

CRM Inspection Lessons Learned

Les Reschny
API Cybernetics Conference
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Enbridge Control Centers

The Audit

- Preparation
- Format

Experience

- What Worked Well
- Ideas for Improvement

Control Centers



- Edmonton
- Estevan
- Cushing
- Houston
- Enbridge Gas Distribution



Preparation

- Have a response to all Inspection Questions
- Document your position on any unclear questions
- Decide who is going to be presenting each section

Enbridge Pipeline Inc.
Control Room Management Audit
Prepared for December 12th – 17th

Alarm Management
195.446(e) Alarm management. Each operator using a SCADA system must have a written alarm management plan to provide for effective controller response to alarms. An operator's plan must include provisions to:

(1) Review SCADA safety-related alarm operations using a process that ensures alarms are accurate and support safe pipeline operations

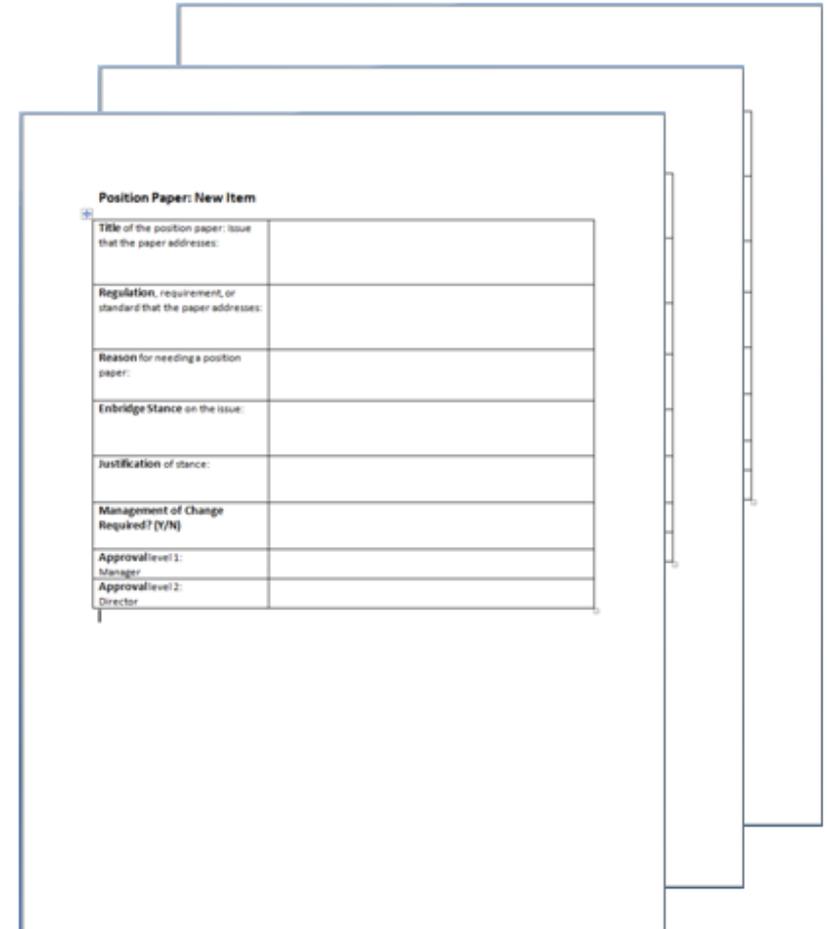
Alarm management policies and procedures	Alarm Management Plan , Alarm Philosophy , Disabling of Points Procedure , Monthly Disabled Points Review Procedure
Records associated with alarm management reviews, and actions taken	LiveLink Evidence Area  E1-1.jpg

E0-1: Has the operator established and implemented a written alarm management plan that is adequate to provide for effective controller response to alarms?

CRM Plan Reference	CRM Plan (pg 22)  E0-1.jpg
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Preparation

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Position Paper: New Item	
Title of the position paper: Issue that the paper addresses:	
Regulation, requirement, or standard that the paper addresses:	
Reason for needing a position paper:	
Enbridge Stance on the issue:	
Justification of stance:	
Management of Change Required? (Y/N)	
Approval level 1: Manager	
Approval level 2: Director	

Preparation

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Format

- Auditors
 - 4 PHMSA Inspectors (3 in training)
 - 1 Minnesota Office of Pipeline Safety
 - NEB (dial-in)
- Presenters
 - Enbridge Edmonton Control Center Staff
 - Enbridge SCADA Staff
- Enbridge Minute Taker
- Enbridge Compliance
- Other Enbridge Control Centers
 - Enbridge Transportation South
 - Enbridge Estevan Control Center Staff
 - Enbridge Cushing Control Center Staff



- Adequate Information
 - API 1165
 - Point-to-Point
 - Backup Control Center Testing



December 12-15, 2011

Monday

Control Center Tour

Tuesday

Sections A,B
•General
•Roles & Responsibilities

Wednesday

Sections C
•Adequate Info

Thursday

Section C,D
•Adequate Info
•Fatigue

SCADA Topics

- Alarm Management
- Change Management



January 9-12, 2012

Monday	Tuesday	Wednesday	Thursday
Section E •Alarm Management	Section E •Alarm Management	Sections F,G •Change Management •Operating Experience	Section H,I,J •Training •Validation •Deviation
	•Controller Interviews		Draft Exit Interview

Experience – What Worked Well

- Opportunity to have experienced people review your plan. Take advantage of it.
- Having 2 people presenting
 - Compliance Coordinator
 - SCADA Expert
- Impressed with our knowledge of how our SCADA system worked
- Having a planned response for each question



Experience – What Worked Well

- We asked for constructive feedback and clarification on inspection questions. Why were certain inspection questions added?
- Daily debrief of audit was beneficial



Experience – Ideas for Improvement

- Document Management and Version Control
- Getting documentation to PHMSA in advance
- Create definitions for all non-standard terminology
- Our plan wasn't fully implemented at the time of the audit
- Information Requests (IR's) – Not always clear in discussions which requests were formal. Handled all requests as formal.
- Didn't have staff available after hours to handle IR's
- Consider involving Controllers in more than just the obvious sections



Questions

