

Diagnostics Technology Reduces Maintenance for Polyethylene Plant by 333 Hours!

RESULTS

- Reduced annual, preventative maintenance on five major assets by 333 hours!
- Established a database to track performance history by device and to more easily satisfy regulatory requirements
- Reduced time spent troubleshooting by two hours per issue



Without a travel deviation alert, this Pf3 RX jacket cooling water valve (NPS8 butterfly) would not have been checked and the metal fragment lodged within it would not have been found. The valve's FIELDVUE digital valve controller alerted operators when it failed to close and avoided a potentially costly delay in the reactor re-start.

APPLICATION

FIELDVUE™ instruments monitor cooling-water valves

CUSTOMER

polyethylene production plant

CHALLENGE

Emerson's smart instruments have been used at this plant to produce ethylene and high- and low-density polyethylene since the early 1990s. The plant has more than 1800 HART® and FOUNDATION™ fieldbus instruments installed, ranging from first-generation analog to the latest digital technologies. These devices, along with AMS ValveLink™ software, are an integral part of the plant's DeltaV™ control system. Not until 2007, however, did plant personnel realize the full potential of online diagnostics.

That year, an instrumentation maintenance and reliability specialist named Jody Minor was assigned to establish new maintenance procedures and workflow processes at the plant. Utilizing AMS Suite: Intelligent Device Manager software and FIELDVUE™ digital valve controllers, Jody became the site's predictive maintenance "champion." He enabled the team to access more information from its field devices, develop alarm parameters for maintenance alerts, and identify and diagnose instrument-related issues before costly failures occurred.

"Our vision was to utilize AMS Device Manager software and FIELDVUE digital valve controllers to create a proactive maintenance environment that would improve equipment reliability and process performance. We not only achieved that goal but also saved hundreds of hours of maintenance along the way."

Jody Minor
Maintenance & Reliability Specialist
Polyethylene Plant



SOLUTION

FIELDVUE DVC6000 digital valve controllers with Performance Diagnostic capabilities monitor valve performance and deliver detailed information—such as travel deviation—not previously available online.

Travel deviation is user-defined and, at this plant, valves are required to move to within 5% of the desired position within five seconds. If this does not occur, a travel deviation alert is sent.

In one case, a travel deviation alert occurred on an 8-inch butterfly valve used to control the flow of cooling water to a reactor as the unit was being shut down for scheduled maintenance. The valve should have closed, but it remained open and unmoving. The maintenance team disassembled it and found a jagged, 8-inch-long metal fragment stuck inside, preventing its closure.

Without the diagnostics' alert, the valve would have gone unchecked until the reactor was restarted and that would have resulted in a potentially long and costly delay. Worse, the fragment might have traveled downstream and caused extensive mechanical damage.

RESULT

Before plant personnel fully utilized AMS and FIELDVUE diagnostics, they spent up to 448 hours per year on Preventative Maintenance (PM) work orders on just five major assets. Now, they have reduced PM on those devices to 115 hours—a savings of 333 hours per year!

All new valves are scanned and baseline signatures are recorded before installation. This provides a model for future comparison of the valve's operating characteristics. And, all device-related maintenance—including repairs and configurations—is automatically recorded in an instrumentation database, providing an audit trail or history of events that can be tracked and viewed by tag number.

Emerson diagnostic capabilities enabled plant operators to achieve other benefits including increased availability and efficiency as well as reduced downtime and environmental emissions.

For more details on this application, read an article titled "Getting the Most from Smart Field Devices" by Jody Minor. It appeared in the April 2011 issue of the Maintenance Technology Newsletter—www.MT-freeinfo.com.

Emerson Process Management
Marshalltown, Iowa 50158 USA
Sorocaba, 18087 Brazil
Chatham, Kent ME4 4QZ UK
Dubai, United Arab Emirates
Singapore 128461 Singapore
www.EmersonProcess.com/Fisher



“Using FIELDVUE digital valve controllers with online diagnostics is the only way to consistently identify a problem like air escaping from a valve in a noisy plant. Relying solely on human observation often means that major device issues are not identified or resolved in time to prevent costly delays or process upsets.”

Jody Minor
Maintenance & Reliability Specialist
Polyethylene Plant

© Fisher Controls International LLC 2011 All Rights Reserved.

Fisher, HART, FOUNDATION, FIELDVUE, ValveLink, and DeltaV are marks owned by one of the companies in the Emerson Process Management business division of Emerson Electric Co. Emerson Process Management, Emerson, and the Emerson logo are trademarks and service marks of Emerson Electric Co. All other marks are the property of their respective owners.

The contents of this publication are presented for informational purposes only. While every effort has been made to ensure their accuracy, they are not to be construed as warranties or guarantees, express or implied, regarding the products or services described herein or their use or applicability. All sales are governed by our terms and conditions, which are available upon request. We reserve the right to modify or improve the designs or specifications of products at any time without notice. Neither Emerson, Emerson Process Management, nor any of its affiliated entities assume responsibility for the selection, use, or maintenance of any product. Responsibility for proper selection, use, and maintenance of any product remains solely with the purchaser and end-user.

