CASE STUDY

# Lloyd's Register achieved fast certification at large Oman oil & gas project

## Key facts:

**Company:** Lloyd's Register

**Website:** www.lr.org

**Industry:** Oil & gas

**Country:** Oman

**Octave products used:** Aspect Pressure Vessel *(PV Elite),* NozzlePRO

Lloyd's Register (LR) is a global engineering, technical and business services organization owned by the Lloyd's Register Foundation, a U.K. charity dedicated to research and education, science and engineering. Founded in 1760 as a marine classification society, LR now operates many industry sectors based in 78 countries. Built on principles of engineering integrity and impartiality, LR provides compliance, risk and technical consultancy services to ensure the safety and sustainability of assets and businesses.

## Identifying goals

Special Technical Services LLC awarded LR a job to provide certification of MDR as per ASME Sec. VIII Div. 2 vessel codes for the Rabab Harweel Integrated Project in Oman. Equipment included a 12,800 mm long, 4,206 mm inside diameter (ID) horizontal prefilter separator with a 6,036 mm long, 1,412 ID vertical vapor column mounted on one of its 38 nozzles with a sump underneath.

The vessel operated at 30.1 bar pressure and 120 degrees Celsius. Subject to wind loading, the main horizontal vessel had to sustain the weight and bending of the attached overhead equipment, platform and sump, as well as the associated cascading effect.

Many nozzles also had piping loads that required local analyses. To add to the challenge, the client required a short one-week deadline for the entire certification to adhere to the strict code standards.

## Key benefits:

- Highlighted non-compliances for the client
- Avoided potential code violations
- Performed complex finite element analysis (FEA) thanks to integration with NozzlePRO
- Met one-week deadline and saved 10 labor hours

*"Without Aspect Pressure Vessel, it would have been very difficult to complete this project because of its integrated ability to analyze each component as well as the whole model."*

**Sujay Pathre, P.E.**
Lloyd's Register

## Overcoming challenges

With Aspect Pressure Vessel, LR could review the equipment's combined load as an integrated whole, including the underneath sump, the overhead wash column and platform. This would not be possible without Aspect Pressure Vessel. The client had changed some of the nozzle loads, locations and orientations.

With the Aspect Pressure Vessel model in place, the team could perform the changes all at once. Some of the nozzles also required complex FEA, which was made easy by Aspect Pressure Vessel's integration with NozzlePRO.

## Realizing results

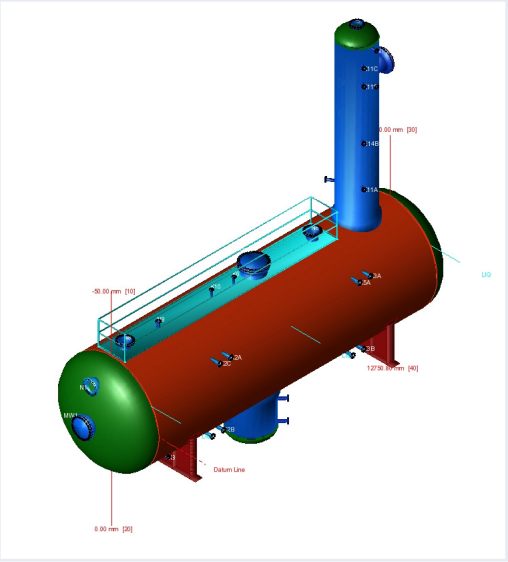
With Aspect Pressure Vessel, the team could highlight the noncompliances for the client and prevent potential code violations. LR also had to create its own auditable document. This took only a small amount of time because Aspect Pressure Vessel could simulate all three components in one model.

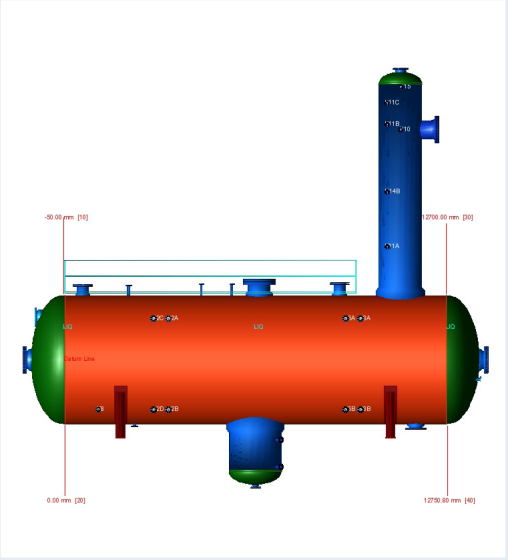
LR finished the initial review in one-and-a-half days and the complete certification in one week, as the client required.

"Without Aspect Pressure Vessel, it would have been very difficult to complete this project because of its integrated ability to analyze each component as well as the whole model," said Sujay Pathre, International Professional Engineer at Lloyd's Register.

With 30 hours allotted, the team completed the entire project in just 20 hours.

"The client was very satisfied with the quick turnaround, and we ended up landing another 200-hour project assignment," Pathre added.





## About Octave

Octave is a leader in enterprise software, turning data into decisive action and intelligence into your edge. Our software solves for and simplifies complexity, from the design and build to operations and protection of people, property and assets – for any scope, at any scale. For decades, we've partnered with customers to sharpen performance, elevate efficiency and amplify results. From factory floors to entire cities, our solutions are tuned to scale up what's possible from day one onward.

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