Plant Design for Oil & Gas Industry Client

An Enventure Case Study

Enventure with its team of engineers having multi-disciplinary skills provided complete plant design, detailing and procurement services to one of the world leaders in the sulphur processing industry.

About the Client

The Client is a leading EPC firm in the sulphur forming and handling industry and has been in business for over 50 years. With a comprehensive range of operational, technical and support offerings, the Client has the unique ability to provide complete sulphur solutions, customizable to fit any production requirement. The Client strongly believes in thoroughly researched creative solutions for innovative technology and efficient operations.

Business Need

The Client had a clearly superior process and technology in place, which gave them a distinct advantage over their competition. Based on this, they were awarded a large project of building a sulphur granulation plant with 2200 Tons per day capacity, for a Fortune Global 500 company in the Oil & Gas industry.

The Client had a strong engineering team in-house, but the internal resources were tied up with multiple other projects and this new project needed additional bandwidth, which meant they had to either take on contract staff or utilize an external engineering services provider. The project was a prestigious one for the Client and they were committed to deliver the project on time, with improved system efficiencies and within budgets.

Due to the engineering bandwidth limitation internally, the Client needed a separate team that was efficient, had domain knowledge and could be relied upon to deliver against commitment. The service provider options available to them locally were extremely expensive and unaffordable, considering the tight budget specifications. After several internal discussions and evaluation of multiple options, the Client decided to have the engineering and procurement support handled by Enventure - their offshore engineering partner who they knew had a strong multi-disciplinary engineering team.

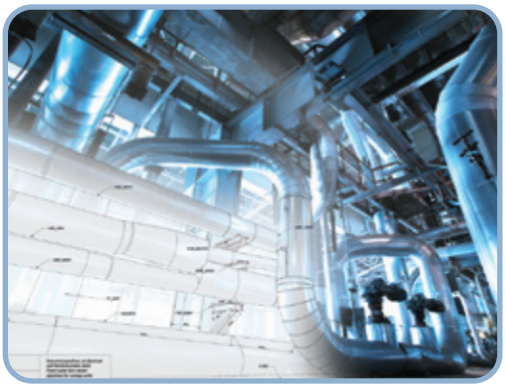
Why Enventure

The Client recognized that Enventure, who they had already worked with for over a year, was in the best position to successfully complete the project due to a variety of unique capabilities that could provide a clear value proposition.

The following key differentiators helped build the Client's confidence in awarding the project to Enventure.

- Credible track record of having been an engineering partner to several North American companies since 1997
- Strong engineering team with cumulative domain experience of over 4 million man-hours
- Mature and robust offshore Project Management System
- ISO certified Quality Management System
- Flexible team structures to quickly ramp up as business needs change
- Committed to customer satisfaction, actively monitored using the Net Promoter Score (NPS) system
- Excellent customer service systems with clear communication channels
- Very good experience having engaged with the team for over a year

The Solution



Enventure's team of engineers got started on the project based on the initial PFD and P&ID received from the Client. The engineering documents along with the project specifications and documentation were thoroughly analyzed by the Engineering Head and Engineering Discipline Leads at Enventure.

Based on that, a detailed project execution plan was made covering the Work Breakdown Structure, Milestones, Risk Analysis & Mitigation Strategy, Roles & Responsibilities and Team Structure. The team ensured that a clear roadmap was in place for how the project was to be carried out. The project took about 14 months for completion and was completed on schedule with satisfactory results.

A summary of the engineering activities and support provided by Enventure:

DOMAIN	SCOPE OF WORK
Piping	Development of Equipment Layout, 3D Piping Layout, Steam Jacketed Piping, Piping Stress Analysis, Piping Plot plan, Piping Spool, Isometric Drawings, Piping line & Equipment list, Piping MTO, Pipe Support Design & Detailing and Piping support GA.
Mechanical	Preparation of General Procurement Specification and Equipment Data sheet along with Tehnical Bid Analysis and support for Procurement Team.
Structural	Complete Structural Analysis considering wind, seismic & equipment loads as well as feasibilty & conceptual studies. The Connection design, Foundation design, Anchor bolt & Base plate design were also completed.
Electrical	Preparation of Electrical Load list, Single line diagram with metering & protection, Motor schematics inter connection diagrams, Electrical cable sizing calculation, Cable schedule design calculation for grounding and lightning protection system, Power grounding and Cable tray Layout, Data sheets for Electrical equipments, MTO for Electrical systems.
Instrumentation	Preparation of Instrument Data sheets, Sizing of flow element and control valve, Control System Architecture for PLC/DCS, Control Narrative, Alarm and Trip Schedule, Cause and Effect Matrix, Hook Up drawing, Cable tray routing drawing, Junction box and Instrument location drawing.
Procurement	Provided support for Vendor identification and general procurement package preparation. Also closely worked with the respective engineering teams to do Technical Bid Evaluation. Further, supported on expediting the production process, as well as assisted on Quality Control, inspection and logistics support.
CODES	*Piping/Mechanical-* ASME B31.3 & IBR; Pressure vessels – ASME Sec VIII; Heat Exchangers - TEMA; Liquid Sulphur Storage Tanks - API 650; PUMPS API 610; *Structural-* BS , IS & AISC design codes;Silo design as per EN 1993-4-1 & IS 9178 (Part II) *Procurement-* ASME Sec VIII Div 1, ASME Sec II Part A, ASME Sec V, IS standards, TEMA, BS EN standards
TOOLS	*3D Modeling –* AutoDesk Inventor; Auto CAD; CAD Pipe *Piping Stress Analysis –* CAESAR II *Structural Analysis -* STAAD Pro

The Benefits

The project execution by Enventure helped the Client derive the following benefits:

Improved Efficiency: With extensive domain expertise, the Enventure team was successful in giving deliverables at high quality, within specified deadlines

Time Zone Advantage: With the Client's and Enventure's teams working in different time zones, the Client could effectively improve the speed and project turnaround

Risk Mitigation: By implementing a collaborative design review process, the Client was able to reduce some of the risks associated with projects

Optimal Resource Utilization: Client could focus on its core functions and utilize its internal resources in business critical areas

Cost Benefit: Enventure helped to reduce the Client's operational as well as manpower cost for the activity by more than 40%

Value Engineering: Additional Value Engineering services were provided by Enventure, which resulted in considerable savings for the Client, without compromising on Technical, Quality and Safety Requirements

Conclusion

With quality and cost efficient deliverables, Enventure enabled the Client to strengthen its market position. Enventure played a pivotal role in ensuring that the Client was able to meet the project specifications and quality expectations of its Customer. Today the alliance continues to grow for a world class project execution.

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