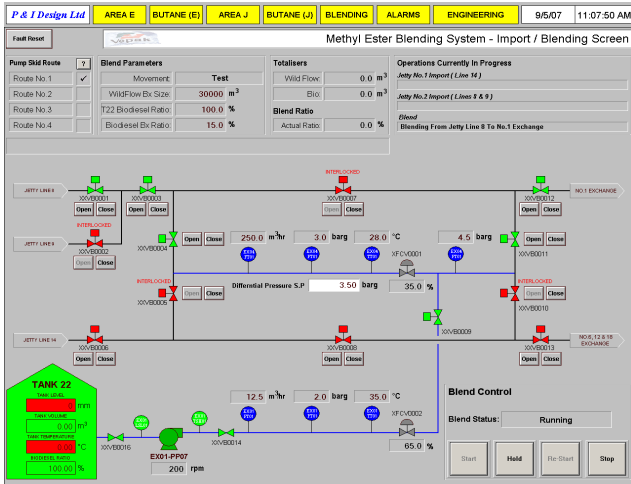




P & I Design Ltd

Process Instrumentation Consultancy & Design

Project Case Study Bio Diesel Blending Facility



ABSTRACT

This case study details a project where the requirement was to provide an automated bio-diesel blending facility to blend methyl ester into diesel, providing ratio blends over a range of 5 – 15%. The facility required the functionality to blend methyl ester into diesel ship imports direct from a jetty, and also to blend methyl ester into a diesel circulation loop on multiple tanks within a tank farm. The blending system had to be customs approved, therefore interfacing a PLC control system with a designated flow computer was an integral part of the project.

AIMS

- To produce a process model of the blending system and determine an accurate control strategy from the calculated data prior to carrying out detailed design.
- To provide instrument / electrical design services for the project.
- To integrate with third party control systems providing all interface and communications.
- To provide remote access for diagnostics and on-line support.

METHODOLOGY

The control system adopted comprised of a customs approved flow computer, interfacing with a Programmable Logic Controller (PLC) and Graphical User Interface (SCADA). P & I Design Ltd were responsible for the design, instrument procurement and programming of the PLC and SCADA control system. Our responsibility was also to work with third parties to design, and interface seamlessly with the specialised flow computer.

The control aspects of the project included controlling bio-diesel ratio blends over a wide range of variations in process conditions,. An automated facility was also provided to perform meter proving on the bio stream flow-meters. During the design phase P & I Design were involved in HAZOP's and facilitating LOPA studies.

Following on from the design P & I Design's Commissioning Engineers were responsible for Factory Acceptance Tests of the control panels, MCCs and commissioning of the systems.

P & I Design now provide 24 hours per day 7 days a week technical assistance and support. Most problems can be resolved with out a visit to site, as the engineer can interrogate the system remotely and advise the operators of the likely problems.

ACKNOWLEDGEMENTS

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