

# PROJECT SHEET

**FSU HEIDRUN B**  
TOW OUT AND TOWAGE

## 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.

## FSU HEIDRUN B

FSU Heidrun B is a floating and storage unit (FSU) for harsh environments and built by Samsung Heavy Industries in Geoje, South Korea. The new storage unit will replace the existing buoy loading system at the field and the oil will be lifted from the FSU by use of shuttle tankers. The 250 meter long and 46 meter wide storage vessel has a capacity of 850,000 barrels of oil and Statoil expects to maintain production at the Heidrun field until at least 2045. EMAS AMC, the subsea services division of EMAS, a leading global offshore contractor and provider of integrated offshore solutions awarded a contract for the transport and installation of floating storage units (FSUs) for the Heidrun and Mariner projects in the North Sea, with an option for a third FSU installation. EMAS AMC awarded Fairmount Marine, a 100% subsidiary of Boskalis, a contract for the tow out, towage and assistance with hook-up of the FPSO from Geoje, South Korea to the Heidrun field in Norway.

## FEATURES

Company	Statoil
Location	Geoje, South Korea to Heidrun Field, Norway
Period	Preparation: December 2014 - March 2015 Execution: March - May 2015
Contractor	EMAS-AMC AS
Sub-contractor	Fairmount Marine B.V.



- A** Tow out from SHI yard
- B** Approaching FSU Heidrun for hook-up
- C** after the job in Kristiansund





## TOW OUT AND TOWAGE

Fairmount Marine deployed two oceangoing tugs, Fairmount Sherpa and Fairmount Expedition, for the towing operations. Prior to mobilization the tugs were inspected and found suitable to execute the towage in a safe manner. End February 2015 the tugs arrived at South Korea where several pre-departure meetings were held with warranty surveyors, client representatives, captains and local pilots. On 20 March the FSU Heidrun B was shifted from the Samsung Heavy Industries yard to the inner anchorage and the Fairmount Sherpa (leading tug) and Fairmount Expedition connected their towing gear thereafter. After the hook-up the tow out began with assistance of local pilots and harbor tugs. Offshore Okpo the harbor tugs disconnected and the convoy set course towards Singapore.

During the leg from Port Klang to Malta the convoy crossed the piracy affected area in the Indian Ocean, off Somalia and Gulf of Aden. The Vessel Protection Detachment (VPD) of the Dutch Marines embarked off Sri Lanka and provided for security during the voyage by means of several armed teams on board of each tug and tow. On her way to Norway the convoy made stops in Singapore, Port Klang (Malaysia) and Valletta (Malta) to take bunkers and for replenishments. For the last leg of the voyage the convoy sailed via the North Sea towards Norway.

After almost 11,000 miles of towing, FSU Heidrun was safely delivered, ahead of schedule with an average speed of 10 knots, at the port of Kristiansund on May 18th. On 30th of May the convoy departed from Kristiansund to the Heidrun field and on 31st of May the FSU Heidrun B was safely connected to the STL Buoy.

## SAFETY

With all Fairmount Marine projects safety is an essential part. The project was executed with a good safety performance. All vessels were inspected beforehand and found suitable to safely undertake the towage. The vessels' own systems were leading with a mutual Emergency Response Plan in place.

## PROJECT CHALLENGES

The main challenges effectively dealt with during the

project preparation and execution were:

- Piracy: During the voyage the convoy crossed the piracy affected area. Prior departure from Korea the tugs and tow were hardened and all safety measures were taken according to the BMP4 guidelines. In Singapore the Dutch Vessel Protection Detachment boarded and underway to the high risk area several drills were held with crew and marines to prepare the convoy. No accidents happened underway and the VPD disembarked in Egypt.
- Emission regulations: On 01 January 2015 new emission regulations became in force in the Emission control area (ECA). Therefore the fuel system of the tugs were modified in order to sail, apart from heavy fuel oil, on low Sulphur MGO for a longer period with high output.
- Logistics: The various scheduled port calls were carefully planned and executed with assistance of local port agents to avoid unnecessary loss of time.

## CONCLUSION

The FSU Heidrun was towed effectively and in a safe way despite the distance and piracy threat along the route. With an average towing speed of 10 knots the two Fairmount tugs towed the FSU over 11,000 miles from South Korea to Norway in only 46 towing days. Evaluating the project preparation and execution it can be concluded that the operational best practices with the experienced crew on board and security by Dutch Vessel Protection Detachment were decisive for the safe, controlled and successful execution of this towage.



- D** Dual towage in English channel
- E** Port call at Singapore

Royal Boskalis Westminster N.V.  
PO Box 43  
3350 AA Papendrecht  
The Netherlands  
T +31 78 69 69 000  
F +31 78 69 69 555  
royal@boskalis.com  
www.boskalis.com