

L&T-CHIYODA LTD., INDIA

Key Facts

Company: L&T-Chiyoda Ltd.

Website: www.larsentoubro.com/heavyengineering

Industry: Oil & Gas

Country: India

Products Used:
 CAESAR II®

Key Benefits:

- Created US\$500,000 savings on expansion joints – 1.5 percent of the total project cost
- Reduced piping engineering labor hours by 20 percent
- Helped avoid an unnecessary expansion joint, saving additional material costs

LTC LEVERAGES CAESAR II® FOR SUCCESSFUL REFINERY PROJECT IN MALAYSIA

EPC addresses complex design under tight deadline

L&T-Chiyoda Ltd. (LTC) is an engineering and consulting firm formed by Larsen & Toubro Hydrocarbon Engineering Limited of India and Chiyoda Corporation of Japan, world leaders in engineering and construction. LTC has completed facilities for petroleum refining, petrochemicals, chemicals, fertilizers, oil and gas, and LNG.

IDENTIFYING GOALS

LTC's Larsen & Toubro Heavy Engineering Division (LTHED) was awarded a US\$35 million project to design, manufacture, and supply the reactor-regenerator (RR) package for two residue fluid catalytic cracker (RFCC) units at the RAPID refinery project for PETRONAS in Malaysia. The RR package includes the reactor, regenerators, riser, spent catalyst stand pipe, and all other associated equipment and piping plus supports and structural hardware.

OVERCOMING CHALLENGES

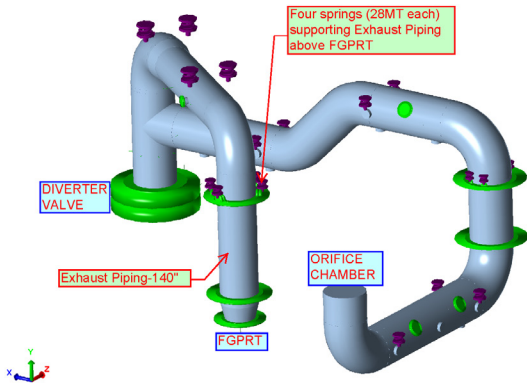
The refinery project involved many complexities including tight deadlines, very high operating temperatures of 800 to 900 degrees Celsius, and pipe ranging from ½ inch to 82 inches in diameter. LTC also had to interpret two ASME piping codes simultaneously.

Early finalization was required so that high thickness (up to 150 mm) plates, custom expansion joints, and springs could be ordered early. Any delay would negatively impact other engineering deliverables.

REALIZING RESULTS

With CAESAR II®, the group could determine material specifications and order early, saving significant time. It could quickly check for clashes to decide pipe routing, expediting client approvals, all without a 3D model.





AWARD-WINNING PROJECT

LTC received the 2016 CAESAR II Drivers of Success Runner-Up Award for its use of the software. The annual Drivers of Success competition recognizes innovative applications of Hexagon PPM products, impressive project results, and significant benefits from collaboration among disciplines and the integration of the products.

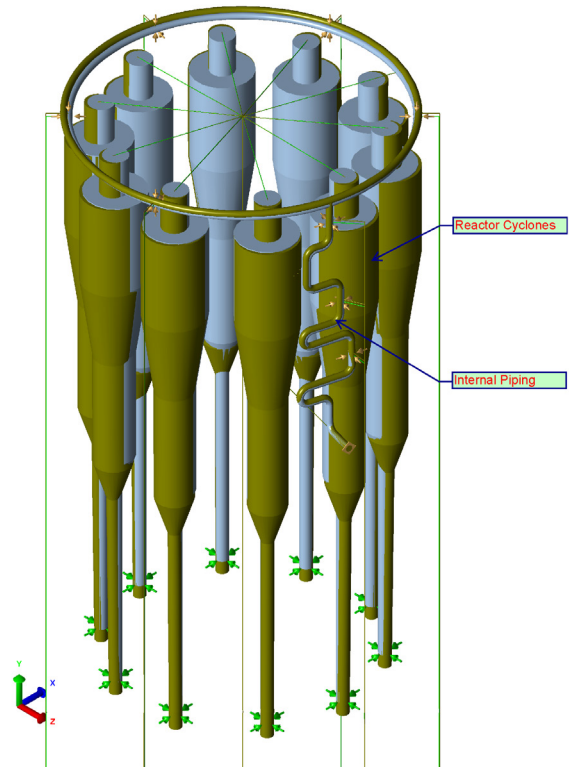
“CAESAR II made analysis extremely simple, time-saving, and cost-effective. It made the design safe and reliable, and without manual errors,” said Pradeep Darji, lead pipe stress engineer and general manager at LTHED.

Analyzing components in other FEA software would have taken a very long time. Then simulation and further re-run would have caused more strain on the short timeline.

Without CAESAR II, manual analysis errors and schedule overruns were common as were design problems, resulting in wasted time and added expenses. There could also be disputes among the site execution, engineering, and design teams.

CAESAR II helped avoid an unnecessary expansion joint, saving additional material costs. The team extracted isometric drawings from CAESAR II to prepare fabrication drawings, meeting a very tight schedule.

“With CAESAR II, we saved US\$500,000 on expansion joints – 1.5 percent of the total project cost,” Darji added, “and we also saved 20 percent in piping engineering man-hours with the fast analysis and automation CAESAR II provides.”



ABOUT HEXAGON PPM

Hexagon PPM is the world’s leading provider of asset life cycle solutions for design, construction, and operation of industrial facilities. By transforming unstructured information into a smart digital asset, our clients are empowered to visualize, build, and manage structures and facilities of all complexities, ensuring safe and efficient operation throughout the entire life cycle.

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