CASE STUDY

Det Norske Veritas succeeds with Octave Aspect Pressure Vessel modeling and design review



Key facts:

Company:
Det Norske Veritas

Website:
www.dnv.com

Industry:
Oil & Gas - Offshore

Country: Norway

Octave products used:
Aspect Pressure Vessel
(PV Elite)

Headquartered in Oslo, Norway, and with 15,000 employees from 122 nationalities delivering services in more than 100 countries. Det Norske Veritas (DNV) is an International Association of Classification Societies organization and one of the world's largest providers of risk management services to the maritime, energy, food and beverage and healthcare industries. In Brazil, DNV has completed a number of projects for oil major Petrobras and is the country's leading management systems certification body. The company has also been active in Brazil's shipbuilding industry.

Identifying goals

DNV has been providing Brazilian companies with gap analysis and technical safety studies to align their safety management systems to meet new code requirements. One project was a 300 million triethylene glycol (TEG) facility with 30 pressure vessels that were part of the floating production storage and offloading (FPSO) units for two Brazilian shipyards. The project involved converting the old vessel hull into a FPSO hull. The P-58 shipyard is in Pernambuco in the northeast, and the P-62 shipyard is at Rio Grande do Sul in southern Brazil. DNV's task was to provide design review and approval and certification of all equipment according to the facility's classification requirements.

Overcoming challenges

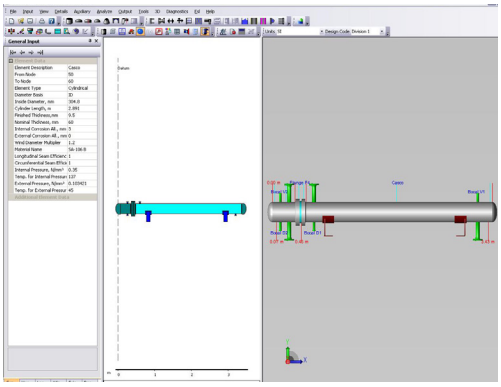
Two major challenges on this project were meeting the tight project schedules and working on the two facilities simultaneously. Based on DNV's past successes with Aspect Pressure Vessel, it decided the software was right for this project. Using manufacturer drawings and calculations, DNV modeled the vessels in Aspect Pressure Vessel and then used the solution to analyze the equipment according to the ASME VIII Division 1 code. DNV performed quality system management audits, welding production tests, visual and dimensional inspections and monitored hydrostatic tests. In addition, all technicians attended all specified verification points during the fabrication.

Key benefits:

- Streamlined the design and validation process, ensuring compliance with industry standards.
- Enhanced accuracy in reporting, aiding clear and efficient communication.
- Expedited project timelines by facilitating faster design reviews.
- Improved cost efficiency by preventing expensive reworks through early error detection.
- Boosted stakeholder confidence through clear and precise reporting and modeling.

Realizing results

"Aspect Pressure Vessel provided accurate design review data necessary which helped us develop reliable and consistent surveyor and approval reports," explained Rafael Silva, mechanical engineer at DNV Brazil. DNV was able to identify mistakes in the manufacturer's models and issue precise comments to address them. "Because the manufacturer had also used Aspect Pressure Vessel for its calculations, we were able to deliver a more comprehensive analysis," Silva added.



Aspect Pressure Vessel helped eliminate inconsistencies and avoid delays. "We saw faster design reviews which allowed us to communicate our results to surveyors



immediately and follow up with the manufacturer, avoiding costly rework due to vessels being built with designs out of compliance with project codes," Silva said. Aspect Pressure Vessel allowed DNV to perform an independent and professional analysis of pressure vessel designs while ensuring each met all the necessary technical safety requirements. "Our manufacturer and client were confident with the design approval process and Aspect Pressure Vessel's efficiency and reliability in providing clear reporting and accurate 3D models for fabrication," Silva said.

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Rafael Silva
Mechanical Engineer, DNV Brazil

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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