Automation leads to safer, faster cleaning of evaporator tubes at ethanol refinery

AUTOMATED LANCING SYSTEMS REMOVE OPERATORS FROM JETTING AREA

An inherent problem with high-pressure water jetting is that operators run the risk of severe body lacerations due to inadvertent contact with the powerful jet stream. To mitigate the operation of hand-held water jets during a cleaning procedure at an ethanol refinery in Indiana, the refinery reached out to industrial cleaning experts to improve safety procedures.

SOLUTION

MPW stressed its technology and safety procedures already in place in its winning bid to clean the refinery's evaporator tubes.

Specialists from MPW's Operations and Engineering teams led the effort to design an automated process that would lance the client's tubes more efficiently while removing personnel from harm's way. The teams used their single- (SAL-1) and triple-lance (MAL-3) machines mounted on their X-Y System.

Operated remotely from a PLC-controlled station that fully removes the operator from the jetting area, this equipment produces a constant and consistent clean throughout the entire length of the evaporator tube with pressures of 10,000 to 40,000 psi. Air motors drive the lance forward and pull the lance back under pressure. The X-Y System is easily assembled on horizontal or vertical tube bundles without the use of cranes or forklifts. Internal back-out preventers and external lance stops further ensure the safety of technicians.

RESULTS

The project was much needed, as the evaporator tubes had not been cleaned in at least two years. Creative automation allowed MPW to complete the evaporator-tube cleaning under budget, as the automated processes eliminated extraneous man-hours.

In addition, MPW completed the project earlier than estimated and with zero safety issues.

The refinery's plant manager was impressed with the automation capabilities of MPW that improved safety procedures while simultaneously expediting the cleaning process.

COMMITMENT TO SAFETY

MPW recorded zero safety incidents during this project