

Esso Fawley FCCU Olefins



A Novel Solution



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The £70 million FCCU Olefins Project at the Esso Fawley Refinery was a major revamp of the existing Fluid Catalytic Cracking Unit (FCCU) and associated polymerisation facilities.

The existing FCCU reactor, built 50 years ago by Foster Wheeler, was replaced by a new 900 tonne short contact time reactor, to increase chemical feedstock production, run lower-cost feeds to the unit and improve reliability.

The Challenges



Overhead lines and restrictions on access route made the movement of a large single-piece reactor impossible. The Integrated Foster Wheeler / ExxonMobil team developed a novel elevated skidding and jacking system. The reactor would be fully prefabricated off-site in three individual sections, skidded to the heart of the unit and assembled adjacent to the existing reactor, also maximising offsite work.

The integrated project task force, established in 1999 at Foster Wheeler's offices at Shinfield Park, Reading, had another challenge to face - to meet the scheduled major equipment delivery window by achieving fast-track design and procurement of the reactor, the air blower and the dressed columns.

Right First Time



The turnaround required the mobilisation and induction of a peak workforce in excess of 1,000 to complete the FCCU Olefins Project work and the Refinery maintenance programme.

The reactor change-out was achieved using the gantry system to lift the existing 50 year old reactor from its support steelwork, traverse the crab to move the reactor clear of the structure and lower it to grade for later disposal. Once the new steelwork support trusses were installed, the new reactor, complete with the upper section of the overhead line, was lifted and traversed into position. The operation proceeded without a hitch. First-time alignment of risers was also achieved without incident.

Innovation in Action



Site work started in March 2000 with preparatory work for installation of the elevated skidway and gantry system. During the final quarter of 2000, and despite awful weather conditions, the major piling program for the skid and gantry system was completed.

The elevated skidway was an impressive sight - 14 metres high, 140 metres long, crossing a number of live pipetracks. The gantry was equally impressive, rising 20 metres into the existing reactor support structure.

The strategy of minimising disruption both on and offsite with a single heavy transport and lifting window was a tremendous success. The procurement team timed deliveries perfectly - the reactor and dressed columns arriving within days of each other during January 2001.

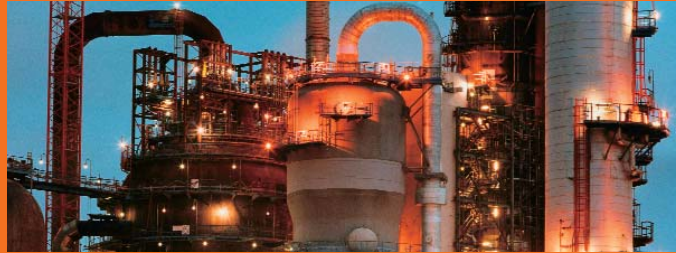
With all major items on site and other equipment arriving daily, it wasn't long before all work fronts were progressing, and the pre-turnaround workscope requirements were completed ready for the scheduled unit shutdown on 28 September 2001.

Safe and successful!



Oil in was achieved on 1 December 2001 and safely too. 500,000 direct manhours were expended without any major incident.

A heavy revamp project had been completed on schedule, without significant safety or environmental incident and without major disruption to refinery operations.



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