Quantifying Automatic Control Improvements

Seeq®

ALL INDUSTRY VERTICALS

Data Sources

Process Data Historian: OSIsoft PI, PHD, many others

Data Cleansing

Value Search to identify production time periods

Calculations & Conditions

- Value Search and Seeq Formula: Identify when actual production is within narrow range of target
- Composite Condition: Identify startup to target reached time periods
- Signal from Condition: Quantify time to full (target) production; for both old and new control strategies
- Chain View: Visualize control performance results for startup periods

Challenge

Process control improvement projects often aim to:

- Reduce variability
- Lessen invasive corrections by operators
- Positively impact production rate and energy usage

Process data complexity and varied operational modes create a challenge in quantifying the related automatic control movements. The data wrangling efforts required to properly validate process control improvement benefits are often very time-intensive for process control engineers.

Solution

Seeq simplifies the tracking of benefits over time and across accurately defined time periods with event identification and quantification tools, such as Value Search and Signal from Condition.
These tools produce visuals with key metrics before and after control strategy implementations enabling valid operational comparisons. Seeq Chain and Capsule Views succinctly compare before/after control performance to clarify improvements.

Results

The quantification of automatic control improvements takes significantly less time and produces more accurate evaluations. Benefits include:

- Rapid, accurate visualizations
- Increased collaboration, sharing, and knowledge capture across Seeq users (such as process engineers and manufacturing personnel)

Reporting & Collaboration

Following implementation of the automatic control changes, Seeq's contextualization and calculation tools were used to quantify a large reduction in the time to reach full (target) production rates.

Quantitative results (Chain View) show time to full rate is less variable from run to run and has decreased from 150-200 minutes to 100 minutes, on average.

Seeq Organizer shares the results across the larger manufacturing team. Seeq Workbench allows for further analysis as requested by management, such as calculating the production and run time related financial benefits.

Shown in the picture: Visualization of decreased time to full (target) rate for automatic control improvements in Startup Periods. We can see in Seeq Chain View that time has decreased from 150-200 minutes to approximately 100 minutes.