

## IN-SITU FLANGE FACING RESTORES OFFSHORE VESSEL RISER CONNECTION

### FPSO KWAME NKUMRAH - GHANA

Following an enquiry from MODEC Ghana Ltd, Goltens mobilized equipment and manpower to Accra and on to Takoradi, where they then travelled offshore to the newly built installation FPSO Kwame Nkrumah.

Goltens was asked to carry out an inspection and, if required, be ready to conduct in-place machining to repair the Techlok flange connector for the riser connection. Goltens mobilized In-Situ machining technicians along with mechanical technicians to prepare for any required repairs. Once the flange was brought to the surface through the riser turret, it was clear that there was significant damage to the flange which, if left uncorrected, would compromise the integrity of the system.

Goltens' team reported the condition of the flange and was instructed to carry out the machining necessary to restore the flange back to within maker's tolerance while ensuring to remove all the mechanical damage that had occurred during riser movements. This was a very critical operation with a diving support vessel and a standby vessel at location during operation with no margin for error.

The flange was a Techlok H14 ring size R102, roughly 14 inches in diameter. This type of flange required the use of a ball trammel set to measure the trueness of the sealing groove and a very specific method for machining was required to ensure that the dimensions of the seal face are machined to within the manufacturer's tolerance to ensure the flange's integrity on assembly.

#### IN-SITU MACHINING REPAIRS CONSISTED OF:

- Inspection of the damaged flange
- Flange machining to manufacturer's upper tolerance limit as the damage was greater than initially anticipated.
- A pressure test was carried out and job was complete.

#### RESULTS:

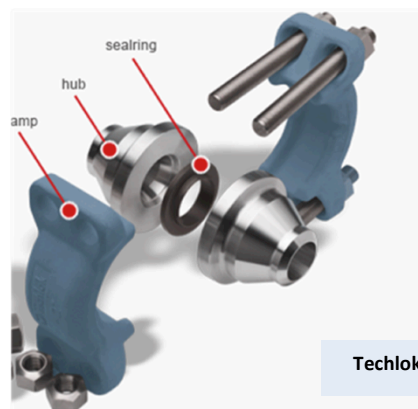
Goltens' team repaired the flange, restoring it to maker's tolerance within a single work shift. The repair removed all mechanical damage from the riser movement and restored the equipment to operation without further delay.

#### PROJECT FACTS: FPSO KWAME NKUMRAH

Company:	Modec Ghana, Ltd.
Location:	Ghana, West Africa
Vessel Tonnage:	240,550 DWT
Capacity:	120,000 barrels per day



During cutting of seal face



Techlok hub assembly



Pipe flange prior to machining



Pipe flange after machining