International Conference

Marine Heavy Transport & Lift III

24-25 OCTOBER 2012
LONDON, UK
10.10 - 10.45 DSME WINDMILL TURBINE INSTALLATION VESSEL
Y.K Kim, Daewoo Shipbuilding & Marine Engineering Co.Ltd, Korea
The renewable energy market is growing up gradually in the world. The needs of windmill turbine installation vessel are growing up accordingly. DSME windmill turbine installation vessel which is equipped with a heavy lift crane is the first vessel as a platform type in the world. The hydraulic jack-up system is used to lift the platform and the jack-up system consists of jack-up frames, LEG, guiding frame and jack-up house. T. On the soft seabed, the platform is lifted by using detachable spudcan to prevent punch through phenomenon. The spudcan is installed by special bolts. The structural analysis of elevated and floated condition has been carried out. Also, transportation and Leg Sea fastening have been verified by FE analysis.

10.45 - 11.05 COFFEE BREAK

11.05 - 11.40 WAVE INDUCED MOTION PREDICTION AS OPERATIONAL DECISION SUPPORT FOR OFFSHORE OPERATIONS
R. Naajlen, TU Delft, The Netherlands
LNG offloading, wind turbine/topside installation, cutter dredging, helicopter landing, cargo transfer from supply barges are all offshore operations that have in common that they can be critical with respect to wave induced motions. Having a real time prediction of the ship motions in the near future would enable to identify these workable tides, windows and anticipate on them. A way to achieve this is to use navigational radar to measure the sea state at a distant location from the vessel. These measured waves can then be used to feed a wave propagation model that makes a prediction of the waves arriving in the near future at the vessel and final a ship motion model translates these predicted waves in a prediction of the ship motions. This paper will consider the technology and research being carried out to develop such a system.

11.45 - 12.20 FEASIBILITY OF ELECTRIC PROPULSION FOR HEAVY LIFT VESSELS
R. Kakkola, ABB, Finland
Some of the heavy lift vessels have special requirements that make electric propulsion an attractive alternative compared to conventional diesel-mechanical solution. These requirements include dynamic positioning, redundancy, and space and weight restrictions. This paper evaluates different electric propulsion and thruster solutions and includes comparisons to the conventional mechanical alternative. The presented electric power plant alternatives include both traditional AC as well as new onboard DC grid solutions. In addition to power plant concepts, different propeller and thruster alternatives accompanied with electric propulsion are discussed. These include shaftline propulsion, mechanical thrusters, podded thrusters and retractable thrusters. Finally, a reference electric propulsion package delivered to a heavy lift vessel is presented with inside view to the chosen solutions.

12.20 - 12.55 MARINE TRANSPORTATION DESIGN LIFTED TO THE NEXT LEVEL: SAFETRANS 5.0
J. Brouwer, Dutch Offshore Innovators, The Netherlands
SafeTrans is an integrated tool to design marine heavy lift transports by simulating the planned voyage and calculating possible combinations of vessel motions and loads imposed by winds, waves and currents. The SafeTrans development is the result of a Joint Industry Project (JIP) which ran from 1998 to 2000 and continued into a user group, aiming at continued improvement of the tool. This paper will describe the enhancements implemented during the development of the overhauled SafeTrans software, resulting in the release of SafeTrans 5.0 early 2011. Critical cases in the design of marine transports will be discussed as well as the established load factors to be applied in the design, aiming at establishing the techniques used in SafeTrans as the ‘de facto’ standard for the marine transportation industry.
day 2

09.00 - 09.30 COFFEE AND REGISTRATION

09.30 - 10.05 OPERABILITY OF BALLASTING AND LIFTING OPERATIONS OF EXTREME LOADS WITH INTEGRATED HYDRODYNAMICS (OBE LCS) Eelco frinkel & Gerben de Vries, Marin, The Netherlands
The main objective of the OBE LCS Joint Industry Project (JIP) is to develop simulation software for ballast and lift operations of extreme loads, incorporating all relevant dynamics. This software is integrated and visualised in a real time environment to verify and/or practice these type of offshore operations.

10.05 - 10.40 TECHNICAL CAPABILITIES AND COST BENEFITS OF DOCKWISE VANGUARD M. Selj, Dockwise
The vessel, DOCKWISE VANGUARD, has been designed to support the conventional heavy transport market and for transportation and offshore dry-docking of complete FPSO’s. The paper addresses the design of the vessel. New markets will be addressed with this vessel, which due to its size is suited for FPSO’s transportation up to 325m x 65m and a weight of 110,000mt.

10.40 - 11.00 COFFEE

11.00 - 11.35 FIRST OFFSHORE HEAVY LIFT SUPER FLY JIB WITH FIBRE ROPE STAYS G. Wender, BigLift Shipping, M. Velthuis, Huisman Equipment, W. Van Zonneveld, FibreMax, M. van Leeuwen, Teijin Aramid
BigLift Shipping purchased at Huisman a 17m long flyjib to increase outreach and lifting height. This paper describes the design of a flyjib on a Heavy Lift mast Crane (HLMC) by Huisman, including the design considerations that lead to the use of fibre stays. Since BigLift foresaw large installation difficulties with the use of conventional steel wire rope stays, Huisman searched for alternative materials for the production of the stays. A solution was found with a product of FibreMax, who developed an innovative production method to use high modulus aramid fibres to very large scale load appliances. Teijin Aramid, producer of aramid fibre under the brand name Twaron, was also involved in this process, especially the certification by class. Aramid is already for 30 years on the market, but this is the first time ever that aramid is used in a Lloyd’s certified HLMC design. For this reason, the whole production line, from Twaron fibre to a certified fibre stay had to be monitored and classified. Part of this process was break load testing of fully assembled stays in a certified loadtest bench.

