Norway FPSO Forum to focus on harsh environments

As FPSO designers, developers and researchers prepare to meet in Trondheim for the 21st FPSO Research Forum and JIP Week, Report provides a preview of the highlights. Hosted by StatoilHydro, the meeting takes place from April 21 to 25 and will focus on the design and operation of FPSOs in harsh environments.

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The event follows the FPSO Forum and JIP Week in November last year, hosted by Hyundai Heavy Industries in Geongju, Korea. The theme of the 20th Forum was yard practice. All the major Korean yards and class societies presented their views on FPSO construction in relation to standard shipyard practice for merchant shipbuilding.

The Forum also celebrated its 10th anniversary with a tour around the ship and offshore yard of HHI in Ulsan. This was a good opportunity for the 150 delegates to take a closer view of the AKPO FPSO under completion at the yard.

In April, the focus will turn to operations in harsh environments. In the future FPSOs will be increasingly deployed in severe wave climates and under arctic conditions. Hosting company, StatoilHydro, will deliver the keynote address on this theme.

FPSO JIP Week

The FPSO JIP Week which is organised around the open Forum, will focus on motions and wave loading, strength and fatigue, inspection and maintenance, as well as operational aspects. In addition, the week accommodates the progress meetings of 10 Joint Industry Projects. During these projects FPSO operators, engineering contractors, shipyards, authorities and researchers, work closely together and share their expertise. A big benefit of this cooperation is the promotion of common understanding and acceptance of the results by the FPSO community.

Hereby follows an update on the projects lead by MARIN.

Current Affairs

This new initiative addresses the Vortex Induced

FPSO Forum at HHI Offshore yard in Ulsan

Motions (VIM) of multi-column platforms such as TLPs and deep draught semi-submersibles in currents. Recent research has shown that it is not only single column floaters such as spars that suffer from oscillatory motions originating from vortex shedding in current. But multi-column platforms such as TLPs and deep draught production semi-submersibles, can also exhibit such behaviour. VIM of multi-column platforms in relation to platform concept, column spacing and shape, are examined in this project. Current Affairs has its kick-off meeting in the JIP Week.
Contact: Olaf Waals (o.waals@marin.nl)

Monitas

Based on earlier experience in the FPSO Integrity and Capacity JIPs, this JIP is developing an intelligent monitoring system to control the fatigue life of FPSOs and to support inspection, maintenance and repair programmes. The new method includes advanced wave loading assessment, based on a real-time separation of swell and wind driven wave components. The application of life-time gauges to record fatigue history is another innovation that has emerged from this project. This new monitoring system is installed and tested onboard FPSO Glas Dowr, producing at the Sable field offshore South Africa. Monitas is a three-year project and will be completed next year. The project is supported by 17 companies. For further information see OTC paper 18913 titled: "Sensing and Understanding Fatigue Lifetime Prediction of New and Converted FPSO's"
Contact: Mirek Kaminski (m.kaminski@marin.nl)

ComFLOW II

The Volume of Fluid method implemented in the ComFLOW software has proven to be a reliable tool for simulating impacts of fluids on structures such as observed when shipping green water. In the present JIP, the two-phase flow model has been developed to simulate sloshing in tanks and validated against 2-D oscillation experiments with a scale 1: 10 tank, measuring 3.9 m wide and 2.7 m high. Supported by 16 participating organisations, ComFLOW II will be completed this year. Contact: Tim Bunnik (t.bunnik@marin.nl).

Offloading Operability II

In the first phase of this JIP the simulation of single point and tandem offloading was examined. Phase II aims to extend the simulation tool SHUTTLE for close proximity mooring such as side-by-side, GBS or jetty terminals. Research topics include the hydrodynamics of two vessels in close proximity. Contact: Arjan Voogt (a.j.voogt@marin.nl).

OWME

The Onboard Wave and Motion Estimator project aims to develop and test a system capable of predicting vessel motion quiescent periods some two minutes ahead. (See details in this issue)
Contact: Henk van den Boom (h.v.d.boom@marin.nl)

Hawai

Shallow water hydrodynamics is a major challenge for many involved in the development of near-shore and exposed LNG terminals. The objective of the sHAllow Water Initiative (Hawai) is to improve the reliability of the motion and mooring prediction methods for terminals in shallow water. To this end, the project investigates key hydrodynamic issues such as first and second order wave loads. The two-year project, which is supported by 24 companies, will have its close-out meeting during the JIP Week. Contact: Radboud van Dijk (r.r.t.van.dijk@marin.nl).

The full programme, as well as previous presentations is available from www.fpsoforum.com.