

## Chevron Phillips Implements Automated Process Monitoring to Optimize Ethylene Plant

Leading chemical company deploys process models with Aspen OnLine® for real-time performance management.

Headquartered in Houston, Texas, Chevron Phillips Chemical is one of the world's top producers of olefins and polyolefins and a leading supplier of aromatics, alpha olefins, styrenics, specialty chemicals, piping, and proprietary plastics.

A typical ethylene plant has several major processing areas. The degradation in performance of any of the production assets in these areas over time can significantly affect the performance of the whole unit. To address this issue, Chevron Phillips wanted to provide effective real-time monitoring of performance characteristics to better understand the impact of key economic drivers in the unit. The inadequacy of effective process monitoring was identified as an "opportunity gap" in discussions with plant management.

In assessing potential solutions, the team needed to look beyond the traditional approach of aggregating and analyzing historical and current process data. They needed an automated, integrated model of the entire plant to generate the required information on a regular basis. To achieve this, Chevron Phillips used Aspen OnLine with real-time optimization models, enabling them to manage performance effectively through real-time process monitoring.

### Customer Profile

**Chevron Phillips**  
Chemicals

#### Challenge:

Provide an effective, easy-to-maintain performance monitoring system

#### Solution:

Aspen OnLine for real-time, model-based performance metrics

#### Benefits:

- Deliver optimization models in real time
- Analyze current plant status and identify potential problems and opportunities
- Track benefits of implemented solutions



## Current Conditions Limit Effective Information Monitoring

Chevron Phillips faced a number of conditions that made providing effective performance information a challenge. Plant management required frequent and timely updates, yet the company had many number-intensive key performance characteristics to track, and useful information was scattered among various groups. In addition, the company lacked a unified interface, and engineering resources faced time and resource constraints.

## Leveraging Automation to Address Key Challenges

To address these challenge, Chevron Phillips established a goal for effective performance monitoring: implement a methodology for generating process monitoring information on a regular basis. The information would be used to analyze current plant status, identify opportunities and potential problems, and track benefits of implemented solutions.

Chevron Phillips determined that the Real-Time Optimization (RTO) model-based approach would be most effective. RTO is a widely used technology in ethylene manufacturing, with substantial engineering know-how built into the models. Enabled by access to online data, models could be run in automated mode at regular frequency and current economics could be embedded into the models, enabling easy updates as conditions changed.

Chevron Phillips put the methodology in practice by connecting their real-time optimization models with Aspen OnLine.

## Solution Delivers Measurable Benefits

Implementation of the model-based performance monitoring solution enabled Chevron Phillips to provide timely and accurate information on the state of the plant. To date the company has set up process monitoring report generation for all olefins units in Chevron Phillips Sweeny and follow-up discussions and dissemination of reports can now be done on a weekly basis.

Chevron Phillips has also found an added benefit in the ability to archive important performance characteristic parameters in the data historian.

Finally, feedback during the process monitoring effort has improved RTO models. Continuous examination of model results is part of the on-going process, and the quality of measurements is monitored to improve the quality of model parameters.

### About AspenTech

AspenTech is a leading supplier of software that optimizes process manufacturing — including oil and gas, petroleum, chemicals, pharmaceuticals and other industries that manufacture and produce products from a chemical process. With integrated aspenONE solutions, process manufacturers can implement best practices for optimizing their engineering, manufacturing and supply chain operations. As a result, AspenTech customers are better able to increase capacity, improve margins, reduce costs and become more energy efficient. To see how the world's leading process manufacturers rely on AspenTech to achieve their operational excellence goals, visit [www.aspentech.com](http://www.aspentech.com).



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