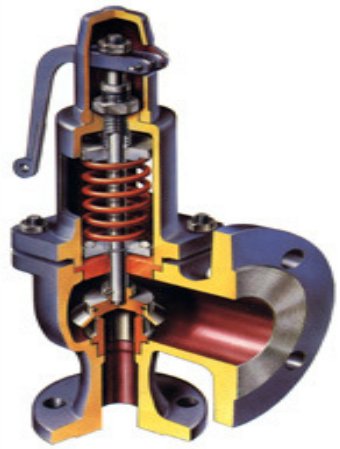
Safety valves gauging

Checking of around 700 valves on the cracking unit IV



Context & Objectives

- Before the 2006 ruling, Altran was chosen for the design of several safety valves on the cracking unit IV accordingly with the American Petroleum Institute Recommended Practices on pressure relieving devices.
- Some supports were used like :

  - API RP 520 Part I and II for sizing, selection and installation of pressure-relieving devices.
  - API RP 521, a guide for pressure-relieving and depressuring systems.
  - API RP 526 for flanged steel pressure relief valves.

Approach & Solution

- Process Hazard Analysis.
- Listing of emergency cases.
- Hypothesis considered and estimation of the relieved flow .
- Identification of the major case and determination of the valve suction.
- Suction design and pressure drop verification.

Results & Added Value

- About deliverables, some specific technical sheets like :
  - Emergency case sheet, one for each case studied in which you can find thermodynamics properties, hypothesis considered, relieved flow estimated and also some technical information.
  - Suction valve design sheet.
  - Specification process sheet which contents all the data about the pressure relief device.
  - Inspection sheet.
- 10% of the safety valves have need to be changed in good accordance with the Pressure Equipment Directive.

- ***Functional Environment***: *PropPhy Plus*
- ***Methodologies***: *API RP*
- ***Technical Environment***: *Production*

Increasing Welding Process Velocity

Systematic Innovation applied to Pipeline Welding Process for Offshore Pipe-laying

CONTEXT:

Customer is market leader in Off-shore Pipe-laying. To maintain this position it is required a continuous improvement in its core business operations.

Following previous trial projects ALTRAN was chosen to support the Research and Development Dept in improving their welding system

APPROACH:

- Problem Modeling and definition of weak elements of the system
- Application of TRIZ technique to find technical solutions to the problem
- Presentation 30 different types of solution to customer and first selection of the most promising ones
- Development and Iteration of the process
- Definition of the final system based of the best features of each solution (materials, arrangement, design)

RESULTS & KEY DIFFERENTIATORS:

- Patent Application for the final Solution.
- Poster Session at OMC 2007 (Offshore Mediterranean Conference)
- Successful trials with first prototypes
- Award of further problem solving projects

Treatment of the VOC (Volatile Organic Compound) by thermal oxidation

Objectives Solving the problems of operation of a thermal purifier of COV.

Our way

- Search for new more stable ceramics chemically,
- Consultation of new ceramics suppliers,
- Design of a new code of thermal sizing,
- Correlation and validation of the code with test results.

Regenerative purifier with 3 ceramics beds

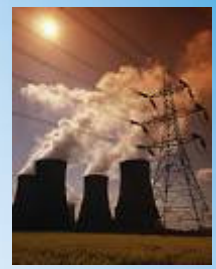
Results

Identification of a new stable ceramics chemically adapted to purifier VOCof and establishment of the computer code at the customer.

Realization of a cogeneration unit in the Netherlands

Objectives

Order of the whole Equipment and Constructional works contracts, for the Realization of a Cogeneration Unit of 300 MW in the Netherlands, to sell to a Tanker the vapour required to its refining needs, knowing that electricity is being sold in parallel on the Dutch network.
(Its current vapour supply was obsolete and caused too many pollutant emissions: GOOD FOR SUSTAINABLE DEVELOPMENT/Subsidies for this Project within this framework).



Our way

Overall assumption, from the launching of the international AO up to the “claims” management of end of realization, of more than 100 orders, whose amounts go up to 40 billion €.
Examination of the Offers and drawing up of the comparative Tables,
Final negotiations, Follow up of Suppliers,

Unexpected Difficulties : Voluntary liquidation of the Supplier of the 2 main Current Transformers of 170MVA (more than 125 tons), order cancellation, “Punch” missions: new Global AO
Audit at Suppliers’ who don’t respect the deadlines,
Multiplicity of the Orders and the Interlocutors related to the Projects: more than 100 Orders!

Results

Purchases for more than 100 M€ of Equipments (Waste heat Boilers, Turbines with Combustion, Steam power turbines, Transformers, Piping out of Alloy Steel, stainless & Carbon, Compressors, various Pumps, various Valves, Exchangers,…), as well as the Constructional works contracts (Civil Engineering, Mechanical Assembly, Work of Electric Installation and Instrumentation, Framing, Insulation, Fire Detection & Protection,…). Quality of the Service, Respect of the Deadlines, Profits purchases up to 20%.

Process engineering in a gas liquefaction line

Objectives

Delivery of 2 complete natural gas liquefaction lines in Qatar. 5 lines and increase of production capacity.

Our way

To support engineering process team already on the project :

- 3 consultants.
- 1 PSI consultant.

Results

- Assessment of lines and utilities.
- HYSYS simulations.
- PFD et PID design.
- Hazop review.
- Design of material (pumps, columns, balls, valves…).
- lines listing.
- Cause & Effect Diagram of control command.

Client Benefits

Documents drafting for customer's approval.