



FACTS AT A GLANCE

Company: L&T-Valdel Engineering Ltd.

Website: www.lntvaldel.com

Description: L&T-Valdel Engineering Limited offers comprehensive engineering capabilities covering the complete project life cycle, including concept studies, FEED, basic engineering, concurrent, 3D model-based detailed engineering, special studies including safety, risk assessment, and pre-service engineering.

Industry: Oil & Gas

Country: India

PRODUCTS USED

- CAESAR II®

KEY BENEFITS

- Reduce labor time using both skilled and unskilled staff.
- Generate accurate results despite changes occurring during the project.
- Reduce changes to existing drawings.
- Increase modeling accuracy.

INCREASING PRODUCTIVITY FOR GHANA OFFSHORE PROJECT

L&T-Valdel Engineering saves labor hours and increases modeling accuracy with CAESAR II

IDENTIFYING GOALS

L&T Valdel Engineering Limited (LTV), the engineering group of Larsen & Toubro Limited's upstream oil and gas operating company, provides engineering services for oil and gas projects including well head and process platforms, floating production storage and offloading (FPSO) facilities, pipeline systems, and drilling rigs. More than 600 employees in India and the UAE have completed over 500 projects worldwide.

LTV client Tullow Ghana Limited and partners were developing a Tweneboa, Enyenra, and Ntomme (TEN) discovery in the Deepwater Tano (DWT) block off the coast of Ghana, West Africa. The client chose MODEC International to serve as the engineering, procurement, and construction contractor for a very large crude carrier (VLCC) conversion for the project.

The facility provides production and treatment of 80,000 barrels per day (bpd) of crude oil, 65,000 bpd of produced water (non-concurrent), and 180 million cubic feet per day of gas. MODEC in turn awarded LTV the detail design engineering contract for the FPSO vessels.

LTV's assignment included seven pipe rack modules and 18 modules with 209 pieces of equipment that included compressors, pumps, separators, and exchangers. Piping diameters ranged from 3/4 inch to 36 inches.

OVERCOMING CHALLENGES

Addressing client changes and staff limitations on complex offshore installation

The company performed a stress analysis on 138 piping systems involving 1,095 line systems operating in normal and severe environments with 128 load combinations, all while facing a short schedule and using both skilled and unskilled staff.

The client changed inputs during the project, and LTV had to interface with the pipe vendor to resolve these. A decision to perform the blast analysis of explosion risk assessment came after the approved for construction drawings were issued. The challenge was to pass the systems without changing major routing in already issued drawings.

REALIZING RESULTS

Reducing engineering man-hours with CAESAR II®

“With the help of CAESAR II’s flexible input and output capabilities, we were able to develop a macro to interface PDMS and CAESAR II which saved us 85% in man-hours for modeling,” explained Sonali Parekh, senior technologist at LTV. This allowed the staff to concentrate on technical solutions. LTV developed another macro to interface with Microsoft® Excel® to generate client and internal reports.

The company saved an additional 90% in man-hours for its layout engineers and 50% of time for the structural engineers. The automatic ISOGEN isometrics helped them deliver fast output, and the accuracy on modeling for internal clients increased enormously.

“Even new engineers became quickly productive,” Parekh added.

Eliminating manual errors with CAESAR II

CAESAR II eliminated manual input and calculations which would have significantly increased the chance for errors and the time it would have taken for LTV to determine the optimum piping and equipment design. The team avoided performing manual support markup by extracting isometric drawings automatically using ISOGEN and the manual validation of the various international engineering codes, saving additional hours while ensuring accuracy.

LTV was able to leverage CAESAR II to greatly reduce the number of review meetings and satisfy the client with technically competent, cost-effective solutions for the almost 80 systems and do so in much less time, even absorbing additional changes and requirements.

AWARD-WINNING PROJECT

LTV received the first place 2015 CAESAR II Drivers of Success Award for its use of the software. The annual Drivers of Success competition recognizes innovative applications of Intergraph products, impressive project results and significant benefits from collaboration among disciplines and the integration of the products.

MOVING FORWARD

Winning repeat business from satisfied clients

Leveraging CAESAR II, LTV achieved client satisfaction by providing technically competent, cost-effective solutions within a short schedule while absorbing the client’s changes throughout. Additional and repeat business is coming as LTV as a result.

ABOUT INTERGRAPH

Soon to be known as Hexagon Process, Power & Marine, Intergraph Process, Power & Marine is the leading global provider of engineering software for the design, construction and operation of plants, ships and offshore facilities.

Hexagon Process, Power & Marine is part of Hexagon (Nasdaq Stockholm: HEXA B; hexagon.com), a leading global provider of information technologies that drive quality and productivity improvements across geospatial and industrial enterprise applications.

