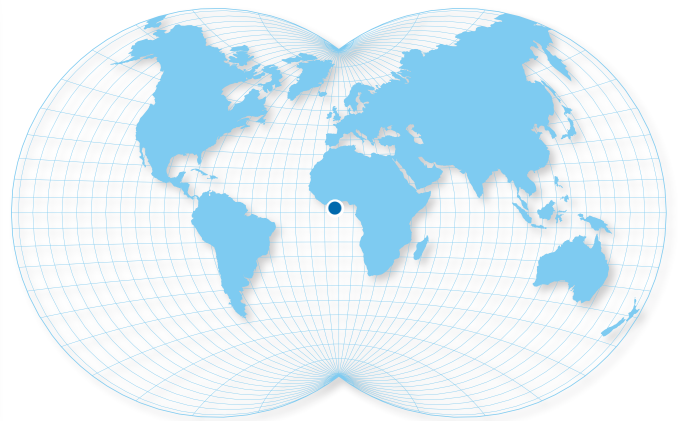


# TWENEBOA, ENYENRA NTOMME (TEN) FIELD, GHANA: FPSO Prof. John Evans Atta Mills External Turret



## Scope of Work

SOFEC designed and fabricated an external mooring system for the FPSO Prof. John Evans Atta Mills (Tullow TEN) and also assisted with the installation and commissioning. The FPSO is located in the Tweneboa, Enyenra, and Ntomme (TEN) fields offshore Ghana.

The SOFEC external mooring system is DNV classed.

## General Description

|                       |  |
|-----------------------|--|
| Client Name:          | Tullow Ghana Limited   |
| Contract Award:       | August 2013  |
| Installation Date:    | Anchor legs pre-laid in Sept. 2015 and vessel hookup in first half of 2016 |
| First Oil:            | August 2016  |
| Vessel Size:          | 331,841 dwt  |
| Storage Capacity:     | 1,700,000 bbls   |
| Water Depth:          | 1,425m (4,671ft)   |
| Fabrication: Turret - | Singapore  |
| Vessel Conversion -   | Malaysia   |

## Design Environmental Criteria (100-year storm)

|                           |                                    |
|---------------------------|------------------------------------|
| Sig. Wave Height:         | 3.8m [12.5ft]                      |
| Non Squall Wind Velocity: | 13.6m/s [26 kts] [1-hr mean @ 10m] |
| Squall Wind Velocity:     | 36.5m/s [71 kts]                   |
| Current:                  | 2.44m/s [4.74 kts]                 |

## Mooring System

3 x 3 mooring system

## Fluid Swivel Assembly

- Low Voltage Electrical Optical Slip Ring
- Utility Swivel No. 1 - 690 barg (10,000 psig)
- Utility Swivel No. 2 - 345 barg (5,000 psig)
- Utility Swivel No. 3 - 20 barg (285 psig)
- Low Voltage Electrical Power Slip Ring
- 1 each Toroidal Swivel Path - Gas Injection
- 1 each Toroidal Swivel Path - Water Injection
- 1 each Toroidal Swivel Spare path for Gas Injection, Gas Lift, and Gas Export

## FPSO Prof. John Evans Atta Mills

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### **(Continued)**

- 3 x 50% Toroidal Swivel paths - Production 1, Production 2 and Production 3
- 1 each Toroidal Swivel path - Multi-service
- 1 each Toroidal Swivel path - Gas Lift
- 1 each Toroidal Swivel path - Gas Export
- Medium Voltage Electrical Power Slip Ring
- Inlet Section / Support Base
- Torque Arms and Torque Arm Support Structure

### **Fluid Swivel Assembly**

- Swivel Control System
- Fluid Barrier System HPU

### **Riser System**

- 24 riser
- 7 umbilicals