



Software Reduces Control Loop Checkout

By CP Staff

At the Seraya-2 chemical plant in Singapore, advanced computer software has reduced the time required for instrument commissioning and control loop checkout by approximately 25 percent vs. the cost of using conventional handheld devices.

The plant achieved these improvements through the use of Asset Management Solutions (AMS) predictive maintenance software, a key element in Emerson Process Management's PlantWeb digital plant architecture. The software accesses diagnostic information from field instrumentation for improved maintenance and faster troubleshooting of process problems.

The Seraya-2 plant produces styrene monomer and polypropylene oxide for Seraya Chemicals, a 50/50 joint venture of Shell and BASF. Together, they have invested approximately \$500 million in Seraya-2, which is a larger version of the existing Seraya-1 plant nearby. The project design and startup was managed and executed by a joint venture between ABB Lummus Global and JGC.

The instrument network at Seraya-2 comprises approximately 7,000 hard-wired inputs/outputs (I/O), including some 600 control valves and positioners. Most of the instruments are smart analog devices that comply with the standards of the HART Communications Foundation.

Loaded into a PC in the control room or maintenance shop, the AMS software communicates in real time with any HART or fieldbus device on a control network, capturing useful information generated by those devices without interfering with the control system's I/Os. Large amounts of field-based data are integrated into a single database and organized, processed and presented on the PC's monitor for use by engineers and technicians.

"It is easy to justify an asset management solution in a new plant based solely on its promise of savings during

commissioning," says Wim Witte, senior instrument engineer at the Seraya-2 plant. "But its long-term potential for reducing the maintenance workload and preventing unexpected process stoppages is even more impressive."

Timesaving functions of the software include configuration and modification of smart instruments, loop test and tuning, valve calibration and diagnostics, monitoring and reporting on

In a few cases, the commissioning teams had to revert back to handheld terminals to do their loop tests, but the loop test program was completed ahead of schedule.

The diagnostic information generated by smart instruments throughout the plant is being employed in an ongoing program for predictive maintenance. For example, personnel can predict the useful life of a smart field

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the condition of field devices, troubleshooting of potential problems and documentation of all maintenance activities. Technicians using this software can perform all the functions generally associated with a handheld communicator and more without leaving the safety of the maintenance shop.

At Seraya-2, three loop test teams operated from a base in the main field auxiliary unit where the software was installed. The software is on a network, so the teams could access it from different places. The loop testers scanned a transmitter on a given control loop and simulated signals on three different levels: to check the instrument's parameters, to retrieve its specification information and to see whether the signal was coming through the distributed control system (DCS) safeguard system. If tests were successful, that loop was considered to be functioning properly. If not, the testers had to determine the problem and fix it.

device based on information provided by that device on its condition. If the performance of a device begins to deteriorate, engineers can make plans to replace it before it causes an unwanted shutdown. AMS software even leads to identification of the root cause of process problems within control loops. Faults can occur at any time, but the system is in place to initiate a predictive maintenance strategy when required.

"Overall, working with this relatively new asset management software was a positive experience," says Witte. "AMS functioned as expected and actually saved the project team a great deal of time and money — more than enough to pay for the software and associated training. Support received from the Emerson Process Management group in Singapore was outstanding."

For more information about AMS, go to <http://www.emersonprocess.com/ams>.