

Harcros Chemicals Uses Smart Wireless Position Monitor to Oversee Manual Valves and Avoid Inadvertent Emissions

BENEFITS

- Prevented three product-release incidents, avoiding \$75,000 in downtime, clean-up, rework, and disposal costs
- Reduced the need for visual inspections and improved safety, preventing workers from traveling into hazardous areas
- Identified valve-performance problems before they affected the process



CHALLENGE

Harcros Chemicals in Kansas City, Kansas uses manual valves for sampling, directing, injection, and extraction processes at its chemical production facility. Many of the valves are in hard-to-reach places that are too costly to access with wires. Monitoring was a difficult process requiring operators to travel into hazardous areas, climb up ladders, and visually check the valves' state or position.

Worker safety is a primary concern, not only because of the location of the valves but because of the toxic chemicals the valves contain and control. The facility uses Propylene Oxide and Ethylene Oxide for its processing operations, and exposure to either one can irritate a person's eyes, skin, or respiratory tract. Leaks involving toxic chemicals can also result in hefty fines. Plus, the facility must pay clean-up, rework, and disposal costs of up to \$25,000 per incident.

Sample and drain valves, for example, are opened and purged before and after a batch. Some product may be "release" or leaked during this process, and a new batch begins every eight to sixteen hours. Besides the product losses, Harcros managers incur downtime and clean-up with each incident. The facility needed a better, more flexible and less expensive way to monitor its isolated, manual valves.

"This project was about eliminating mistakes and increasing safety. Wireless valve monitoring with the Fisher® 4320 device enabled us to reduce inadvertent emissions and bad batches, as well as avoid the high cost of rework, clean-up, and lost material. Eliminating these costs – which average about \$25,000 per incident, not including fines – is a good thing for our plant."

Kevin Root
Unit Manager, Harcros Chemicals

SOLUTION

The new Fisher 4320 WirelessHART™-communicating device is an easy-to-install instrument that monitors valve movement throughout the range of travel and provides frequent, wireless updates about the valve's position. The wireless signals are delivered automatically, reducing the time and risk associated with visual inspections. Harcros installed 22 Fisher 4320 Wireless Position Monitors on manual valves in the Propylene Oxide and Ethylene Oxide areas. The goal was to improve monitoring for all the reactors and all the critical points in the process.

RESULTS

Adding the 4320 wireless position monitors enabled Harcros personnel to identify valve issues and prevent chemical leaks before they could result in fines, production delays, or clean-up costs. The Fisher 4320 wireless monitors easily integrated into the site's three-year-old DeltaV™ digital automation system and Smart Wireless solution, including a Smart Wireless Gateway and AMS® SNAP-On™ Wireless Applications.

The 4320 field-trial units helped Harcros-KC avoid three "product release" incidents, saving at least \$75,000 in clean-up costs. The ability to monitor and control manual valves – wirelessly – has also enhanced safety, improved the ease and accuracy of audit reporting, and reduced the fines associated with inadvertent emissions.

"Besides applying the Fisher 4320 to more of our manual valves, we could consider Emerson Smart Wireless technology for tank level management, railcar monitoring, and a host of temperature, pressure, and flow applications at the Kansas City site."

Lloyd Hale

Director of Manufacturing, Harcros Chemicals



The Fisher 4320 wireless position monitor installed in the Ethylene Oxide unit is about twelve feet off the ground.

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