



## Engineering the largest rock installation vessel in the world

### Conversion of a bulk carrier into the “Yellowstone” fall-pipe vessel

MULTI.engineering executed the full engineering cycle for the conversion, starting with a FEED study to define the fundamental characteristics of the oriented vessel and assessing the pros and cons of newbuilding versus conversion.

As a result of the study, a bulk carrier was selected for conversion into a fall-pipe vessel capable of supporting a range of international offshore wind activities. The work then progressed to the concept design phase, including initial modelling, naval architecture activities and defining the overall conversion approach.

This was followed by the basic design phase with delivery of the complete Class-approval package. It includes structural



#### CLIENT

DEME Group is the world leader in dredging and land reclamation, solutions for the offshore energy market, environmental and infra marine works. This Belgium-based company has a fleet of about 100 vessels and around 5.000 employees.



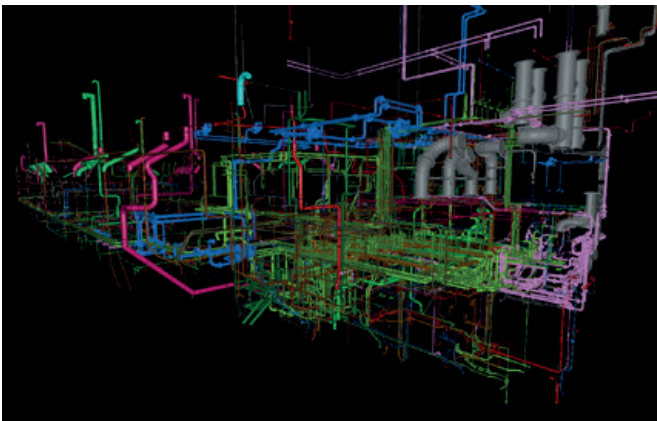
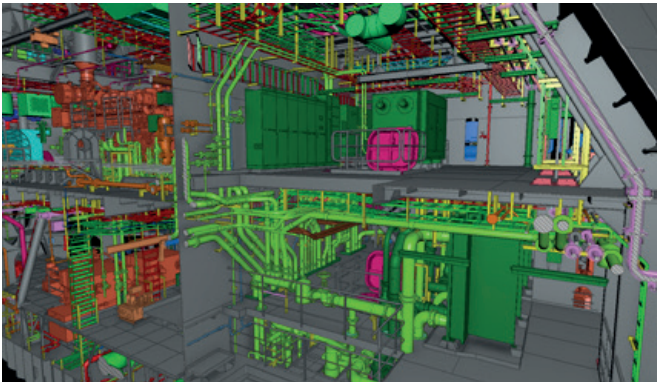
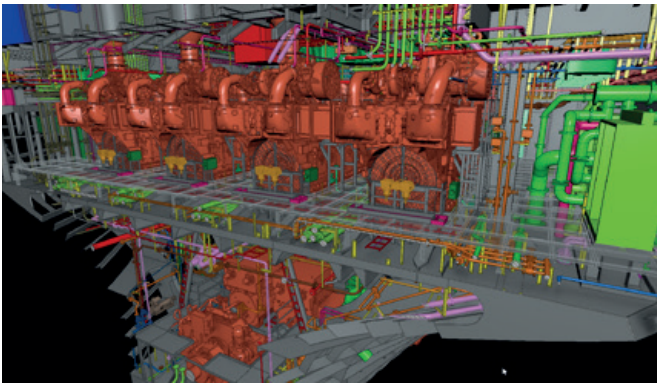
#### SCOPE

Conversion of a bulk carrier into the fall-pipe vessel *Yellowstone*, covering concept, basic and detail design, and coordination with the shipyard and external partners.

calculations, preliminary stability & motion assessments and marine system development. A complete 3D scan of the donor vessel enabled overall integration of new systems and early clash detection. Class and Statutory documentation, equipment arrangements and schematics were finalised into a solid basic engineering package.

The detail design phase comprised the complete engineering package for the shipyard PaxOcean in Singapore, including production drawings, on-site system integration and coordination with the owners’ supplied equipment.

