

Highlights of this issue :

- Completion of RIG ADMARINE II Global Structural Analysis
- TUBAN Relocation Project completion
- BETARA Complex Development a success
- Ongoing SEAGOOD II Process modification project updates

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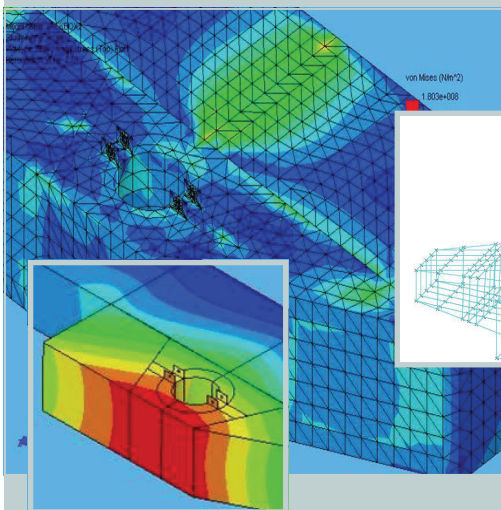
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RIG ADMARINE II Global Analysis

“Completion and approval of analysis report by DNV.”

ZEE Engineering Consultants has successfully completed the structural global analysis of Rig



Hull stress checks for ADMARINE II

Admarine II for Advance Energy System (ADES). For the approval of DNV, analysis was performed to strict DNV’s specifications. Analysis includes stress verification of primary and secondary members of the hull, interface members of the existing hull and new extensions, Jack-house structural members, Leg structural members and Leg spudcans.

Finite Element Analysis technique was employed for the stress verification.

The Rig’s main members and legs were first modeled as beam element to determine the mode shape and the Dynamic Amplification Factor (DAF). The connection between the Spudcans and seabed were modeled as spring and gap elements to accurately represent the seabed contact stiffness.

For stress verification, the Rig’s primary and secondary members, including the structural plating, were modeled as finite element mesh.

Analyses were performed for Rig deployment in three water depths, with various pre - specified environmental conditions.

PCI-TUBAN Relocation Project

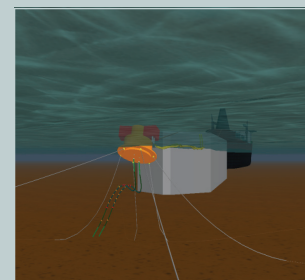
“.... second mooring analysis from PetroChina”

ZEE has successfully completed the second mooring analysis for PetroChina Indonesia (PCI). PCI requested ZEE to provide Front End Engineering Design (FEED) to relocate the existing offloading mooring terminal approximately 2.0km further north into deeper water depth.

The new offloading mooring terminal will consist of a Floating,

Storage and Offloading vessel (FSO) Cinta Natomas permanently moored on a Single Point Mooring buoy (SPM). The offloading tanker will be tandem moored to the FSO during offloading operations.

The SPM is designed to be securely moored in position with chain system consisting of six pre-tensioned catenary anchor chains around the buoy hull. Dynamic analysis using coupled time domain technique was performed for the



3D Orcaflex Time Domain Model of TUBAN mooring Terminal

time domain, multi-body, fully coupled numerical simulation ↴

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01. MOORING

Available SPM OD 12.5m Depth 3.5m Built 1996, 6 PT Mooring, Chain 3-3/4" Good Condition, Full detail avail. Contact ravin@zee-eng.com

FPSO and FSO, various capacity, Contact james@zee-eng.com

LOCAL AGENT AND TECHNICAL SUPPORT



Contact james@zee-eng.com

BETARA Complex Development

Biro Klasifikasi Indonesia (BKI) has approved the design of the PetroChina's two new offshore terminals which are part of the Betara Complex Development project.

ZEE was awarded the design of the two offshore terminals (LPG and Condensate) by Sembcorp which includes a fixed Process Unit, related mooring Dolphins, two Offloading Terminals and



LPG Offloading Terminal BETARA

three subsea pipelines.

The design of the two terminals includes mooring analysis and model testing.

ZEE performed the mooring analysis using the coupled time domain in random wave technique. The hydrodynamic properties of the FSOs were obtained from 3D diffraction analysis.

The numerical analysis results were validated with the model test results.

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mooring analysis. The design was approved by Biro Klasifikasi Indonesia (BKI) - Indonesian Classification Society.

ORCAFLEX Seminar

ZEE hosted the Orcaflex seminar which was held at the Mandarin Hotel, Kuala Lumpur on the 13 June 2005.

The presenter was Dr. Dave Thomas from Orcina (Ulverston).

We had about forty-five guests, attended the seminar, from Petronas, MISC, Bridgestone, Pegasus, Technip, to name a few.

We wish to thank everyone for making the seminar a success.

The Separator Tank is 40.3m by 10.0m and is to be installed on a pre-designed fixed Platform.

The Separator Tank was analysed as an integral part of the main platform.

ZEE employed the FEA technique to determine the stresses on the tank for Operating, Storm and Earthquake conditions.

FSO SEAGOOD 101 Process Modification

Santos (Sampas) Ltd is currently developing the Oyong field located south of Madura Island. When fully operational, the facility will consist of a wellhead platform from which oil and gas will be transferred to a production barge.

FPSO Seagood 101, owned by Sabre System International has been nominated to provide basic processing facilities, separating the gas, oil and water by Santos.

ZEE will provide all engineering services for the design of new process facilities and modification

to the existing process facilities for Sabre System. The new facilities consist of high pressure, 3 phase separation train for oil and water processing, and a high pressure compression train to compress gas for gas re-injection into reservoir. Existing process facilities when modified will have increased capacity for the new services.

TOTAL Separator Tank

ZEE has successfully completed the stress analyses of API Separator Tank for TOTAL Indonesia as part of Handil Field development.