95,000 cbm LPG-FSO
‘Liberdade’
for PHILLIPS PETROLEUM COMPANY (Bayu-Undan), USA

Project Data:
Shipyard: Samsung Heavy Industries, Korea
Year of completion: 2003
Classification: LRS
TGE’s scope: EPCS-contract, Complete gas handling system

Vessel:
95,000 m³ LPG-FSO
Length o.a.: 246.0 m
Beam: 54.0 m
Draught (LPG): 17.0 m

Characteristics of gas plant:

Number of cargo tanks: 6
Material of cargo tanks: Low temperature carbon-manganese steel
Cargoes: LPG (C-Propane, C-Butane)
Design temperature / pressure: -50°C / 0.25 bar g acc. to IMO
Maximum cargo density: 610 kg/m³
Number of segregations: 2
Cargo manifolds: 2 liquid lines, 2 x 12” ANSI 300 lbs flanges
2 vapour lines, 2 x 12” ANSI 300 lbs flanges
Loading rate: 1,940 mt/day propane + 1,830 mt/day butane
Deepwell pump
8 x 500 m³/h at 130 m LC
4 x 250 m³/h at 130 m LC

Number of vaporizer:
Direct sea-water heated
Capacity: 2 x 3,500 Nm³/h Propane each

Reliquefaction system:
direct cycle
4 x oil-free cargo compressor, type SULZER
Refrigerant capacity: abt. 260 kW each

Refrigeration system:
4 chiller units (one as a spare) Refr. capacity unit A: abt. 3.300 kW / Refrigerant: Propane

Cargo piping system:
Stainless steel, AISI 316L

Inertgas plant:
Combustion generator
Capacity: 6,000 Nm³/h at max 1.0 % O₂

Nitrogen plan:
Nitrogen membrane generator
Capacity: 2 x 100 Nm³/h at 97.0 % purity