CASE STUDY

# DEG project in Ecuador a success using Octave Aspect Pipe Stress

## Key facts:

**Company:** DEG Energia

**Website:** https://deginvest-americalatina.com

**Industry:** Petrochemical

**Country:** Ecuador

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

## Key benefits:

- Achieved highly accurate stress analysis, ensuring optimal pipeline design and integrity.
- Tackled problematic terrains, paving the way for a successful pipeline execution and operation.
- Boosted transparency via consistently detailed reports throughout the project lifecycle.
- Enhanced company credibility, signifying their ability to undertake significant and challenging projects.

DEG Energia (DEG) provides engineering for petroleum companies in Ecuador and other countries in South America. Projects encompass engineering and design for pipelines and specialized petroleum equipment. The firm's principals and engineers had previously completed five pipelines in Ecuador and other projects in the Andes region.

Azulec S.A., a petroleum construction company in Ecuador, selected DEG for a US $50 million project for Petroamazonas (PAM), the biggest petroleum operator in the country. The project included design and engineering for a pipeline to connect the company's new OSO B Platform with the Gacela Station, located in located in Block 7 in Coca, Ecuador. The platform's petroleum production goes via pipeline to the Gacela Station for processing before being exported.

## Identifying goals

DEG's tasks included analyzing the pipeline stress and forces during operation and considering the various design conditions. The 20-kilometer pipeline, which included one pig launcher and one receiver, followed a complicated route through very difficult terrain, almost entirely underground, except for two river crossings. DEG normally use API-5L-X52 for buried pipelines, but for the ducted river crossings, they had to change the piping material to API-5L-X60. needed the analysis of the entire pipeline completed within two months, so DEG had to ensure that the geometry, route and materials were appropriate for this pipeline.

## Overcoming challenges

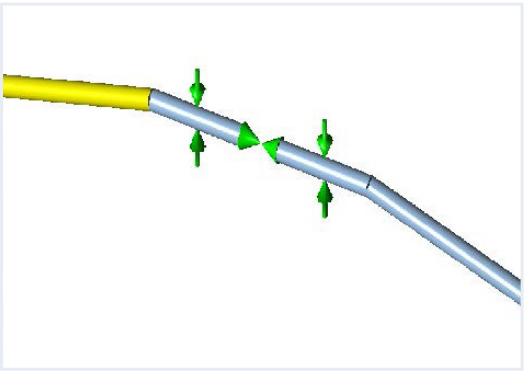
DEG engineers have been using Aspect Pipe Stress to perform pipe stress analysis and other installations based on ASME, API and other international codes and standards. Using Aspect Pipe Stress they were able to show Petroamazonas that the pipeline met the required ASME B31.4 code. They also used the Aspect Pipe Stress restraint forces report to design the pipeline anchors. DEG developed detailed reports and delivered them regularly to the client while they continued with the construction.

*"Aspect Pipe Stress helped us achieve the project's goals for the client while also building our firm's credibility."*

**Carlos Manosalvas**
Mechanical Engineer,
DEG Ecuador

## Realizing results

"In our country, there is much uncertainty with getting appropriate results for the design of pipelines," said Carlos Manosalvas, Mechanical Engineer at DEG Ecuador. With Aspect Pipe Stress, they could convey the necessity of stress analyses and demonstrate that they could successfully perform them on a challenging project. Aspect Pipe Stress reports that using international codes helped them reduce the uncertainty for Azulec, and the client finished the construction on schedule. "Aspect Pipe Stress helped us achieve the project's goals for the client while also building our firm's credibility," Manosalvas said.



## 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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