

World's Largest Gas Separation Plant Finished On Time and Under Budget

Samsung Engineering Co., Ltd. Uses Knowledge Areas from PMI's A Guide to the Project Management Body of Knowledge (PMBOK® Guide) to Implement Integration Methods in Construction Project

Background

In September 2007, PTT Public Company Ltd. (PTT) commissioned Samsung Engineering Co., Ltd. (SECL) to build the PTT Gas Separation Plant #6 (GSP-6) in Rayong, Thailand. The plant, which was valued at US\$630 million, powers Thailand's growing petrochemical, commercial, domestic and transport markets. In particular, the plant recovers ethane, propane, and other components from natural gas.

Samsung Engineering's project team handled the project management, engineering, procurement, construction and commissioning work on a lump-sum turn-key basis.



Samsung Engineering president and CEO Park Ki-Seok with PMI president and CEO, Mark A. Langley

Challenges

The project, which was honored as a 2011 recipient of the Project Management Institute Distinguished Project Award, faced substantial challenges. With approximately 300 tie-in points among existing plants within the PTT gas complex area, there had to be a large degree of sensitivity in coordination from the planning stage through completion.

Another challenge occurred in September 2009 when the Supreme Court of Thailand issued an injunction to suspend the GSP-6 project—along with 65 other projects in the region—for an environmental and health assessment. This resulted in an 11-month hiatus. All the while, Samsung Engineering was working on several other high-profile projects in Thailand that required extensive resources.

Solutions

The GSP-6 project team overcame these challenges by applying concurrent engineering techniques to shorten the engineering process, which enabled them to start construction early. Leveraging all nine Knowledge Areas from *A Guide to the Project Management Body of Knowledge (PMBOK® Guide)*, the team also implemented the following integration methods:

- Combined the project teams from the GSP-6 project and other projects to minimize interfacing discrepancies, which are common when dealing with multiple adjacent projects.
- Integrated multiple construction contracts and subcontractors, including shared equipment, fabrication yards and manpower to increase efficiency.
- Integrated the construction workforce with the facility's operational staff to form a task force that allowed uninterrupted operations of the adjacent facilities during the construction period and during the pre-commissioning and commissioning phases.

Results

The GSP-6 project was successfully completed on 25 January 2011, on time and under budget, after 19,304,700 accident-free hours. The plant is now the largest gas separation plant in the world in terms of the number of production through-fractionation units.

Samsung Engineering cited project risk management, project communications management and project human resources management as instrumental in the successful delivery of this project. The techniques, processes and lessons learned from the project were recorded and reviewed to ensure the same best practices are applied to achieve success in future projects. With a strong foundation of PMI's project management practices, Samsung Engineering has been able to build a strong track record of projects in Thailand and raise its profile in the region.

"The project's ambitious timeline, along with challenges like resource shortages, working around existing plants and government delays, forced us to look beyond traditional project management practices," said Samsung Engineering's president and CEO, Park Ki-Seok. "With the help of PMI's standards, which led to successful implementation practices—particularly regarding risk management, communication management and human resource management—the project team continually surpassed expectations."