

# Natural Gas Pipeline Company of America LLC

January 2, 2015

Mr. R. M. Seeley  
Director, Southwest Region  
U.S. Department of Transportation  
Pipeline and Hazardous Materials Safety Administration  
8701 South Gessner, Suite 1110  
Houston, TX 77074



RE: Response to CPF 4-2014-1010M – Notice of Amendment (NOA) to the Natural Gas Pipeline Company of America LLC Control Room Management Plan

Dear Mr. Seeley:

On June 24-26, 2014, representatives of the Pipeline and Hazardous Materials Safety Administration (PHMSA) pursuant to Chapter 601 of 49 United States Code inspected the Natural Gas Pipeline Company of America LLC (NGPL) procedures and records for Control Room Management in Houston, Texas. The inspection included visits to the primary and backup control rooms. On the basis of the inspection, PHMSA identified an apparent inadequacy within NGPL's plans or procedures as described below and as referenced in the above noted Notice of Amendment (NOA), CPF 4-2014-1010M.

For purposes of clarity, NGPL is repeating the apparent inadequacy noted by your office with NGPL's response immediately following in bold font.

1. §192.631 Control room management
  - (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:
    - (6) Address deficiencies identified through the implementation of paragraphs (e)(1) through (e)(5) of this section.

The Kinder Morgan Alarm Management Plan lacks processes to address, correct and document alarm deficiencies identified during audits or reviews.

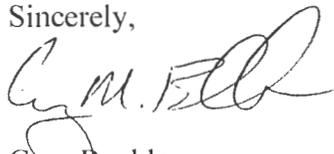
PHMSA reviewed the Kinder Morgan O&M Procedure 1100 Control Room Management, section 3.5 Alarm Management Plan; and the Alarm Management Plan for Control Room Operations. PHMSA identified deficiencies in both documents. The plan and procedures fail to list the form used to document deficiencies. There are no time-limits set for remediating alarm deficiencies. The plan and procedures lack processes for safe pipeline operations where remediation time-limits for alarm deficiencies are exceeded.

**NGPL Response:**

In response to the above inadequacy identified in NOA CPF 4-2014-1010M, the NGPL Alarm Management Plan was revised with the addition of a new procedure during the course of the inspection. This new procedure, *HOU-GC-17 Gas Control Alarm Management Deficiencies*, identifies the timing and documentation for addressing the remediation of alarm deficiencies. Reference to procedure HOU-GC-17 was also added to *Kinder Morgan Alarm Management Plan for Control Room Operations, Section VI. Alarm Audits*. Both document revisions were reviewed and found acceptable in addressing the noted inadequacy by the inspectors during the inspection. *Kinder Morgan O&M Procedure 1100 - Control Room Management, Section 3.5 Alarm Management Plan* noted in the NOA already incorporates the Alarm Management Plan and therefore required no revision and is not included with this response. Copies of both HOU-GC-17 and the revised portion of the Kinder Morgan Alarm Management Plan have been attached for your reference.

With the procedure revisions noted, NGPL believes that the inadequacy referenced in the NOA has been satisfactorily addressed. Upon completion of your review of the attached documents, NGPL is requesting notification of the closure of this NOA. Please contact Reji George at 713-420-5433 or me at 713-369-8463 should you wish to discuss the information provided above.

Sincerely,



Gary Buchler  
Vice President, Operations and Engineering  
Kinder Morgan Natural Gas Division

Attachments:

Kinder Morgan Alarm Management Plan For Control Room Operations  
**HOU-GC-17 Gas Control Alarm Management Deficiencies**

Cc: Jorge Torres, Vice President, Engineering  
Danny Ivy, Vice President, Gas Control  
Mark Westhoff, Vice President, Pipeline Management  
Reji George, Director, Compliance / Codes and Standards



## Alarm Management Plan For Control Room Operations

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### **Introduction**

The intent of the Kinder Morgan Gas Control alarm management plan is to address and implement the requirements of the final PHMSA § 192.631 - Control Room Management rule. This plan addresses alarm management practices adopted to provide Gas Controllers with sufficient time to recognize and to react to an alarm notification.

# Alarm Management Plan

## For Gas Control Room Operations

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### **I. Alarm Philosophy**

An Alarm Philosophy defines the company's intent and use of the alarm system. The objectives of the Alarm Philosophy are to:

- Ensure the alarm system provides relevant information to the controller at the right time, thus allowing the controller to take the proper corrective action.
- Act as a design guideline when implementing new systems or modifying existing ones.
- Address documentation and management of change processes.
- Address alarm handling methods.
- Present metrics for alarm system performance.