11.35 - 12.10 DEVELOPMENTS IN HEAVY TRANSPORT DESIGN CALCULATIONS M. van Exsel, J.de Jonge, Dockwise
The paper addresses developments in heavy transport design calculations from a theoretical and an operational perspective. Both view-points contribute to a more detailed analysis of the transports and assure its safety. Theoretical developments of design calculations are achieved by means of a so-called “Global Hull Analysis”. The aim is to reach a constant operational margin by increasing the design sea-state at the lower range and reducing the design sea-state at the higher range. This will be implemented in a new design method.

12.10 - 13.10 LUNCH

13.10 - 13.45 THE LCAC CARRIER: A HEAVY-LIFT SHIP FOR THE TRANSPORTATION OF ACVS G. Gogouilidis, Massachusetts Institute of Technology
This paper presents a concept design called the LCAC Carrier. The LCAC (Landing Craft Air Cushion) Carrier is a heavy-lift ship designed for the transportation of Air Cushion Vehicles, using the LCAC of the U.S. Navy as a reference vehicle. The U.S. Navy operates approximately 96 crafts of the type, primarily from the LPD (Landing Platform Dock), LSD (Landing Ship Dock), and LHD (Landing Helicopter Dock) classes of ships. The main disadvantage of this scheme is the fact that a great number of vehicles is required to transfer a significant number of LCACs to the operational theater. The proposed carrier offers an economic and workable solution to the aforementioned drawbacks. It offers independence of design and operations and can be combined with other platforms within the context of the

13.45 - 14.20 A CHALLENGE - HEAVY TRANSPORTATION ON AUSSA-CORNO RIVER M. Nattero, Studio d’Ingegneria Navale Ing. Mario Nattero, Italy
This paper introduces a real case of a boarding and transport by barge of 2 pieces of the ship which will be subsequently spliced onto a floating dock in Croatia. The peculiarities of what happened are the following:
- High dimensions, shape and weight of blocks transported
- Number of blocks transported n’ 6
- Total block weight respecting the Limits

In other words, we want to show a “Road Map” concerning a sophisticated and modern design applied to heavy and unusual marine transportation

14.20 - 14.55 CONVENTIONAL TRANSPORT METHODS USED IN AN UNCONVENTIONAL WAY J. Ras, RollDock, The Netherlands
Recently RollDock has finished a technically and operationally very challenging project. A large floating object was loaded onto the vessel by means of the float-on method whereby it was placed onto a dedicated designed 1.5 meter high steel support. At the discharge location, upstream a river with sometimes high currents, no harbour facilities were available. The vessel was to be located perpendicularly to this quay with the current beam on. Resulting in a special mooring arrangement with the need of additional equipment besides the standard vessel’s mooring. The cargoes were discharged onto the shore side by means of the roll-off method. The roll-off operations were all restricted to a small tidal range, resulting in delicate ballast operations, whereby the vessel was to be ballasted for weight compensation and tide compensation.

14.55 - 15.15 COFFEE

15.15 - 15.50 CARRYING THE WEIGHT OF DEFENDING THE NATION G. Williamson, Matchtech Engineering Services
The Queen Elizabeth Class aircraft carriers are being built in blocks at shipyards around Britain. These blocks have then to be transported to the assembly site at Babcock Marine’s facility in Rosyth. BAe Systems’ build yard in the Portsmouth Naval Base have built three of these blocks, two in the hull and the forward island. Once prepared the island is then lifted into position on the flight deck of the ship using a 1000 tonne crane. To protect the build schedule and improve efficiency of outfit a decision was taken to lift the forward island from the base utilising a purpose designed grillage and rigging arrangement. This paper discusses the reasons behind the decisions and the way in which the resulting problems were overcome.

15.50 - 16.25 MARINE DOMAIN AWARENESS AND SAFETY OF HEAVY LIFT OPERATION S. Yasseri, Safe Sight Technology Ltd, UK
Demanding and critical marine operations, like heavy lift, push people, vessels and systems to their limits. Heavy lift operations must contend with challenging environments and threats that necessitate greater Marine Domain Awareness (MDA), especially when many contractors are operating at the same time within the same arena. We present a structured systems engineering approach to MDA, and propose a model for developing an information exchange system between parties, in order to enhance MDA. The proposed model enhances the understanding of MDA during demanding and complex marine operations; also helps in developing procedural and training programs to promote situational awareness and the use of MDA as a decision support tool.

16.25 - 17.00 MARINE DESIGN ASPECTS FOR LARGE MODULES ON HEAVY TRANSPORT VESSELS A. Crowle, Cdbi Luminus, UK
This paper investigates the naval architecture and structural design of onshore and offshore modules on self propelled Heavy Transport Vessels. The scheduling of design, fabrication, shipping and on site completion are discussed.

17.00 - GENERAL DISCUSSIONS

PROGRAMME AND may be subject to change
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24 - 25 October 2012
London, UK

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