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CENTUM CS 3000 Plays Key Role in Malaysian Waste Oil to Diesel Project

Location: Kemaman, Terengganu, Malaysia
Order Date: January 2004
Completion: June 2005
Industry: Refining



Aldwich's Waste Oil to Diesel Plant

Aldwich Enviro-Management Sdn Bhd provides integrated, environmentally safe, and cost effective waste oil management services to petrochemical plants in Kemaman, Terengganu, Malaysia. In 2004, Aldwich began construction of a waste oil to diesel plant (WODIP). Completed in mid 2005, the WODIP is composed principally of a tank farm area and a process area.

The Plant

Tanker trucks deliver waste oil from different sources to the WODIP, where they are blended, stored, and processed to produce a variety of high-quality, value-added products, primarily diesel, naphtha, and fuel oil. A Yokogawa CENTUM CS 3000 R3 process control system (PCS) controls these batch processes as well as the plant's emergency shutdown (ESD) system and tank loading/unloading processes.

The specific waste oil recovery processes controlled by the Yokogawa PCS are as follows:

- Mixing of different grades of waste oil to achieve a favorable blend, which is then transferred to a main waste oil tank
- Conversion of the blended oils to the final products by means of continuous screening/filtration, dehydration, cracking/separation, distillation, purification, and treatment

The diesel, naphtha, and fuel oil are then stored in designated storage tanks and shipped to end customers in tanker trucks.

The Challenges and the Solutions

Yokogawa proposed to provide its systems and services as the main instrument vendor for the Aldwich WODIP project, and our overall offer to supply the PCS and the field instruments for the process plant and tank farm as well as to calibrate products and conduct loop checks throughout this plant proved very



The tank farm

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persuasive to this customer. The Yokogawa project team worked together with the project consultant, main contractor, process licensor, and end users to conduct a piping and instrumentation diagram (P&ID) review and a hazard and operability (hazop) study. In so doing, Yokogawa demonstrated its excellent adaptability in providing services during the engineering phase. The support of Yokogawa's management and the company's efforts to develop a close relationship with this customer underscored our commitment to ensuring the success of this project.

Customer Satisfaction

According to S.Y.Fong, Maintenance manager, "The CENTUM CS 3000 PCS has proven to be highly stable and has experienced no major failures to the present day. We take great pride in the role that we are playing to recycle industrial waste, and appreciate Yokogawa's contribution to this effort."

System Configuration

- T) PCS – CENTUM CS 3000
 - 3 FFCS, system panel, power distribution, and marshalling panels
 - 2 dual screen HIS and YAX tables
 - 1 EWS, event printer, report printer, and color printer
 - 900 I/Os
 - 3 serial links – furnace control (FA-M3) communication package
- 2) Field instruments
 - Pressure & differential pressure transmitters
 - Temperature transmitters and temperature sensors
 - Pressure relief valves
 - Orifice plates, orifice flanges
 - Control valves
 - Coriolis mass flowmeters
- 3) Instrument installation
 - Calibration
 - Installation
 - Loop checking
- 4) PIMS – Exaquantum



Waste oil recycling process



Central control room