Unavailable

## Design Environmental Criteria

Operational	
Significant Wave Height:	3m (9.9ft)
Wind Velocity:	13.7m/s (26.6 knots)
Surface Current:	0.9m/s (1.75 knots)
Survival	
Significant Wave Height:	9.3m (30.5ft)
Wind Velocity:	27.4m/s (53.2 knots)
Surface Current:	0.9m/s (1.75 knots)

## Comments

This three-product, six-leg CALM type SPM replaces an existing CBM that was installed into the CBMs existing anchor chain spread.



# HIRI CALM

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## (Continued)

Client economically justified the project on the basis of reduced tanker demurrage resulting from the increased mooring and unloading efficiency of the CALM, which can operate in nearly all weather conditions at the site.

The installation into the existing CBM mooring pattern was accomplished by deleting two of the existing eight anchor legs, lengthening the remaining six legs for attachment to the CALM and installing an auxiliary gravity anchored PLEM.