## Honeywell Alarm Management Software Establishes Multiple Gains for Air Products

With a single software solution, a serviceable plant with a legacy DCS was revitalized without replacing or upgrading physical assets.

### Alarm Management Improvements Complicated by Aging Infrastructure

Proper management of alarms and alarm data can be a significant source of hidden capacity in a plant, as Air Products discovered when they implemented a comprehensive alarm management program at their Calvert City, Kentucky ethylene vinyl acetate plant.

- Reduce off-spec product
- Increase capacity by reducing cycle time
- Efficiently present and prioritize alarms due to reassignment of control-room staff duties.

Complicating matters was a 20 year old DCS that would log alarm information directly to printers and text files, but users could not electronically access data such as alarm summaries and were unable to perform more complex alarm analysis. A multimillion-dollar upgrade or replacement of the system was not an option. Air Products needed a relatively low-cost solution that would work with their plant's legacy DCS to turn underutilized masses of alarm data into useful industrial intelligence and unlock the operation's hidden capacity. Air Products partnered with Honeywell to implement their alarm management software solution at Calvert City.

### Challenge

Air Products wanted to make improvements to better present and prioritize alarms at their Calvert City, Kentucky ethylene vinyl acetate plant. Complicating the improvements was a 20 year old Distributed Control System (DCS). A multimillion-dollar upgrade or replacement was not an option.

### Solution

Honeywell's alarm management software solution provided a grip on alarm data in order to meet requirements set by Air Products, including reduction in off-spec product, an increase in capacity by reducing cycle time and a better way to present and prioritize alarms.

### Advantages

- Increased efficiency in detection of metering problems
- Improved analysis to correct timing discrepancies, reduce cycle time reaction and increase production
- 80% reduction in alarms within the first two months.

Honeywell's alarm management software is vendor neutral, which means it works with any third-party control system and other applications.

### One Product, Three Solutions

Honeywell's alarm management software provided a grip on alarm data in three very different ways in order to meet Air Products' requirements. In the first part of the solution, metering alarm data was used to reduce off-spec product. Alarm messages with metering information were captured by the software, which exported them into Excel reports. The prepared data was then used to identify meters which were not performing correctly, so Air Products could pick out problem meters before a batch was made. By catching problem meters early Air Products expected to reduce waste and faulty product.

The second aspect of the solution was an effort to increase overall capacity by reducing process cycle time. Sequencing data was captured by Honeywell's alarm management software and stored in batch records containing information on cycle time, phases, steps and parameters associated with the quality of the phase. This data had previously been transferred manually, which resulted in inaccurate and missed data. With complete and accurate data available electronically, discrepancies in cycle times for batches, phases or steps could be easily identified and the root causes of these discrepancies pinpointed and rectified.

**Alarm Rationalization**

Finally, an overall alarm rationalization was performed and a state-of-the-art alarm management program implemented. Air Products used the software to identify alarm problems, reduce frequency of alarms and rank alarm data by frequency. Plant management and DCS technicians met daily and reviewed the previous day's top 20 alarms, identified obvious nuisance alarms and addressed them by changing alarm limits and thresholds as needed. Once the majority of these chattering alarms were corrected, the software was used to identify parent/child relationships between alarms. Each parent/child group was then analyzed with a focus on long-term process improvement.

## Plant-Wide Benefits

Following commissioning and implementation of these three solutions, each of the targeted areas saw substantial improvements with direct operational and bottom line benefits:

- The meter-alarm monitoring and intervention project saved engineering and equipment time as a result of early detection of metering problems. Inventory was reduced due to first-time material out of the reactor maximizing capacity and reducing cost. Overall, the solution enabled a 20% increase in meeting product specification.

- The attempt to give production a bump by analyzing and correcting timing discrepancies to reduce the cycle time of reaction was a great success. Overall capacity at Calvert City was increased by 3%, without capital expenditure – hidden capacity was in the process, waiting to be tapped.

- In the first two months of the project, an 80% reduction in the number of alarms was achieved by maintaining a sustained engineering effort on alarm management activities – an ongoing process. Where there were five people in the control room watching alarms, the job is now handled easily by one using the software's display, filter, and sort to prioritize alarms. What used to take up to one week is now accomplished in a matter of minutes.

Overall, Air Products realized a total return on effort, and investment in just three months. With a single software solution, a serviceable plant with a legacy DCS was revitalized without replacing or upgrading physical assets. Based on this success, Air Products is planning to implement similar Honeywell alarm management solutions at other plants.

## About Air Products

Air Products serves customers in technology, energy, healthcare and industrial markets worldwide with a unique portfolio of products, services and solutions, providing atmospheric gases, process and specialty gases, performance materials and chemical intermediates. Founded in 1940, Air Products has built leading positions in key growth markets such as semiconductor materials, refinery hydrogen, home healthcare services, natural gas liquefaction, and advanced coatings and adhesives. The company has annual revenues of $8.1 billion, operations in over 30 countries, and more than 20,000 employees around the globe.

**For More Information**
Learn more about Honeywell's alarm management solutions at our website www.honeywellprocess.com/software or contact your Honeywell account manager.

**Honeywell Process Solutions**
Honeywell
1250 West Sam Houston Parkway South
Houston, TX 77042

Honeywell House, Arlington Business Park
Bracknell, Berkshire, England RG12 1EB UK

Shanghai City Centre, 100 Junyi Road
Shanghai, China 20051

www.honeywellprocess.com

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