



## Case History

### Underwater Side Shell Repair

### FPSO Brazil

#### The Challenge

The FPSO in question is operating in Brazil and required several repairs to the underwater side shell structure. The client had attempted the repairs with divers over a significant period, but this approach proved to be costly and had not succeeded.

The client now needed a better and diverless alternative and turned to EM&I as leading experts in the 'diverless services' field and proposed a highly innovative solution for consideration by the client, the operator and class.

#### The Solution

EM&I had developed underwater repairs of isolation valves using ODIN access ports through which various types of seals could be inserted to block the pipe and thus repair or replace the faulty valve.

EM&I had also previously installed blanking plates pulled into place with ROV assistance and had designed systems for pulling sealing systems into pipes by pulling wires through an ODIN access port from inside the hull.

This experience was used to design and implement a system to install a much larger 'cofferdam' sealing arrangement overlapping the steel plates to be replaced.

Pre surveys were carried out, including laser scans of the hull, to ensure that the scope details were clear and site preparations were implemented.

A full-scale section of the hull was built onshore to validate the system and to train the site team at our Technical Development facility, after which the work was carried out successfully on the asset.

Key features of the EM&I solution include the unique use of ODIN access ports and winch boxes, the use of practical cofferdams and the integration of our specialized ROVs.



Internal ODIN winch boxes and external ODIN cofferdams

The outcome has been a safe, successfully completed, class approved, diverless side shell repair project.