

Detroit Engineered products (DEP), is an engineering services, product development, software development, consulting and talent acquisition company. Since its inception in 1998 in Troy, USA, DEP is now a global company with footprints in Europe, China, Korea, Japan, and India. DEP uses the accelerated and transformed product development process, accomplished by utilizing our proprietary platform, DEP MeshWorks. It rapidly reduces the development time of products for all segments across industries like Automotive, Aerospace, Defense, Biomedical, Energy, Oil & Gas, Consumer Products, Heavy Equipment, Electronics etc.

DEPs engineering capabilities- right from concept to production- spanning across products, processes and services are customized to drastically reduce overall product development cycle for our customers, enabling them to cut costs, accelerate time to market, and deliver optimized and balanced products.

DEPs team provides consulting services that can be applied across various applications in oil and gas, across the life cycle. By using MeshWorks tightly integrated with other leading software, DEP provides various tools and solutions that help clients create smarter solutions. DEP's unique approach to analysis, and CAD services offered to clients has reputed us as a trusted CAE outsourcing partner for engineering companies globally. DEP MeshWorks simplifies tedious time consuming processes associated with design changes, and helps reduce the product development cycle.



Smarter solutions. Realized.



OIL AND GAS



CAD Services

- 2-D, 3-D Modeling in AutoCAD, Microstation and Solidworks
- Bills of Material
- Skid Mounted Equipment Design
- 3-D Piping and Pressure Vessel Design

Analysis

- Finite Element Analysis of components and equipment
 - Linear Static and Dynamic
 - Non-linear
 - CFD and Thermal
- Pipe Flow Analysis
- Process Automation

Powered By **DEP**
MeshWorks

Impact analysis on riser guard platform to protect the gas pipeline

The Client:

The client is a major EPC contractor for a global Oil corporation.

The Challenge:

To Develop the FE-Model and execute vessel impact analysis on the riser guard installed on the west face of the XY platform to protect the 16-inch Dry gas pipeline from XY. The analysis is performed to check the riser guard is able withstand the operational impact load from the vessel.

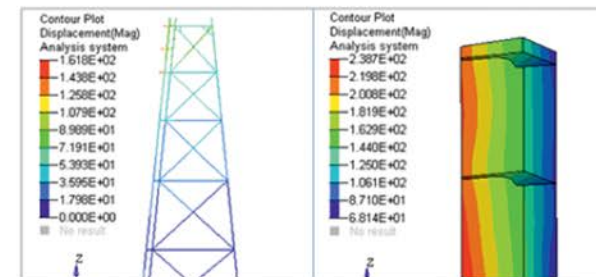
The Solution:

The Engineering team at DEP created an engineering process after a detailed study of the project scope. The finite element model was generated based on the drawings provided by the customer. The vessel is assumed as rigid barrier & it is placed parallel to the riserguard. The software which was used to conduct the analysis was ABAQUS Simulia. The team had very close discussions with customer to understand the load cases & boundary conditions. One of the load case happened to be that the structure is constrained in all degrees of freedom at the MUDLINE. As the system had to be commissioned immediately, there was a tight timeline to generate the results summary.

The Result

The complete summary of the results of the riser guard with & without fillet was generated & submitted to the customer which resulted in faster commissioning of the system.

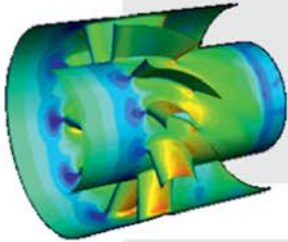
The results & practices generated by DEP are still used as the standard practice at the customer end.



- Design of multiple concepts of semi-submersibles and platforms through morphing
- Structural analysis for durability and vibration



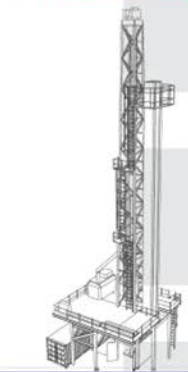
- Design of turbomachinery components through morphing
- Design through rapid morphing of housing, impellers, scrolls
- Structural and CFD analysis of compressors, pumps and valve



- Optimizing drill bit designs for structure, durability, grinding performance and fluid flow.
- Design of drill bit – CAD morphing from legacy data to evaluate different insert (length, width, height, and pitch), lug, and shirrtail configurations
- Durability and CFD analysis
- Parametric CAE modeling to rapidly evaluate different configurations to performance criteria
- Robust DOE
- Prototype part development



- Design and parametric analysis of top-sides
- Riser Design



- Down hole tubing stress analysis
- Transient dynamic analysis



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