**NO ENGINEERS, NO FUTURE !**



### SERVICES PROVIDED

- Vessel selection study
- Budget estimation & Project Planning
- Concept design engineering
- General Arrangement drawings
- Structural design and construction drawings
- Naval architecture
- Mechanical calculations
- Machinery selection and Systems Integration
- P&ID's and Electrical single line diagram
- 3D model
- Removal plans
- Detail design Equipment & layout



### SPECIFICATIONS AND CHALLENGES

- A FEED and concept study by Maridea (a subsidiary of MULTI.engineering) determined vessel characteristics and suitable vessel types for conversion.
- Use of 3D scanning of the ship's technical areas and 3D modelling of the converted structure.
- Detailed engineering delivered for the shipyard PaxOcean in Singapore, with peak involvement of  $\pm 10,000$  engineering hours/month.

The challenge the coordination complexity: due to a tight schedule, production and engineering ran in parallel.



## RESULT

The collaboration between DEME and MULTI.engineering delivered a large-scale and unprecedented vessel conversion, resulting in “an impressive result.”



## ADDED-VALUE MULTI.ENGINEERING

The project demonstrated MULTI.engineering’s ability to manage and coordinate a multidisciplinary vessel conversion of unprecedented scale within tight deadlines, enabled by efficient communication with the client, the shipyard and the other maritime partners.



“I especially appreciated the short lines of communication. All their engineers were easily accessible to work together to find the best possible solutions.”

– Project engineer DEME

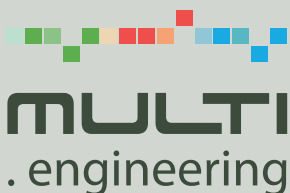
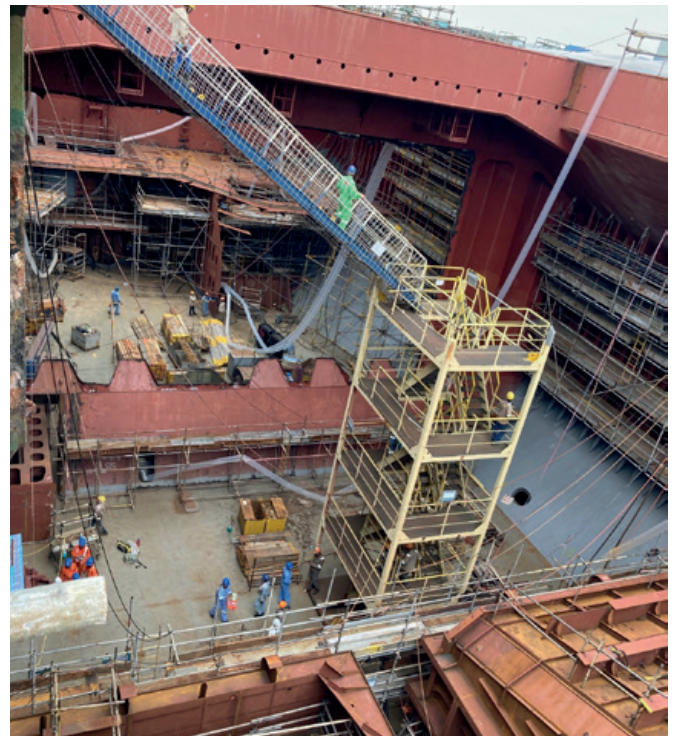
“It is impressive that two Belgian maritime companies have achieved such a great result with a conversion of unprecedented size.”

– Project manager MULTI.engineering



## FACTS & FIGURES

- 3 years of engineering
- More than a 100 experts
- 150.000 engineering hours
- 4.800 tons of new steel structure and outfitting
- 450 km of electric cabling
- 25 km of new piping



MULTI.engineering is an engineering company. We support customers’ success by offering flexible engineering solutions. We have Offices in Temse (BE), Vlissingen (NL), Zwijndrecht (NL), Delft (NL) and Komarno (SK). Working with us is always a great experience!

## CONTACT US

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