

Assistance and technical support to the manufacturing

- **Objective** Technical assistance to the manufacturing of gas turbines

▪ Our Approach

- Study, analysis of non-compliance of accessories (foundation, plumbing, motor launch, ...)
- Finding solutions to consider.
- Validation of certain technical solutions by item owners.
- Implementation of the decision by the auditors

▪ Results

Solving technical problems in providing adequate solutions (feasibility, realization) the needs of the workshop.



▪ Client Benefits

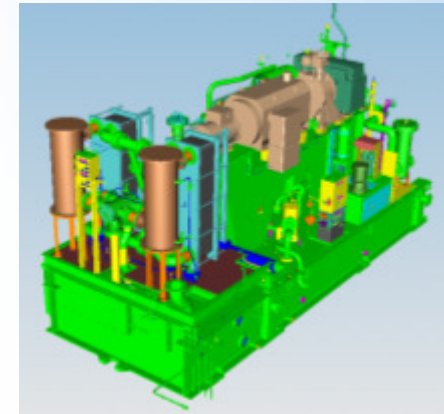
- Shipping machine on the production site with minimum of non-compliance which implies a reduction of site problems
- Customer satisfaction for the quality of assembly parts which have undergone non-compliance.

Redesign of an auxiliary module (Gas Turbine)

- **Our Goal** Redesign (rearranging and changing components) of a module with a view to reducing cost.

- **Our approach**
 - Organizing a work out to highlight all ideas to reduce costs
 - The project is in 2 phases in order to make financial gain as soon as possible
 - Coordination of cross-cutting projects affecting several systems (oil, fuel, electrical ...)
 - Study both the cost of components and the costs of construction, transport ...
 - Regular reporting to give the customer a good view of progress in relation to the defined milestones

- **Our results**
 - Phase 1-used: gain of approximately € 16 000 per module
 - Phase 2-under study: estimated gain of about € 15 000 per module



- **The benefit for the client**
 - Global viewpoint, not divided by system
 - Reducing cost produced on time

Environmental, Social and Health Impact Assessment of a Petrochemical Plant in China (PRC)



Objectives

The Challenge : an ESHIA support was provided to an internationally funded petrochemical facility joint venture in Guangdong Province, southern China. The site, located on the shores of a National Marine Aquatic Resources Nature Reserve, is important for its marine fauna, including sea turtles and cetaceans, and as a significant commercial fishery.



Results

Environmental and Social Management Plans included design recommendations, potential sustainable development initiatives and management planning. Following consultation with local and international stakeholders, the ESHIA was published on the world-wide web.

Our way

The work, conducted to meet World Bank, IFC, EU, PRC and corporate assessment criteria, involved an integrated ESHIA of the facility and associated infrastructure. A separate Marine Impact Assessment, designed to meet local permitting requirements, was also carried out for the marine facilities.

Environmental, social and health baseline surveys were conducted by local and western scientists to provide an integrated assessment of the potential impacts during construction, normal operations and in the event of accidents. These surveys included the use of Sediment Profile Imaging technology for the first time off mainland China. Assessment was supported by marine and air modelling.

Clients benefits

The project received regulatory approval in August 2002.

ASSISTANCE TO THE EQUIPMENT DEFINITION

Objectives

Within a unit of hydro-geno-sulfuration of a french refinery
 →revamping of one part of the existing unit + building of a new part.

Partial reshaping of the reciprocating compressors
 Purchase of two reciprocating compressors as well as centrifugal pumps

Our way

Preparation of invitations to tender for rotary equipments (reciprocating compressors and centrifugal pumps)
 Technical analysis of offers, lining up and selection of the supplier
 Technical follow-up of the orders.
 →review of suppliers scheme and intern coordination with the other disciplines (installation, piping, civil engineering, electricity, instrumentation)

Difficulty: The result of an acoustic study undertaken by the supplier involved a change of design
 → Tardive information - assistance to the supplier and the subcontractor in order to restrict the impacts on time and costs.



Results

Participation in the whole EPC of the project
 → the unit works normally since March 2005

Client benefits

Equipment delivered in time, with exchange order lower than 5% of the amount of the orders

Redesign of an auxiliary module (Gas Turbine)

▪ Our Goal

Following the application of the European directive on pressure equipment (PED), the classification of tanks and pipelines has become more strict since it concerns all systems from 0.5 barg. The documentation for monitoring such equipment must be checked and updated.

▪ Our approach

- Organizing a work out to highlight all ideas to reduce costs
 - The project is in 2 phases in order to make financial gain as soon as possible
 - Coordination of cross-cutting projects affecting several systems (oil, fuel, electrical ...)
 - Study both the cost of components and the costs of construction, transport ...
 - Regular reports Status: identify all the pressure equipment and safety accessories for client

Apply the new classification equipment

Check the documentation existing in the follow-up file

List missing documents for DESP, national rules and internal clients standards

Contact suppliers of equipment for the documentation missing

Check safety scenarios of accessories (safety valves, discs, ...) and their size

Recalculate safety accessories if necessary

Order new safety accessories to replace those that do not conform (too old, too small ...)

Technical support for new projects towards the regulation equipments under pressure

•ng to give the customer a good view of progress in relation to the defined milestones

▪ Our results

All cases were completed -> alignment of the client site towards the existing regulations

Federation of different services around the project (maintenance, production, security, engineering, ...)

Training of employees on the importance of safety accessories and on their proper use