# Alarm Management Plan

## For Gas Control Room Operations

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### **III. Alarm Rationalization**

Rationalization of alarms is the process of determining the alarm configuration (priority and settings) required for individual parameters in the SCADA system. SCADA devices have been grouped into categories based on similar purpose or function and subjected to rationalization. Alarm descriptions will be reviewed for message clarity and changed if needed.

Alarm rationalization documentation is required to insure correct and accurate alarm settings, to avoid alarm “creep” or excessive alarming, and to insure consistent controller response to safety-related alarms. Alarm rationalization documentation will identify alarm rationalization standards and criteria, alarm severity, safety-related alarms, and exceptions to the safety-related designation.

Exceptions to this standard configuration will be documented and reviewed periodically.

#### ***Alarm Rationalization by Function – see Appendix A***

Rationalization of alarms is the process of determining the alarm configuration (priority and settings) required for individual parameters in the SCADA system. SCADA devices have been grouped into categories based on similar purpose or function and subjected to rationalization.

The SCADA alarm design is developed, maintained and reviewed by Gas Control as an integral part of the Alarm Management Plan.

Alarm Rationalization by Function is detailed in Appendix A.

#### ***System Integrity Monitoring***

System integrity monitoring is an approach to SCADA alarm rationalization to adequately monitor pipeline pressures for MAOP/MOP protection and/or potential line break conditions. This utilizes pipeline segment endpoint pressure monitoring to represent observable pressures for the segment. Segment endpoints are typically defined by a line termination, in-line regulator or compressor station.

System Integrity Monitoring rationalization is detailed in Appendix B.

\*See O&M 1100 section 3.5.1.2. & 3.5.2

# Alarm Management Plan

## For Gas Control Room Operations

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### **V. Alarm Management of Change**

The objective of alarm management of change is to ensure alarm system changes are integrated, coordinated, approved and scheduled in an efficient and effective manner. In addition, management of change ensures that information about alarm system changes is communicated to the appropriate personnel.

Alarm management of change documentation is necessary to insure accuracy, review/approvals, and timely notification when changes are made to the alarm system. The management of change documentation will include procedures to change alarm settings, inhibit/disable alarms, put points in manual override, or take points off scan.

\*See O&M 1100 section 3.6 & 3.3.3

# Alarm Management Plan

## For Gas Control Room Operations

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### **VII. Alarm Metrics**

#### ***Controller Loading Metrics***

Monitoring the impact of alarms/alerts helps determine the maximum threshold for alarm activity in the context of all other Controller responsibilities and assures sufficient opportunity to analyze and react to incoming alarms. EEMUA 191 recommends the following general performance targets:

#### **EEMUA 191 - Derived Alarm Performance Metrics**

KPI (Key Performance Indicator)	Target
Manageable Steady State	1 per 10 minute
Flood State	10 in 10 minutes
Average Alarm Rate	5 per hr (120 per day)
% of Time Alarms Exceed Target Average Rate	0%
Peak Alarm Hourly Rate	15 per hour
Peak Alarm Minute Rate	2 per minute
Alarm Activity Priority Distribution	P1 ~ 5%
	P2 ~15%
	P3 ~80%
Alarms Within 10 Minutes of a Major Event	10 or less
Chattering Alarms	0
Stale Alarms (> than one day old)	0

\*See O&M 1100 section 3.5.3

## Gas Control Alarm Management Deficiencies

In the event a deficiency has been identified in the Alarm Management Plan, in alarm rationalization, in monthly alarm reviews or in a reported observation, the Houston Gas Control Office will follow this policy.

1. Should deficiencies exist, the affected Gas Control Manager will prioritize and address deficiencies commensurate with their importance to safety and notify the Vice-President of Gas Control and his designee for managing Alarm Management deficiencies.
2. The Vice-President of Gas Control's designee for managing Alarm Management deficiencies will maintain an itemized list of deficiencies including their date of discovery, the corrective action to be taken, and the completion date for corrective actions on the Houston Gas Control Portal.
3. The Vice-President of Gas Control's designee for managing Alarm Management deficiencies will follow the Alarm Management Deficiencies Corrective Action process in coordination with the affected Gas Control Manager for each deficiency identified under this policy.
4. The Alarm Management Deficiencies Corrective Action process will include:
  - A complete description of the deficiency
  - The date of discovery
  - The corrective action to be taken and the basis for the selection of the corrective action
  - The completion date for corrective actions and the basis for selection of the completion date
  - Identification of the root cause, common cause, trends, etc., that are indicative of systematic deficiencies that need to be identified and corrected
5. The Alarm Management Deficiencies Corrective Action process will be timely initiated, followed and submitted for approval to the Vice-President of Gas Control or his designee.
6. The Alarm Management deficiencies List will be modified to reflect the date of the Corrective Action.
7. The Alarm Management Deficiencies Corrective Action process documentation will be preserved electronically in the Mailbox – HOU GC Alarm MGT Review.