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BAYER ROLLS OUT A 'ONE-STOP SHOP' TO MANAGE ASSET HEALTH

By Jim Montague

It's crucial to “care for the caregivers,” so they can keep helping patients and loved ones. In the same way, process automation systems and users may need some labor-saving automation of their own, so they can stay healthy and keep optimizing production. Today, this usually means some form of digitalization. However, such projects may also include the streamlining of systems and removing unnecessary functions to gain efficiency and save time and effort.

Bayer's 155-acre plant in Muscatine, Iowa, was built in 1961. Located in southeast Iowa near the Mississippi River, the plant has more than 450 employees. It encompasses eight production units with about 3,200 devices, which are all linked to Emerson's AMS Device Manager software and managed by four separate DeltaV distributed control systems (DCSs). They've run DeltaV S-Series software in a cross-domain architecture since 2008.

Bayer's hardware and networks also include about 750 control valves that talk to Fisher FIELDVUE ValveLink software, about 1,000 motors and related assets and nine client stations. Almost all of these components are networked via HART communications protocol, while about 125 use Foundation Fieldbus. The plant also employs about 3,000 infrared (IR) thermography devices.

“This is a big challenge, especially because the plant operates with only one-and-a-half to two reliability technicians, which is very lean,” said Joel Holmes, senior consultant for reliability at Experitex Inc. “The plant's maintenance staff can help with some tasks, but they're not certified like the electrical technicians, so they can only do so much.”

Holmes and Matt Forbis, principal product engineer at Emerson, and Derek Ybarra, maintenance and reliability system engineer at Bayer, presented “Solving the device alert puzzle during Bayer's digital transformation journey” at last week's Emerson Exchange Immerse event in Anaheim, Calif.

Less nuisance alerts = more savings

Holmes reported that Bayer's digitalization initiative has two objectives—preventive maintenance (PM) and predictive maintenance (PdM)—and it must achieve both to be beneficial. Its core electrical reliability and process safety principles also rely on IR thermography and motor analytics.

Consequently, Experitex and Bayer developed a “concentric” strategy that includes AMS Device Manager, AMS Device View software and AMS Trex handheld field devices running AMS ValveLink mobile software. It's also been integrating new AMS Device Manager Data Server software with Feature Pack 2 (FP2) that



AMS Device Manager can always be on, scanning and assessing usage, and sending active status alerts to a list. We now have a one-stop-shop to determine asset health.” Experitex's Joel Holmes, together with Bayer's Derek Ybarra, discussed strides Bayer has made to move from reactive to preventive and predictive maintenance of its instrumentation assets.

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was launched two or three months ago and plans to add FP3 when it's released in March 2024.

“The plant’s lean workforce had a hard time sifting through all the data from operations, which made it hard to find and track bad actors,” explained Holmes. “Much of this work had to be done manually, which meant more reactive, ‘firefighting’ events, which is much less safe.”

To simplify and streamline its data collection and analysis, Bayer and Experitex updated many of the plant’s device description (DD) files for its components and the alerts they generate. This enabled it to go from a baseline average of 150 alerts per day to about 60 alerts per day, or a 60% reduction thanks to its newly optimized alert definitions. “Over a 60-day period, we also found that 12 device types were producing 91% of all alerts, and 10 individual devices were producing 41% of all alerts,” said Holmes. “This saved the plant a lot of effort.”

See more, do more

In addition, upgrading to AMS Device Manager V14.5 with add-on Device View software improved performance in several ways when they were released two years ago:

- Device scanning that was 5-15% faster;
- Rebuilt hierarchy that was up to 75% faster;
- Concurrent performance/handshakes improved for AMS Device Manager’s plant-level applications;
- Field device integration support with user interface plugins (UIP) that talk to new devices; and
- Improved editing with templates that optimize workflows for bulk transfers, such as multivariable devices with many parameters.

“AMS Device View is a thin-client that’s easier to use because it has an audit trail for the last 20 events and provides a ‘parking lot’ for workflow projects and an overview on a web-based interface,” said Holmes. “This lets users

drill down, set manufacturing information, and learn why alerts are occurring, which improves safety, availability and costs because there are fewer bad actors, tasks take less time, and there’s less reactive work.”

AMS Device View also makes it easier to distribute data to users so they can make better decisions. “This thin client has both view-access and write-access, which is a big help,” added Holmes. “These capabilities allow reliability personnel to be the cheerleaders they need to be to get users to learn, grow, and promote best practices. We have about 10 power users at the Muscatine plant.”

Ybarra added, “Joel took the DD files and eliminated 60% of nuisance alerts. This also gave our technicians access via Device View, so we could also train them and establish standard work processes.”

Optimizations attributed to AMS Device View include:

- Reduced alert review workflows and execution by 10 minutes per day and 90 minutes per week, and enhanced visibility beyond the plant’s electrical reliability group;
- Increased cost avoidance savings by 67% by moving from reactive to proactive maintenance and related activities;
- Technician workflow process optimization earned more than \$225,000 per year;
- Availability increased 24% because it’s no longer tied to a thick client; and,
- Accessibility to smart field device data increased by 80%

Ybarra reported his team is excited to use the upcoming AMS Data Server. “Instead of looking for so much data on our own, we can depend on this system to make more of these checks,” said Ybarra. “This will let us catch more items and spend less time doing it. Plus, instead of having to search for details after an outage, AMS Device Manager can always be on, scanning and assessing usage, and sending active status alerts to a list. We now have a one-stop-shop to determine asset health.”