

Refinery Transitions to Next Generation Honeywell Experion

A refinery needed to understand how their various processes were controlled and monitored using older generation controllers (Honeywell TDC 3000 DCS) and various programming languages so they could migrate to the latest Honeywell Experion. They needed an effective migration plan that ensured no code was left behind.

Objective

The TDC 3000 and PLC controllers used to control processes at the customer's refinery were obsolete. They needed a partner that could not only perform the migration, but also reverse engineer the current programs, including interlock functionality to ensure no code was left behind.

Results

The customer partnered with MAVERICK to migrate the process from TDC 3000 to Experion. Over the years, the logic and controls had been modified to a point that was difficult to reverse engineer. MAVERICK not only completed the project successfully, but also gained the trust of management and operations.

Solution

Despite the existing system's reliability over the years, the customer realized that continuing to support an older system leads to inevitable risks including more frequent failures, limited availability of support resources, limited supply of replacement hardware, higher integration cost for new systems and reduced flexibility when interfacing with higher level systems.

The customer turned to the MAVERICK team to reverse engineer the existing program and develop a document listing all the devices along with respective interlocks and control strategies.

During the course of the project, the customer decided to include Wonderware HMI and serial communication of data between the GE PLC and the new Experion system. This added a level of complexity since the piping and instrumentation diagrams (P&IDs) had not been updated in the last 15 years, and there were many changes made to the process.

All of the existing TDC / PLC logic was converted to Honeywell C300 standard. Conversion was performed for device control and interlocking,

control sequence functionality, HMI monitoring, alarm functionality, communication with other controllers, and support of simulation testing.

In addition to the control logic migration, new HMI graphics were also developed. The team used the latest graphics standards and worked closely with plant personnel to develop, test and install the Experion graphics prior to replacing the legacy HMI.

As part of the project, MAVERICK provided a complete and updated documentation package.

To ensure continuity of effort and knowledge, the same MAVERICK resources that performed the programming and testing of the system also led deployment and commissioning efforts.

Since the system was a critical part of plant operations, the MAVERICK team worked with the customer to develop a comprehensive cutover plan that reduced the required downtime and minimized the startup risk.



The MAVERICK Difference

Even though there was difficulty in reverse engineering a process that had been heavily modified over the years, the experienced MAVERICK team was passionate and dedicated to pursue the puzzle. The project was completed successfully on time and budget.



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