

## Alarm Management Improvement for a More Effective Operating Environment



Honeywell's Alarm Management Improvement Program reduces the frequency and number of unwarranted alarms providing better situational awareness to operators, helping them take the right action at the right time. In the first half of 2005, three customers' operating units experienced an overall reduction in frequency of alarms by 33 percent as a result of choosing the Honeywell Alarm Management System for their Operator Effectiveness Improvement Program.

### Background

Stop and think about how many alarms are currently configured in the systems or processes you manage—25, 100, 1000? How many of those alarms would go off in the first minute of a process disruption or system shutdown? Would your facility's operators know which alarms to address first? Now consider the fact that a typical operator can effectively deal with one alarm per minute during a plant upset. Given this fact, you'll begin to understand the value of alarm management in strengthening operational efficiency and averting costly disruptions and incidents, often referred to as "abnormal situations." It has been estimated that the inability to diagnose and control abnormal situations has an economic impact of at least \$10 billion annually on the U.S. petrochemical industry alone.

A recent example is the North America blackout that occurred in August 2003. Authorities are still reviewing records of the thousands of alarms and events that occurred up and down the power grid to determine exactly what caused the outage. But whatever the cause, it's clear that non-functioning alarm systems, alarm floods and ineffective operator responses exacerbated the situation.

### Why So Many Alarms?

During normal operation, it's not uncommon to have one alarm every one to two minutes, with some alarms reoccurring repeatedly throughout a shift. When incidents occur, it's not unusual to see 30 to 50 alarms per minute, even up to 600 alarms per minute in extreme cases.

Manufacturing processes and the evolution of controls technology pushed us from single, distributed mechanical components toward a centralized, command-and-control electronic system. Over time, it has become easier for us to set alarms for system and process changes and the philosophies of "more is better" and "alarms are free" guided our decisions.

Operators must deal with abnormal situations in a real-time, highly complex, dynamic environment. A well-managed alarm system can provide operators with the appropriate information in a timely manner that is crucial to identifying the cause of an abnormal situation and restoring the plant to normal operation. However, it is only through consistency and proper management that an alarm system provides the maximum operations support for which it was intended. Without this consistency, operators will lose faith in the alarm system rendering it completely ineffective.

### The Solution

Honeywell works with you to develop alarm improvement programs that best suit the needs of your particular site. By following a systematic approach to alarm management and changing the way you think about alarms, you can turn your alarm system into a tool that is relevant, useful and trusted by your operators. A typical solution would include:

- Alarm Performance Assessment – Quantify the extent of your alarm problem with the latest tools and services from Honeywell's Abnormal Situation Management suite.
- Alarm Philosophy Workshop – Let our experts guide you as you create a philosophy and project plan that is right for you.
- Rationalization Services – Aid and enhance the speed and consistency of your alarm improvement.

- Tools for Operations Management – Select the tools that will support, enable and enhance work practices centered on improving operator effectiveness.
- Abnormal Situation Management Consortium best practices are encapsulated in the process.

### A Success Story

The Irving Oil refinery in Saint John, New Brunswick, a 280,000 BPD refinery, recently completed the first phase of an Operator Effectiveness program. Concentrating on one of its major process operating consoles, the refinery has established a site-wide standard for alarm system enhancement, rationalized all the alarms for both their Crude Unit and Residual Cat Cracker, and has provided their operators with an advanced set of operating tools through the implementation of GUSPro—all in a six-month period.

The keys to this successful improvement program have included a high level of commitment and participation from management, a dynamic team, and operations input into the rationalization process. Another key to the success has been the creation of a defined alarm philosophy and rationalization process for better alarm management.

Having rationalized over 4,000 tags in the course of seven weeks and having completed this project in six months, the success of the project is evident in the post-project metrics and analysis. The project has resulted in a 35 percent reduction in the number of configured alarms from what was previously configured in the alarm system. In terms of dynamic performance, the average daily alarm rate for the two units has decreased by 45 percent.

Using Alarm Configuration Manager to manage alarms with daily enforcements and User Alert to offload some of the alarms from the DCS, as well as the advanced trending and menu capabilities that come with GUSPro, the response from the operators has been very positive. The enhancement project has significantly reduced the number of alarms occurring on a day-to-day basis. Irving's newly engineered alarm system has enhanced the refinery staff's response time when an alarm rings and a conscious decision is made each and every time an alarm is acknowledged.

### More Information

For more information on any of Honeywell's Products, Services, or Solutions, visit our website [www.honeywell.com/ps](http://www.honeywell.com/ps), or contact your Honeywell account manager.

### Automation & Control Solutions

Process Solutions

Honeywell

2500 W. Union Hills Dr.

Phoenix, AZ 85027

Tel: +1-602-313-6665 or 877-466-3993

[www.honeywell.com/ps](http://www.honeywell.com/ps)

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