

Success Story

Improved Controller Performance Yields Dividends for Oil & Gas Company



Challenge

A world leader in oil and gas production wanted to reduce variability and increase stability of control loops at their fractionation plant to prepare for the implementation of an Advanced Process Control system.

Solution

They chose Control Performance Monitor, advanced application services and staff training. The software allowed users to compare and document control loop performance in the unit before and after maintenance.

Advantage

- Improved visibility of data, highlighting room for improvement on over 30% of controllers
- Reduced variance by an average of 46%
- Improved production control, resulting in savings in excess of \$200,000 per year on one production train

Control Performance Monitor is Powered by Matrikon, which represents vendor neutrality. This product works with third-party control systems and applications.

The Move to Condition-Based Maintenance

Production engineers from the company's fractionation plant approached Honeywell to discuss improving plant control performance in preparation for the widespread implementation of advanced process control (APC) at the site. Plants make a significant investment in purchasing, implementing and maintaining process control assets, with the ultimate goal of maximizing the performance of a facility by running at or near production and quality constraints. The performance of both regulatory and advanced process controls are known to decay over time, resulting in a direct, negative impact on plant operating margins. To protect process control assets, many companies have moved from scheduled maintenance to online, condition-based maintenance practices.

Reaching the Goal of Improved Controller Performance

Control Performance Monitor was implemented at the fractionation plant and employed to train on-site engineering and maintenance personnel in the techniques of control loop performance assessment and long-term monitoring. The pre-audit phase identified and prioritized poorly performing loops among the 30 selected for analysis. In the remediation step, poor controllers were retuned, controller structure was changed and future maintenance was scheduled for sticky valves and faulty sensors. The post-audit allowed users to compare and document control loop performance in the unit before and after maintenance.

Tangible Results

Control Performance Monitor showed that the unit studied, although well-tuned, had approximately one third of the controllers showing room for improvement. This is consistent with comparable facilities, and in many cases, is above average. As a result of controller tuning and remediation, there was a 46% average reduction in variance for all audited controllers. An analysis of variability in product compositions before and after tuning indicated reduced variability on all audited loops. It was determined that the greatest economic benefits lie in the depropanizer overhead ethane and butane impurities. By recovering more butane from the propane, and "giving away" slightly more ethane in the propane product, benefits in excess of \$200K (USD) per year were generated on the production train.

The screenshot shows a software interface for monitoring controller performance. On the left is a treeview menu with categories like 'Our User', 'Flow Performance By Area', 'Quality Performance', and 'Public'. The main area displays a table of controller data. At the top of the table area are buttons for 'Refresh' and 'View Columns', and a row of controls for 'Show Rows', 'Fastest', 'Days', 'Show', and 'Hide'.

Controller Name	Description	Unit	Performance	Economic Impact	Priority	Station	Alarms	Operator Interventions
424F100	#2 BS pri knoter dilution flow	#2BSW	0.55	0.64	High	.21	1	14
424F207	#2 BS sec scm di flow ctrl	#2BSW	1.05	0.68	High	.23	3	70
420F206	#2 BS dilution tank level ctrl	#2BSW	0.47	0.65	High	.23	1	187
424L105	#2/3 BS at scr acc flow ctrl	#2BSW	1.31	0.09	High	.32	0	7
424F111	#2 BS sec scm acc flow ctrl	#2BSW	0.72	0.36	High	.35	9	16
424F110	#2 BS sec scm rej flow ctrl	#2BSW	0.44	0.68	High	.43	0	56
424F305	#2/3 BS pri swg scr acc flw ctrl	#2BSW	1.09	0.43	High	.51	1	16
420F139	#2 decker trim hot shz flw ctr	#2BSW	0.63	0.50	High	.53	7	46
424L250	#2/3 BS pri swg scr acc flw ctrl	#2BSW	1.41	-0.01	High	.60	65	73

Figure 1: Control Performance Monitor Treeview



'Powered by Matrikon' symbolizes that this product/solution is system and application independent.

For more information:

For more information about Control Performance Monitor, visit our website www.honeywell.com/ps or contact your Honeywell account manager. www.matrikon.com cpm@matrikon.com

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