RIG ENGINEERING

Rig Engineering Case Study 2726

Air Pressure Vessel

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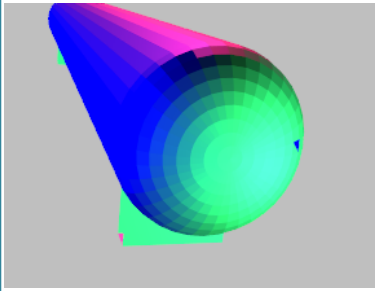
Rig Type: AKER H-3

Work Location: UKCS

Pertinent code: *ASME Boiler and Pressure Vessel Code, Section VIII Division I, 2010 Edition*

Click below to see 3D model!



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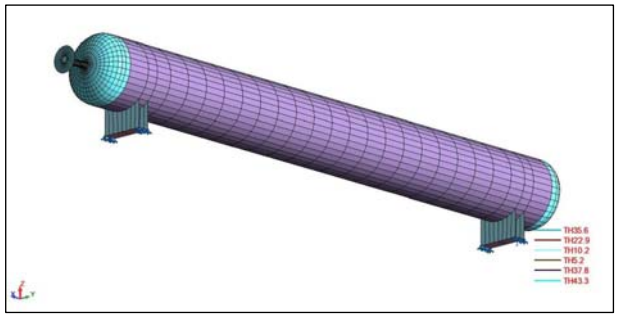
Project description: *Rig Engineering (RE) has been tasked by one of the Drilling Contractors in UKCS to do design review on one particular air pressure vessel (APV) type of bottle for use on semi-submersible drilling unit. Design reference code is ASME Boiler and Pressure Vessel Code, Section VIII Division I, 2010 Edition.*

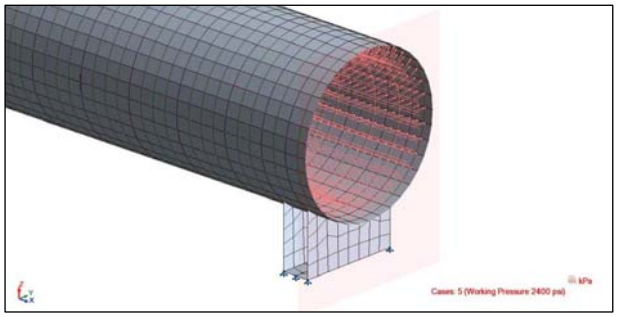
The MAWP (Maximum Allowable Working Pressure) is 2400 psi.

FEA Model



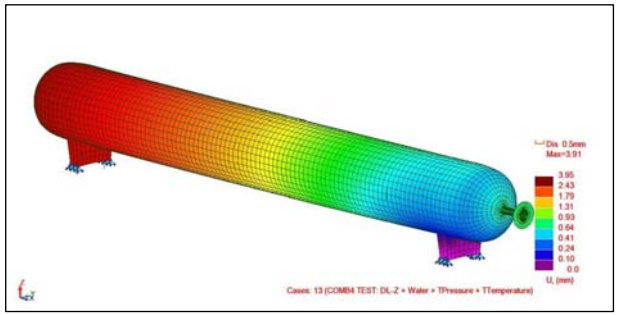
Model Geometry

Loads

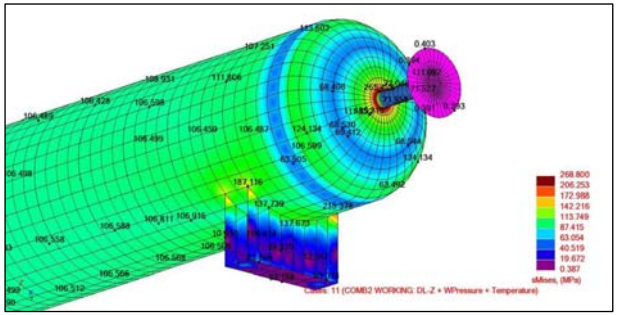


Pressure Loads

Results



Deformation Plot



Stress Plot

R.E. scope of work

A subject of this design review is 275 gallons APV working under internal pressure. Load combinations and stress verification was carried out according to ASME BPVC Sec. VIII Div. I using Compress software and empirical method (Math Cad). Finite element analysis (FEA) was also conducted in Autodesk Robot Structural Analysis (ARSA) as well as supplementary works in Autodesk Algor, for follow on Fitness for Purpose evaluation.

Geometry of the vessel is based on geometry of existing Client's APV, which consists of cylindrical shell, 2 heads, 2 saddles and various nozzles/openings. Fixtures and supports are also assessed for use on both vertical and horizontal positions.

Engagement Condition

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

1. *Geometry instructions.*
2. *Design test pressure*
3. *Design working pressure.*
4. *Wind pressure.*
5. *DAF factor for the rig.*

Key word: Rig Engineering, Air Pressure Vessel, ASME Code, Pressure Load, Compress, Algor, Robot, APV.