



Alarm Management Panel Documentation & Rationalization Presentation

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PHMSA: CRM Ruling

Alarm Management Highlights



- Develop written Alarm Management Plan
 - Monthly reviews of points taken off scan or forced/manual values
- Verify correct alarm set-points
- Eliminate erroneous alarms
- Annual review of AM
- Monthly reviews of Inhibited Alarms/False Alarms
- Monitor activity content & volume being sent to controllers at least annually.

Alarm Philosophy Document



- Alarm Philosophy Introduction
- Purpose and Use of AP
- Alarm Definition and Criteria
- Alarm System Performance
- Alarm Annunciation and Response
- Alarm Handling Methods
- Alarm Documentation and Rationalization
- Specific Alarm Design Considerations
- Management of Change
- Training

Rationalization Method



Results	Details	Source			
(1 to 1 of 1)			1		
Tag::Description	KBT Description	Count	Percent	Accum	
COW1STA-PT-0003INS::COW1 PU 0001 DISCHARGE PRESSURE	COW1 PU 0001 DISCHARGE PRESSURE	632	100.000	100.000	

Alarm Activity by Tag and Description
Analysis results are from 1 week of activity

Identify 'Bad Actors' by analyzing alarm and event activity data.

Rationalize 'Bad Actors' first.

COW1STA-PT-0003INS::COW1 PU 0001 DISCHARGE PRESSURE



COW1STA-PT-0003INS:: COW1 PU 0001 DISCHARGE PRESSURE HIGH-HIGH alarm

Tag	Tag Description	Alarm Type ▲	Priority	Alarm Limit	Inhibit	Severity: Personnel	Public/Enviro	Cost/Production	Time Available	Int. Method
COW1STA-PT-0003INS	COW1 PU 0001 DISCHARGE PRESSURE	DEVIATION	medium	0.00	True				0	
COW1STA-PT-0003INS	COW1 PU 0001 DISCHARGE PRESSURE	HIGH	medium	1305.00	False				0	
COW1STA-PT-0003INS	COW1 PU 0001 DISCHARGE PRESSURE	HIGH-HIGH	high	1310.00	False	Severe injuries/Impact to public	Likely to exceed limits	>\$100K VP or higher notification	0	Default

Selected HIGH-HIGH alarm for rationalization



Priority Verification

Tag ID: COW1STA-PT-0003INS Alarm Type: HIGH-HIGH Tag Description: COW1 PU 0001 DISCHAF Alarm Text: high-high

Priority: high Alarm Limit: 1310 Inhibit Do Not Link Completed

Alarm Deadband: 1 Last Value: Flatline timeout (minutes): Previous Value: Current ROC:

Severity:

Personnel: Severe injuries/Impact to public Public/Enviro: Likely to exceed limits

Cost/Production: >\$100K VP or higher notification

Determine Correct Prioritization

Select Severities

Personnel

Cost/Production

Public/Environmental

Severity Categories and levels are defined in Alarm Philosophy Document

Rationale



Time Available: 0 **Pri. Method:** Default

Cause:
...
Unintended valve closure, Unit Malfunction, Drop Check Valve, Faulty Transmitter, Stuck Pig, Line Pack, Improper Alignment,

Confirmation:
...
Call Technician/Operator, Call On-Call SCADA Personnel, Verify Alignment With Current Station Screens,
*** 03/31/2010 10:53:35 Admin***

Consequence:
...
Seal Failure, Line Rupture, Relief Valve Activation, Unintended Pump Shutdown, Environmental Impact, Evacuation of Personnel, Possible Loss of Life and Injury to a Person.
*** 03/31/2010 11:06:16 Admin***

Corrective Action:
...
Adjust Setpoints, Shutdown Pump, Unpack the Line, Open Correct Valve and Ensure Proper Alignment, Technician Intervention
*** 03/31/2010 12:35:53 Admin***

Enter added information to support the rationale behind the prioritization.

- Information can be used:
- Incident investigation
 - Audit preparation
 - Controller assistance

Set Point Verification



Last Imported: 3/25/2010 9:35:00 AM

Signal Type: Discharge Psi Time To Manage: Easy

Trouble Point EU: Override ROC Percent:

Override ROC EU: Override TTM:

Calculated Alarm Limit:

Proper Set Point Calculation

Select Signal Type

Select Time To Manage

Enter in Trouble Pont EU

When an alarm activates Controllers must be able to:

See the Alarm

Understand the Alarm

Decide what needs to be done

Take **Action**

Pitfalls To Avoid



Becoming overwhelmed with the volume of tags you have to rationalize
It is a continuous process incorporate it into your regular routine

Rationalize alarms that can change frequently

Making special case rules during your rationalization without documenting the
circumstances in your Alarm Philosophy

Leaving a tag partially rationalized when your Alarm Philosophy dictates the
entire tag needs rationalized

Conclusion



Write an Alarm Philosophy Document

Adopt a Rationalization Method

- (Low Hanging Fruit)

- (One Console At A Time)

- (Safety Related)

Determine Which Alarms to Rationalize

- Take advantage of “like” alarms to save time

- Copy rationalized information to other alarms