

# Inconceivable?

*Consider it done!  
Dockwise!*

Dockwise is in the business of moving large objects, but Thunder Horse, the world's largest semi-submersible PDO, seemed an inconceivable project, even for Dockwise. Indeed, when Rob Schoenmaker, general manager commercial affairs, negotiated the transport contract with DSME in 2002, there was no vessel in the world on which it could be transported. To move this giant, Blue Marlin had to be widened to become the largest semi-submersible heavy lift vessel of its kind in the world.



Rob Schoenmaker negotiated the transport contract with DSME in 2002.



Sr. project engineer for the Thunder Horse transport Jeroen van der Eng.



Modeltests of the Blue Marlin at MARIN.



A dedicated cribbing arrangement of Oak wood.



Deck lay-out and guide post.

## Engineering

General manager commercial affairs Rob Schoenmaker: "The transport contract with DSME was signed on 19th June 2002 and on 19 September we signed the contract for the jumboising of Blue Marlin with Hyundai's Mipo yard in Ulsan, South Korea." Senior project engineer Jeroen van der Eng continued: "Because we had already prepared the engineering, the yard could immediately

start work on the conversion. Moreover, tests had already been done at the Marine Research Institute Netherlands (MARIN) in Wageningen, the Netherlands, with scaled down versions of the widened Blue Marlin and Thunder Horse to verify the concept. All in all the preparations took around two years." Due to the fact that Dockwise was involved rather late in the process, the Thunder Horse design was already finished when the contract between Dockwise

and DSME was signed. Therefore typical transport issues were insignificantly addressed. As a result a standard cribbing arrangement was not feasible because the Thunder Horse design did not allow this and a lot of effort had to be made to find a proper support solution. In the end it was decided to transport Thunder Horse on a dedicated Oak wood support arrangement of 180 m<sup>3</sup>.



Thunder Horse positioned on deck of the Blue Marlin.



After a remarkable fast loading ready for the seafastening operation.



Tugger line handling from Blue Marlin to Thunder Horse.



Removal of guide post after loading.



Blue Marlin moored at DSME yard for the seafastening operation.

#### Principal Characteristics Thunder Horse

|                |             |
|----------------|-------------|
| Length overall | 155.95 m    |
| Width overall  | 113.88 m    |
| Height         | 132.10 m    |
| Weight         | 59,500 tons |

#### Principal Characteristics Blue Marlin

|                |              |
|----------------|--------------|
| Length overall | 224.50 m     |
| Deck           | 63 x 178.2 m |
| Deadweight     | 76,061 tons  |

Thunder Horse will be used by BP to produce oil and gas from the Thunder Horse field in the Gulf of Mexico. It will be moored, using a 16-point mooring system, in 1800 metres of water. When fully operational, this field will produce 250,000 barrels of oil and six million cubic metres of gas a day from 25 different wells. To maintain production levels, Thunder Horse will inject 300,000 barrels of water a day into the seabed.



Captain Vladimir Salajevs of the Blue Marlin (left) and Superintendent Alex Rodenburg (right).

### The meeting of giants

Alex Rodenburg, the superintendent for the transport describes how the two giants met: "Blue Marlin, captained by Vladimirs Salajevs, arrived at the loading location on 9 July and started her (pre-)ballasting operations, ready for loading the next day. Thunder Horse was towed to the loading location during the night and at around 05:30, with weather conditions close to perfect, the decision was made to

start loading. At 06:01 the first line from the Blue Marlin was connected to the Thunder Horse and by 07:15 the PDQ was sitting on the cribbing in the correct position, a remarkably fast operation." Using her ballast capacity to the maximum, Blue Marlin deballasted and with the first stage of this inconceivable project completed, she moved with her impressive cargo to the DSME yard for seafastening and further work.

After the yard had completed the scheduled work and after a Thunder Horse naming ceremony, the largest semi-submersible heavy lift vessel in the world, carrying the largest semi-submersible PDQ in the world started on its journey, more than half way round the world.

