



## ORGANIZED TO AUTOMATE

### Updated instrument database enables calibration and maintenance

By Kenneth Marse, Galata Chemicals

**Assigning maintenance responsibility** to an outside contractor might make economic sense, but that group must have information about plant equipment and systems. When long-term employees are no longer around to tell why a pump sometimes cavitates or warn that a sensor line plugs frequently, the new technicians do a lot of wheel-spinning.

After the maintenance department at the Galata Chemicals plant in Taft, Louisiana, was downsized in 2007, most records pertaining to the process control system fell into disarray. While the contractor was qualified, it couldn't find needed information. Technical documentation was almost nonexistent, control-loop piping and instrumentation diagrams (P&IDs) couldn't be found, and there was no way to determine how many field devices were in use. In some cases, dual records existed, but they weren't identical.

Another factor was the time spent reacting to emergencies. The new group was fighting fires to keep the plant running and neglecting routine maintenance. The cost of the contract service turned was much higher than anticipated.

#### ASSET MANAGEMENT REVITALIZED

Two actions were taken almost simultaneously. I was hired in June 2008 as a control systems specialist with authority over instrument calibration and maintenance. The company also brought in a systems consultant from Emerson Process Management ([www.emersonprocess.com](http://www.emersonprocess.com)), our control system supplier. His assignment was to help with instrumentation questions, but he was soon asked to restore the asset management software.

Our first task was reconstructing the instrument database in the AMS Suite: Intelligent Device Manager asset management software, the system implemented in 1998 to maintain spec sheets, P&IDs, and calibration records. The instruments were entered into the database as conventional devices, meaning that information the plant's HART-based smart devices generated wasn't being used for maintenance. Later, the HART-enabled devices were turned on, making field-generated diagnostics available, but different device tags were assigned for this purpose. The numbers never were linked, causing confusion.

Using the general application launcher in the AMS Device Manager, we segregated the HART-enabled devices and linked the loop sheets, specifications, P&IDs, maintenance manuals, and calibration procedures. We eliminated dupli-

cations, and the instrumentation system had some structure.

Now, all 1,650 instruments have unique tag numbers. Anyone can find any information needed for troubleshooting, determine the operating condition of any device and the associated process equipment, and can predict when an asset should be repaired or replaced. Using the principles of predictive maintenance, the contractor now was able to provide the maintenance needed to prevent the unexpected fires.

### WHEN IT'S TIME FOR A CALIBRATION, SPECIFIC VARIABLES ARE DOWNLOADED TO THE TECHNICIAN'S DOCUMENTING CALIBRATOR.

#### ALARM MANAGEMENT

AMS Device Manager monitors the smart devices and raises alarms if any exceed preset operating limits. Alarms can indicate trouble brewing, and we monitor them daily. I can retrieve diagnostic information from any suspect device. An I&E technician can check the device and the equipment it monitors. Any of these steps can trigger predictive maintenance if conditions call for it. In quite a few cases, instruments or process equipment problems have been discovered before the control system operators knew they existed. Catching a potential problem before it occurs avoids a great deal of troubleshooting and eliminates downtime.

Calibrations are now completed on schedule following Emerson's written procedures. When it's time for a calibration, specific variables are downloaded to the technician's documenting calibrator. The results of each calibration are uploaded to the database, becoming part of the historical file. We now have accurate, up-to-date calibration records that satisfy corporate requirements and state regulatory agencies. We avoid potential environmental problems.

We're now taking care of nearly 2,000 field devices with one instrument tech, an apprentice, and two electricians. Process control is more consistent, and equipment reliability better, product quality higher, and productivity greater. ☺

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