

Emerson Operations Management Software Helps Rompetrol Reduce Control System Alarms by More Than 95%

RESULTS

- Reduced control system alarms by more than 95%
- Ensured compliance with EEMUA 191 guidelines
- Improved operator effectiveness
- Increased visibility to system performance



APPLICATION

Distributed control system alarm management

CUSTOMER

Rompetrol Rafinare S.A. – Navodari, Romania

Rompetrol is an upstream oil and gas, refining and petrochemicals company.

CHALLENGE

The Rompetrol Petromidia refinery is the largest refinery in Romania, with an annual processing capacity of around five million tonnes of fuel products. The site operates a wide range of conversion units and has a Nelson Complexity Index of 9.32, generating a significant volume of process data and placing considerable demand on the alarm system. The refinery uses the DeltaV™ Distributed Control System (DCS) as its primary operator interface. Over time, the alarm system had evolved and no longer aligned with best practice. Operators were routinely exposed to high alarm volumes, particularly during plant disturbances, making it difficult to distinguish between critical and non-critical events. During process upsets, alarm flooding was common, while some alarms remained permanently active under normal operating conditions, contributing to operator desensitisation. Chattering alarms also added unnecessary noise without providing useful operational information. The EEMUA 191 guideline recommends that, during steady operation, an operator should receive no more than one alarm every ten minutes, with a maximum of ten alarms in ten minutes during upset conditions. Reducing alarm load was therefore essential to improving operator effectiveness, maintaining situational awareness and ensuring a clearer view of overall plant conditions.

“The resulting system is more stable and better aligned with actual plant conditions, enabling operators to focus on meaningful alarms and respond more effectively to process disturbances.”

Nilca George
Process Engineering Director, Rompetrol Rafinare S.A.

SOLUTION

Rominserv, the refinery's engineering and maintenance services provider, collaborated with Emerson to reduce the number of nuisance alarms and improve overall alarm quality so operators could focus on conditions requiring genuine action. Emerson's DeltaV AgileOps operations management software was implemented to provide continuous visibility of system performance, including average and peak alarm rates, as well as the proportion of time the system operated outside recommended limits. Alarm and event data is captured directly from the DCS, enabling rapid identification of high-frequency alarms, stale alarms and repeating alarm sequences. The software also identified and ranked nuisance or "bad actor" alarms. Analysis showed that a relatively small number of alarms accounted for a disproportionate share of overall activity, allowing engineering resources to be targeted where they would deliver the greatest benefit. Proposed changes to alarm limits, priorities and suppression strategies could then be validated against actual operating data to help ensure improvements were sustained.

Performance dashboards track alarm rates against EEMUA targets in near real time, while configurable historical trending supports analysis of recurring issues and operating conditions. This is particularly important in refinery environments, where alarm behaviour can vary significantly between steady-state operation, start-up and upset conditions. Automated alarm and event reporting also improved visibility into system performance and supported more informed maintenance and optimisation decisions. As a result, the refinery reduced alarm generation from more than two million alarms per month during normal operation to fewer than 50,000 per month – a reduction of over 95% in overall alarm volume. This improvement was driven primarily by the elimination of nuisance and non-actionable alarms. Alarm rates were reduced to approximately 3.5 alarms per operator every ten minutes across the refinery, bringing performance within recommended limits and below typical industry benchmarks.

RESOURCES

DeltaV AgileOps

www.Emerson.com/en/automation-systems/deltav/deltav-operations-management-software/deltav-agileops

DeltaV DCS Overview

www.emerson.com/en/automation-systems/distributed-control-systems-dcs/deltav-distributed-control-system



Emerson's DeltaV AgileOps operations management software was implemented to address the identified alarm management challenges.

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