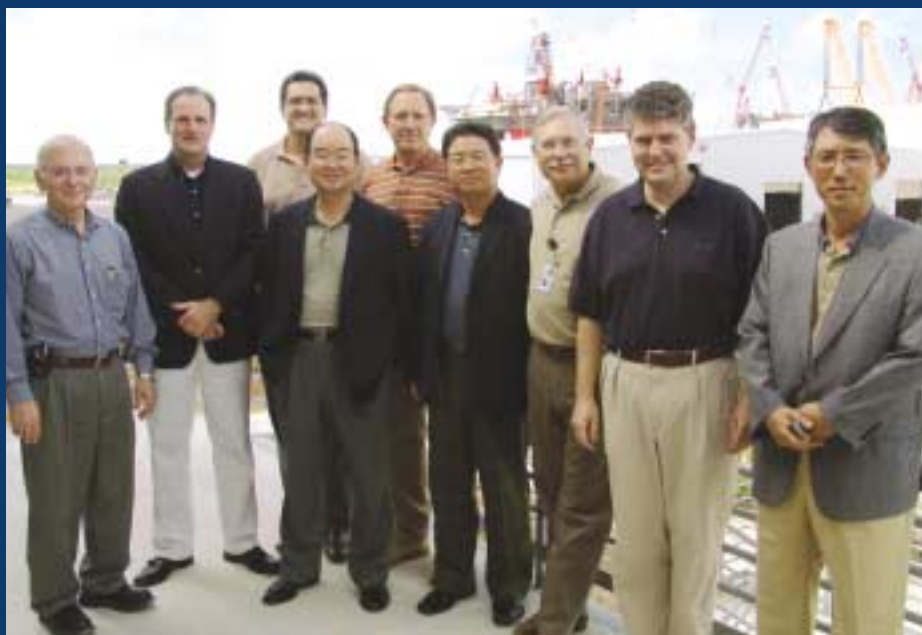
### A smooth voyage

Exactly two months, one intermediate bunker stop in Singapore, a relative quiet Cape passage and almost 16,000 nautical miles after her departure from Korea, the Blue Marlin arrived at Ingleside Texas, USA. At an average speed of 11 knots, she had managed to avoid typhoons in the Far East, winter storms around the Cape of Good Hope and hurricane Ivan in the Caribbean.

### The parting of giants

The United States Coast Guard cleared the area to allow Blue Marlin to enter the KOS yard. Two days later, after positioning herself over the sinkhole, Blue Marlin ballasted down and the two giants parted company. The inconceivable had been achieved!





From left to right:

**Frank B. Kern**  
Project Manager - ExxonMobil

**André Goedée**  
Chief Executive Officer - Dockwise

**David G.P. Eyton**  
Vice President Gulf of Mexico  
Deepwater - BP

**Sung-Leep Jung**  
President & CEO - DSME

**Doug Patterson**  
Executive Vice President and board  
member of Kiewit Construction Group

**O.S. Shin**  
Executive Vice President, Chief Division  
Officer Offshore & Special Ship Division -  
DSME

**Myron Rodrigue**  
President & CEO - Kiewit Offshore Services

**Andy Inglis**  
Group Vice President, Deputy CEO for  
Exploration & Production Worldwide - BP

**W.S. Ryu**  
Executive Director, Offshore Marketing -  
DSME

## Thunder Horse Executive Group

The Thunder Horse Executive Group during the official Arrival Ceremony at the Kiewit yard in Ingleside on 22 October.

## Exceeding Expectations

The Thunder Horse is the world largest semi-submersible PDQ, it weighs 60,000 tonnes, three football grounds can be laid out on its deck, and the top of the derrick is 128 m high. Yes, it was a great challenge for Daewoo Shipbuilding & Marine Engineering (DSME) to construct this giant module. Some people say that the construction of the Thunder Horse was not only an outstanding "technical" achievement but also an outstanding "human" achievement.

After completion at the Okpo yard, Thunder Horse was to be transported to the Gulf of Mexico. Although Dockwise has been DSME's

reliable transport partner for a long time, we were uneasy this time with such a difficult mission. But we believed in Dockwise and Blue Marlin, and we were proved right when Dockwise successfully accomplished this unique mission, exceeding all of our expectations.

DSME and Dockwise have always made a great team, and we look forward to continuing this mutually beneficial relationship for a long time to come.

Dong-Woo Shin / Project Manager of DSME



Mr. D.W. Shin, Project Manager of Thunder Horse.