CASE STUDY

Octave Aspect Pipe Stress proves to be an essential tool in Amiantit's SHARQ project

Key facts:

Company: Saudi Arabian Amiantit Company (Amiantit)

Website: www.amiantit.com/en

Industry: Petrochemical

Country: Saudi Arabia

Octave products used: Aspect Pipe Stress *(CAESAR II)*

Saudi Arabian Amiantit Company (Amiantit) is one of the leading pipe manufacturing companies in the Middle East and maintains 18 manufacturing locations worldwide. The company's Amiantit Fiberglass Industries Limited (AFIL) subsidiary started using Aspect Pipe Stress in 1993, having shifted from SIMFLEX, the leading stress analysis software at the time. Since then, AFIL has completed over 44 projects in Saudi Arabia, UAE, Qatar and Bahrain using Aspect Pipe Stress. This included GRP, GRE, HDPE and DI piping systems.

Identifying goals

SHARQ (Eastern Petroleum Company) partnered with AFIL/Amiantit to provide analyses for the largest single ethylene glycol manufacturing project in eastern Saudi Arabia. Due to the project's magnitude and unique specifications, Amiantit first conducted a test with Aspect Pipe Stress on several tees. The results were successful and Aspect Pipe Stress excelled, even for orthotropic materials such as those used for the GRP piping in this project. It confirmed Aspect Pipe Stress was the solution.

With such a fast track, large scope project, Amiantit knew that costs could increase significantly if schedules became an issue. To remain on schedule, the company performed stress analyses alongside production and fabrication. This was made possible through Aspect Pipe Stress's accurate and fast component analyses.

Overcoming challenges

A key challenge on the project was to analyze and ensure accurate representation of 11 kilometers of GRP piping both above ground and underground. The beam element of Aspect Pipe Stress had to accurately represent the 160 inches of orthotropic material. A precise representation of the orthotropic material was crucial to prevent failures during the fitting of bends, tees and reducers. Without this accurate representation, Amiantit ran the risk of product loss, wasted work hours and unnecessary expenditure due to maintenance, redesign and reinstallation.

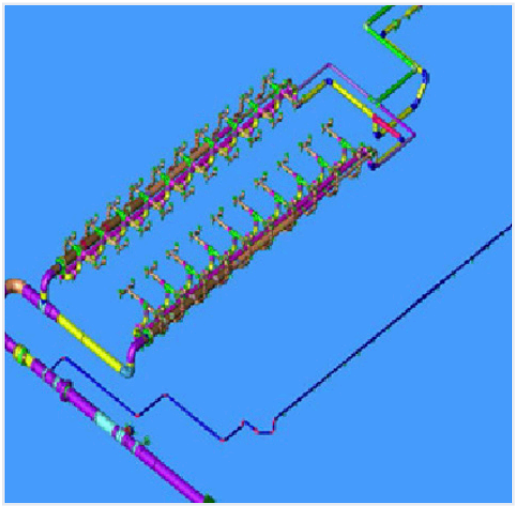
"Aspect Pipe Stress enabled us to eliminate all the possible failures especially at T-Junctions," explained Sadath Khan, group engineering manager at Amiantit. "By using Aspect Pipe Stress, we could determine the layout, identify over-stressed areas, pinpoint problem areas and resolve the situation. Without Aspect Pipe Stress, this would have been a difficult task," Khan said.

Key benefits:

- Improved project efficiency through simultaneous stress analyses with production and fabrication.
- Elimination of failures and accurate representation of orthotropic material, minimizing product loss and costly shutdowns.
- Precise automated calculations for complex pipe spools, guaranteeing safe handling and reducing the risk of damage.

Realizing results

Complex, large diameter spools ranging from 100 inches to 160 inches are especially difficult to handle and ship. This increases the risk that pipe spools could be damaged or fall apart if not handled with care. Aspect Pipe Stress's advanced capabilities ensured accurate correlations (irrespective of sizes) and provided easy calculations of the center of gravity for the complicated pipe spools, helping to guarantee safe and fast handling. Amiantit's experience on this project confirmed that Aspect Pipe Stress was capable of producing accurate analyses of piping lines of all diameters, and for pressure classes in a full range of loading conditions.



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Sadath Khan
Group Engineering Manager, Amiantit

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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