RIG ENGINEERING

# Rig Engineering Case Study 2518

2518 Paul B. Loyd Junior – PORT Crane Replacement

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***Rig Name:*** *Paul B Loyd Jr*

***Rig Type:*** *Semisubmersible*

***Owner name:*** *Transocean Ltd.*

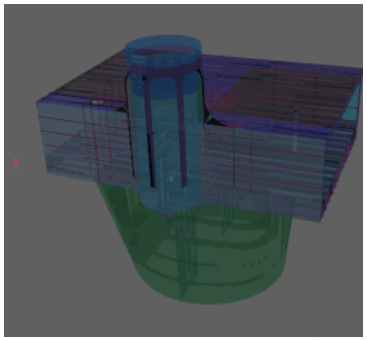
***Classification Society:*** *DNV*

***Pertinent code:*** API 2C

***Code design:*** *ASD 9th edition*

***Crane Model:*** *Liebherr* BOS 2600-75D LITRONIC

***Click below to see model 3D!***



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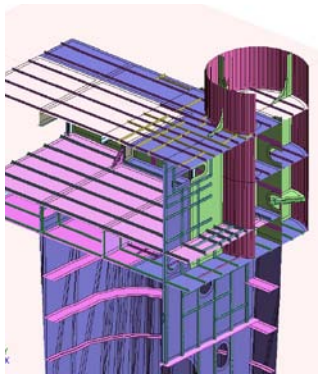
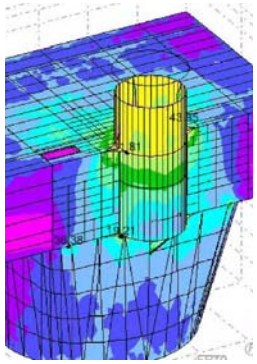
***Project description:*** *Rig Engineering (R.E.) was recently tasked by Transocean to provide engineering services / support in replacing existing Port pedestal crane with a new Liebherr crane. This supports include engineering calculation, (static strength and fatigue calculation), simulation and the fabrication packages to allow for the destruct and installation of new pedestal. All the Class Society submittal was also done on behalf of TOI to Det Norske Veritas in Oslo, Norway to conclusion.*
*Since the new 75 Te lifting capacity Liebherr BOS 2600-75D Litronic crane, has its own and different pedestal, RE was also tasked in designing a new conical transition piece to adapt the 2 different diameters together to rig side stub. A new crane boom rest was also purposely design using Liebherr's design criteria along with Code for Lifting Appliances in a Marine Environment standards.*

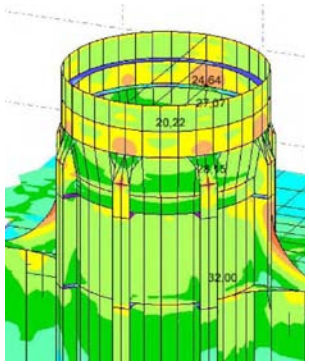
## Crane Pedestal

*Existing crane*



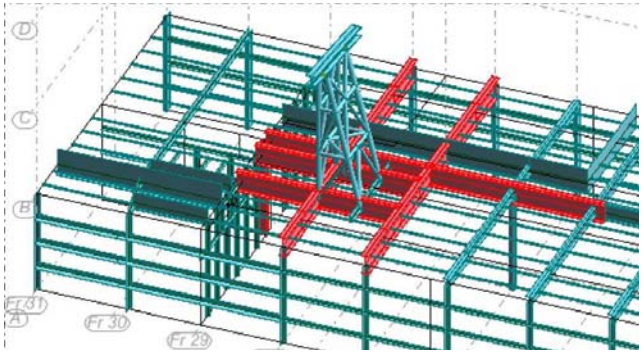
*FEA model*



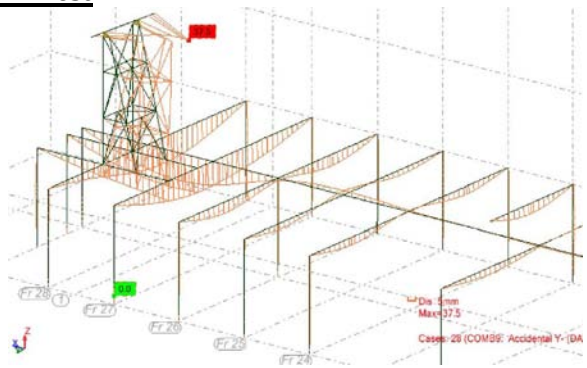



*Stress Plots for Existing and Strengthened Structure*

## Crane Boom Rest




*FEA model*



*Deformation Plot*

***R.E. scope of work***

*- Conduct site survey to confirm that the as built drawings are still valid and any added structures or changes in structures in way of the existing Port crane, are captured and used in this campaign.*

*- Prepare a detailed finite element (FE) model of the crane pedestal with surrounding structure. Do analysis for all dead load (DL) and operating loads produced by new crane installation in conjunction with platform's DL and maximum allowable imposed loads applied to the deck*

*- Assist with class submittal and provide all the required technical assessment and verification to Det Norske Veritas (DNV).*

*- Provide fabrication and strengthening drawings deemed necessary to accommodate this crane change out*

***Engagement Condition***

*Upload your problem to us and give us relevant input to allow us to resolve your problem, we will need:*

***1.*** *As built of structure to create 3D FEA model.*
***2.*** *Static and environmental loads of rig.*
***3.*** *Detailed information about new crane installation.*

*Key word: Rig Engineering, crane replacement, boom rest, crane cone, deck capacity, Paul B Loyd Jr, Semisub*





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