

Title: RABIGH DEVELOPMENT PROJECT -Phase I & II

Date: 2006-2007 (17.5 months)

Scope: Detailed Engineering and Technical Support

Location: Rabigh, Saudi Arabia

Overall Description of the Project: Rabigh refinery and petrochemical complex expansion and upgrade (Saudi Arabia) to produce 1.3 million tons of ethylene, 900,000 tons of propylene and 80,000 BBL / D of gasoline and other refined products, involving 25 Units, Utilities, Offsite and Pipelines)

Owner:

PETRORABIGH - Saudi Aramco and Sumitomo Chemical Co., Ltd.

VEPICA's Client:

Tecnicas Reunidas – Spain (EPC Contractor)

About Técnicas Reunidas (TR):

TR offers a complete range of technical and managerial services, in the engineering and construction field, for industrial plants around the world.

TR provides basic engineering processes, either under license from others or of its own intellectual property. Customers benefit from "know-how" and experience acquired and developed over 40 years by TR's Process Department.

TR's Research and Development services division, has developed process technologies which have been successfully applied in large scale industrial installations. Several of the processes are undoubtedly the best available in the world.

Vepica Scope:

PHASE I: Sept 05 to Jan 06

Preliminary Design: Developed in TR's Madrid offices as a reimbursable project, for the development of an Open Book Estimate (OBE), in order to close TR's EPC contract with PetroRabigh.

PHASE II: Feb 06 to May 07

1- Technical Support:

VEPICA supplied personnel, to support the detail engineering developed by TR in its Madrid offices for other project units, on a reimbursable basis.

2- Detail Engineering:

Detail engineering, developed at VEPICA's Caracas offices as a Lump Sum project, based on Basic Engineering developed by Foster Wheeler and the preliminary design developed in the OBE phase.

- Amine Recovery Unit 2 (ARU 2) : 450 M3/Hr Capacity
- Amine Recovery Unit 3 (ARU 3) : 56 M3/Hr Capacity
- Sour Water Stripper Unit 2 (SWS 2) : 178 M3/Hr Capacity
- Sour Water Stripper Unit 3 (SWS 3) : 141 M3/Hr Capacity

Engineering Scope:

- Process and Mechanical activities developed by TR in their Madrid Offices, with VEPICA's technical support (TS).
- Piping and Civil activities developed entirely by VEPICA in their Caracas Offices.
- Electrical activities partially developed by TR in Madrid, with VEPICA TS, and by VEPICA in Caracas.
- Instrument/Control activities partially developed by TR in Madrid, with VEPICA TS, and by VEPICA in Caracas.
- Project was developed in PDS

Challenges:

- Multi-location Project: Having the Client and the most important disciplines in Madrid (Processes and Mechanics) represented an important communicational challenge.
- Considerable changes to the scope on this project (in total 55 requests for change orders were issued). Exchange orders for 38,877 M-H were submitted (equivalent to 41% of the amount in the budget).

Vepica Solutions:

- Implementation of a complete communications system for the efficient transfer of information, capture and rapid resolution of doubts and matters pending, electronic master copies, electronic review and comments on sales and internal plans. Vepica subsequently implemented some of these communication procedures as standards.
- Development of Team Building, with the participation of all key personnel on the project, where coexistence proves to have had a very important effect on the communication and integration of the whole team.
- A monthly program was implemented for special recognition of the person or team that most significantly propelled the completion of the project's objectives.
- An aggressive isometric generation plan was implemented that covered the accelerated customer shop fabrication requirements.
- A paid overtime work program, with specific objectives to mitigate delays, was implemented.

- A new tool was implemented to measure the progress of the 3D model that was later used as a standard by Vepica.