SUCCESS STORY

Legacy DCS was Replaced by New Production Control Platform CENTUM VP in Aromatics Plant

Location:	Rayong, Thailand
Order Date:	May 2009
Completion:	April 2010
Industry:	Petrochemical

PTT Aromatics and Refining Public Company Limited
A Company of PTT Group

Executive Summary

PTT Aromatics and Refining Public Company Limited (PTT AR) is originally Aromatic Thailand Corp. (ATC).PTT AR is a huge petrochemical complex located at Rayong, Thailand. It processes condensate as the main feed and produces Benzene, Toluene, Paraxylene, Orthoxylene, Mixed Xylenes and Cyclohexane including by-products like Light Naphtha, Raffinate, LPG, Hydrogen-rich gas, Condensate Residue and heavy aromatics.

The process units include Feed Fractionation, Naphtha Hydrotreating, CCR Platforming, Feed Preparation, Sulfolane, Benzene/Toluene Fractionation, Xylene Fractionation, Parex unit, Tatoray and Isomar process units. The unit produces 662 KMTA of Benzene, 1195 KMTA of Paraxylene, 200 KMTA of Cyclohexane, 66 KMTA of Orthoxylene, 76 KMTA of Mixed Xylenes and 60 KMTA of Toluene.

When the company started as ATC in year 2000, Yokogawa Thailand installed CENTUM CS which OS is based on UNIX. The CENTUM CS was continued utilizing in PTT AR nearly 10 years without any major problem. And the advanced process control packages such as Exasmoc/Exarqe/Exacoast were also implemented in all the process areas. Totally 18 SMOC controllers and 19 RQE's were implemented, in addition to 7 Exacoast ZBAL controllers for the various heaters. About this implementation, it was a significant achievement for Yokogawa as great satisfaction was expressed by PTT AR and the alliance partner, Shell Global Solution International. The entire project was completed in a record of 14 months. The major benefit was realized through the Exasmoc controller that had demonstrated that CCR feed could be comfortably raised by additional 3% by weight. The payout period is less than 4 months.

The existing CENTUM CS ICS have the end of service (EOS) and the spare part cost increases, some parts are obsolesced. It made high cost maintenance in the future. PTT AR decided to replace the CENTUM CS ICS with most current Yokogawa's DCS CENTUM VP HIS, but the controller still using CENTUM CS. Yokogawa Thailand successfully installed and commissioned the system.

Customer Satisfaction

According to production manager, " We are very proud of using Yokogawa's production control system. We are now operating this aromatics plant 24 hours/7 days for whole year without stopping. We are working together with Yokogawa for further sustainable manufacturing. Yokogawa is solution provider company and Yokogawa is one of best partner company for us"

The Challenges and the Solutions

Central control room design

PTT AR needs higher efficient operation, so based on their daily work flow in the existing operation, Yokogawa Thailand proposed a design of a new central control room based on the ergonomics deign experiences. This new control room design contributes to improve the operation, productivity for further sustainable manufacturing as well as safety operation.

Smooth Migration

PTT AR needs to minimize the plant shut down period. PTT AR project member and Yokogawa's engineers were in "One Team" and the project member completed the hot cutover without any stop of the plant operation.
The biggest man hour spending part in this replacement project is to convert the existing graphic displays more than 200 pages into the new system. Yokogawa Thailand effectively used the conversion tool and reduced the lot of the engineering time. So the FAT was very smoothly executed without any big problems and the migration work is flawlessly executed.

Plant performance monitoring

PTT AR needs to use the existing APCs continuously, because the benefit from this APC is remarkable.
All plant real time data are collected by PI and the plant performance is calcurated in this package and is always monitored and clearly visualized by the production members.
This plant performance data is used for the analysis of the product quality and the improvement through a plant lifecycle operation.

Central control room