

A successful cut and carve plant upgrade

Summary

ABB Eutech played a leading role in delivering a "cut & carve" project to upgrade a speciality chemical plant in terms of throughput and product quality.

Due to a requirement to minimise production loss, the installation and commissioning work had to be carried out during a very tight shutdown window.

The project was finished on budget and the plant re-start was only very slightly behind target. The plant is now successfully delivering the project objectives of increased production rate and improved product quality.

During the design and installation of the control system, ABB Eutech used a thorough software quality assurance methodology to "get it right first time". As a result, there were virtually no commissioning delays due to control system problems.

Background

A leading speciality chemical manufacturer wished to upgrade the production rate and product quality of one of its UK plants.

The project, which cost of the order of £10M and took 18 months to complete, was carried out by an alliance consisting of the customer, ABB Eutech, and a leading international construction contractor.

- The customer's key success criteria for the project were:-
- Safety
- Cost
- Duration of the plant shutdown
- Effective operation of the alliance arrangement

ABB Eutech's Role

ABB Eutech's role in the project alliance was:-

- Generation of the front end engineering design package for all disciplines
- Detailed design
- Provision of support for construction and commissioning

Control System Work

ABB Eutech's work on the control system included:-

- Managing the installation of a fifth control cabinet to extend the existing distributed control system (DCS)
- Specifying batch control sequences
- Introducing advanced control techniques where appropriate



The work to install the new DCS control cabinet was carried out by the DCS vendor under ABB Eutech's guidance and supervision. Careful planning and preparation meant that the DCS was only off line for two days while the new cabinet was installed.

As DCS vendor manager, ABB Eutech:-

- Ensured that requirements and interpretations were effectively communicated between the customer and the DCS vendor
- Introduced the DCS vendor to a thorough software quality assurance methodology, including testing and certification standards and a modular approach to software design
- During the commissioning phase, ABB Eutech took proactive steps to identify and eliminate problems which might have caused the operators to take manual control of the process. No automatic system delivers its potential benefits if it is switched to manual!

Instrument / Electrical Work

Instrumentation work included:-

- Front end design and detailed design of approximately 100 new control loops
- Automating manual valves

Electrical work included:-

- Carrying out a site electrical load survey and installing a new, upgraded transformer
- Extending an existing motor control centre to accommodate 30 new drives
- Standard electrical engineering work on lighting systems, medium and low voltage distribution systems, power and static earthing systems, and lightning protection
- Area classification studies
- Trip and alarm studies

Benefits

The customer was very pleased with the spirit and effectiveness of the alliance arrangement.

The project was delivered on budget, and the plant is now achieving the target production rate and product quality.

Plant shutdown over-ran by only 4 days against a very tight target of 30 days. There were virtually no commissioning delays due to control system problems.

The project was executed in compliance with the Construction, Design and Management (CDM) regulations.

The project documentation has been integrated easily into the plant's maintenance record system.

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ABB Eutech delivers leading edge guidance and services in asset management and operations improvement.

We deliver, improve, assure and maintain the performance of our clients' manufacturing operations and associated infrastructure, managing all the technical, process, operational and regulatory problems to optimise manufacturing and project performance, output and profit.

- Assuring compliance
- Improving operational performance
- Delivering capital productivity

ABB Eutech's in-house capabilities mean that our clients benefit from a uniquely comprehensive range of services relevant to their needs, all from one company.

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For further information please contact:

Tony B Atkinson
Tel: +44 (0)1642 372280
Fax: +44 (0)1642 372166
Email: tony.atkinson@gb.abb.com

John Noon
Tel: +44 (0)1642 372081
Fax: +44 (0)1642 372166
Email: john.noon@gb.abb.com

ABB Eutech
PO Box 99, Belasis Hall Technology Park,
Billingham, Cleveland,
TS23 4YS, United Kingdom

ABB Eutech
Daresbury Park, Daresbury,
Warrington, Cheshire,
WA4 4BT, United Kingdom
Tel: +44 (0)1925 741111
Fax: +44 (0)1925 741212

Website: www.abb.co.uk