# A Proposed Alarm Handling System Management Plan for SNS with Application to Target Control System *

NEUTRON SCIENCES

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Target System Overview Screen

Target system overview screen shows alarm summary status with rectangles. Access to EPICS alarm handler and tools used in conjunction with the alarm handler are provided by buttons at the right.
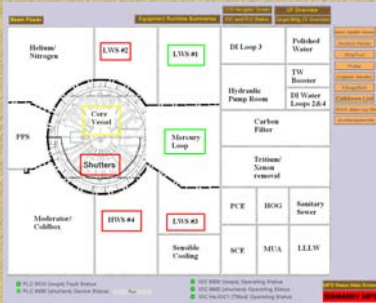

ROCS: Reports Online for Control System

This is the graphical interface for ROCS for the IOC alarm log data. Many different Kinds of reports can be generated from this interface. Two examples are shown here. Reports can be exported to other applications such as spreadsheets.
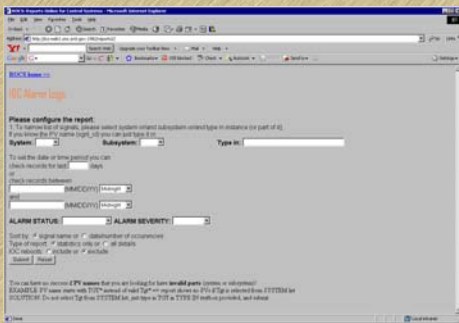
Example of Alarm Frequency Histogram Report

Alarm PVs can be listed in order of frequency of alarm occurrence in a histogram plot to show very quickly which alarms are most troublesome. This is a useful way to monitor alarm behaviors over periods of days, weeks, or months.
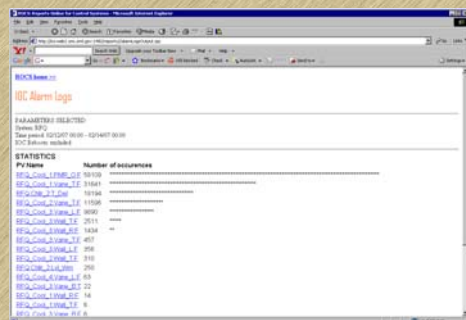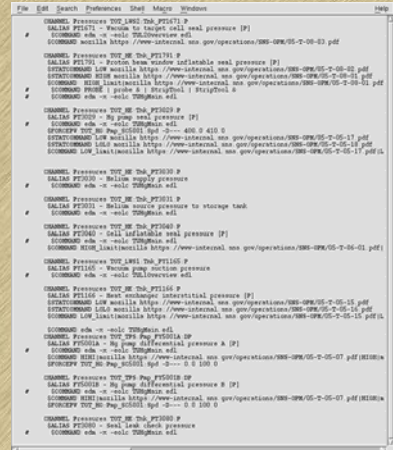

EPICS Alarm Handler Graphical Interface

Hierarchical View of Target Loops Alarms This panel shows organization by alarm group and summarizes alarm status for alarms in each group. Links are given to overview control screens for each loop.

Detailed Alarm Information for PVs in an Alarm Group. Alarm status is given for each alarm PV and links are provided to alarm response procedure documents, to detailed control screens, and to other resources such as StripTool.

Example of Alarm Sequence Information from ROCS

Alarm sequence information has been used to test systems such as fail over of a primary system to a secondary (example shown here for Central Exhaust). Alarm sequence information also is useful for troubleshooting failures in related systems, especially if a failure on one piece of equipment triggers failure in related equipment. This type of report is very useful when used in conjunction with the archiveviewer.

Conclusions

The EPICS alarm handler has features that make it a very good application for use with other applications to complement it. The graphical interface allows an operator to display related documents and procedure manuals or control screens from a drop-down menu selection or to begin plotting related PVs when equipment operation is not normal. The same actions can be taken automatically according to alarm conditions.

The alarm log data access using the ROCS interface and data export capabilities Is a very valuable resource for analyzing and troubleshooting problems, especially when used with a control system data archive viewer.

An alarm handler implementation guide to go with the ALH User Manual would be a very valuable complement and would allow controls engineers to make much more effective use of ALH and do so much faster.
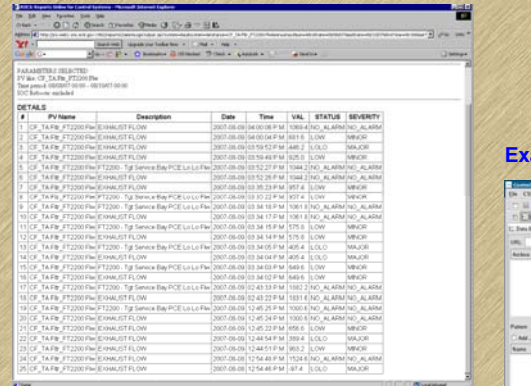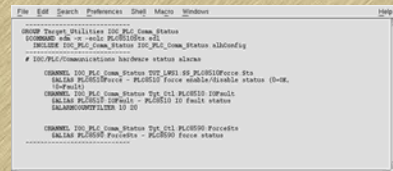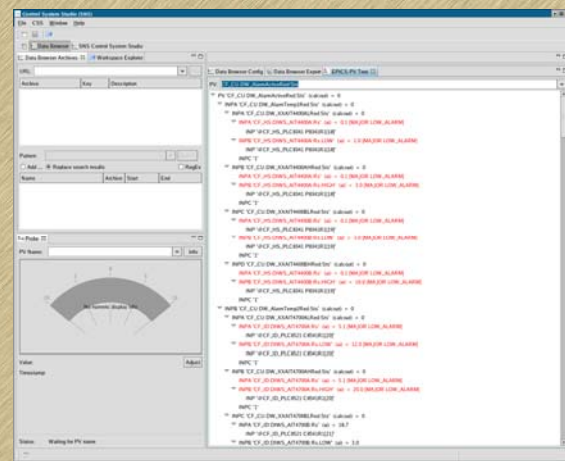
Excerpts from Hg Loop Alarm Configuration File

Two excerpts from alarm handler configuration files are shown below to illustrate ways to take action when an alarm condition occurs: STATCOMMAND takes action automatically; COMMAND is used when the operator wants to initiate action using a selection from a menu. FORCEPV initiates actions automatically based on the value of a PV with respect to a pre-set limit.

Example using the command ALARMCOUNTFILTER

Example of EPICS PV Tree Display of Alarm Summaries

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