



DEG Energia, Ecuador

Key Facts

Company: DEG Energia

Industry: Petrochemical, Pipelines

Country: Ecuador

Products Used:

- CAESAR II®

DEG Project in Ecuador a Success Using CAESAR II® Automation

Headquartered in Ecuador, DEG Energia (DEG) provides engineering for petroleum companies in Ecuador and other South American countries. 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 Ecuador. The project included design and engineering for a pipeline to connect the company's new OSO B Platform with the Gacela Station, located in Block 7, in Coca, Orellana, Ecuador. The platform's petroleum production goes via pipeline to the Gacela Station for processing prior to export.

Designing Underground Pipeline over Difficult Route

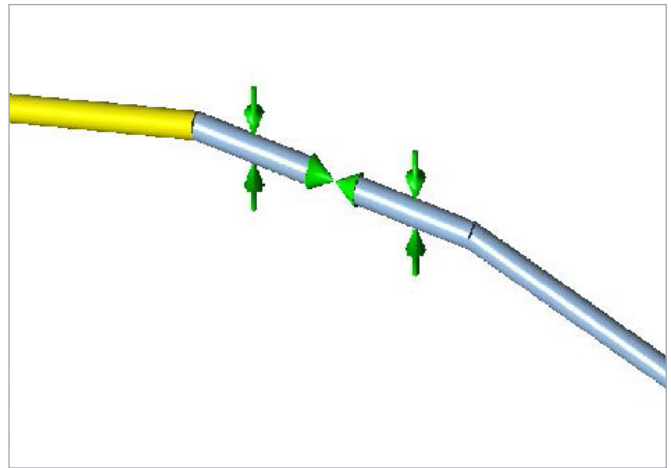
DEG's tasks included analyzing the pipeline stress and forces during operation and considering the various design conditions. The 20-kilometer pipeline, which included one pig launcher and one receiver, followed a complicated route through very difficult terrain, almost entirely underground, except for 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. Azulec needed the completed analysis of the entire pipeline in only two months, so DEG had to ensure that the geometry, route, and materials were appropriate for this pipeline so that they could complete the construction on schedule.

Ensuring Design Integrity Using CAESAR II Pipe Stress Codes

DEG engineers have been using CAESAR II® to perform pipe stress analysis and other installations based on ASME, API and other international codes and standards. Using CAESAR II V5.3, they were able to show Petroamazonas that the pipeline met the required ASME B31.4 code. They used the CAESAR II 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.

Strengthening Firm's Credibility

"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 CAESAR II, they could convey the necessity of stress analyses and demonstrate that they could successfully perform them on a challenging project. CAESAR II reports using international codes helped them reduce the uncertainty for Azulec, and the client finished the construction on schedule. "CAESAR II helped us achieve the project's goals for the client while also building our firm's credibility," Manosalvas said.



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Hexagon's PPM division empowers its clients to transform unstructured information into a smart digital asset to visualize, build and manage structures and facilities of all complexities, ensuring safe and efficient operation throughout the entire lifecycle.

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