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Products & Services

Emerson helps Vopak guarantee 99.7% availability of gantry truck-loading facility at Shell Pernis refinery

Emerson Process Management has recently completed the installation of advanced automation and controls for a new state-of-the-art, gantry type loading facility at the Shell Pernis refinery and chemical complex in the Netherlands. The performance of the Emerson equipment is critical and the total care maintenance contract with Vopak, the gantry owner and operator, carries penalties if availability falls below 99.7 percent. This means no more than three four-hour downtime events per year.

“Having been made responsible for the total automation solution and ongoing care, we were able to guarantee the required 99.7% availability by taking full advantage of our terminal management solutions expertise, combined with the predictive and online diagnostics capabilities of our PlantWeb® architecture and FOUNDATION fieldbus technology,” commented Jim Nyquist,

president of Emerson Process Management Europe. “The contractual guarantee shows Emerson’s commitment to contribute to Vopak’s business results, and was a major reason for starting this ambitious project together.”



Emerson provided a total solution: engineering and design, development, configuration, acceptance testing, delivery, installation, operator training, calibration, tuning, start-up, ongoing maintenance and asset management. Also included within the scope of supply from Emerson were gantry automation, gantry electrical controls, slot planning, and integration with the SAP systems.

“Emerson’s technologies and services, in combination with the hardware investment, helped us deliver a best-in-class, environmentally sound facility that exceeds Shell’s expectations,” commented Raimond Sanders, Assistant Manager for filling and dispatch, Shell Nederland

Chemie. The automation portion of the new facility is on track to maintain a projected annual maintenance cost of less than 3% RAV (Replacement Asset Value). This figure approaches best-in-class and is well below the industry average of 6.7% RAV.”

“There were many indirect benefits from the new automation system, especially in terms of data capture, data processing and communications,” continued Sanders. “The efficiencies that have been enabled by Emerson’s solution, including shortened truck turnaround times, have significantly reduced operational costs. We are setting standards for how a gantry truck loading facility should operate.”

The PlantWeb architecture includes more than one hundred FOUNDATION fieldbus enabled instruments from Emerson, including Rosemount® differential pressure and temperature transmitters, Micro Motion® Coriolis mass flowmeters, Fisher® valves and Fisher FIELDVUE® digital valve controllers, and El-O-Matic® on-off valves.

Emerson also installed the DeltaV™ digital automation system to provide control. The DeltaV system offers multi-layered redundancy for in-depth protection from system failures. In addition, control was further distributed by utilizing the control-in-the-field functionality of the Emerson FOUNDATION fieldbus instruments.

The company’s AMS™ Suite: Intelligent Device Manager

predictive maintenance software was included to support asset management practices. AMS Device Manager enables maintenance personnel to take full advantage of the predictive intelligence in the Emerson field devices and advises operations personnel when human intervention is required to correct problems.

The new facility has enabled efficiencies to be made in truck loading by shortening turnaround times by an average of one hour, to approximately two hours. The release of hydrocarbon solvent vapor into the environment has been virtually eliminated and energy costs have been dramatically reduced helping Shell to meet its own stringent environmental and safety goals.

A number of factors contributed to the reduction in turnaround times including repositioning of the gantry, pre-processing load plans, the guaranteed 99.7% availability of the plant, and the use of a slot planning/bay queuing software application developed by Emerson, which ensures evenly spaced vehicle arrivals and loading. The SmartProcess® TMS (Terminal Management Solution) from Emerson, with the Autoload application was the system of choice, selected to manage terminal operations. TMS is fully integrated into the existing automation and business system infrastructure of both VOPAK and Shell. For more on the SmartProcess TMS solution visit <http://www.emersonprocess.com/solutions/services/tms/>