CHEMICAL CASE STUDY - MAJOR CHEMICAL MANUFACTURER, UK

Development of FEED for a new sodium hypochlorite production facility

ABB helps client develop cost effective front end design, project definition and estimate of cost (+/-10%) to replace existing aging production facility.

The existing production facility is now reaching almost 20 years old with key process equipment nearing obsolescence. In recent years, the plant has seen a progressive drop in production efficiency as a consequence of increasing unplanned maintenance.

A previous customer feasibility study had specified construction of a new facility in parallel with the ongoing operation of the existing facility. A customer requirement for the new facility was to incorporate and re-use specified items of existing equipment to be built into the project scope. The study also considered safe and efficient transition from existing to the new production facilities.

This project was a good match for ABB in terms of project size and capability and ABB’s knowledge of the process chemistry. Beneficial operation was originally targeted for Q3 2019 to minimise obsolescence risks to the business.

Solution

The FEED was prepared by a number of organisations and responsibilities were as follows:

- Operator:
  - Client
  - Process safety
  - Procurement
- ABB:
  - Project management and overall co-ordination of FEED study
  - Planning
  - Estimating
  - Process
  - Equipment
  - Piping
- Contractor:
  - Control and Instrumentation
  - Electrical
- Electrical contractor 2:
  - Building
  - Civil and structural
A key deliverable was engineering definition to support a total installed cost estimate with an accuracy (+/- 10%)

ABB delivered a robust FEED package, incorporating:

- A preliminary process engineering package, optimised with market-leading process modelling software
- A piping layout 3D model incorporating equipment location and main pipe routing
- Budget quotations and cost estimates

ABB planned the schedule for project implementation including transition strategy from existing to the new facility.

The critical path for subsequent implementation of this project is linked to the long lead time of the membrane electrolysers. Therefore, the FEED focussed on activities required to place the purchase order for this item.

Minimising production during the transition from the existing facility to new facility was very important to the customer. All planned shutdowns of the existing facility were included in the project schedule and all tie-in operations plus other required processes with the potential to impact the operation were mapped onto the most appropriate shutdown window.

Benefits

- A cost effective design and clarity of project definition
- Strategic information to support the customer business decision to proceed with the project
- Reduced risk through identification and prioritisation of key project risks maintaining safety standards
- ABB’s flexible approach allowed integration of customer selected supplier organisations permitting smooth communications and processes
- Development of proposed contracting and execution strategy for subsequent project delivery which aligned with client documentation standards