

Chemical Manufacturer Upgrades Boiler Controlled by Honeywell® TDC 3000 to Improve Reliability

A major chemical manufacturer upgraded their boiler control system to recover from a minor safety incident. The manufacturer partnered with MAVERICK to design and implement a proven control strategy for improved boiler reliability and a safer operating environment.

Objective

The project objective was to upgrade the existing parallel positioning combustion control system to a fully-metered cross-limited control strategy. Improved safety, reliability and efficiency would prevent similar safety incidents in the future. The customer wanted to duplicate the control strategy MAVERICK designed for another boiler in the same plant several years earlier. MAVERICK provided not only the control strategy design, but also supported startup and training.

Results

The customer gained a combustion control configuration with improved boiler safety, operation and reliability. The project was completed safely and on schedule.

Solution

MAVERICK partnered with process engineers to create a control narrative that outlined features and functions of the desired upgraded system. The team used the narrative as a guide to develop the new control strategies and an organized I/O list of the DCS system.

MAVERICK developed control strategy diagrams in SAMA format and digital logic diagrams for the combustion control system to make configuring, characterizing and troubleshooting easier for the project team.

The fully-metered cross-limited control strategy with O₂ trim ensures an oxygen-positive environment for safe combustion and optimum efficiency over the entire load range. This optimized control strategy will prevent similar safety incidents in the future.

The Honeywell DCS was configured in accordance with the approved SAMA and digital logic control strategy diagrams. One operator interface graphic screen for the boiler was also revised as part of the development efforts.



MAVERICK performed intensive configuration testing. At the local MAVERICK office, a staging test simulated future operation to minimize startup duration and risks.

MAVERICK held a formal factory acceptance test (FAT) at their facility with extensive customer involvement to demonstrate the upgraded boiler control strategy prior to implementation.

MAVERICK provided the customer with extensive training narratives and multiple training sessions to cover the new boiler operation in depth.

Characterization testing performed by MAVERICK on the upgraded controls ensured a smooth and safe boiler response to load demand changes. MAVERICK worked with the customer on final controller tuning for smooth operation of the boiler over the entire load range.

MAVERICK partnered closely with operations during startup to monitor the newly upgraded system and provide troubleshooting support.

The MAVERICK Difference

MAVERICK developed SAMA documentation and used it to deliver a high quality product and improve boiler safety and efficiency. Boiler configuration is demanding, so knowledge of how to create and use this type of documentation was crucial to the project's success.



A Rockwell Automation Company

MAVERICK Technologies, LLC

265 Admiral Trost Drive | Columbia, IL 62236 USA

+1.888.917.9100 | Fax +1.618.281.9191

info@mavtechglobal.com | mavtechglobal.com