

# PROJECT SHEET

**MADURA BD FPSO T&I PROJECT, INDONESIA**  
MOORING AND RISERS SYSTEM INSTALLATION  
AND HOOK-UP

## BOSKALIS ENERGY SOLUTIONS

Boskalis is a leading global dredging and marine expert. With safety as our core value we provide innovative, sustainable and all-round solutions for our clients in the energy market. Realizing projects in remote locations with a heightened environmental focus is one of our specialties.

Under brands such as Boskalis, Dockwise, SMIT, Fairmount, VBMS and Smit Lamnalco we offer more services than any other company in our industry, making us your next one-stop solution provider. We support the development, construction, maintenance and decommissioning of oil and gas import and export facilities, fixed and floating exploration and drilling facilities, pipelines and cables and offshore wind farms.

## MADURA FIELD DEVELOPMENT

The Madura BD gas field is located in the Madura Strait production sharing contract (PSC), offshore East Java, Indonesia, approximately 65 km east of Surabaya and 16 km south of Madura Island. Husky-CNOOC Madura (HCML) is the operator of the PSC. Husky Oil and CNOOC hold a 40% interest each in HCML, while the remaining 20% working interest is held by Samudra Energy, through its affiliate SMS Development.

The project envisages development of a wellhead platform; a converted offshore spread moored tanker based Floating, Production, Storage and Offloading (FPSO). The FPSO has gas processing facilities. It is self-sufficient at the offsite location with its own utility systems : Gas metering Station (GMS) at onshore; 10" Multiphase flexible riser connecting wellhead platform to, 16" gas export flexible riser connecting FPSO to wellhead platform (WHP) and 16" export gas pipeline from WHP to GMS.

Contract for the supply of the FPSO was awarded to the joint venture of Bumi Armada Offshore Holdings (BAOHL) and PT Armada Gema



## FEATURES

Client	Husky CNOOC Madura Limited (HCML)
Location	Madura Strait East Java, Indonesia
Period	August 2016 – January 2017
Contractor	Armada Madura EPC Limited (AMEL)
Subcontractor	Boskalis Offshore Marine Contracting B.V.



## FPSO Details

- Storage: 370,000 bbls
- Gas handling: 110 mms cfd
- Condensates: 7,500 bopd
- Produces water: 2,500 bwpd
- Sulfur recovery unit required to handle 20 tonnes of sulfur per day.
- Design life: 20 years
- 12 point spread mooring

- A** Driving pile and chain installation
- B** Location map
- C** Mooring installation

Nusantara (PT AGN). Boskalis Offshore Marine Contracting B.V. has been contracted by Bumi Armada to provide the transport and installation services of the FPSO.

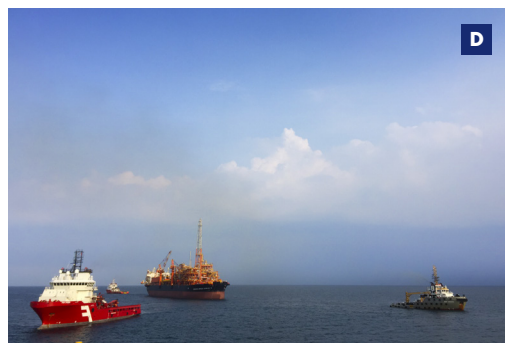


## PROJECT SCOPE OF WORK

Boskalis was responsible for the project management, engineering and execution of the works. The project consisted of 2 installation phases. Phase 1 pre lay of the moorings and Phase 2 FPSO tow, Mooring and Risers Hook-Up installation. The scope of work also included the outfitting of the installation spread, the procurement and fabrication of all the temporary aids. All the logistics which included receipt, storage, transport and return to the COMPANY of all the free-issued equipment and materials. The required survey scope was managed, supervised and executed by Boskalis survey department.

## EXECUTION OF THE PROJECT

The Marine Installation Spread was mobilized at Boskalis yard in Singapore. Boskalis have allocated various owned and 3rd party assets on the project, as well as various installation equipment' to install the mooring lines, the risers and umbilical.



After completion of the mooring installation in Phase 1, the FPSO was towed from Singapore to Madura field for hook-up operations. Subsequently, two risers and one umbilical were installed between FPSO and Well head platform (WHP). Boskalis chartered the Indonesian flagged DP2 Dive Support Vessel Mermaid Nusantara, to perform the riser and umbilical installation. In addition, risers leak testing and dewatering operations were executed. Finally, the Offloading Hose was assembled onshore and towed to Madura field for hook-up and pressure test.

## CONCLUSION

Boskalis provided multiple assets for two different phases. Thanks to the flexibility of the project team in collaboration with the client, the project was successfully executed. The Madura FPSO was successfully towed and installed on time to the satisfaction of the client.

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- D** FPSO Station keeping
- E** Mooring Chain Hook-up
- F** Risers installations
- G** Madura field project completion